



Mitigation Plan for Four New Jersey Counties
Cumberland County Appendices

Appendix CuC.3
Commercial Township, New Jersey

April 15, 2016

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Part 1: Overview

Part 1.1: Mitigation Plan for Four New Jersey Counties

The Mitigation Plan for Four New Jersey Counties (NJ4 HMP) incorporates input from approximately ninety (90) participating municipalities in Camden, Cumberland, Gloucester, and Salem Counties. The NJ4 HMP is an update and expansion of the South Delaware Valley Region Multi-jurisdictional Hazard Mitigation Plans that were adopted by all four counties and approved by the Federal Emergency Management Agency in 2010 and 2011.

The NJ4 HMP has two main parts:

- Regional Hazard Mitigation Plan
- County and Municipal Appendices

The Regional Hazard Mitigation Plan includes descriptions and information that is common to all participating NJ4 HMP jurisdictions organized according to the following three main focus areas:

- Planning Process
- Hazard Identification and Risk Assessment
- Mitigation Measures

The Regional Hazard Mitigation Plan also includes Annexes that contain detailed background information for these three focus areas and additional reference materials for the implementation of the NJ4 HMP.

The County and Municipal Appendices include specific information for these same three main focus areas for each of the participating municipalities. Detailed tabulations are included in these Appendices for critical facilities, status of past mitigation activities, and proposed mitigation measures for each municipality.

Part 1.2: Commercial Township (Cumberland County) Municipal Appendix

This Municipal Appendix is focused on Commercial Township in Cumberland County, New Jersey.

The Commercial Township Municipal Working Group recommended the Commercial Township (Cumberland County) Municipal Appendix for adoption to the Commercial Township Committee.

The Commercial Township Committee adopted the Municipal Appendix by resolution (see Attachment B: Adoption Resolution).

Region II of the Federal Emergency Management Agency subsequently approved the Municipal Appendix (see Attachment C: Approval Letter).

Part 2: Participation

Part 2.1: Municipal Working Group Participation

Part 2.1 includes:

- *Municipal Working Group members including positions in the community, meetings and work sessions attended, and specific contributions to the Municipal Appendix*
- *Municipal positions and organizations that were invited but were not able to participate in the plan update process*
- *Municipal positions and organizations that have been recommended by the Federal Emergency Management Agency (FEMA) as candidates for participation on Municipal Working Groups but do not exist in the municipality*

Table CuC.3-1 identifies the Municipal Working Group members. As explained in *Section 2: Planning Process* of the Mitigation Plan for Four New Jersey Counties (NJ4 HMP) Regional Hazard Mitigation Plan, the Municipal Working Groups are comprised of community representatives who worked to make sure mitigation measures included in the Municipal Appendix addressed the risks faced by residents, businesses, and property owners and reflected the priorities of the community. The Working Group will also continue to stay involved during the implementation and maintenance of the NJ4 HMP.

Table CuC.3-1: Commercial Township (Cumberland County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Contribution ³
Frederick	Hundt	Commercial Township Office of Emergency Management	OEM Coordinator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Michael	Rodgers Sr.	Commercial Township OEM	Deputy Coordinator		<input checked="" type="checkbox"/>	
Joe	Server	Cumberland County Office of Emergency Management	OEM Coordinator	<input checked="" type="checkbox"/>		
David	Dean	Construction Official	Floodplain Administrator			Floodplain Administrator reviewed plan on March 12, 2015.
Judson	Moore	Commercial Township Executive Committee	Mayor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Ronald	Sutton	Commercial Township Executive Committee	Committeeman	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Dean	Berry	Commercial Township Land Use Board / Mayor Employers and Businesses	Board Member / Private Business Owner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

¹ Round 1 Work Session was held on September 8, 2014.

² Round 2 Work Session was held on October 6, 2014.

³ Municipal Working Group members reviewed briefing materials in advance of Work Sessions, contributed during Work Sessions, and reviewed the preliminary Mitigation Plan for Four New Jersey Counties. Additional or unusual contributions are noted in the far right hand column of Table CuC.3-1.

Part 2: Participation

First Name	Last Name	Department	Position	Round 1 Work Session¹	Round 2 Work Session²	Contribution³
Edward	Dennis	Commercial Township Engineering	Township Engineering	<input checked="" type="checkbox"/>		
Clint	Miller	Commercial Township Public Works	Public Works Supervisor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Shawn	Ronan	Commercial Township Public Works / Laurel Lake Volunteer Fire Rescue Company	Public Works Staff / Fire Chief	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Donald	Hundt	Mauricetown Fire Company	Fire Chief	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
James	Crunetti	Commercial Township OEM / Laurel Lake Volunteer Fire & Rescue / Board of Fire Commissioners	Deputy Coordinator / Firefighter / Board Member		<input checked="" type="checkbox"/>	
Maryann	Shepperd	Mauricetown / Haleyville Church	Disaster Relief		<input checked="" type="checkbox"/>	
Megan	Wren	Bayshore Center / Bayshore Recovery Plan	Chair / Executive Director		<input checked="" type="checkbox"/>	
Barney	Hollinger	Marina	Marina Owner / Commercial Fishery	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
James	D'Ambrosio Jr.	U.S. Silica Co. / Laurel Lake Volunteer Fire and Rescue / Commercial Township Environmental Commission / Board of Fire Commissioners	U.S. Silica Co. Environmental Health & Safety / Administrator / Board Member / Board Member		<input checked="" type="checkbox"/>	
John	Hoffman	Hoffman Funeral Homes / Port Norris Fire Company	Owner / Firefighter		<input checked="" type="checkbox"/>	

Part 2: Participation

The following lists candidate positions and organizations within the community that were extended invitations but could not participate during the development of the Municipal Appendix. These positions and organizations will continue to be extended invitations to participate during subsequent plan implementation and maintenance activities.⁴

- Critical Infrastructure and Key Resources

The following lists positions and organizations that are generally recommended for consideration as members of the Municipal Working Groups by FEMA but do not currently exist within the community. An invitation to participate will be extended if positions are created or filled and as organizations are formed.

- GIS / IT Specialist
- Transportation Department Directors / Supervisors
- Police
- Healthcare Institutions

⁴ See *Section 4: Mitigation Measures* of the NJ4 HMP Regional Hazard Mitigation Plan.

Part 2: Participation

Part 2.2: Public Participation

Part 2.2 includes opportunities provided to the public and interested parties in the municipality to participate during the plan update process.

Table CUC.3-2 identifies the date, type, and location (where applicable) for opportunities provided to the public and interested parties to participate in the development of the plan update.

