



Mitigation Plan for Four New Jersey Counties
Salem County Appendices

Appendix SC.1
Salem County, New Jersey

September 16, 2016

Table of Contents

Table of Contents	SC.1-i
Part 1 Overview	SC.1-1
1.1: Mitigation Plan for Four New Jersey Counties	SC.1-1
1.2: Salem County Appendix	SC.1-1
Part 2 Participation	SC.1-2
2.1: County Working Group Participation	SC.1-2
2.2: Public Participation	SC.1-4
Part 3 Hazard Identification and Risk Assessment	SC.1-5
3.1: County Profile	SC.1-5
3.2: Hazard Priorities	SC.1-10
3.3: Hazard Mapping	SC.1-11
3.4: Critical Facilities Inventory and Hazard Exposure Assessment	SC.1-12
Part 4 Mitigation Measures	SC.1-16
4.1: Mitigation Goals and Strategy	SC.1-16
4.2: SDVR HMP Mitigation Measures	SC.1-17
4.3: County Mitigation Measures – Identification	SC.1-20
4.4: County Mitigation Measures – Implementation	SC.1-22
4.5: Multi-Jurisdictional Mitigation Measures	SC.1-24
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	SC.1-29

Table of Contents

List of Figures

Figure SC.1-1: Salem County Location Map	SC.1-5
Figure SC.1-2: Salem County Base Map	SC.1-6
Figure SC.1-3: Salem County Housing Units by Year Built	SC.1-9

List of Tables

Table SC.1-1: Salem County Working Group	SC.1-2
Table SC.1-2: Public Participation	SC.1-4
Table SC.1-3: Salem County Demographics	SC.1-7
Table SC.1-4: Salem County Demographic Rankings	SC.1-8
Table SC.1-5: Salem County Economics and Housing	SC.1-8
Table SC.1-6: Salem County Ranking (Economics and Housing)	SC.1-8
Table SC.1-7: Supporting Mapping and Exhibits	SC.1-11
Table SC.1-8: Salem County Critical Facilities Inventory	SC.1-13
Table SC.1-9: Salem County Critical Facilities Hazard Exposure	SC.1-15
Table SC.1-10: Salem County Mitigation Program Accomplishments	SC.1-17
Table SC.1-11: Salem County Mitigation Measures Identification	SC.1-20
Table SC.1-12: Salem County Mitigation Measures Implementation	SC.1-22
Table SC.1-13: Salem County Multi-Jurisdictional Mitigation Measures	SC.1-24

Attachments

Attachment SC.1.A: Public Review Comments	SC.1.A-1
Attachment SC.1.B: Adoption Resolution	SC.1.B-1
Attachment SC.1.C: Approval Letter	SC.1.C-1

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 counties and 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 counties and municipalities. Detailed tabulations are included in these Appendices for critical facilities, status of past mitigation activities, and proposed mitigation measures.

Part 1.2: Salem County Appendix

This Appendix is focused on Salem County, New Jersey.

The Salem County Working Group recommended the Salem County Appendix for adoption to the Salem County Board of Freeholders.

The Salem County Board of Freeholders adopted the Salem County Appendix by resolution (see Attachment B: Adoption Resolution).

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

Part 2: Participation

Part 2.1: County Working Group Participation

Part 2.1 includes:

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

Table SC.1-1 identifies the County 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 County Working Groups are comprised of representatives who worked to make sure mitigation measures included in the County Appendix addressed the risks faced by county assets that may affect delivery of services to residents, businesses, and property owners and reflected the priorities of the community. The Working Group was engaged via a variety of Work Sessions and meetings including:

- Round 1 and Round 2 Work Sessions
- Individual meetings with County agencies and departments

The Working Group will also continue to stay involved during the implementation and maintenance of the NJ4 HMP.

Table SC.1-1: Salem County Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Contribution ³
Jeffrey	Pompper	Salem County Office of Emergency Management (OEM)	Director of Emergency Services / OEM Coordinator	<input checked="" type="checkbox"/>		Organized Working Group and Work Sessions.
Robert	DiGregorio	Salem County OEM	Training and Operations	<input checked="" type="checkbox"/>		
Scott	Haines	Salem County OEM	Deputy OEM Coordinator / County EMS Coordinator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Jeffrey	Ridgway	Salem County Department of Public Works	Director	<input checked="" type="checkbox"/>		
Steven	Schalick	Salem County Road Department	Supervisor	<input checked="" type="checkbox"/>		
James	McKelvie	Engineering Consultant to the County	Associate, Alaimo Group		<input checked="" type="checkbox"/>	

¹ Round 1 Work Session was held on August 14, 2014.

² Round 2 Work Session was held on November 20, 2014.

³ County 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 SC.1-1.

Part 2: Participation

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Contribution ³
Matthew	Goff	Salem County Planning Department	Principal Planning Aide	<input checked="" type="checkbox"/>		
Lawrence	Heiderberg	New Jersey Department of Health	Public Health Planner	<input checked="" type="checkbox"/>		

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

- Board of Chosen Freeholders
- County Administrators Office
- Cumberland / Salem Soil and Water Conservation District
- County Sheriff's Office
- County Fire Coordinator / Fire Marshall
- County Long-term Community Recovery Planning Committee
- Salem County Chamber of Commerce
- Salem County environmental organizations
- Healthcare Institutions
- Educational Institutions

The following lists positions and organizations that are generally recommended for consideration as members of the County 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.

- Floodplain Administrator/Manager – There is no unincorporated land in Salem County so there are no parcels that could potentially be covered under the National Flood Insurance Program.
- County Volunteers Active in Disaster

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 county to participate during the plan update process.

Since all county residents reside in an incorporated municipality, it is assumed that the main connections with the public are made through the municipalities and their respective Working Groups. However, Table SC.1-2 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 SC.1-2: Public Participation

Date	Type of Involvement	Location
August 18, 2014	Link to Project Website (http://nj4hmp.com) established	ReadySalem Resources webpage ⁵
December 8, 2014	Preliminary County Appendix posted to website for public comment	ReadySalem Resources webpage ⁶
December 17, 2014	Public hearing included on Salem County Board of Freeholders agenda providing for open discussion, and public comment regarding the County Appendix	Salem County Courthouse

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

In addition, the County 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 County Appendix.⁷ In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities.⁸

⁵ <http://readysalem.org/emergency-resources/>

⁶ <http://readysalem.org/emergency-resources/>

⁷ See Mitigation Measure M-1 in Part 4 of the County Appendix.

⁸ See *Section 4: Mitigation Measures* of the NJ4 HMP Regional Hazard Mitigation Plan.

Part 3: Hazard Identification and Risk Assessment

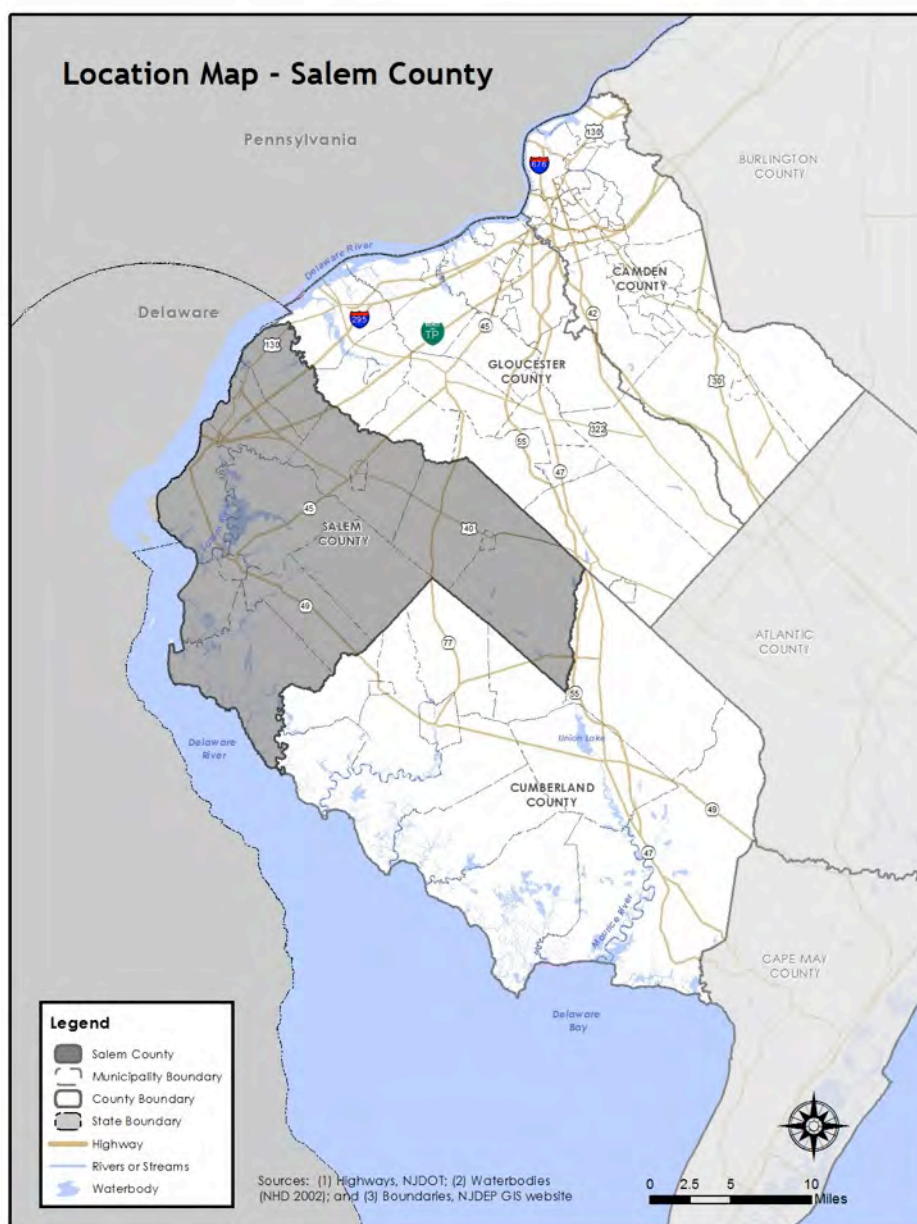
Part 3.1: County Profile

Part 3.1 includes:

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

Salem County is located in southwest New Jersey along the Delaware Bay and bordered by Gloucester County to the northeast and Cumberland County to the southeast (See Figure SC.1-1).

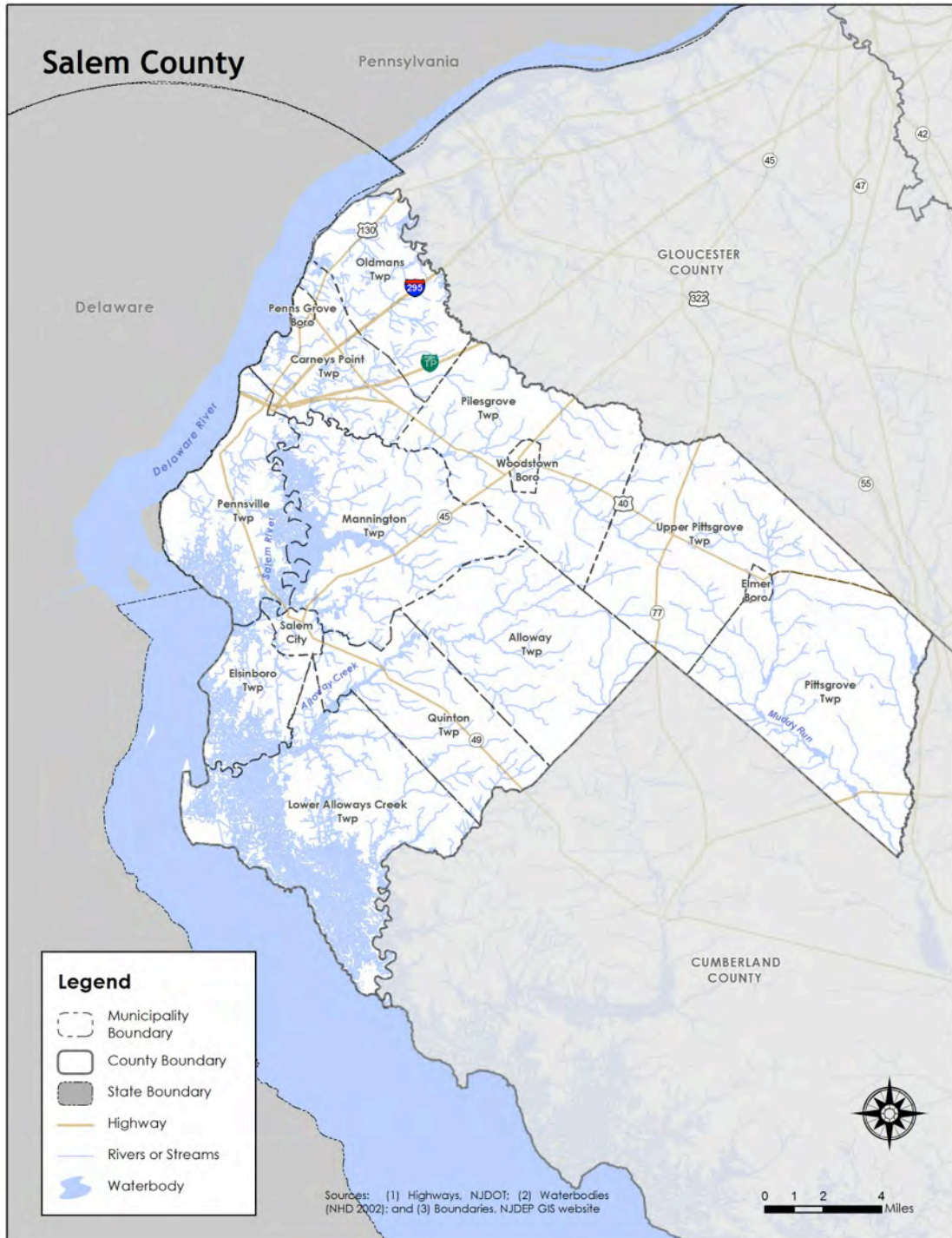
Figure SC.1-1: Salem County Location Map



Part 3: Hazard Identification and Risk Assessment

Per Figure SC.1-2, major water courses include the Delaware Bay / Delaware River which forms the western boundary, Stow Creek which forms much of the boundary between Salem and Cumberland Counties, Oldmans Creek between Salem and Gloucester County, Alloways Creek and the Salem River. Major transportation routes include the New Jersey Turnpike, Interstate 295, US Routes 40 and 130 and New Jersey Routes 45, and 49. The land is predominantly flat including large areas of salt marsh and wetlands with the highest elevation no more than 160 feet above sea level.