Table CuC.3-2: Public Participation

Date	Type of Involvement	Location
October 14, 2014	Link to Project Website (http://nj4hmp.com) established	Township of Commercial ⁵
December 11, 2014	Preliminary Municipal Appendix posted to website for public comment	Township of Commercial ⁵
December 11, 2014	Public hearing included on Commercial Township Committee agenda providing for open discussion, and public comment regarding the Preliminary Municipal Appendix	Commercial Township Municipal Building

Public comments and input received for the Preliminary Municipal Appendix were considered by the Municipal Working Group and incorporated into the Draft Municipal Appendix where appropriate. Public comments received during the review of the Preliminary Municipal Appendix were included in Attachment A to the Municipal Appendix along with a brief explanation of how the comments were addressed in the Draft Municipal Appendix.

In addition, the Municipal Appendix was adopted as part of a regularly scheduled public meeting (see Attachment B: Adoption Resolution).

Public education and outreach is an on-going mitigation measure included in the Municipal Appendix.⁶ In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities.⁷

⁵ <http://www.commercialtp.com/>

⁶ See Mitigation Measure M-1 in Part 4 of the Municipal Appendix.

⁷ See *Section 4: Mitigation Measures* of the NJ4 HMP Regional Hazard Mitigation Plan.

Part 3: Hazard Identification and Risk Assessment

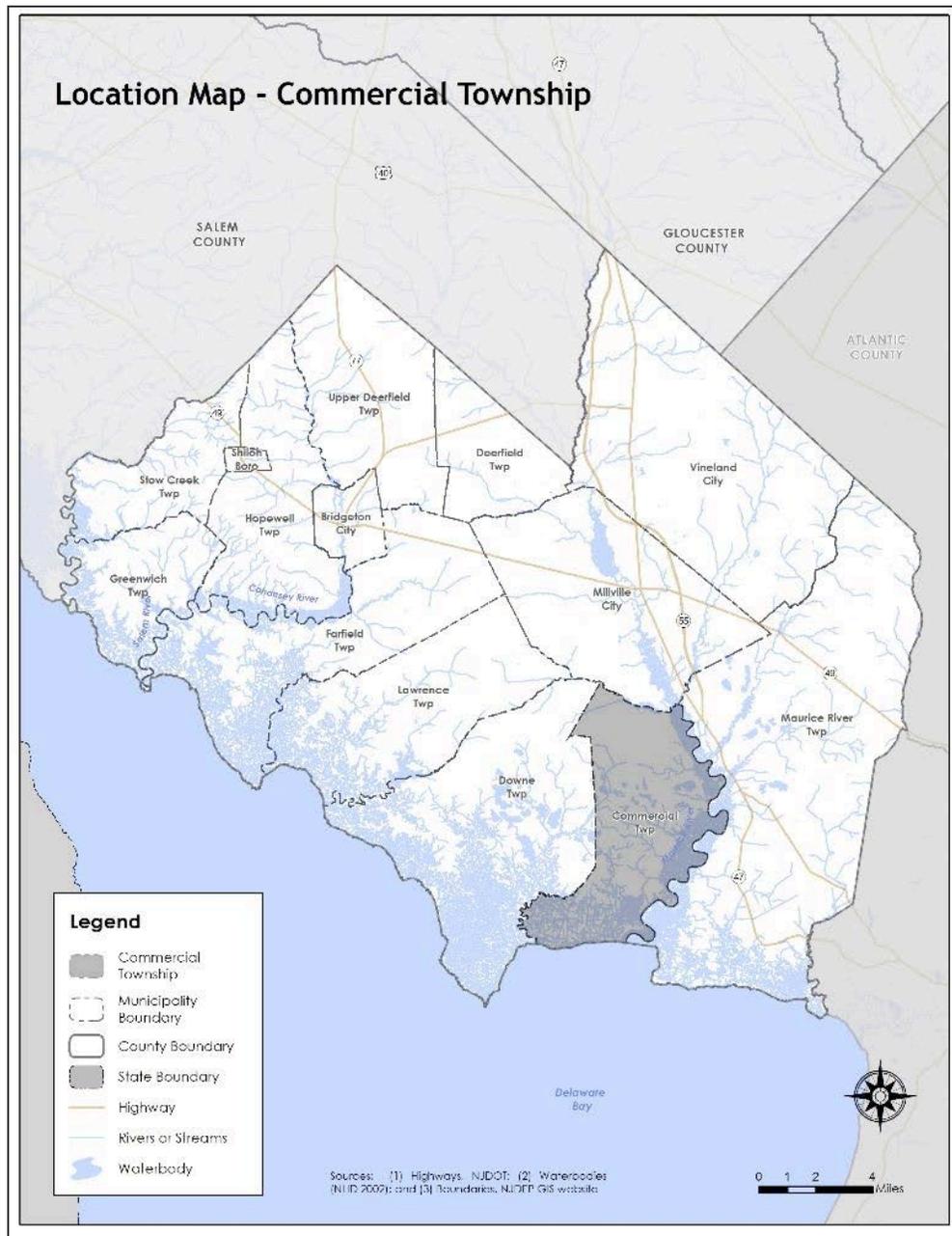
Part 3.1: Municipal Profile

Part 3.1 includes:

- Selected data and information about the municipality that is generally relevant for emergency management planning and specifically for hazard mitigation
- A brief character sketch for the municipality that is only intended to portray a few of the most basic elements

Commercial Township is located in the southern edge of Cumberland County (See Figure CuC.3-1).

Figure CuC.3-1: Commercial Township (Cumberland County) Location Map

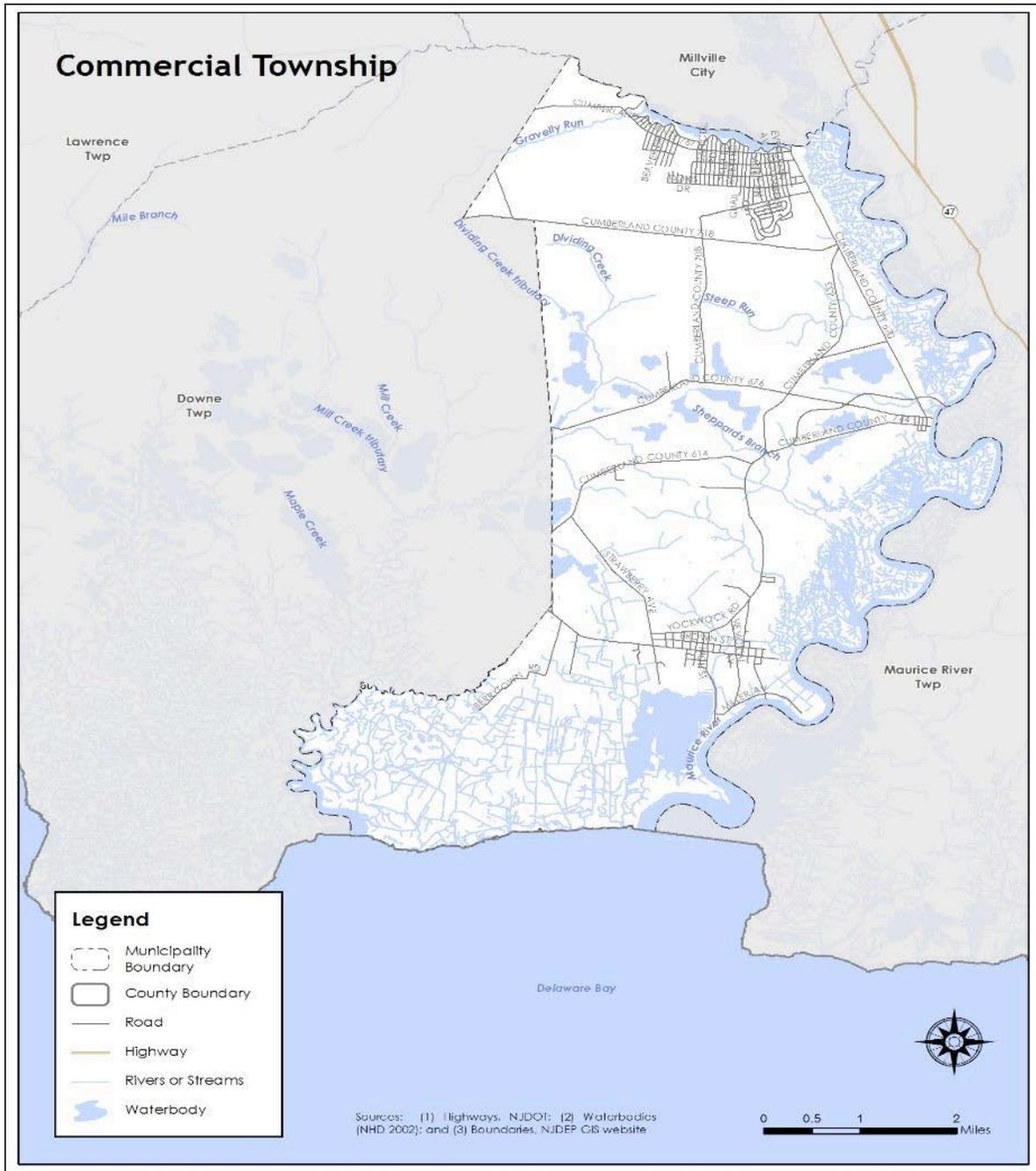


Part 3: Hazard Identification and Risk Assessment

Commercial Township is a rural residential and summer retreat community with an oyster packing and light industry. Unincorporated communities in the municipality include Baileytown, Bivalve, Buckshutem, Haleyville, Laurel Lake, Mauricetown, Port Norris, and Shell Pile.

Per Figure CuC.3-2, major water bodies include the Delaware Bay and Maurice River, which together form the southern and eastern borders of the municipality respectively. Major transportation routes include Cumberland County 553 (Main Street), 649 (North Avenue), 670 (East Buckshutem Road), and 718 (Ackley Road). The land is predominantly flat and a high percentage of existing land cover consists of forests and marshes.

Figure CuC.3-2: Commercial Township Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table CuC.3-3 is a compilation of demographic information for the municipality and comparison with the county, the four county region, and State of New Jersey.

Table CuC.3-3: Commercial Township Demographics
(Source: Census DP-1, 2010 ACS 5-Year Estimates, DP 3, 4)

	Commercial Township	Cumberland County	Region	New Jersey
2000 Population	5,259	146,438	974,328	8,414,350
2010 Population	5,178	156,898	1,024,926	8,791,894
Percent Change	-1.54%	7.14%	5.19%	4.49%
Population Density	161.2 / sq. mile	324.4 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	32.13 sq. miles	483.70 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population under 18 years	25.3	24	24.1	23.5
% of Population 18 – 64	63.0	63.4	62.7	63
% of Population 65 and older	11.7	12.6	13.2	13.5

Table CuC.3-4 illustrates how Commercial Township ranks in the county, the four county region, and New Jersey.

Table CuC.3-4: Commercial Township Demographic Rankings

	Cumberland County (total of 14)	Region (total of 90)	State (total of 565)
Population Rank	7	46	370
Land Area Rank	7	17	72
Population Density Rank	7	73	519
Population Change Rank	11	64	-

Table CuC.3-5 includes information related to economic and housing statistics for Commercial Township, Cumberland County, the four county region, and New Jersey.

Table CuC.3-5: Commercial Township Economics and Housing
(Source: USDA ERS, Census DP-1, 2010 ACS 5-Year Estimates, DP 3, 4; NJ LWD 2010)

	Commercial Township	Cumberland County	Region	New Jersey
Date Incorporated	February 27, 1874	1748	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$45,323	\$50,651	\$60,933	\$69,811
Total Number of Housing Units	2,155	55,834	397,990	3,529,033
Occupied Housing Units	1,873	51,931	372,472	3,176,069
Vacant Housing Units	282	3,903	25,518	352,964
Owner Occupied Housing Units	1,428	34,622	266,593	2,126,279
Renter Occupied Housing Units	445	17,309	105,879	1,049,790

Part 3: Hazard Identification and Risk Assessment

	Commercial Township	Cumberland County	Region	New Jersey
Building Permits	10	246	1,554	13,535
Largest Industry	Agriculture, Forestry, Fishing and Hunting; Manufacturing	Educational services, and health care and social assistance	Educational services, and health care and social assistance	Educational services, and health care and social assistance

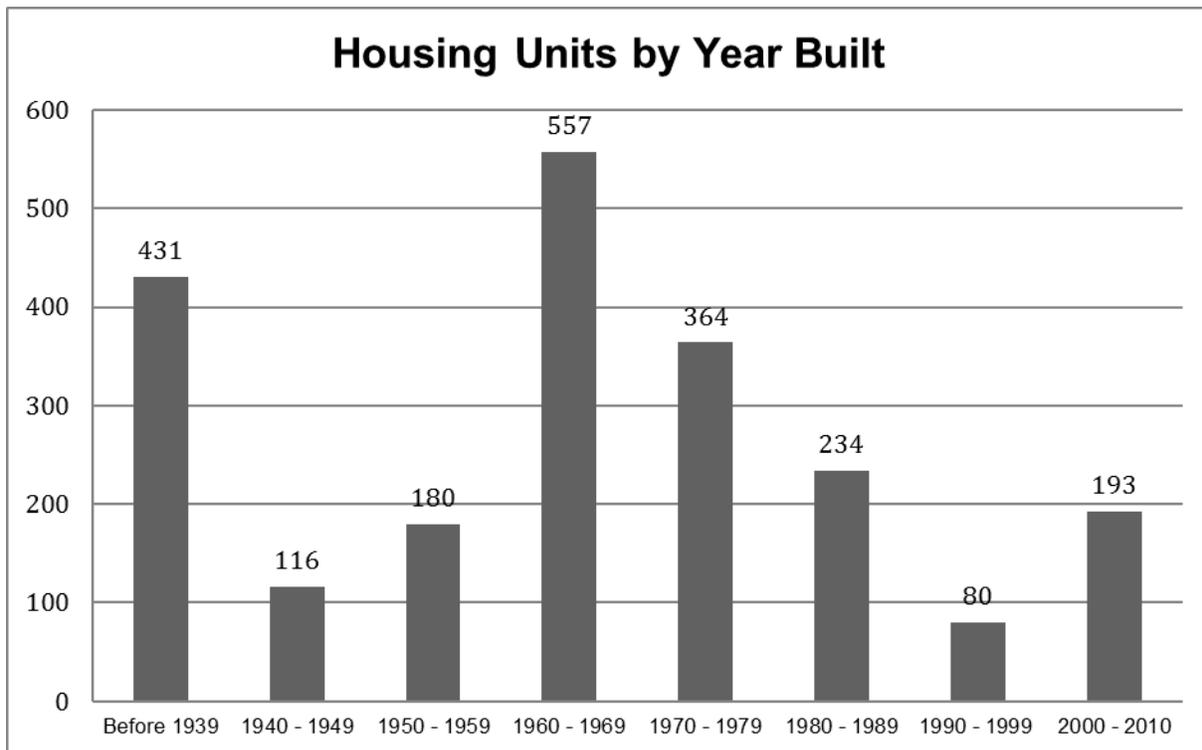
Table CuC.3-6 illustrates how Commercial Township ranks in the county and the four county region.