Figure SC.1-2: Salem County Base Map



Part 3: Hazard Identification and Risk Assessment

Figure SC.1-2 also shows the 15 cities, townships, and boroughs that are located within Salem County. Like the other three counties in the region, Salem County includes communities influenced by their proximity to the Delaware Bay and Delaware River as well as inland municipalities although the influence of the bay and river on the development patterns in Salem County municipalities is more pronounced than in Gloucester and Camden Counties:

- Alloway Township
- Carneys Point Township
- Elmer Borough
- Elsinboro Township
- Lower Alloways Creek Township
- Mannington Township
- Oldmans Township
- Penns Grove Borough
- Pennsville Township
- Pilesgrove Township
- Pittsgrove Township
- Quinton Township
- Salem City
- Upper Pittsgrove Township
- Woodstown Borough

All 15 Salem County municipalities participated in the NJ4 HMP planning process. Individual information for each of these participating jurisdictions can be found in their respective Appendices.¹

In addition, Table SC.1-3 is a compilation of demographic information for the county and comparison with the NJ4 HMP region and State of New Jersey.

Table SC.1-3: Salem County Demographics
(Source: Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4)

	Salem County	Region	New Jersey	United States
2000 Population	64,285	974,328	8,414,350	281,421,906
2010 Population	66,083	1,024,926	8,791,894	308,745,538
Percent Change	2.80%	5.19%	4.49%	9.71%
Population Density	199.11 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile	87.3 / sq. mile
Land Area	331.90 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles	3,534,905.43 sq. miles
% of Population < 18 years	23.5	24.1	23.5	24.0
% of Population 18 – 64	61.5	62.7	63.0	63.0
% of Population > 64 years	15.0	13.2	13.5	13.0

¹ See Appendices SC.2 through SC.16.

Part 3: Hazard Identification and Risk Assessment

Table SC.1-4 illustrates how Salem County ranks in the NJ4 HMP region and New Jersey.

Table SC.1-4: Salem County Demographic Rankings

	Region (n = 4)	New Jersey (n = 21)
Population Rank	4	21
Land Area Rank	2	9
Population Density Rank	4	21
Population Change Rank	3	-

Table SC.1-5 includes information related to economic and housing statistics for Salem County, the NJ4 HMP region, and New Jersey.

Table SC.1-5: Salem County Economics and Housing

(Source: USDA ERS, Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4; NJ LWD 2010)

	Salem County	Region	New Jersey	United States
Median Household Income	\$59,441	\$60,209	\$69,811	\$51,914
Total Number of Housing Units	27,417	397,990	3,529,033	131,704,730
Occupied Housing Units	25,290	372,472	3,176,069	116,716,292
Vacant Housing Units	2,127	25,518	352,964	14,988,438
Owner Occupied Housing Units	18,091	266,593	2,126,279	75,986,074
Renter Occupied Housing Units	7,199	105,879	1,049,790	40,730,218
Building Permits	105	1,554	13,535	594,800

Table SC.1-6 illustrates how Salem County ranks in the NJ4 HMP region and New Jersey.

Table SC.1-6: Salem County Ranking (Economics and Housing)

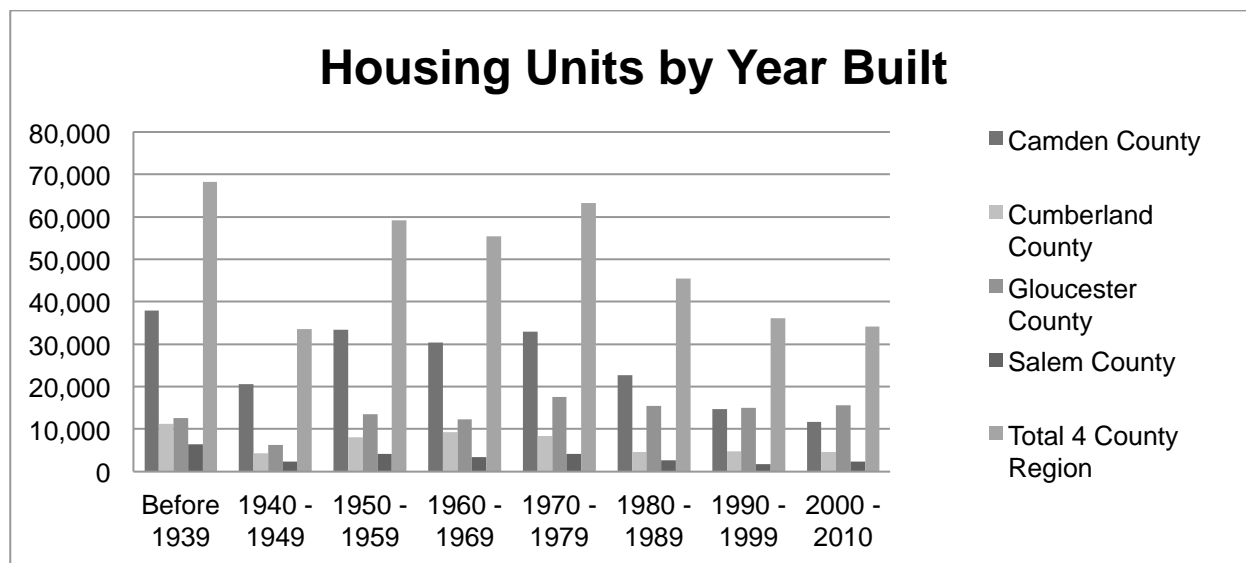
	Region (n = 4)	New Jersey (n = 21)
Median Household Income Rank	3	20
Vacant Housing Units Rank	4	20
Renter Occupied Housing Units Rank	4	21
Building Permits Rank	4	21

Part 3: Hazard Identification and Risk Assessment

Figure SC.1-3 illustrates development patterns in the NJ4 HMP region and the individual counties by examining housing units by year built. Salem County has always ranked fourth in the region in terms of housing units built per year during the period represented in the figure and ranks low in this regard in the State of New Jersey as well. However, the County also has the lowest population per county in the state.

Figure SC.1-3: NJ4 HMP Region Housing Units by Year Built

(Source: 2010 ACS 5 Year Estimates, DP 4)



Part 3.2: Hazard Priorities

Part 3.2 includes a summary of hazard priority determinations per the Municipal Working Groups in Salem County.

As a key step in the Hazard Identification and Risk Assessment (HIRA) process, the twelve (12) natural hazards identified in the NJ4 HMP² were discussed during the Municipal Working Group Work Sessions and the relative priority of these hazards was identified.

The following represents the average hazard ranking for Salem County municipalities (in order per average priority):

High Priority

1. Flood
1. High Wind
3. Severe Weather – Winter
4. Dam Failure

Moderate Priority

5. Levee Failure
6. Severe Weather – Summer
7. Coastal Erosion and Sea Level Rise
8. Extreme Temperature

Low Priority

9. Earthquake
9. Wildfire
11. Drought
12. Geologic Hazards

² See Section 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 SC.1-7 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 Appendices for Salem County municipalities and are valid for Salem County as a whole. The information represented by these maps will be used in the Critical Facilities Hazard Exposure Assessment for Salem County critical facilities as described in Part 3.4.

Table SC.1-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
Figure RP.D-3	Coastal Erosion and Sea Level Rise	Increased Inundation Areas (Coastal Scenarios) 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	Wildland 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 County 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 3.4: Critical Facilities Inventory and Hazard Exposure Assessment

Part 3.4 includes:

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

Consistent with the process described in Section 3 of the NJ4 HMP Regional Hazard Mitigation Plan, Table SC.1-8 contains updated inventory information for county critical facilities.

Table SC.1-9 provides the means to record results of overlaying critical facility locations with identified hazard inventory information for use in critical site and facility assessments per Mitigation Measure M-2 (see Part 4 of the County 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 Winds
- 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 addition, as part of the implementation of the Salem County Appendix, the Salem County Working Group will continue to refine the Critical Facility Inventory in Table SC.1-8 per the following:

- The list will be segregated by “Owner/Operator” and circulated to representatives of those Cumberland County departments and agencies to request information to complete any missing entries for the categories listed above as well as the appropriate response for “Shelter (Y/N)”, “Generator (Y/N)”, and “Other?” where the latter column is used to indicate any known hazard exposure (e.g., repetitive flooding, structural concerns, etc.).
- Separate requests will be forwarded to other County agencies and departments with knowledge of other critical or essential facilities within the County that may not appear on the inventory (e.g., facilities caring for vulnerable populations).

The location of any additions to the Critical Facilities Inventory (per Longitude and Latitude) will be compared with the known extent of natural hazards included in the NJ4 HMP. The results of this assessment will be incorporated in Table SC.1-9 and will also be available for use in critical site and facility assessments per Mitigation Measure M-2 (see Part 4 of the County Appendix).

Part 3: Hazard Identification and Risk Assessment

Table SC.1-8: Salem County Critical Facilities Inventory

#	Name	Type	Subtype	Jurisdiction	Owner / Operator	Address	Shelter (Y/N)	Generator (Y/N)	Other?
CF-1P ³	Salem Community College	Schools	Public Schools	Carneys Point Township	Salem Community College	460 Hollywood Avenue, Carneys Point	Y ⁴	N ⁵	
CF-2P ⁶				Lower Alloways Creek Township	PSE&G	1 Alloways Creek Neck Road, Hancocks Bridge	N	Y	
CF-3P	Salem County Correctional Facility	Law Enforcement Facilities	Correctional Facilities	Mannington Township	Salem County Sheriff's Office	125 Cemetery Road, Woodstown	TBD	TBD	
CF-4P	Salem County Emergency Services	Administrative Offices	Stations	Mannington Township	Salem County Department of Emergency Services	135 Cemetery Road, Woodstown	TBD	TBD	
CF-5P	Salem County Emergency Operations Center	EOC	Co-located Facility	Mannington Township	Salem County Department of Emergency Services	135 Cemetery Road, Woodstown	TBD	TBD	Co-located with Emergency Services
CF-6P	Salem County Public Works / Roads Department	Public Works	Combined Administrative Office, Maintenance / Work Area, Equipment / Material Storage, and Fueling Station	Mannington Township	Salem County Public Works / Road Department	153 Cemetery Road, Woodstown	TBD	TBD	
CF-7P	Salem County Career & Technical High School	Schools	Public Schools	Mannington Township	Salem County Vocational Technical School District	880 NJ Route 45 (Salem - Woodstown Road), Woodstown	TBD	TBD	

³ Critical facility number "P" designation indicates the listing is preliminary and subject to change as Municipal Appendices are completed.

⁴ Penns Grove Borough currently relies on Salem County College located at 460 Hollywood Avenue in Carneys Point (mailing address in Penns Grove Borough) for sheltering.

⁵ Existing back-up emergency power generator failed during recent events.

⁶ Critical facility entries highlighted in blue are State of New Jersey, US Government or other non-Salem County Critical Facilities. These CF's will be segregated in later versions of the list as the County does not exert any control over the operation of these facilities.

Part 3: Hazard Identification and Risk Assessment

#	Name	Type	Subtype	Jurisdiction	Owner / Operator	Address	Shelter (Y/N)	Generator (Y/N)	Other?
CF-8P	Salem County Community Bus Services	Transportation ⁷	Maintenance / Work Area	Pennsville Township	Salem County Community Bus Services	350 East Pittsfield, Pennsville	TBD	TBD	
CF-9P	Atlantic Electric Substation	Utilities – Electric	Private Utility Electric Substation	Pilesgrove Township	Atlantic Electric	East Lake Road, Pilesgrove	N/A	N/A	
CF-10P	NJ DOT Maintenance Yard	Transportation	Maintenance / Work Area	Pittsgrove Township	State of New Jersey DOT	Route 40, Pittsgrove	N/A		
CF-11P	Atlantic Electric Substation	Utilities – Electric	Private Utility Electric Substation	Quinton Township	Atlantic Electric	Waterworks Road, Quinton	N/A	N/A	
CF-12P	Verizon Tower	Communications	Private Communications Tower	Quinton Township	Verizon	Sickler Street, Quinton	N/A		
CF-13P	Sprint Tower	Communications	Private Communications Tower	Quinton Township	Sprint	Pecks Corner Cohansey Road, Quinton	N/A		
CF-14P	Main County Offices	County	Administrative Offices	Salem City	Salem County Board of Freeholders	94 Market Street, Salem	TBD	TBD	Includes Board of Freeholders Offices, Sheriff's Office, Public Health and Human Services, et al
CF-15P	Salem County Health Department	County	Administrative Offices	Salem City	Salem County Health Department	110 5 th Street, Salem	TBD	TBD	
CF-16P	Salem Campus	Schools	Special Services School	Woodstown Borough	Salem County Special Services School District	45 Cheney Rd, Woodstown	TBD	TBD	
CF-17P	National Guard Armory	Armory		Woodstown Borough	State of NJ	501 N Main Street, Woodstown	TBD	TBD	

⁷ County-owned garage currently rented to private business.