Table CuC.3-6: Commercial Township Ranking (Economics and Housing)

	Cumberland County (total of 14)	Region (Total of 90)
Median Household Income Rank	12	79
Vacant Housing Rank	5	22
Renter Occupied Housing Rank	5	48
Building Permits Rank	7	32

Figure CuC.3-3 illustrates development patterns in Commercial Township by examining housing units by year built.

Figure CuC.3-3: Commercial Township Housing Units by Year Built
(Source: 2010 ACS 5-Year Estimates, DP 4)



Part 3: Hazard Identification and Risk Assessment

Part 3.2: Hazard Priorities

Part 3.2 includes hazard priority determinations per the Municipal Working Group.

As a key step in the Hazard Identification and Risk Assessment (HIRA) process, the twelve (12) natural hazards identified in the NJ4 HMP¹ were discussed during the Municipal Working Group Work Sessions and the relative priority of these hazards was identified. The Municipal Working Group rated the hazards as follows:

High Priority

- Flood
- Levee Failure
- Wildfire

Moderate Priority

- Coastal Erosion & Sea Level Rise
- Dam Failure
- High Wind

Low Priority

- Drought
- Earthquake
- Extreme Temperature: Hot & Cold
- Severe Weather – Summer
- Severe Weather – Winter

One additional hazard was identified but was not considered applicable to the municipality:

- Geologic Hazards

¹ See *Section 3: Hazard Identification and Risk Assessment*.

Part 3: Hazard Identification and Risk Assessment

Part 3.3: Hazard Mapping

Part 3.3 includes cross references to hazard inventory and risk assessment mapping included in the NJ4 HMP Regional Hazard Mitigation Plan.

Table CuC.3-7 provides information regarding hazard inventory mapping included in *Annex D: Hazard Profiles and Risk Assessments* of the NJ4 HMP that support the Hazard Identification and Risk Assessment (HIRA) for the Municipal Appendix. The indicated maps and exhibits correspond to the hazards identified by the Municipal Working Group in Part 3.2. The information represented by these maps will be used in the Critical Facilities Hazard Exposure Assessment described in Part 3.4.

Table CuC.3-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
Figure RP.D-3	Coastal Erosion and Sea Level Rise	FEMA Increased Inundation Areas Coastal Water Level Increases of 1, 2, and 3 Feet	Identify areas where increased inundation due to sea level rise may occur
Figure RP.D-11	Dam Failure	Dam Locations and Hazard Classification	Identify areas in proximity to rated dams
Figure RP.D-52	Flood	FEMA Flood Hazard Zones Preliminary FIRM (PFIRM)	Identify areas subject to periodic flooding (work-in-progress for revisions to effective FIRM)
Figure RP.D-54	Flood (Storm Surge)	Coastal Flood Loss Atlas – SLOSH Model Maximum of Maximum	Identify areas where inundation due to storm surge may occur
Table RP.D-81	Levee Failure	Levee Inventory	Provide information about levee configuration
Figure RP.D-85	Levee Failure	Levee Locations	Identify locations of levees in and around the municipality
Figure RP.D-99	Wildfire	Wildfire Fuel Hazard Risk	Identify areas subject to wildfire
Figure RP.D-106	Wildfire	Wildland Urban Interface (WUI)	Identify areas subject to wildfire

The following hazards are not referenced as these hazards occur uniformly across the municipality and have the same potential impact on all properties and assets:

- Drought
- Earthquake
- Extreme Temperatures – Cold and Hot
- High Wind
- Severe Weather – Summer
- Severe Weather – Winter

Part 3: Hazard Identification and Risk Assessment

Part 3.4: Critical Facilities Inventory and Hazard Exposure Assessment

Part 3.4 includes:

- *Inventory information for municipal critical facilities*
- *Hazard exposure analysis results for municipal critical facilities*

Consistent with the process described in Section 3 of the NJ4 HMP Regional Hazard Mitigation Plan, Table CuC.3-8 contains updated inventory information for municipal critical facilities including cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix.

Note: Shaded cells (if any) will be completed as part of follow-up efforts to be conducted as part of Mitigation Measure M-2 (see Part 4 of the Municipal Appendix).

Table CuC.3-9 provides the means to record results of overlaying critical facility locations with hazard mapping identified in Part 3.3. The results will indicate critical facilities that are potentially exposed to specific hazards.

Note: This information will be used in critical site and facility assessments to be conducted as part of Mitigation Measure M-2 (see Part 4 of the Municipal Appendix).

Hazards that apply to all critical facilities in the NJ4 region and will automatically be included in the proposed critical site and facility assessment process include:

- Earthquake
- High Wind
- Severe Weather – Summer
- Severe Weather – Winter

Hazards that do not relate to the proposed critical site and facility assessment process include:

- Drought
- Extreme Temperatures – Cold and Hot

As a result, these six (6) hazards are not included in the critical facility exposure assessment in Section 3 of the NJ4 HMP Regional Hazard Mitigation Plan.