Part 3: Hazard Identification and Risk Assessment

#	Name	Type	Subtype	Jurisdiction	Owner / Operator	Address	Shelter (Y/N)	Generator (Y/N)	Other?
CF-18P	Cumberland Campus	Schools	Special Services School	Fairfield Township (Cumberland County)	Salem County Special Services School District	13 Ramah Road, Bridgeton	N	Y	

Table SC.1-9: Salem 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-1P															

Part 4: Mitigation Measures

Part 4.1: Mitigation Goals and Strategy

Part 4.1 includes:

- *Goal statements reviewed and approved by the County 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 County'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 County Working Group for use in the County Appendix. All mitigation measures included in the County 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 County 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 initial risk reduction efforts
- Identify additional areas of concern for critical facilities and vulnerable populations for future plan updates
- Work with Municipal OEMs, engineering, and public works officials to resolve multi-jurisdictional mitigation measures
- Work with Municipal OEMs to provide opportunities for residents and property owners to access available information about risk reduction and mitigation measures
- Institutionalize hazard mitigation into Municipal and County activities and programs through regular interactions of the Municipal and County Working Groups 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 Municipal and County mitigation programs

The mitigation measures described in Part 4.3 of the County Appendix reflect this strategy.

Part 4: Mitigation Measures

Part 4.2: SDVR HMP Mitigation Measures

Part 4.2 includes an overview of recent accomplishments for the county's hazard mitigation program.

The SDVR HMPs contained many specific mitigation measures for municipalities. The respective municipalities implemented some of the measures and several more were slated for implementation when the NJ4 HMP was developed in 2014 and 2015. Other municipal mitigation measures were deferred for a range of reasons. In the NJ4 HMP, many of the deferred measures were still considered valid by the Municipal Working Groups and carried over as part of the Municipal Appendices.¹ The nature of the mitigation measures identified for the four counties in the SDVR was quite different but the outcome was similar; some measures were implemented while others were deferred and are included in the County Appendices.

Mitigation measures identified for the four counties focused on programmatic support for their constituent municipalities. The measures closely mirrored the four goals of the project. The following provides examples of the types of mitigation measures that were attributed to each of the goals:

- Goal 1: Improve education and outreach efforts
 - Conduct yearly workshops related to FEMA hazard mitigation grant programs for local government officials
- Goal 2: Improve data collection, use, and sharing
 - Develop and maintain relationships with organizations that can provide technical assistance in the areas of hazard identification and risk assessment
- Goal 3: Improve capabilities and coordination
 - Encourage municipalities to participate in the CRS program, including potentially setting up CRS site visits and/or workshops for interested jurisdictions
- Goal 4: Plan and implement projects
 - Implement mitigation projects and programs intended to reduce risk to critical facilities

These are just a few examples. The program laid out in the SDVR HMPs included a wide variety of detailed actions and programs. Most of the responsibility for implementing the program fell to the County Offices of Emergency Management (OEM) and there were successes during the implementation of the SDVR HMP. Table SC.1-10 identifies activities, projects, and programs that were undertaken during this period by Salem County OEM.

Table SC.1-10: Salem County Mitigation Program Accomplishments

Mitigation Action, Program, or Project	Comments
General hazard mitigation support for Municipal OEM Coordinators.	Salem County OEM has held regularly scheduled meetings for several years. Hazard mitigation is a regular component of the agendas for the Municipal OEM Coordinator Meetings including recommendations for implementation of the SDVR HMP and work-in-progress for the NJ HMP in 2014 and 2015.

¹ See *Part 4.2: SDVR HMP Mitigation Measures* of Appendices GC.2 through GC.26 for descriptions of the disposition of these municipal mitigation measures.

Part 4: Mitigation Measures

Mitigation Action, Program, or Project	Comments
Salem County OEM support for municipal grant applications for FEMA HMA grant programs including those initiated following Superstorm Sandy.	Several LOIs were submitted for Salem County municipalities coordinated through Salem County OEM.
Salem County Infrastructure Improvements.	<p>Salem County has undertaken a number of improvements to county infrastructure including provisions to reduce hazard risk including:</p> <ul style="list-style-type: none"> ▪ Eldridges Hill Culvert and Bridgeton Road Culvert were two culvert projects that were emergency replacements using FEMA funds for failed under road pipes. In both cases Salem County increased the capacity for water flow to reduce future flooding. ▪ Quinton-Hancocks Bridge Road involved road repairs after water flooded the surface. Road improvements were made to reduce future flooding on the road. This is the main roadway leading to the Nuclear Power Plant in Lower Alloways Creek Township. ▪ Sunset Sluice Gate included replacement of a water control sluice gate in Mannington Township. The gate controls tidal/non tidal water movement to protect farm land and homes. ▪ Ballingers Mill Pond Dam was a dam repair/upgrade project in Alloway Township. The project utilized FEMA funding from Hurricane Irene. ▪ Greenville Bridge was a complete bridge replacement in Pittsgrove Township after Hurricane Irene washed the old sub-standard bridge out.
Elsinboro Township Pump Station.	<p>The pump station project in Elsinboro Township will include a new pump station along the Delaware River that will reduce flooding to Fort Elfsborg Road. The flooding occurs frequently during storms and extreme high tides. When the road floods, approximately 30 homes are isolated due to a single access road into the area.</p> <p>As of April 17, 2015, Salem County OEM has a pending Hazard Mitigation Grant Program application for the pump station and related drainage improvements (Project Number 401 under DR 4086 in the amount of \$989,000.</p> <p><i>Note: This mitigation measure is included in the NJ4 HMP Salem County Appendix as Mitigation Measure M-9.</i></p>
Elsinboro Township Beach Replenishment Project.	<p>This project is underway via the US Army Corps of Engineers. The scope is to replenish approximately 1.5 mile section of beach to reduce future erosion to existing bulkheads and homes along the Delaware River.</p> <p><i>Note: This mitigation measure is included in the NJ4 HMP Salem County Appendix as Mitigation Measure M-10.</i></p>
Support for long-term recovery planning initiatives.	Salem County has been a leading participant in post-Sandy recovery planning efforts including participation in efforts such as the Southwest Long-Term Recovery Committee.
Support for FEMA Risk MAP roll-out programs.	Salem County has hosted several rounds of meetings and encouraged participation by Municipal OEM Coordinators.

Part 4: Mitigation Measures

It is important to note that several components of the SDVR HMP mitigation measures were not implemented due to circumstances beyond the control of the County OEM Coordinators including:

- Economic impacts of the recession on both municipal and county budgets affected the available resources for what was a labor-intensive program.
- Frequent natural disasters required full attention of available resources for prolonged periods. As described in *Section 3: Hazard Identification and Risk Assessment* of the NJ4 HMP Regional Hazard Mitigation Plan, the region experienced seven presidential disaster declarations since the adoption and approval of the SDVR HMPs including damages from high winds, severe winter weather, and extensive flooding. The administrative aftermath of these disaster declarations carries over for months and can stretch out for years on large events like Superstorm Sandy.

However, essential components of several SDVR HMP mitigation measures were carried over as part of the County Appendix.

In hindsight, the conclusion of the four County OEM Coordinators, all of who were involved in the SDVR HMPs and the NJ4 HMP update, was that the program for the NJ4 HMP needed to be scaled at a more realistic level and focused on coordination activities more consistent with the role and resources of the County OEMs. The Mitigation Measures identified in Part 4.3 are in line with this direction.

Part 4: Mitigation Measures

Part 4.3: County Mitigation Measures – Identification

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

Table SC.1-11 includes the list of mitigation measures that are considered the responsibility of the county. These mitigation measures:

- Reflect the goals and strategy identified in Part 4.1
- Include essential aspects of projects included in the SDVR HMPs as described in Part 4.2
- Include projects, programs or activities to support the implementation of mitigation measures by the Municipal Working Groups
- Include specific mitigation measures to address known problems or areas of concern for critical facilities and vulnerable populations that are the responsibility of County agencies and departments

Table SC.1-11 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

Table SC.1-11: Salem County Mitigation Measures Identification

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
M-1	Support municipal outreach and education programs by providing access to current resources and reference materials that Municipal Working Groups can use to inform 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.	All	Goal #1	Both
M-2	Prioritize county critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	All	Goal #2	Existing
M-3	Support efforts by Municipal Working Groups to survey municipal critical facilities by providing data management services including facilitating periodic updates to inventory and hazard exposure data.	All	Goal #2	Existing
M-4	Support on-going plan maintenance and update processes by County and Municipal Working Groups by providing the most up-to-date information about natural hazards including refinements to flood mapping, evolving data regarding climate change, and related impacts of sea level rise and hazard event frequencies.	All	Goal #2	Existing

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
M-5	Prioritize recurrent drainage problem areas and initiate data collection with county and, where appropriate, municipal agencies ² to track unreimbursed damages and related response and recovery expenses.	Flood	Goal #2	Existing
M-6	Conduct regular County Working Group meetings consistent with the plan maintenance program and the County Adoption Resolution.	All	Goal #3	Both
M-7	Support regular Municipal Working Group meetings and related implementation efforts including reminders at quarterly Municipal OEM Coordinators' meetings, tracking progress toward implementation of municipal mitigation measures, training regarding implementation issues such as project scoping, identification of current available options for funding, etc.	All	Goal #3	Both
M-8	Facilitate meetings with state, county, and municipal officials to discuss and resolve implementation issues related to multi-jurisdictional mitigation measures.	All	Goal #4	Both
M-9	Elsinboro Township Pump Station.	Flooding	Goal #4	Both
M-10	Elsinboro Township Beach Replenishment Project.	Coastal Erosion and Sea Level Rise, Flood (Storm Surge)	Goal #4	Both

² See *Part 4.5: Multi-Jurisdictional Mitigation Measures*.

Part 4: Mitigation Measures

Part 4.4: County Mitigation Measures – Implementation

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

Table SC.1-12 includes information identified by the County 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 county level⁴
- Estimated Cost, including estimates provided by the County 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 county level

Table SC.1-12: Salem County Mitigation Measures Implementation

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-1	Support municipal outreach and education programs.	Salem County OEM	Moderate	Public Outreach and Education	Staff time commitment	On-going	<ul style="list-style-type: none">▪ Work with Municipal Working Groups to identify target audience(s).▪ Work with County Working Group to identify available resources for producing, maintaining and providing information.
M-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Salem County OEM and Facility Managers	High	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	Support efforts by Municipal Working Groups to survey municipal critical facilities by providing data management services.	Salem County OEM / Salem County Planning	High	Data Acquisition and Management	Staff time commitment	On-going	Develop and implement procedures and tools for soliciting, collecting, and managing data input from municipalities.

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 County 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-4	Support on-going plan maintenance and update processes by County and Municipal Working Groups by providing the most up-to-date information about natural hazards.	Salem County OEM / Salem County Planning	Moderate	Data Acquisition and Management	Staff time commitment	On-going	Work with Municipal Working Groups to identify needs for hazard and risk information for on-going plan implementation and future plan updates.
M-5	Prioritize recurrent drainage problem areas and initiate data collection with county and, where appropriate, municipal agencies.	Salem County OEM and County Working Group	Moderate	Data Acquisition and Management	Staff time commitment	On-going	Identify recurrent drainage problem areas, establish priorities, and identify data collection procedures.
M-6	Conduct regular County Working Group meetings.	Salem County OEM and County Working Group	High	Capabilities and Coordination	Staff time commitment	On-going	Establish regular County Working Group membership, reporting requirements, and meeting / work session schedule.
M-7	Support regular Municipal Working Group meetings and related implementation efforts.	Salem County OEM	High	Capabilities and Coordination	Staff time commitment	On-going	Identify agenda and briefing materials for quarterly Municipal OEM Coordinator meetings.
M-8	Facilitate meetings with state, county, and municipal officials to discuss and resolve implementation issues related to multi-jurisdictional mitigation measures. ⁴	Salem County OEM	High	Varies	Staff time commitment	On-going	Confirm Problem Descriptions and Responsible Parties per Table SC.1-13.
M-9	Elsinboro Township Pump Station.	Salem County OEM and Department of Public Works (DPW)	High	Private and Public Property Flood Mitigation	\$989,000 ⁵	One year	Continue to pursue grant approval.
M-10	Elsinboro Township Beach Replenishment Project.	Salem County OEM and DPW	High	Private and Public Property Flood Mitigation	\$989,000 ⁶	One year	Continue to pursue grant approval.

⁵ Mitigation Measure M-9 is part of HMGP Grant Application Project #401 under DR 4086, Hurricane Sandy.

⁶ Mitigation Measure M-9 is part of HMGP Grant Application Project #401 under DR 4086, Hurricane Sandy.

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 Groups 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 SC.1-13.

Section 4: Mitigation Measures of the NJ4 HMP Regional Hazard Mitigation Plan describes multi-jurisdictional implementation strategies in detail. Multi-jurisdictional mitigation measures that Municipal Working Groups believe are partly or wholly the responsibility of County agencies 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:

- Confirm specific responsibilities amongst different level(s) of government to address these problem areas
- Identify mitigation measures or related projects which may address described problem areas acknowledged as County responsibilities including identifying an appropriate County agency or department taking the lead role and monitoring the status of implementing these mitigation measures

Note: It is important to recognize that some of the mitigation measures identified in Table SC.1-13 may not be considered as county responsibilities by county agencies and departments. However, part of the process of reviewing these recommendations from Municipal Working Groups is to identify areas where there are different opinions and arrive at a common understanding of the best way to proceed to resolve these problem areas.