Part 3: Hazard Identification and Risk Assessment

Table CuC.3-8: Commercial Township (Cumberland County) Critical Facilities Inventory

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-1	Township Hall	Municipal	Administrative Offices	1768 Main Street, Port Norris		N	Y		M-11
CF-2	Emergency Operations Center	EOC	Co-located Facilities	9544 Noble Street, Mauricetown		N	Y		
CF-3	Mauricetown Fire Company	FireStation	Stations	9544 Noble Street, Mauricetown		N	Y		
CF-4	Laurel Lakes Volunteer Fire and Rescue Inc.	FireStation/EMS	Stations	5436 Battle Lane, Millville		Y	Y	Red Cross designated shelter	
CF-5	Port Norris Fire Company	FireStation/EMS	Stations	6858 Brown Street, Port Norris		N	Y		
CF-6	Public Works	Public Works	Combined Administrative Office, Maintenance / Work Area, Equipment / Material Storage, and Fueling Station	1768 Main Street, Port Norris		N	Y		
CF-7	Port Norris Elementary School	Schools	Public Schools	6812 Brown Street / P.O. Box 670, Port Norris		N	N		M-5 / M-12
CF-8	Haleyville-Mauricetown Elementary School	Schools	Public Schools	1308 North Avenue / P.O. Box 650, Port Norris		Y	N		M-6 / M-13
CF-9	Louise E. Moore Senior Center	Vulnerable Populations Facilities	Senior Centers	8879 Highland Street, Haleyville		Y ²	Y		
CF-10	Bayshore Center at Bivalve	Emergency Staging Areas	Evacuation	2800 High Street, Port Norris		Y ²	N		M-7
CF-11	Community Center	Other Municipal	Community Center	1061 Steep Run Road, Millville		Y ²	N		M-8

² Heating / cooling center.

Part 3: Hazard Identification and Risk Assessment

Table CuC.3-9: Commercial Township (Cumberland County) Critical Facilities Hazard Exposure

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure	Flood – FIRM Zone V	Flood – FIRM Zone A	Flood – FIRM Zone 0.2%	Storm Surge – Category 1	Storm Surge – Category 2	Storm Surge – Category 3	Storm Surge – Category 4	Levee Failure	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	Township Hall														
CF-2	Emergency Operations Center														
CF-3	Mauricetown Fire Company														
CF-4	Laurel Lakes Volunteer Fire and Rescue Inc.														
CF-5	Port Norris Fire Company														
CF-6	Public Works														
CF-7	Port Norris Elementary School														
CF-8	Haleyville-Mauricetown Elementary School														
CF-9	Louise E. Moore Senior Center														
CF-10	Bayshore Center at Bivalve														
CF-11	Community Center														

Part 4: Mitigation Measures

Part 4.1: Mitigation Goals and Strategy

Part 4.1 includes:

- *Goal statements reviewed and approved by the Municipal Working Group based on goals included in the Southern Delaware Valley Region (New Jersey) Multi-Jurisdictional Hazard Mitigation Plans (SDVR HMPs) approved by FEMA in 2010 and 2011 for Camden, Cumberland, Gloucester, and Salem Counties*
- *Overarching strategy for the municipality's mitigation program*

Goals were originally established by the Southern Delaware Valley Region Hazard Mitigation Steering Committee and validated by the four County Hazard Mitigation Working Groups in response to risk and capability assessment results.

As part of the plan update process, these goals were reviewed and edited by the Municipal Working Group for use in the Municipal Appendix. All mitigation measures in the Municipal Appendix are related to at least one of these four goal statements.

- **Goal 1: Improve education and outreach efforts** regarding potential risk of natural hazards and appropriate mitigation measures that can be used to reduce risk (including programs, activities, and projects)
- **Goal 2: Improve data collection, use, and sharing** to reduce the risk of natural hazards
- **Goal 3: Improve capabilities and coordination** at municipal, county, and state levels to plan and implement hazard mitigation measures
- **Goal 4: Plan and implement projects** to mitigate identified natural hazards, known problems, and areas of concern

Based on these goals, the results of the NJ4 HMP Regional Hazard Mitigation Plan HIRA, and experience of participants in the plan update process, the Municipal Working Group identified an overarching strategy for mitigation:

- Focus on projects to address known problems or areas of concern for critical facilities and vulnerable populations as additional initial risk reduction efforts
- Provide opportunities for residents and property owners to access available information about risk reduction and mitigation measures, in particular for Repetitive Flood Loss Properties
- Identify additional areas of concern for critical facilities and vulnerable populations for future plan updates
- Institutionalize hazard mitigation into municipal activities and programs through regular interactions of the Municipal Working Group and better integration of related regulatory programs and planning initiatives
- Stay informed regarding changing conditions and related improvements in hazard and risk data due to future natural hazard events and increasing understanding of the effects of climate change and use the information as part of periodic evaluations of and refinements or additions to the municipality's mitigation program

The mitigation measures described in Parts 4.3 through 4.5 of the Municipal Appendix reflect this strategy.

Part 4: Mitigation Measures

Part 4.2: SDVR HMP Mitigation Measures

Part 4.2 includes the status of mitigation measures identified for the municipality in the SDVR HMP.

Known problems and areas of concern were the basis for mitigation measures identified in the SDVR HMP. In cases where these problems and concerns still existed at the time of the plan update, the related SDVR HMP mitigation measures were candidates for inclusion in the Municipal Appendix.

Table CuC.3-10 identifies the status of mitigation measures included in the SDVR HMP. These entries were based on information provided by the Municipal Working Group. In some cases, the SDVR HMP mitigation measures were carried over as part of the Municipal Appendix as indicated in the “Comments” column and the far right-hand column of Table CuC.3-10.

Table CuC.3-10: Status of Commercial Township (Cumberland County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Commercial 1: Install a generator for backup power at Haleyville School (Township's largest shelter if backup power can be installed).	Work-in-progress	Issues were submitted for consideration as part of Cumberland County Superstorm Sandy allotment. Generator has not yet been received, therefore mitigation measure included in updated Municipal Appendix.	M-6
Commercial 2: Use USACE surge maps for community education and outreach.	Work-in-progress	Utilized maps in order to prepare community for Superstorm Sandy. Revised mitigation measure included in updated Municipal Appendix.	M-1
Commercial 3: Create safety zones around critical facilities in wildfire risk areas.	Work-in-progress	Mitigation measure requires continued maintenance. Support provided by NJ State Forestry Services. Revised mitigation measure included in updated Municipal Appendix.	M-15 / MJ-10
Commercial 4: Identify and map erosion hazard zones.	Work-in-progress	Revised mitigation measure included in updated Municipal Appendix.	M-1
Commercial 5: Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	Work-in-progress	Revised mitigation measure included in updated Municipal Appendix.	M-1
Commercial 6: Installation of storm sewer pile and inlets along Magnolia Drive, Iris Road, Cherry Road, Keron Drive, and Spring Garden Road.	Completed	Add-on mitigation project following the completion of SDVR HMP. Issue resolved through Hazard Mitigation Grant Program. Therefore, mitigation measure is not included in updated Municipal Appendix.	N/A
Commercial 7: Flood control project on Berry Avenue.	Completed	Add-on mitigation project following the completion of SDVR HMP. Issue resolved through FEMA funds. Therefore, mitigation measure is not included in updated Municipal Appendix.	N/A

Part 4: Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Commercial 8: Shoreline and flood protection of the New Jersey State Police Bivalve Station on Ogden Avenue.	Completed	Add-on mitigation project following the completion of SDVR HMP. Issue resolved through Hazard Mitigation Grant Program. Therefore, mitigation measure is not included in updated Municipal Appendix.	N/A

Table CuC.3-10 Notes:

- A. See Tables CuC.3-11 and CuC.3-12 for municipal (M-#) mitigation measures
- B. See Table CuC.3-13 for multi-jurisdictional (MJ-#) mitigation measures

Part 4.3: Municipal Mitigation Measures – Identification

Part 4.3 includes brief descriptions of mitigation measures that are considered the sole responsibility of the municipality.

Table CuC.3-11 includes the list of mitigation measures that are considered the responsibility of the municipality. These mitigation measures:

- Reflect the goals and strategy identified in Part 4.1
- Include projects carried over from SDVR HMPs as detailed in Part 4.2
- Include new projects, programs or activities identified by the Municipal Working Groups including measures to address known problems or areas of concern for critical facilities and vulnerable populations
- Address Repetitive Flood Loss (RL) and Severe Repetitive Flood Loss Properties (SRL)¹ if applicable

Table CuC.3-11 includes:

- Brief description of the mitigation action, program or project
- Hazard(s) addressed by the measure
- Relevant goal(s) addressed by the measure
- Whether the measure pertains to existing or new structures or both

Note: Mitigation measures with discrete locations are shown in Figure CuC.3-4.

¹ See Section 3: Hazard Identification and Risk Assessment and related portions of Annex D of the NJ4 HMP Regional Hazard Mitigation Plan for a description of RL and SRL properties.

Part 4: Mitigation Measures

Table CuC.3-11: Commercial Township (Cumberland County) Municipal Mitigation Measures Identification

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
M-1	Identify and pursue outreach and education opportunities utilizing FEMA's latest surge maps, erosion hazard zones, and rising tide community forums to inform municipal residents, businesses, and property owners regarding: <ul style="list-style-type: none"> • Current hazards and risks • Changing conditions and actions that may reduce / increase risk • Best practices for hazard mitigation at the individual or property level.² 	All	Goal #1	Both
M-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	All	Goal #2	Existing
M-3	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Flood	Goal #2	Existing
M-4	Conduct regular Municipal Working Group meetings consistent with the plan maintenance program and the Municipal Adoption Resolution.	All	Goal #3	Both
M-5	Install permanent backup emergency power generator at Port Norris Elementary School (CF-7).	All	Goal #4	Both
M-6	Install permanent backup emergency power generator at Haleyville-Mauricetown Elementary School (CF-8).	All	Goal #4	Both
M-7	Install permanent backup emergency power generator at Bayshore Center at Bivalve (CF-10).	All	Goal #4	Both
M-8	Install permanent backup emergency power generator at Community Center (CF-11).	All	Goal #4	Both
M-9	Maintain and upgrade berm located at Peak Of the Moon area.	Flood	Goal #4	Both
M-10	Address identified Repetitive Flood Loss Properties.	Flood	Goal #4	Both
M-11	Harden / retrofit Township Hall (CF-1).	High Wind	Goal #4	Both
M-12	Harden / retrofit Port Norris Elementary School (CF-7).	High Wind	Goal #4	Both
M-13	Harden / retrofit Haleyville-Mauricetown Elementary School (CF-8).	High Wind	Goal #4	Both
M-14	Assessment to identify levee locations within Commercial Township.	Levee Failure	Goal #4	Existing
M-15	Clean and maintain ditches / reduce phragmites throughout Commercial Township to reduce risk of wildfire.	Wildfire	Goal #4	Existing

² For example, individual property owners can be informed about back-up power alternatives such as initial battery back-up for power disruptions.

Part 4: Mitigation Measures

Part 4.4: Municipal Mitigation Measures – Implementation

Part 4.4 includes a tabulation of relevant aspects related to the implementation of the municipal mitigation measures.

Table CuC.3-12 includes information identified by the Municipal Working Group:

- Part(ies) responsible for following up with implementation of the measure
- Priority for implementation considering a range of criteria³
- Project Type to help determine funding options and implementation mechanisms at the municipal level⁴
- Estimated Cost, including estimates provided by the Municipal Working Group or approximate ranges for projects that are in early stages of development
- Target Date, indicating desired completion dates assuming availability of funding
- Next step(s) anticipated to implement the identified mitigation measures at the municipal level

Table CuC.3-12: Commercial Township (Cumberland County) Municipal Mitigation Measures Implementation

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-1	Identify and pursue outreach and education opportunities.	Municipal OEM	High	Public Outreach and Education	Staff time commitment	On-going	<ul style="list-style-type: none"> ▪ Work with County Working Group to identify resource needs and availability. ▪ Identify target audience(s).
M-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Moderate	Data Acquisition and Management	Staff time commitment	On-going	Review critical facility list and establish priorities, procedures, and tentative time schedule for conducting site and facility surveys.
M-3	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Municipal Working Group	High	Capabilities and Coordination	Staff time commitment	On-going	Identify recurrent drainage problem areas, establish priorities, and identify data collection procedures.
M-4	Conduct regular Municipal Working Group meetings.	Municipal OEM and Municipal Working Group	Moderate	Capabilities and Coordination	Staff time commitment	On-going	Establish regular Municipal Working Group membership, reporting requirements, and meeting / work session schedule.

³ See *Section 4: Mitigation Measures* and related portions of Annex E of the NJ4 HMP Regional Hazard Mitigation Plan for a description of evaluation criteria considered by the Municipal Working Group.

⁴ See *Section 4: Mitigation Measures* and related portions of Annex F of the NJ4 HMP Regional Hazard Mitigation Plan for a description of project types and related information regarding funding options and implementation mechanisms.

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-5	Install permanent backup emergency power generator at Port Norris Elementary School (CF-7).	Municipal OEM and School Board	High	Back-up Emergency Power Generator	< \$100K	Three to five years	Conduct project scoping.
M-6	Install permanent backup emergency power generator at Haleyville-Mauricetown Elementary School (CF-8).	Municipal OEM and School Board	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-7	Install permanent backup emergency power generator at Bayshore Center at Bivalve (CF-10).	Municipal OEM and Bayshore Center	Moderate	Back-up Emergency Power Generator	< \$100K	Three to five years	Conduct project scoping.
M-8	Install permanent backup emergency power generator at Community Center (CF-11).	Municipal OEM and Public Works Department	Moderate	Back-up Emergency Power Generator	< \$100K	Three to five years	Conduct project scoping.
M-9	Maintain and upgrade berm located at Peak Of the Moon area.	Municipal OEM and Public Works Department	High	Public Property Flood Mitigation	\$1M - \$5M	Three to five years	Conduct project scoping.
M-10	Address identified Repetitive Flood Loss Properties.	Floodplain Administrator	Moderate	Private Property Flood Mitigation	Staff time commitment	Six months	Prior to initiating landowner contacts, identify flood insurance implications and mitigation options including eligible activities per FEMA HMA programs.
M-11	Harden / retrofit Township Hall (CF-1).	Municipal OEM and Public Works Department	Low	Building Retrofit	\$100K - \$500K	Three to five years	Conduct project scoping.
M-12	Harden / retrofit Port Norris Elementary School (CF-7).	Municipal OEM and School Board	Low	Building Retrofit	\$100K - \$500K	Three to five years	Conduct project scoping.
M-13	Harden / retrofit Haleyville-Mauricetown Elementary School (CF-8).	Municipal OEM and School Board	Moderate	Building Retrofit	\$100K - \$500K	Three to five years	Conduct project scoping.
M-14	Assessment to identify levee locations within Commercial Township.	Municipal OEM and Public Works Department	Low	Private Property Mitigation	< \$50K	Three to five years	Develop scope of work for engineering study and procure professional consulting services.
M-15	Clean and maintain ditches / reduce phragmites throughout Commercial Township to reduce risk of wildfire.	Municipal OEM and Fire Departments	Moderate	Private Property Mitigation	\$50K	One to three years	Conduct project scoping.