Table SC.1-13: Salem County Multi-Jurisdictional Mitigation Measures⁷

Municipality	#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners
Alloway Township	MJ-1	Risk Assessment - Camp Roosevelt Dam, Camp Grice Dam, and Camp Edge Dam.	Dam Failure	Goal #4	Existing	Municipal OEM, NJ Department of Environmental Protection (DEP), Salem County Engineering, and Local Boy Scouts Chapter
Alloway Township	MJ-2	Critical facilities in wildfire risk areas.	Wildfire	Goal #4	Existing	Municipal OEM, NJ State Forest Fire Service

⁷ Table SC.1-13 is subject to change pending periodic revisions and updates of Municipal Appendices for all participating Municipal Working Groups. In some cases, municipalities did not identify multi-jurisdictional mitigation measures. However, placeholders are included to allow for additions as municipalities implement their respective Appendices.

Part 4: Mitigation Measures

Municipality	#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners
Carneys Point Township	MJ-1	Coordinate timing of releases from upstream dams. ⁸	Dam Failure	Goal #3	Both	Upstream municipalities, Salem County Department of Public Works (DPW), Salem County OEM
Carneys Point Township	MJ-2	Delaware River Levee at boundary with Carneys Point Township. ⁹	Coastal Erosion and Sea Level Rise / Flood / Levee Failure	Goal #4	Both	Penns Grove Borough, NJ DEP
Carneys Point Township	MJ-3	Alleviate flooding along Delaware River near Plant Road south of Pumping Station.	Coastal Erosion and Sea Level Rise / Flood / Levee Failure	Goal #4	Both	DuPont (property land owner), NJ DEP
Carneys Point Township	MJ-4	Alleviate flooding at Game Creek on Sportsman Road.	Dam Failure	Goal #4	Both	
Elmer Borough	MJ-1	Muddy Run Drainage Improvements/Canal Project.	Flood	Goal #4	Both	Elmer Borough, Salem County DPW
Elsinboro Township	MJ-1	Oakwood Beach Storm Damage Reduction Project ¹⁰	Coastal Erosion and Sea Level Rise / Flood (Storm Surge & Tidal)	Goal #4	Both	Municipal OEM, NJ DEP, US Army Corps of Engineers (USACE)
Elsinboro Township	MJ-2	Address breach along the Tide Marsh.	Flood (Storm Surge & Tidal)	Goal #4	Both	Municipal OEM, NJ DEP
Elsinboro Township	MJ-3	Alleviate flooding along Salem-Fort Elfsborg Road (County Route 625).	Flood	Goal #4	Existing	Municipal OEM, Salem County DPW
Elsinboro Township	MJ-4	Alleviate flooding along Sinnicksin Landing Road (County Route 661).	Flood	Goal #4	Existing	Municipal OEM, Salem County DPW
Elsinboro Township	MJ-5	Alleviate flooding associated with Fort Elfsborg Levee (Levee #27).	Levee Failure	Goal #4	Existing	Municipal OEM, Salem County DPW, PSE&G
Lower Alloways Creek Township	MJ-1	Alleviate flooding at County Route 658 (Salem Hancock Bridge Road) and County Route 606 (Front Street).	Flood (Storm Surge & Tidal)	Goal #4	Both	Municipal OEM, Salem County DPW
Lower Alloways Creek Township	MJ-2	Alleviate flooding at County Route 623 ¹¹ . (New Bridge) and County Route 651 (Beasley Neck Road).	Flood (Storm Surge & Tidal)	Goal #4	Both	Municipal OEM, Salem County DPW

⁸ Related to multi-jurisdictional mitigation measure included in Penns Grove Borough Municipal Appendix.

⁹ Related to multi-jurisdictional mitigation measure included in Penns Grove Borough Municipal Appendix.

¹⁰ As of September 16, 2014, bid opening had occurred on September 4, 2014 and a contract award was anticipated by November 2014 with a 45 day construction duration.

¹¹ County Route 623 is the main evacuation route for Lower Alloways Creek Township.

Part 4: Mitigation Measures

Municipality	#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners
Mannington Township	MJ-1	Alleviate flooding on County Route 540 near Seabrook Road and Sunset Drive (key evacuation route for residents in Salem County and Nuclear Power Plant).	Flood	Goal #4	Both	Municipal OEM, Carney's Point Township OEM, Salem County DPW
Mannington Township	MJ-2	Alleviate flooding on NJ Route 45 at Keasbey Creek at border between Mannington Township and Salem City (key egress point for Mannington Township and for Mill Operation). ¹²	Flood	Goal #4	Existing	Municipal OEM, NJDOT
Oldmans Township	MJ-1	Alleviate flooding at South Railroad Avenue where road meets County Route 602 (Pedericktown Woodstown Road).	Flood	Goal #4	Both	Municipal OEM, Salem County DPW
Oldmans Township	MJ-2	Alleviate flooding at Straughns Mill Road and Pennsville-Pedricktown Road.	Flood	Goal #4	Both	Municipal OEM, Salem County DPW
Oldmans Township	MJ-3	Alleviate flooding at Center Square Road Causeway at intersection of County Route 620 (Center Square Road) and County Route 601 (Pedricktown Road).	Flood	Goal #4	Both	Municipal OEM, Salem County DPW, Gloucester County DPW
Penns Grove Borough	MJ-1	Coordinate timing of releases from upstream dams. ¹³	Dam Failure	Goal #3	Both	Upstream municipalities, Salem County DPW, Salem County OEM
Penns Grove Borough	MJ-2	Delaware River Levee at boundary with Carneys Point Township. ¹⁴	Coastal Erosion and Sea Level Rise / Flood / Levee Failure	Goal #4	Existing	Municipal OEM, Carneys Point Township, NJ DEP
Pennsville Township	MJ-1	Alleviate flooding at DuPont Chamber Works.	Flood	Goal #4	Both	Municipal OEM, DuPont
Pennsville Township	MJ-2	Alleviate flooding at Salem River Creek. Impacts Salem County Route 551 (North Hook Road) and is the alternate evacuation route for PSEG Nuclear Power Plant.	Flood	Goal #4	Both	Municipal OEM, Salem County DPW, USACE

¹² Related to multi-jurisdictional mitigation measure included in Salem City Municipal Appendix.

¹³ Related to multi-jurisdictional mitigation measure included in Carneys Point Township Municipal Appendix.

¹⁴ Related to multi-jurisdictional mitigation measure included in Carneys Point Township Municipal Appendix.

Part 4: Mitigation Measures

Municipality	#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners
Pennsville Township	MJ-3	Alleviate flooding at Miles Creek. Salem County right of way.	Flood	Goal #4	Both	Municipal OEM, Salem County DPW
Pennsville Township	MJ-4	Alleviate flooding at Light House Road and County Route 632.	Flood	Goal #4	Both	Municipal OEM, Salem County DPW
Pennsville Township	MJ-5	Alleviate flooding at NJ Route 49 (evacuation route for PSEG nuclear power plant) [Project currently in progress].	Flood	Goal #4	Both	Municipal OEM, Salem County DPW, NJ Department of Transportation (DOT)
Pennsville Township	MJ-6	Alleviate flooding at County Route 551 (Hook Road) (evacuation route for PSEG nuclear power plant) [Project currently in progress].	Flood	Goal #4	Both	Municipal OEM, Salem County DPW
Pennsville Township	MJ-7	Upgrade tide gates for flooding at pump station. Impacts Salem County Roads. [Project currently in progress]. ¹⁵	Flood	Goal #4	Both	Municipal OEM, Salem County DPW
Pilesgrove Township	MJ-1	Alleviate flooding Camp Crocket ¹⁶ at Avis Mill Pond.	Flood	Goal #4	Both	Municipal OEM, Salem County DPW, NJ DEP
Pilesgrove Township	MJ-2	Alleviate flooding and erosion on County Road 646 (Pointers Auburn Road).	Flood	Goal #4	Both	Municipal OEM, Salem County DPW
Pittsgrove Township	MJ-1	Coordination plan to outline procedures regarding draining and storm preparations related to downstream Union Dam in Millville City (Cumberland County).	Dam Failure	Goal #4	Both	Municipal OEM, Millville City
Quinton Township	MJ-1	Alleviate flooding at County Route 655 (Sickler Street) between Smithfield Street and County Route 651 (Beasley Neck Road).	Flood	Goal #4	Both	Municipal OEM, Salem County DPW
Quinton Township	MJ-2	Alleviate flooding at Waterworks Road and County Route 581 (Quinton Alloway Road).	Flood	Goal #4	Existing	Municipal OEM, Salem County DPW
Quinton Township	MJ-3	Alleviate flooding at intersection of County Route 653 and NJ Route 49 (Acton Station Road).	Flood	Goal #4	Both	Municipal OEM, Salem County DPW

¹⁵ Project included in Letter of Interest (LOI) for DR 4086 HMGP. LOI project #551 budget = \$8,273.00.

¹⁶ Crocket Lake is located in Camp Crocket County Park.

Part 4: Mitigation Measures

Municipality	#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners
Quinton Township	MJ-4	Alleviate flooding on NJ Route 49 (evacuation route) at Keasbey Creek at border between Quinton Township and Salem City. ¹⁷	Flood	Goal #4	Both	Municipal OEM, Salem City OEM, NJ DOT
Salem City	MJ-1	Alleviate flooding on NJ Route 45 at Keasbey Creek at border between Salem City and Mannington Township. ¹⁸	Flood	Goal #4	Existing	Municipal OEM, Mannington Township OEM, NJ DOT
Salem City	MJ-2	Alleviate flooding on NJ Route 49 (evacuation route) at Keasbey Creek at border between Salem City and Quinton Township. ¹⁹	Flood	Goal #4	Existing	Municipal OEM, Quinton Township OEM, NJ DOT.
Upper Pittsgrove Township	MJ-1					
Woodstown Borough	MJ-1	Alleviate erosion under County Route 672 (South Main Street).	Flood (Storm Surge & Tidal)	Goal #4	Both	Municipal OEM, Salem County DPW
Woodstown Borough	MJ-2	Alleviate erosion under Mill Street.	Flood (Storm Surge & Tidal)	Goal #4	Both	Municipal OEM, Salem County DPW
Woodstown Borough	MJ-3	Alleviate flooding at Chestnut Run Creek at railroad tracks on NJ Route 48.	Flood	Goal #4	Both	Municipal OEM, Salem County DPW, and NJDOT
Woodstown Borough	MJ-4	Alleviate flooding at Chestnut Run Creek culvert located under NJ Route 40.	Flood	Goal #4	Both	Municipal OEM and NJ DOT
Woodstown Borough	MJ-5	Alleviate flooding at Chestnut Run Creek culvert under South Main Street (NJ Route 45).	Flood	Goal #4	Both	Municipal OEM, Salem County DPW, and NJ DOT
Woodstown Borough	MJ-6	Alleviate flooding at pipe along Elm Street (in between NJ Route 45 and NJ Route 40)	Flood	Goal #4	Both	Municipal OEM, Salem County DPW, and NJ DOT

¹⁷ Related to multi-jurisdictional mitigation measure included in Salem City Municipal Appendix.

¹⁸ Related to multi-jurisdictional mitigation measure included in Mannington Township Municipal Appendix.

¹⁹ Related to multi-jurisdictional mitigation measure included in Quinton Township Municipal Appendix.

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 municipalities within Salem County, 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

Note: There is no unincorporated land within Salem County. Therefore, participation by Salem County in the NFIP is not required as all flood insurance eligible properties occur within municipal boundaries.

Salem County will support these municipal efforts as part of Mitigation Measures M-1, M-7 and M-8.

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

Salem County will continue to support improvements to municipal capabilities as part of Mitigation Measures M-1, M-7 and M-8.

Plan Review and Integration

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

- Salem County Emergency Operations Plan
- Salem County master plans and related documents

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 each municipalities.

Salem County will continue to support improvements to municipal capabilities as part of Mitigation Measures M-1, M-3, M-4, M-7 and M-8.

Attachment A: Public Review Comments

The following comments were received during the public review of the Salem County Appendix:

Table SC.1.A-1: Public Review Comments

Comment Date and Time	Comment	Response

Note: As of September 16, 2016, no public review comments were received for the Salem County Appendix.

Attachment B: Adoption Resolution

Following this page is the Adoption Resolution for the Salem County Appendix as approved by the Salem County Board of Chosen Freeholders.

Attachment C: Approval Letter

Following this page is the Approval Letter for the Salem County Appendix.



Mitigation Plan for Four New Jersey Counties
Salem County Appendices

Appendix SC.2
Alloway Township, New Jersey

September 16, 2016

Table of Content

Table of Contents	SC.2-i
Part 1 Overview	SC.2-1
1.1: Mitigation Plan for Four New Jersey Counties	SC.2-1
1.2: Alloway Township (Salem County) Municipal Appendix	SC.2-1
Part 2 Participation	SC.2-2
2.1: Municipal Working Group Participation	SC.2-2
2.2: Public Participation	SC.2-4
Part 3 Hazard Identification and Risk Assessment	SC.2-5
3.1: Municipal Profile	SC.2-5
3.2: Hazard Priorities	SC.2-9
3.3: Hazard Mapping	SC.2-10
3.4: Critical Facilities Inventory and Hazard Exposure Assessment	SC.2-11
Part 4 Mitigation Measures	SC.2-14
4.1: Mitigation Goals and Strategy	SC.2-14
4.2: SDVR HMP Mitigation Measures	SC.2-15
4.3: Municipal Mitigation Measures – Identification	SC.2-16
4.4: Municipal Mitigation Measures – Implementation	SC.2-17
4.5: Multi-Jurisdictional Mitigation Measures	SC.2-19
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	SC.2-21

Table of Content

List of Figures

Figure SC.2-1: Alloway Township (Salem County) Location Map	SC.2-5
Figure SC.2-2: Alloway Township Base Map	SC.2-6
Figure SC.2-3: Alloway Township Housing Units by Year Built	SC.2-8
Figure SC.2-4: Alloway Township Mitigation Project Locations	SC.2-20

List of Tables

Table SC.2-1: Alloway Township (Salem County) Working Group	SC.2-2
Table SC.2-2: Public Participation	SC.2-4
Table SC.2-3: Alloway Township Demographics	SC.2-7
Table SC.2-4: Alloway Township Demographic Rankings	SC.2-7
Table SC.2-5: Alloway Township Economics and Housing	SC.2-7
Table SC.2-6: Alloway Township Ranking (Economics and Housing)	SC.2-8
Table SC.2-7: Supporting Mapping and Exhibits	SC.2-10
Table SC.2-8: Alloway Township Critical Facilities Inventory	SC.2-12
Table SC.2-9: Alloway Township Critical Facilities Hazard Exposure	SC.2-13
Table SC.2-10: Status of Alloway Township SDVR HMP Mitigation Measures	SC.2-15
Table SC.2-11: Alloway Township Municipal Mitigation Measures Identification	SC.2-16
Table SC.2-12: Alloway Township Municipal Mitigation Measures Implementation	SC.2-18
Table SC.2-13: Alloway Township Multi-Jurisdictional Mitigation Measures	SC.2-19

Attachments

Attachment SC.2.A: Public Review Comments	SC.2.A-1
Attachment SC.2.B: Adoption Resolution	SC.2.B-1
Attachment SC.2.C: Approval Letter	SC.2.C-1

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: Alloway Township (Salem County) Municipal Appendix

This Municipal Appendix is focused on Alloway Township in Salem County, New Jersey.

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

The Alloway 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 SC.2-1 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 SC.2-1: Alloway Township (Salem County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Working Group Meeting ³	Contribution ⁴
Gary	Remster Jr.	Alloway Township OEM / Alloway Township Fire Company	OEM Coordinator / Fire Chief	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Organized Working Group and Work Sessions.
Andy	Hoglen	Alloway Township Building Code Official	Floodplain Administrator			<input checked="" type="checkbox"/>	
Kenny	McKelvey	Alloway Township Public Works	Public Works Director	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Randy	Hitchner	Alloway Township Fire Company	19-10A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Brian	Ledy	Alloway Township Ambulance	19 12-A		<input checked="" type="checkbox"/>		

¹ Round 1 Work Session was held on June 17, 2014.

² Round 2 Work Session was held on September 23, 2014.

³ The Municipal Working Group met on December 29, 2014.

⁴ 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 SC.2-1.

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.⁵

- Elected Officials
- Building Code Official
- Engineering
- Community / Faith-Based Organizations
- Major Employers and Businesses
- School Board

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.

- Land Use / Economic Development Planner
- GIS/IT Specialist
- Transportation Department
- Police
- Business Associations
- Residents and Property Owners in hazard-prone areas
- Environmental Organizations
- Non-Governmental Organizations
- Critical Infrastructure and Key Resources
- Healthcare Institutions

⁵ 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 SC.2-2 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 SC.2-2: Public Participation

Date	Type of Involvement	Location
September 30, 2014	Link to Project Website (http://nj4hmp.com) established	Volunteer Fire Company / Office of Emergency Management ⁶
December 9, 2014	Preliminary Municipal Appendix posted to website for public comment	Volunteer Fire Company / Office of Emergency Management ⁶
December 18, 2014	Public hearing included on Alloway Township Committee agenda providing for open discussion, and public comment regarding the Preliminary Municipal Appendix	Alloway 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.⁷ In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities.⁸

⁶ <http://www.allowaytownship.com/default.asp?contentID=961>

⁷ See Mitigation Measure M-1 in Part 4 of the Municipal Appendix.

⁸ See *Section 4: Mitigation Measures* of the NJ4 HMP Regional Hazard Mitigation Plan.

Part 3: Hazard Identification and Risk Assessment

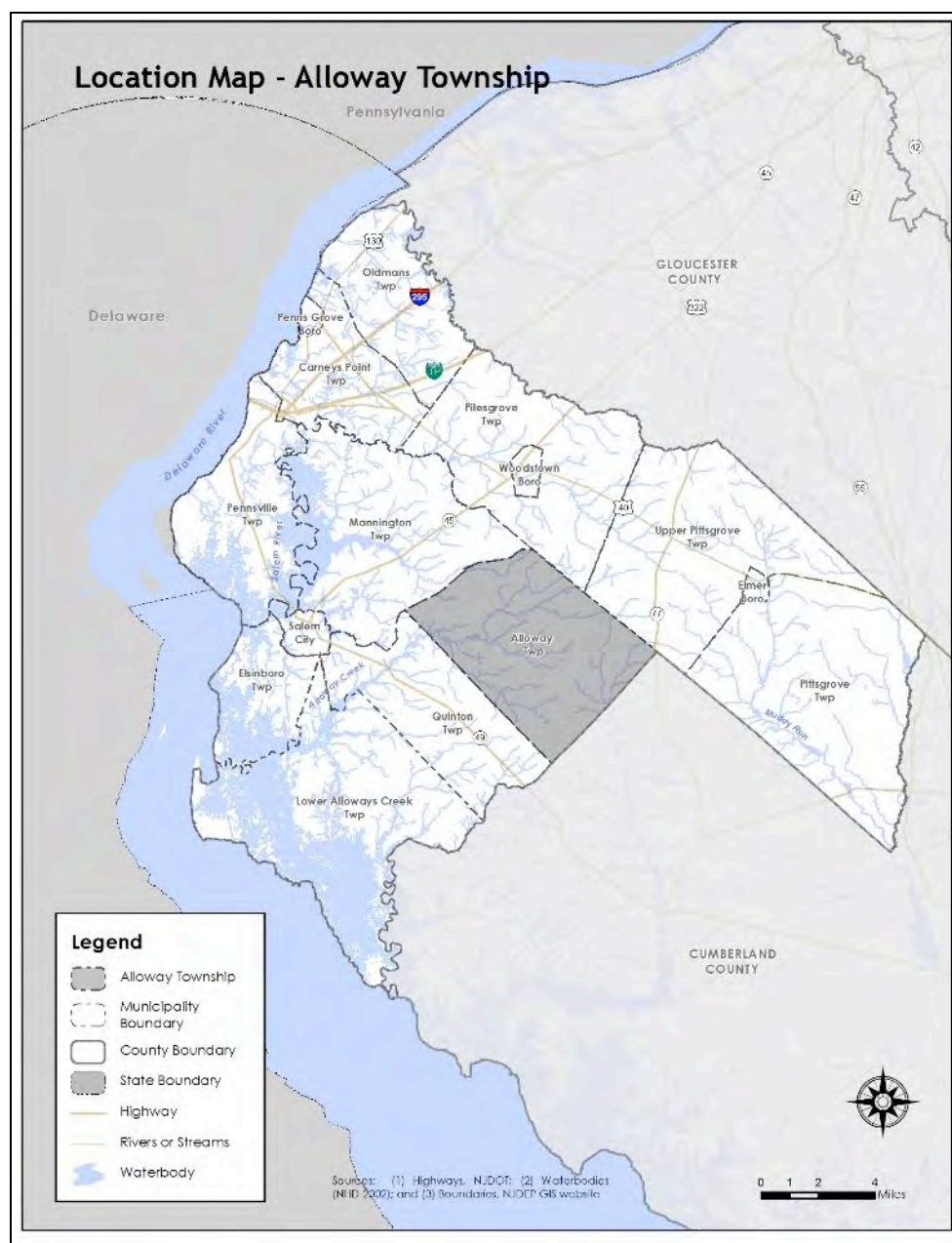
Part 3.1: Municipal Profile

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

Alloway Township is located on the southern edge of Salem County (See Figure SC.2-1).

Figure SC.2-1: Alloway Township (Salem County) Location Map

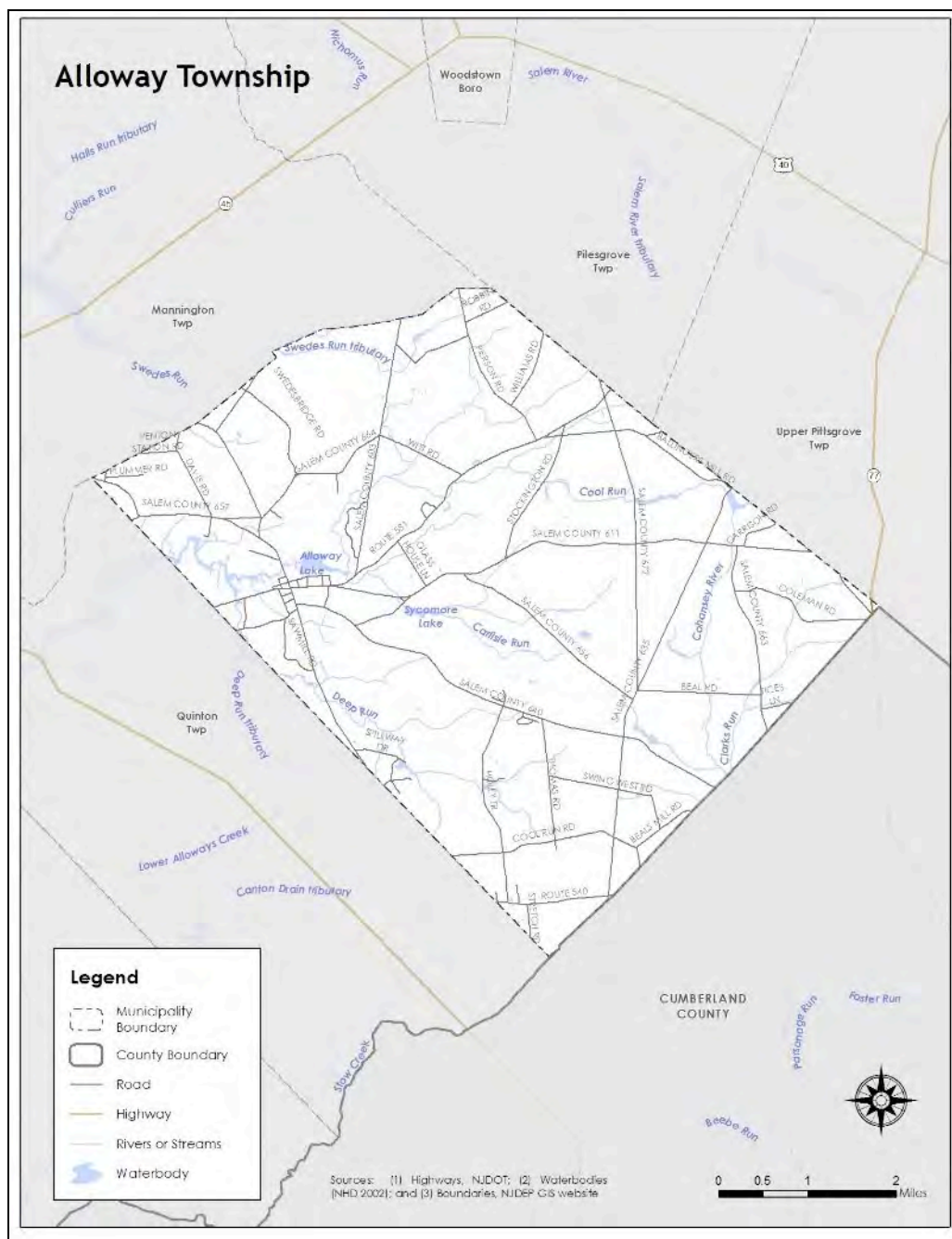


Part 3: Hazard Identification and Risk Assessment

Alloway Township is an area of forested wetlands, agricultural properties, and the Alloway Creek watershed that comprises 20% of Salem County. As a watershed, Alloway Creek is a valuable natural resource and habitat for fishing, recreation, and hunting.

Per Figure SC.2-2 the major water bodies include Alloway Lake and Cool Run. Major transportation routes include NJ State Route 77 and Salem County Routes 540, 581, and 635. The land is gently rolling and is heavily covered in forests.

Figure SC.2-2: Alloway Township Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table SC.2-3 is a compilation of demographic information for the municipality and comparison with the county, the four county region, and State of New Jersey.

Table SC.2-3: Alloway Township Demographics
(Source: Census DP-1, 2010 ACS 5-Year Estimates, DP 3, 4)

	Alloway Township	Salem County	Region	New Jersey
2000 Population	2,774	64,285	974,328	8,414,350
2010 Population	3,467	66,083	1,024,926	8,791,894
Percent Change	24.98%	2.80%	5.19%	4.49%
Population Density	103.8 / sq. mile	199.1 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	33.40 sq. miles	331.90 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population 18 and younger	26.2	23.5	24.1	23.5
% of Population 18 - 64	61.9	61.5	62.7	63
% of Population 65 and over	11.9	15.0	13.2	13.5

Table SC.2-4 illustrates how Alloway Township ranks in the county, the four county region, and New Jersey.

Table SC.2-4: Alloway Township Demographic Rankings

	Salem County (total of 15)	Region (total of 90)	New Jersey (total of 566)
Population Rank	9	62	432
Land Area Rank	6	16	75
Population Density Rank	8	78	541
Population Change Rank	1	6	-

Table SC.2-5 includes information related to economic and housing statistics for Alloway Township, Salem County, the four county region, and New Jersey.