Part 4: Mitigation Measures

Part 4.5: Multi-Jurisdictional Mitigation Measures

Part 4.5 includes brief descriptions of mitigation measures that require multiple jurisdictions to implement.

During the Municipal Working Group Work Sessions, the Municipal Working Group identified some SDVR HMP mitigation measures as well as new areas of concern as mitigation measures where implementation requires participation or leadership from other levels of government, including county, state, and federal agencies. These multi-jurisdictional mitigation measures are included in Table CuC.3-13.

Section 4: Mitigation Measures of the NJ4 HMP Regional Hazard Mitigation Plan describes multi-jurisdictional implementation strategies in detail. Section 4 identifies multi-jurisdictional mitigation measures that Municipal Working Groups believe are partly or wholly the responsibility of County agencies. These measures have been referred to the County Working Group for consideration. As part of the mitigation measures in the County Appendix to the NJ4 HMP Regional Hazard Mitigation Plan, the County Working Group will be working with the municipalities to identify:

- Specific responsibilities amongst different level(s) of government to address these problem areas
- Mitigation measures or related projects which may address the described problem areas that are already acknowledged as County responsibilities including identifying the appropriate County agency or department taking the lead role and status of implementing these mitigation measures
- Which, if any, additional mitigation measures the member agencies of the County Working Group will assume responsibility to implement

Note: Multi-jurisdictional mitigation measures with discrete locations are shown in Figure CuC.3-4.

Table CuC.3-13: Commercial Township (Cumberland County) Multi-Jurisdictional Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-1	Sheet piles on County Route 553 bridge (Berry Avenue) to protect against erosion. ⁵	Coastal Erosion and Sea Level Rise	Goal #4	Both	Municipal OEM, Cumberland County DPW	High
MJ-2	Maurice River Shore Protection Improvement Phase I. ⁶	Coastal Erosion and Sea Level Rise	Goal #4	Both	Municipal OEM, Cumberland County DPW	High
MJ-3	Bulkhead for public wharf area to protect shoreline. ⁷	Coastal Erosion and Sea Level Rise	Goal #4	New	Municipal OEM, Cumberland County OEM, and New Jersey Station Police	High

⁵ Project included in Letter of Interest (LOI) for DR 4086 HMGP. LOI project #642 budget = \$595,500.00.

⁶ Project included in Letter of Interest (LOI) for DR 4086 HMGP. LOI project #478 budget = \$3,273,900.00.

⁷ Project included in Letter of Interest (LOI) for DR 4086 HMGP. LOI project #635 budget = \$18,401,000.00.

Part 4: Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-4	Maurice River Flood Control Structure. ⁸	Coastal Erosion and Sea Level Rise	Goal #4	New	Municipal OEM, Cumberland County DPW	High
MJ-5	Maurice Riverfront Roadway Elevation Improvements. ⁹	Coastal Erosion and Sea Level Rise	Goal #4	Both	Municipal OEM, Cumberland County DPW	High
MJ-6	Maurice River Mouth Stabilization. ¹⁰	Coastal Erosion and Sea Level Rise	Goal #4	New	Municipal OEM, Cumberland County DPW	High
MJ-7	Alleviate flooding at county bridge at County Route 553 (Berry Avenue). ⁶	Coastal Erosion and Sea Level Rise	Goal #4	Both	Municipal OEM, Cumberland County DPW	High
MJ-8	Alleviate flooding at State Police Barracks at Public Wharf. ⁹	Coastal Erosion and Sea Level Rise	Goal #4	Both	Municipal OEM, State DOT, NJ State Police	High
MJ-9	Assess Laurel Lake Dam (private dam) to identify upgrade measures and work with private property owners to identify funding mechanisms. Dam located on a County Road and borders Millville Township. ¹¹	Dam Failure	Goal #4	Both	Municipal OEM, Private Owner, Millville OEM	High
MJ-10	Create safety zones around critical facilities in wildfire risk areas.	Wildfire	Goal #4	Existing	Municipal OEM, NJ State Forestry Services	Moderate

⁸ Project included in Letter of Interest (LOI) for DR 4086 HMGP. LOI project #644 budget = \$447,200.00.