Table SC.2-5: Alloway Township Economics and Housing
(Source: USDA ERS, Census DP-1, 2010 ACS 5-Year Estimates, DP 3, 4; NJ LWD 2010)

	Alloway Township	Salem County	Region	New Jersey
Date Incorporated	February 21, 1798	1748	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$71,333	\$50,651	\$60,933	\$69,811
Total Number of Housing Units	577	55,834	397,990	3,529,033
Occupied Housing Units	532	51,931	372,472	3,176,069
Vacant Housing Units	45	3,903	25,518	352,964
Owner Occupied Housing Units	477	34,622	266,593	2,126,279
Renter occupied Housing Units	55	17,309	105,879	1,049,790

Part 3: Hazard Identification and Risk Assessment

	Alloway Township	Salem County	Region	New Jersey
Building Permits	2	246	1,554	13,535
Largest Industry	Agriculture, followed by Educational Services; Forestry, Fishing, and Hunting; and Health Care and Social Assistance	Educational services, and health care and social assistance	Educational services, and health care and social assistance	Educational services, and health care and social assistance

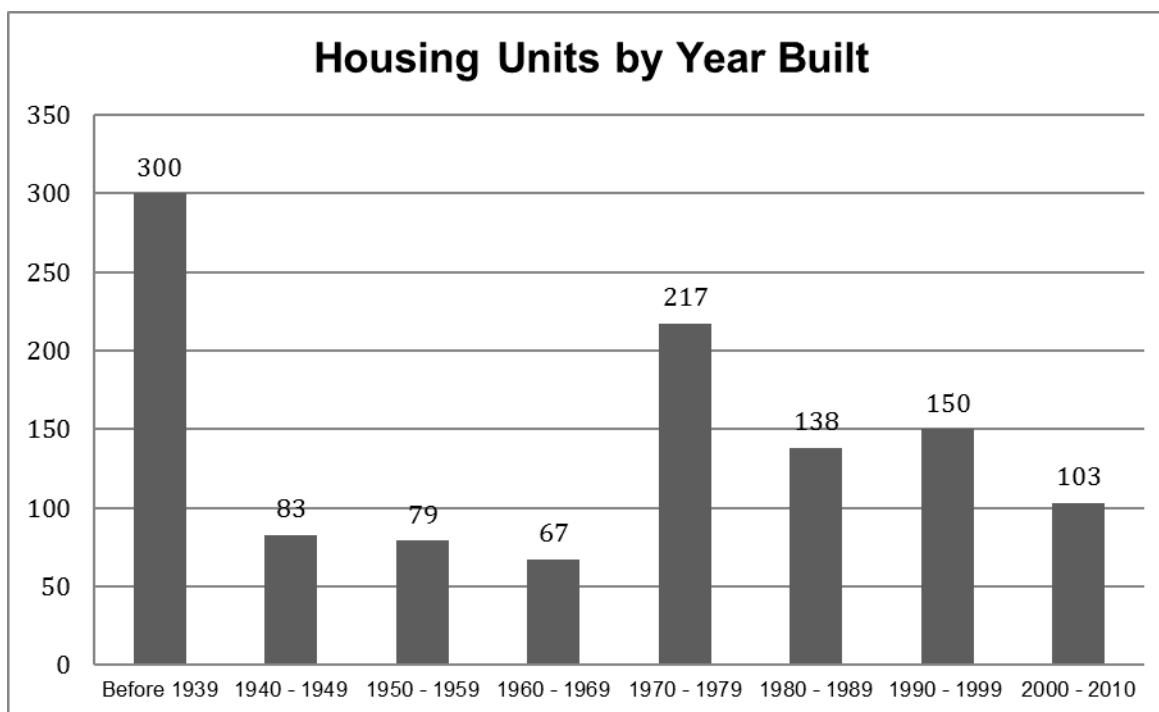
Table SC.2-6 illustrates how Alloway Township ranks in the county and the four county region.

Table SC.2-6: Alloway Township Ranking (Economics and Housing)

	Salem County (total of 15)	Region (total of 90)
Median Household Income Rank	2	11
Vacant Housing Rank	8	64
Renter Occupied Housing Rank	11	73
Building Permits Rank	7	53

Figure SC.2-3 illustrates development patterns in Alloway Township by examining housing units by year built.

Figure SC.2-3: Alloway Township Housing Units by Year Built
(Source: 2010 ACS 5-Year Estimates, DP 4)



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

- Wildfire

Moderate Priority

- Dam Failure
- High Wind
- Severe Storm – Winter Weather

Low Priority

- Drought
- Earthquake
- Extreme Temperature: Cold & Hot
- Flood
- Levee Failure
- Severe Weather - Summer

Two additional hazards were identified but were not considered applicable to the municipality:

- Coastal Erosion & Sea Level Rise
- Geologic Hazards

¹ See Section 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 SC.2-7 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 was used in the Critical Facilities Hazard Exposure Assessment described in Part 3.4.

Table SC.2-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
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	Wildland 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 3.4: 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 SC.2-8 contains updated inventory information for municipal critical facilities including cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix.

Table SC.2-9 contains results of overlaying critical facility locations with hazard mapping identified in Part 3.3. The results indicate critical facilities that are potentially exposed to specific hazards. 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 SC.2-8: Alloway Township (Salem County) Critical Facilities Inventory

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-1	Municipal Building	Municipal	Administrative Offices	49 South Greenwich Street, Alloway		Y	N	Shelter of last resort	M-5 / M-9
CF-2	Emergency Operations Center	EOC	Co-located Facilities	17 East Main Street, Alloway	CF-3	N	Y		M-10
CF-3	Alloway Township Fire Company	FireStation	Stations	17 East Main Street, Alloway	CF-2	N	Y		
CF-4	Alloway Township Ambulance	EMS	Municipal Stations	19 East Main Street, Alloway		N	N		M-6
CF-5	Public Works	Public Works	Combined Administrative Office, Maintenance / Work Area, Equipment / Material Storage, and Fueling Station	84 Camp Edge Road, Alloway		N	Y		
CF-6	Sewer Pump Station	Utilities – Wastewater	Pump stations / Lift Stations	88 West Main Street, Alloway		N/A	Y		
CF-7	Ranch Hope Sewer Pump Station	Utilities - Wastewater	Pump stations / Lift Stations	49 Sawmill Road, Alloway		N/A	N		
CF-8	Alloway Township Elementary School	Schools	Public Schools	43 Cedar Street / P.O. Box 327, Alloway		Y	N		M-7
CF-9	Mennonite School	Schools	Private Schools	256 Pecks Corner-Cohansey Road, Bridgeton		N	N		
CF-10	Ranch Hope, Inc.	Schools	Private Schools	37 Sawmill Road, Alloway		N	N		

Part 3: Hazard Identification and Risk Assessment

Table SC.2-9: Alloway Township (Salem County) Critical Facilities Hazard Exposure

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ²	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 ³	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	Municipal Building	N/A	N/A	N/A	1.12	N/A	-	-	-	-	-	-	4.50	-	-
CF-2	Emergency Operations Center	N/A	N/A	N/A	1.34	N/A	-	-	-	-	-	-	4.66	-	-
CF-3	Alloway Township Fire Company	N/A	N/A	N/A	1.34	N/A	-	-	-	-	-	-	4.66	-	-
CF-4	Alloway Township Ambulance	N/A	N/A	N/A	1.34	N/A	-	-	-	-	-	-	4.66	-	-
CF-5	Public Works	N/A	N/A	N/A	2.31	N/A	-	-	-	-	-	-	5.70	-	-
CF-6	Sewer Pump Station	N/A	N/A	N/A	0.95	N/A	-	-	-	-	-	-	4.17	-	-
CF-7	Ranch Hope Sewer Pump Station	N/A	N/A	N/A	1.48	N/A	-	-	-	-	-	-	4.64	-	-
CF-8	Alloway Township Elementary School	N/A	N/A	N/A	0.95	N/A	-	-	-	-	-	-	4.31	-	-
CF-9	Mennonite School	N/A	N/A	N/A	7.98	N/A	-	-	-	-	-	-	4.53	-	-
CF-10	Ranch Hope, Inc.	N/A	N/A	N/A	1.39	N/A	-	-	-	-	-	-	9.68	-	-

² Distance in miles to nearest dam.

³ Distance in miles to nearest levee.

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
- 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 SC.2-10 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 SC.2-10.

Table SC.2-10: Status of Alloway Township (Salem County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Alloway 1: Conduct inundation studies for Camp Roosevelt Dam, Camp Grice Dam, and Camp Edge Dam.	Not completed, not funded	Multi-jurisdictional mitigation measure is include in updated Municipal Appendix.	MJ-1
Alloway 2: Upgrade pipe for storm-water off block of W. Main Street, Cedar Street, Lambert Street, and Greenwich Street.	Work-in-progress	Issue was partially resolved through Capital Improvement funds. Additional work is required to resolve this issue. Therefore, mitigation measure is included in updated Municipal Appendix.	M-8
Alloway 3: Harden Emergency Operations Center (EOC).	Work-in-progress	Issue was partially resolved through Alloway Township Fire Company funds. Additional work is required to resolve this issue. Therefore, mitigation measure is included in updated Municipal Appendix.	M-10
Alloway 4: Create safety zones around critical facilities in wildfire risk areas.	Not completed, not funded	Multi-jurisdictional mitigation measure is include in updated Municipal Appendix.	MJ-2
Alloway 5: Conduct fire-safe building training sessions for area contractors.	Not completed, not funded	Revised mitigation measure is included in updated Municipal Appendix.	M-1
Alloway 6: Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	Not completed, not funded	Revised mitigation measure is included in updated Municipal Appendix.	M-1

Table SC.2-10 Notes:

- A. See Tables SC.2-11 and SC.2-12 for municipal (M-#) mitigation measures
- B. See Table SC.2-13 for multi-jurisdictional (MJ-#) mitigation measures

Part 4: 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 SC.2-11 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

Note: Alloway Township does not currently have RL or SRL properties per information provided by the New Jersey Department of Environmental Protection.

Table SC.2-11 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 SC.2-4.

Table SC.2-11: Alloway Township (Salem 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 to inform municipal residents, businesses, and property owners regarding: <ul style="list-style-type: none">• Current hazards and risks to include wildfire• 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

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.

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

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
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 Municipal Building (CF-1). ³	All	Goal #4	Both
M-6	Install permanent backup emergency power generator at EMS facility (CF-4).	All	Goal #4	Both
M-7	Install permanent backup emergency power generator at Alloway Township Elementary School (CF-8).	All	Goal #4	Both
M-8	Upgrade pipe for storm-water off block of West Main Street, Cedar Street, Lambert Street, and Greenwich Street.	Flood	Goal #4	Both
M-9	Floodproof Municipal Building (CF-1). ⁴	Flood	Goal #4	Both
M-10	Harden / retrofit Emergency Operations Center (EOC) (CF-2).	High Wind	Goal #4	Both

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 SC.2-12 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 criteria⁵
- Project Type to help determine funding options and implementation mechanisms at the municipal level⁶
- 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

³ Project included in Letter of Interest (LOI) for DR 4086. LOI project #552 budget = \$148,000.00.

⁴ Project included in Letter of Interest (LOI) for DR 4086. LOI project #397 budget = \$53,000.00.

⁵ 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.

⁶ 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

Table SC.2-12: Alloway Township (Salem 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	Low	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	Low	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	Low	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. ⁷
M-5	Install permanent backup emergency power generator at Municipal Building (CF-1).	Municipal OEM and Public Works Department	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-6	Install permanent backup emergency power generator at EMS facility (CF-4).	Municipal OEM and EMS	Moderate	Back-up Emergency Power Generator	< \$100K	Three to five years	Conduct project scoping.
M-7	Install permanent backup emergency power generator at Alloway Township Elementary School (CF-8).	Municipal OEM and School Board	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-8	Upgrade pipe for storm-water off block of West Main Street, Cedar Street, Lambert Street, and Greenwich Street.	Municipal OEM and Public Works Department	Moderate	Private Property Flood Mitigation	\$100K - \$500K	Three to five years	Conduct project scoping.
M-9	Floodproof Municipal Building (CF-1).	Municipal OEM and Public Works Department	Moderate	Public Property Flood Mitigation	\$148,000	Three to five years	Conduct project scoping.
M-10	Harden / retrofit Emergency Operations Center (EOC) (CF-2).	Municipal OEM and Public Works Department	High	Building Retrofit	\$100K - \$500K	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 SC.2-13.

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

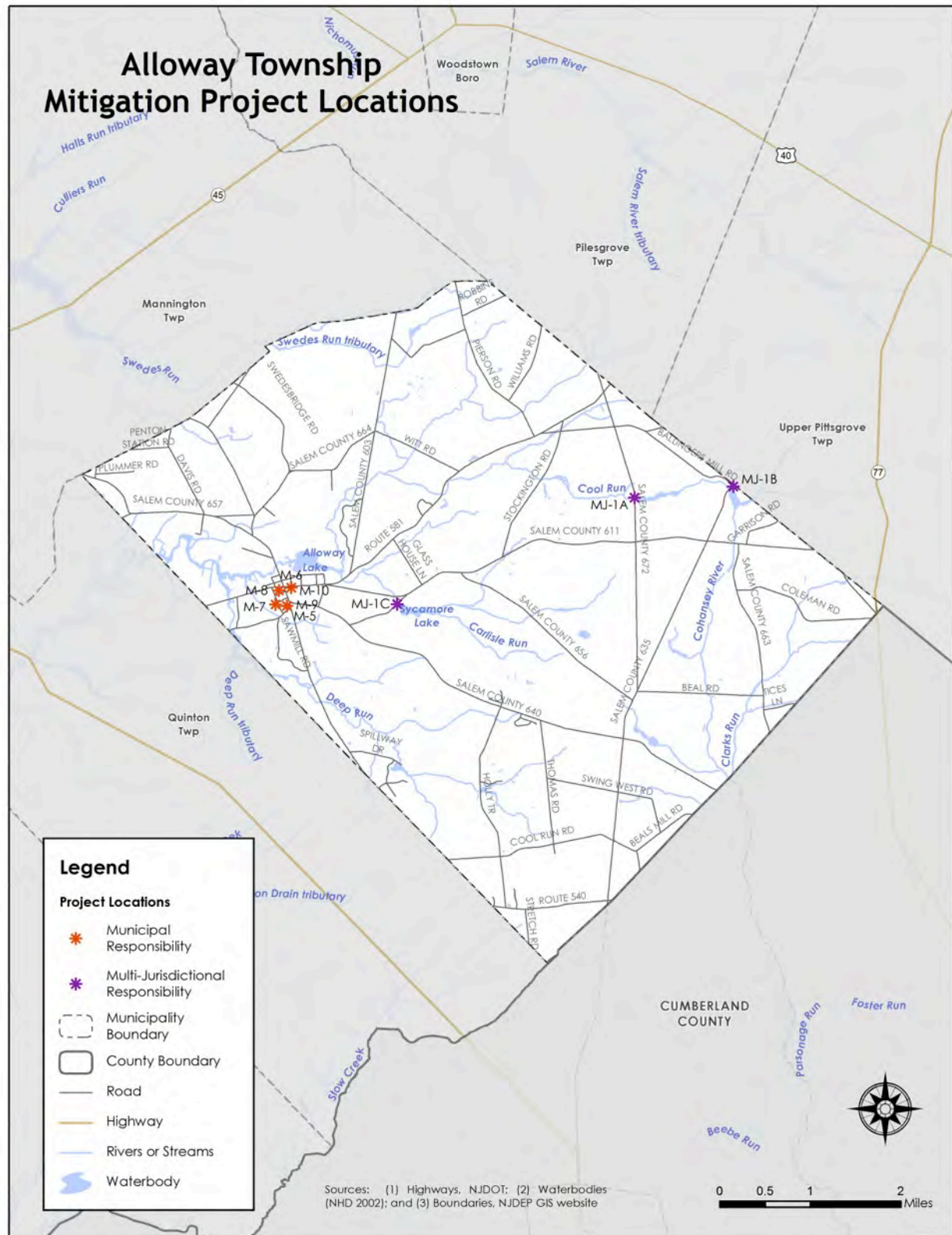
Note: Multi-jurisdictional mitigation measures with discrete locations are shown in Figure SC.2-4.

Table SC.2-13: Alloway Township (Salem County) Multi-Jurisdictional Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-1	Risk Assessment - Camp Roosevelt Dam, Camp Grice Dam, and Camp Edge Dam.	Dam Failure	Goal #4	Existing	Municipal OEM, NJ DEP, Salem County Engineering, Local Boy Scouts Chapter	Moderate
MJ-2	Critical facilities in wildfire risk areas.	Wildfire	Goal #4	Existing	Municipal OEM, NJ State Forest Fire Service	Moderate

Part 4: Mitigation Measures

Figure SC.2-4: Alloway 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 (2012)
- Master Plan (1975) and Reexamination Report (2006)
- Land Use Development Ordinance⁷
- Environmental Resource Inventory (2000)⁸
- Farmland Preservation Plan (2011)⁹
- Capital Improvement Program (2014)

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.

⁷ <http://ecode360.com/13785205#13785205>

⁸ http://www.allowaytownship.com/downloads/Docs_Environmental/AllowayTwpERI_7-24-2000.pdf

⁹ http://www.allowaytownship.com/downloads/Docs_Planning_Board/2011%20PB%20Docs/AllowayFarmlandPreservationPlan-AdoptedOctober12-2011-NoAppG.pdf

Attachment A: Public Review Comments

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

Table SC.2.A-1: Public Review Comments

Comment Date and Time	Comment	Response

Note: As of September 16, 2016, no public review comments were received for the Alloway Township Municipal Appendix.

Attachment B: Adoption Resolution

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

Attachment C: Approval Letter

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



Mitigation Plan for Four New Jersey Counties
Salem County Appendices

Appendix SC.3
Carneys Point Township, New Jersey

September 16, 2016

Table of Contents

Table of Contents	SC.3-i
Part 1 Overview	SC.3-1
1.1: Mitigation Plan for Four New Jersey Counties	SC.3-1
1.2: Carneys Point Township (Salem County) Municipal Appendix	SC.3-1
Part 2 Participation	SC.3-2
2.1: Municipal Working Group Participation	SC.3-2
2.2: Public Participation	SC.3-4
Part 3 Hazard Identification and Risk Assessment	SC.3-5
3.1: Municipal Profile	SC.3-5
3.2: Hazard Priorities	SC.3-9
3.3: Hazard Mapping	SC.3-10
3.4: Critical Facilities Inventory and Hazard Exposure Assessment	SC.3-11
Part 4 Mitigation Measures	SC.3-15
4.1: Mitigation Goals and Strategy	SC.3-15
4.2: SDVR HMP Mitigation Measures	SC.3-16
4.3: Municipal Mitigation Measures – Identification	SC.3-17
4.4: Municipal Mitigation Measures – Implementation	SC.3-19
4.5: Multi-Jurisdictional Mitigation Measures	SC.3-22
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	SC.3-25

Table of Contents

List of Figures

Figure SC.3-1: Carneys Point Township (Salem County) Location Map	SC.3-5
Figure SC.3-2: Carneys Point Township Base Map	SC.3-6
Figure SC.3-3: Carneys Point Township Housing Units by Year Built	SC.3-8
Figure SC.3-4: Carneys Point Township Mitigation Project Locations	SC.3-24

List of Tables

Table SC.3-1: Carneys Point Township (Salem County) Working Group	SC.3-2
Table SC.3-2: Public Participation	SC.3-4
Table SC.3-3: Carneys Point Township Demographics	SC.3-7
Table SC.3-4: Carneys Point Township Demographic Rankings	SC.3-7
Table SC.3-5: Carneys Point Township Economics and Housing	SC.3-7
Table SC.3-6: Carneys Point Township Ranking (Economics and Housing)	SC.3-8
Table SC.3-7: Supporting Mapping and Exhibits	SC.3-10
Table SC.3-8: Carneys Point Township Critical Facilities Inventory	SC.3-12
Table SC.3-9: Carneys Point Township Critical Facilities Hazard Exposure	SC.3-14
Table SC.3-10: Status of Carneys Point Township SDVR HMP Mitigation Measures	SC.3-16
Table SC.3-11: Carneys Point Township Municipal Mitigation Measures Identification	SC.3-18
Table SC.3-12: Carneys Point Township Municipal Mitigation Measures Implementation	SC.3-19
Table SC.3-13: Carneys Point Township Multi-Jurisdictional Mitigation Measures	SC.3-23

Attachments

Attachment SC.3.A: Public Review Comments	SC.3.A-1
Attachment SC.3.B: Adoption Resolution	SC.3.B-1
Attachment SC.3.C: Approval Letter	SC.3.C-1

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: Carneys Point Township (Salem County) Municipal Appendix

This Municipal Appendix is focused on Carneys Point Township in Salem County, New Jersey.

The Carneys Point Township Municipal Working Group recommended the Carneys Point Township (Salem County) Municipal Appendix for adoption to the Carneys Point Township Committee.

The Carneys Point 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 SC.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 SC.3-1: Carneys Point Township (Salem County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Contribution ³
Arnold	Diteodoro	Carneys Point Township OEM	Emergency Management Coordinator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
James	Williamson	Carneys Point Township OEM	Deputy Emergency Management Coordinator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Charles	Newton	Carneys Point Township Committee	Deputy Mayor		<input checked="" type="checkbox"/>	
Kenneth	Brown	Carneys Point Township Committee	Committeeman		<input checked="" type="checkbox"/>	
Gene	Gilbert	Carneys Point Township Public Works	Public Works Superintendent	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Kim	Minguez	Carneys Point Construction Office / Zoning Office	Zoning Officer		<input checked="" type="checkbox"/>	
Erik	Biermann	Engineering Consultant to the Township	Consulting Engineer, Sickels and Associates, Inc.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Robert	Berducci	Carneys Point Construction Office / Zoning Office	Construction Official / Floodplain Administrator			Reviewed Preliminary Municipal Appendix

¹ Round 1 Work Session was held on July 24, 2014.

² Round 2 Work Session was held on October 16, 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 SC.3-1.

Part 2: Participation

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Contribution ³
Reginald	Reed	Hopewell Church			<input checked="" type="checkbox"/>	
Will	Beers	The Wesleyan Church	Reverend		<input checked="" type="checkbox"/>	
Colleen	Ayars	Merion Gardens Assisted Living	Director of Finance / Assistant Administrator		<input checked="" type="checkbox"/>	
Matt	Springer	Village Arms Apartments	Maintenance Supervisor		<input checked="" type="checkbox"/>	
William	Luciano III	Village Arms Apartments	Maintenance		<input checked="" type="checkbox"/>	
Bill	Schockel	Resident	Volunteer		<input checked="" type="checkbox"/>	

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

- Police Department
- Utilities (e.g., Township Sewer Authority)
- Salem County Chamber of Commerce

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 (Services provided by Salem County)
- Environmental Organizations

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 SC.3-2: Public Participation

Date	Type of Involvement	Location
October 6, 2014	Email sent to local business owners	n/a
October 17, 2014	Link to Project Website (http://nj4hmp.com) established	Carneys Point Emergency Management webpage ⁵
December 1, 2014	Flyers posted	Municipal Building Notice Board
December 8, 2014	Preliminary Municipal Appendix posted to website for public comment	Carneys Point Township Emergency Management website ⁶
December 17, 2014	Public hearing included on Carneys Point Township Committee agenda providing for open discussion, and public comment regarding the Preliminary Municipal Appendix	Carneys Point 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.⁷ In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities.⁸

⁵ <http://carneypointnj.gov/departments-commissions/emergency-management/>

⁶ <http://carneypointnj.gov/departments-commissions/emergency-management/>

⁷ See Mitigation Measure M-1 in Part 4 of the Municipal Appendix.

⁸ See *Section 4: Mitigation Measures* of the NJ4 HMP Regional Hazard Mitigation Plan.

Part 3: Hazard Identification and Risk Assessment

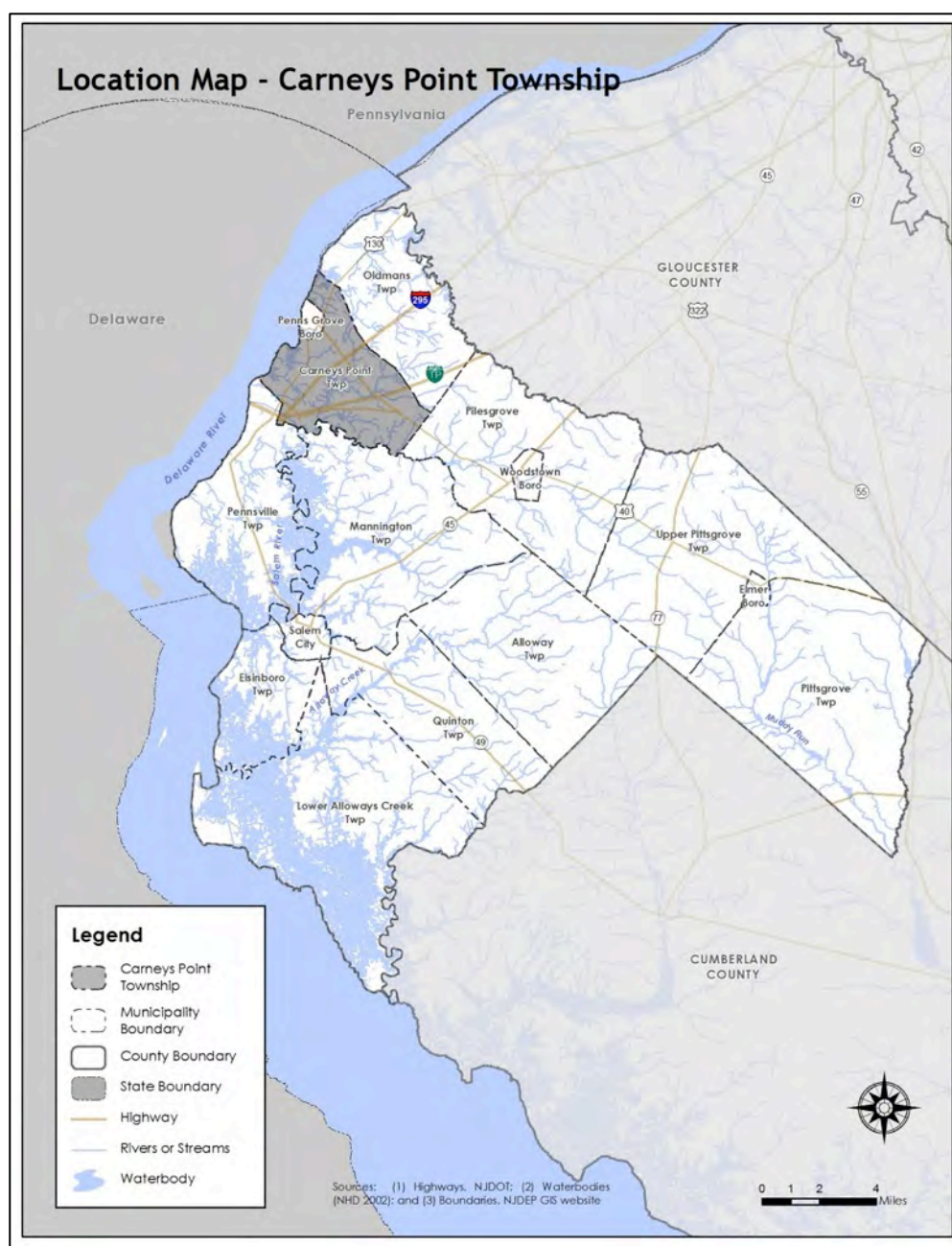
Part 3.1: Municipal Profile

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

Carneys Point Township is located in the northwestern edge of Salem County (See Figure SC.3-1).