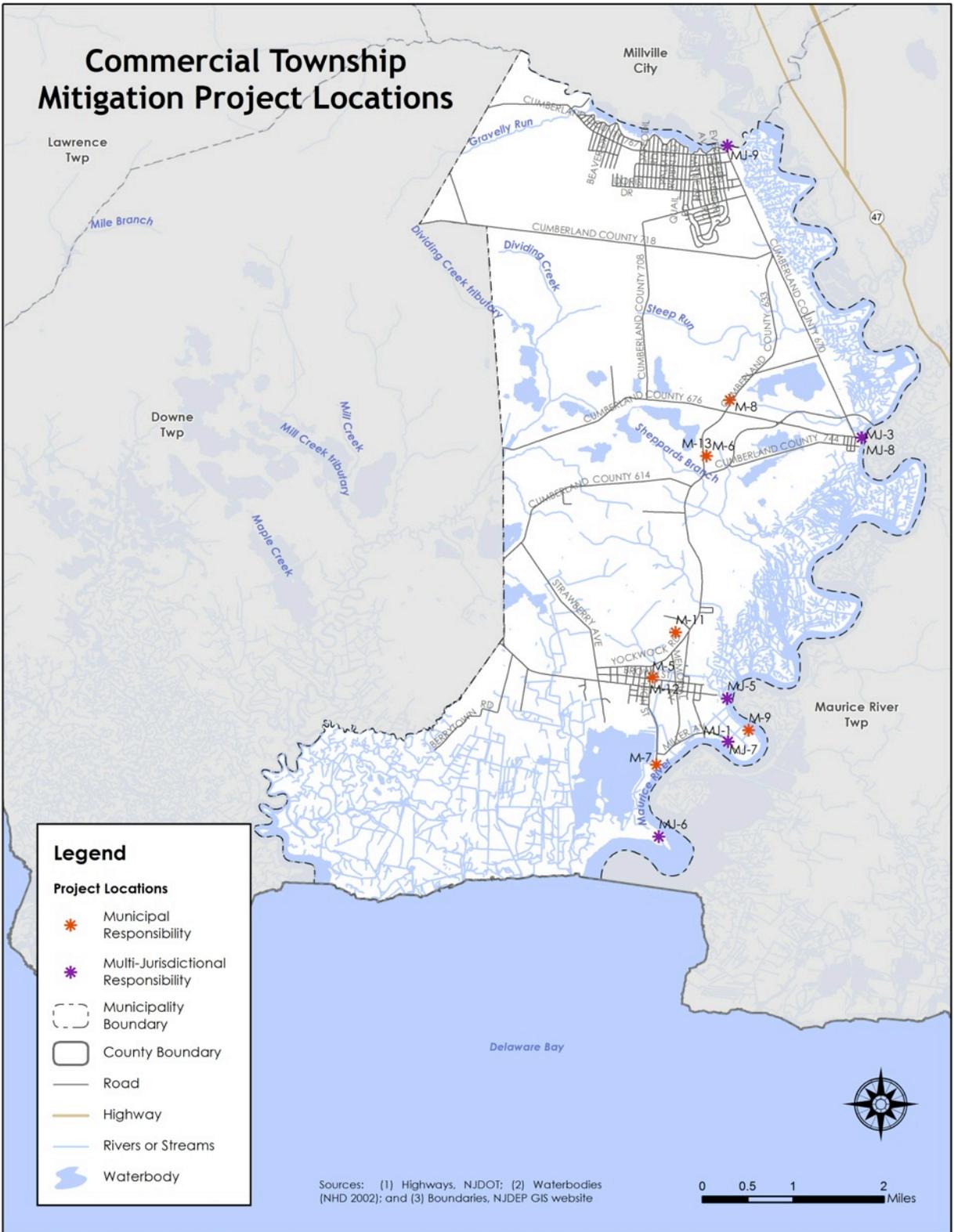
⁹ Project included in Letter of Interest (LOI) for DR 4086 HMGP. LOI project #654 budget = \$3,178,700.00.

¹⁰ Project included in Letter of Interest (LOI) for DR 4086 HMGP. LOI project #658 budget = \$54,835,000.00.

¹¹ Project included in Letter of Interest (LOI) for DR 4086 HMGP. LOI project #661 budget = \$994,500.00.

Part 4: Mitigation Measures

Figure CuC.3-4: Commercial Township Mitigation Project Locations



Part 4: Mitigation Measures

Part 4.6: Authorities, Policies, Programs, Resources, and Plan Integration

Part 4.6 includes three (3) subparts:

- **Authorities, Policies, and Programs** - Cross referencing relevant information and recommendations in the NJ4 HMP Regional Hazard Mitigation Plan regarding existing authorities, policies, and programs in the region and specific information about the jurisdiction's participation and continued compliance in the National Flood Insurance Program (NFIP)
- **Capabilities and Coordination** - Cross referencing relevant information and recommendations in the NJ4 HMP Regional Hazard Mitigation Plan regarding improving capabilities and coordination at the municipal level and specific information about the jurisdiction's available resources
- **Plan Review and Integration** – Identifying plans and programs included in the development of Plan Integration recommendations in the NJ4 HMP Regional Hazard Mitigation Plan

Authorities, Policies, and Programs

Section 1.3: *Existing Authorities, Policies, Programs, and Resources* of the NJ4 HMP Regional Hazard Mitigation Plan summarizes relevant authorities, policies, and programs related to hazard mitigation in the region including the NFIP.

Continuing municipal participation in the NFIP as part of the implementation of the NJ4 HMP by the municipality, includes:

- Involvement of Floodplain Manager / Administrator during the NJ4 HMP implementation process
- Commitment to adopt updated FIRMs and evaluate / update the municipality's Flood Management Plan and/or Ordinance as appropriate per recommendations in Section 4.6 of the NJ4 HMP Regional Hazard Mitigation Plan

Capabilities and Coordination

The update of the SDVR HMP included reexamining municipal hazard mitigation capabilities; potential for improving capabilities and coordination within and between jurisdictions; and, plan integration considerations. Section 1.3: *Existing Authorities, Policies, Programs, and Resources* of the NJ4 HMP Regional Hazard Mitigation Plan includes summary statements regarding regional resources and the impact of resource limitations on the overall approach to the NJ4 HMP mitigation strategies. Section 4: *Mitigation Measures* and related portions of Annex F of the NJ4 HMP Regional Hazard Mitigation Plan include summary observations and recommendations concerning:

- Hazard mitigation planning and mitigation measure implementation capabilities and coordination at the regional, county, and municipal levels
- Coordination within municipal governments, between municipal governments and their communities, and between municipal, county, and state agencies responsible for hazard mitigation

Plan Review and Integration

Specific documents obtained during the plan update process from the Municipal Working Group include:

- Emergency Operations Plan - Base Plan (2013)
- Master Plan (2006)
- Capital Improvement Budget (2014)¹²
- Cumberland County Delaware Bayshore Recovery Plan (2013)
- Hazard Mitigation Grant Awards (2012)
- Hazard Mitigation Grant Award Correspondence (2012)
- Natural Resources Inventory (1993)
- Stormwater Management Plan

Table RP.4-4 in *Section 4.6: Plan Review and Integration* of the NJ4 HMP Regional Hazard Mitigation Plan identifies the primary plans and documents collected from each of the participating municipalities. In addition, Annex E.2 provides a complete list of all the plans and documents collected from the participating municipalities.

Section 4.6 also includes the results of reviewing the primary plans and documents to determine the extent to which these documents reflect up-to-date hazard risk and mitigation. In addition, Section 4.6 includes recommendations for integrating the results of the NJ4 HMP, including hazard mitigation data, goals, measures, and/or recommendations with existing plans and programs at the municipal level that are relevant to all participating municipalities and incorporated by reference in each of the jurisdiction-specific Appendices including:

- Hazard Assessments
- Emergency Operations Plans
- Floodplain Management Ordinances
- Master Plans and Reexamination Reports
- Other plans and documents

The plan maintenance process includes a commitment to review and follow these recommendations during future scheduled updates of these various documents as considered appropriate by the Working Group and the governing body of the municipality.

¹² <http://www.commercialtwp.com/finance-commercial-twp-nj.html>

Attachment A: Public Review Comments

The following comments were received during the public review of the Commercial Township Municipal Appendix:

Table CuC.3.A-1: Public Review Comments

Comment Date and Time	Comment	Response

Note: As of April 17, 2015, no public review comments were received for the Commercial Township Municipal Appendix.

Attachment B: Adoption Resolution

Following this page is the Adoption Resolution for the Commercial Township Municipal Appendix as approved by the Commercial Township Committee.

Attachment C: Approval Letter

Following this page is the Approval Letter for the Commercial Township Municipal Appendix.