Figure SC.3-1: Carneys Point Township (Salem County) Location Map

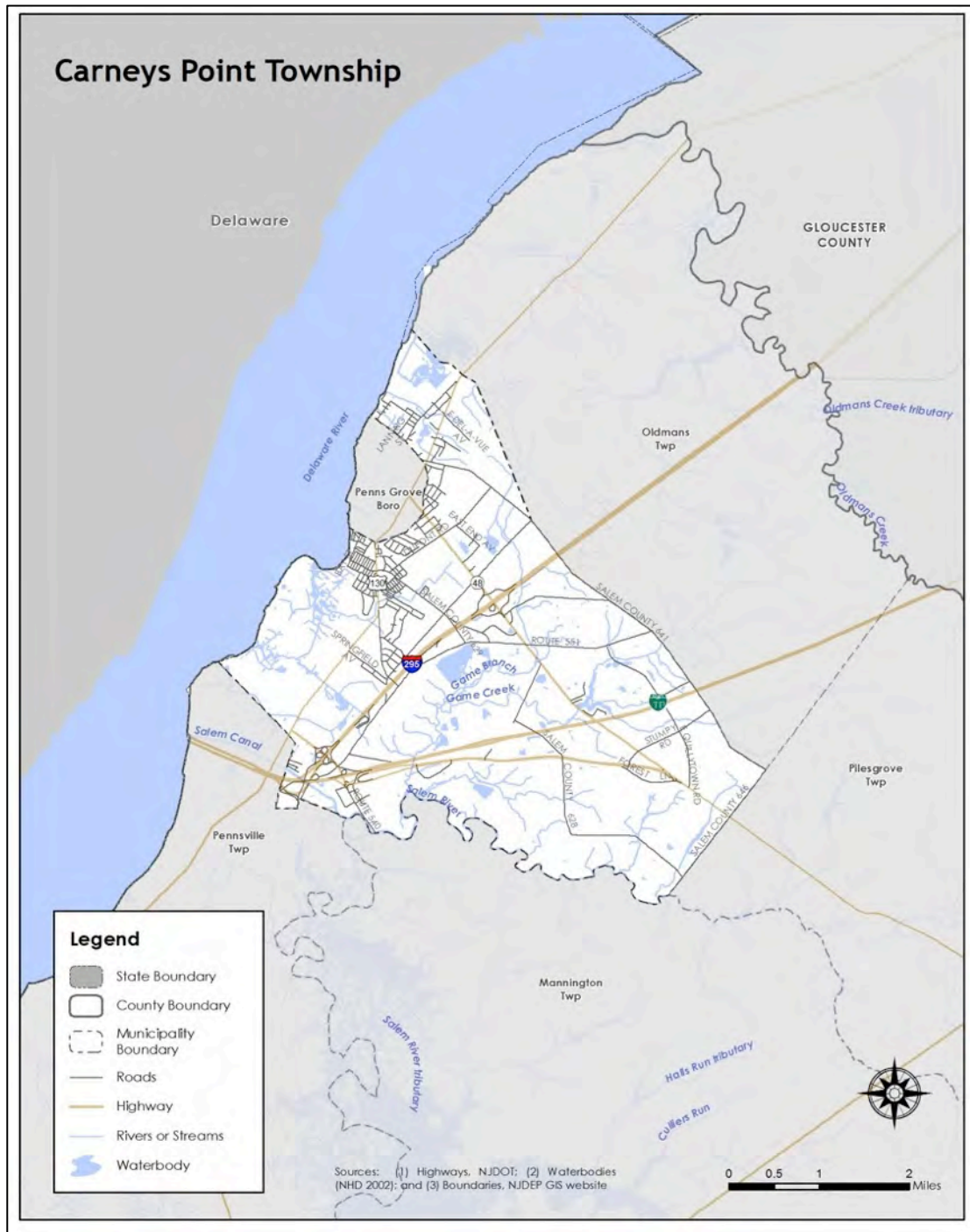


Part 3: Hazard Identification and Risk Assessment

Carneys Point Township is a riverfront municipality. The township has experienced moderate population growth per recent census data. The Township includes large areas of lowlands and has a relatively low population density. About one in five homes in Carneys Point Township were built prior to 1939.

Per Figure SC.3-2, the major water courses include the Delaware River and the Salem River. Major transportation routes include Interstate 295 and the New Jersey Turnpike. The land is predominantly flat.

Figure SC.3-2: Carneys Point Township Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table SC.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 SC.3-3: Carneys Point Township Demographics
(Source: Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4)

	Carneys Point Township	Salem County	Region	New Jersey
2000 Population	7,684	64,285	974,328	8,414,350
2010 Population	8,049	66,083	1,024,926	8,791,894
Percent Change	4.75%	2.80%	5.19%	4.49%
Population Density	477.3 / sq. mile	199.1 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	16.86 sq. miles	331.90 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population 18 and younger	20.1	23.5	24.1	23.5
% of Population 18 - 64	61.2	61.5	62.7	63
% of Population 65 and over	18.7	15.0	13.2	13.5

Table SC.3-4 illustrates how Carneys Point Township ranks in the county, the four county region, and New Jersey.

Table SC.3-4: Carneys Point Township Demographic Rankings

	Salem County (total of 15)	Region (total of 90)	New Jersey (total of 565)
Population Rank	3	35	285
Land Area Rank	10	33	158
Population Density Rank	6	63	445
Population Change Rank	6	30	-

Table SC.3-5 includes information related to economic and housing statistics for Carneys Point Township, Salem County, the four county region, and New Jersey.

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

	Carneys Point Township	Salem County	Region	New Jersey
Date Incorporated	February 21, 1798	1694	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$51,277	\$59,441	\$60,933	\$69,811
Total Number of Housing Units	3,502	27,417	397,990	3,529,033
Occupied Housing Units	3,264	25,290	372,472	3,176,069
Vacant Housing Units	238	2,127	25,518	352,964
Owner Occupied Housing Units	2,174	18,091	266,593	2,126,279
Renter occupied Housing Units	1,090	7,199	105,879	1,049,790
Building Permits	10	105	1,554	13,535

Part 3: Hazard Identification and Risk Assessment

	Carneys Point Township	Salem County	Region	New Jersey
Largest Industry	Educational Services, and health care and social assistance	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 SC.3-6 illustrates how Carneys Point Township ranks in the county and the four county region.

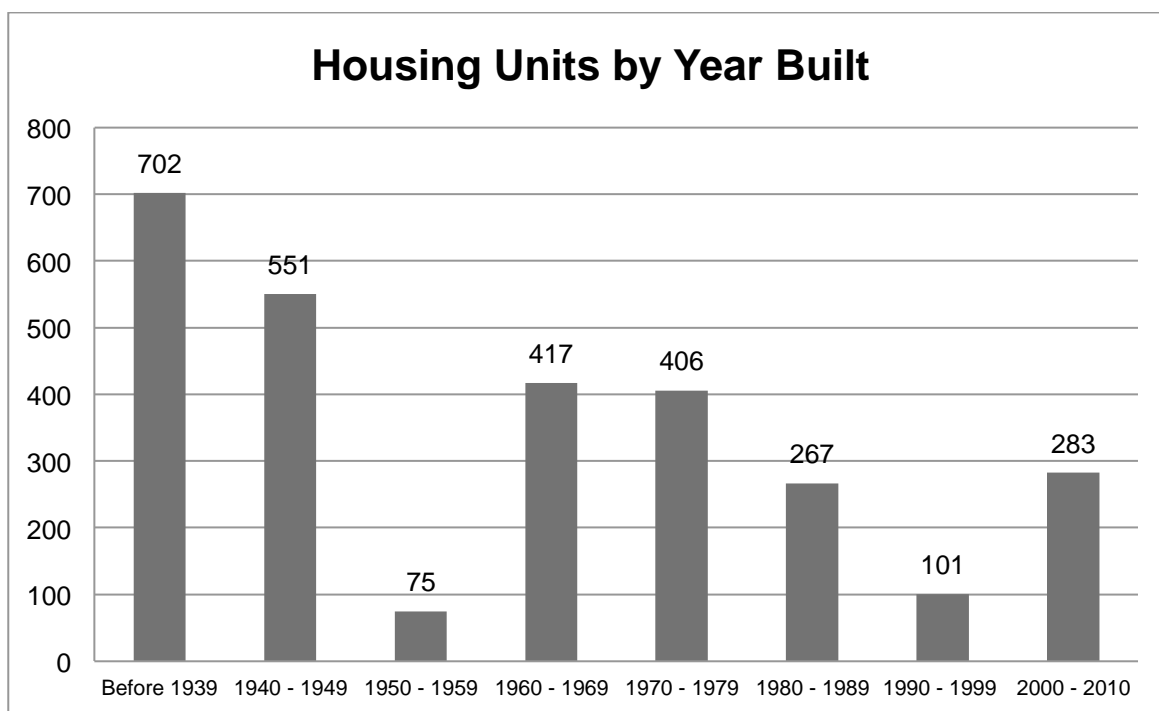
Table SC.3-6: Carneys Point Township Ranking (Economics and Housing)

	Salem County (total of 15)	Region (total of 90)
Median Household Income Rank	13	74
Vacant Housing Rank	3	28
Renter Occupied Housing Rank	4	26
Building Permits Rank	4	33

Figure SC.3-3 illustrates development patterns in Carneys Point Township by examining housing units by year built.

Figure SC.3-3: Carneys Point Township Housing Units by Year Built

(Source: 2010 ACS 5 Year Estimates, DP 4)



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

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

Moderate Priority

- Drought

Low Priority

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

One additional hazard was considered 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 SC.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 was used in the Critical Facilities Hazard Exposure Assessment described in Part 3.4.

Table SC.3-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
Figure RP.D-3	Coastal Erosion & Sea Level Rise	Increased Inundation Areas (Coastal Scenarios)	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	Identify areas subject to periodic flooding
Figure RP.D-54	Flood	Coastal Flood Loss Atlas (CFLA) SLOSH Model – Maximum of Maximum (MOM)	Identify areas subject to storm surge inundation
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	Wildland 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 3.4: 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 SC.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.

Table SC.3-9 contains results of overlaying critical facility locations with hazard mapping identified in Part 3.3. The results indicate critical facilities that are potentially exposed to specific hazards. 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 SC.3-8: Carneys Point Township (Salem 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	303 Harding Highway, Carneys Point		N	N ²		M-5
CF-2	Emergency Operations Center	EOC	Co-located Facilities	303 Harding Highway, Carneys Point	CF-1	N	Y		
CF-3	Police Station	Law Enforcement Facilities	Stations	303 Harding Highway, Carneys Point	CF-1	N	Y		
CF-4	Fire Station	Fire Stations / EMS	Stations	258 D Street, Carneys Point		N	N		M-6
CF-5	Public Works Yard	Public Works	Combined Administrative Office, Maintenance / Work Area, Equipment / Material Storage, and Fueling Station	344 Penns Grove-Auburn Road, Carneys Point		N	Y ³		M-7
CF-6	Bouton Creek Pump Station	Utilities – Stormwater	Pump Station	39 42 20.13 N 75 28 26.91 W		N/A	N		M-8
CF-7	Plant Road Pump Station	Utilities – Stormwater	Pump Station	39 43 2.42 N 75 28 34.32 W		N/A	Y		
CF-8	Penns Grove High School	Schools	Public Schools	334 Harding Highway, Carneys Point		Y ⁴	Y ⁵	Radiological evacuation center. Stormwater runoff / flooding issue	M-9
CF-9	Field Street Elementary School	Schools	Public Schools	114 Field Street, Carneys Point		Y ⁶	N		M-10
CF-10	Lafayette-Pershing Elementary School	Schools	Public Schools	237 Shell Road, Carneys Point		Y ⁶	Y ⁵		M-11

² Existing generator only provides emergency back-up power to Police Department and Courtroom.

³ Existing generator is old and inadequate to provide back-up emergency power.

⁴ Penns Grove High School shelter has been certified by the American Red Cross.

⁵ Existing generator only provides back-up emergency power for emergency lights

⁶ As of October 16, 2014, under review by the American Red Cross.

Part 3: Hazard Identification and Risk Assessment

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-11	Carneys Point Senior Citizen Complex	Vulnerable Populations Facilities	Private Age Restricted Housing	44 South DuPont Road, Carneys Point		Y	N		M-12
CF-12	Southgate Healthcare Center	Vulnerable Populations Facilities	Private Nursing Home	449 South Pennsville Auburn Road, Carneys Point		Y ⁷	Y ⁵		M-13
CF-13	Carneys Point Care Center	Vulnerable Populations Facilities	Private Nursing Home	199 Fifth Avenue, Carneys Point		Y ⁷	Y ⁵	Flooding problems	M-14, M-16
CF-14	Merion Gardens	Vulnerable Populations Facilities	Private Assisted Living	315 Merion Avenue, Carneys Point		Y ⁷	Y ⁸		

⁷ Shelter-in-place.

⁸ As of October 16, 2014, back-up emergency power generator installation pending permits.

Part 3: Hazard Identification and Risk Assessment

Table SC.3-9: Carneys Point Township (Salem County) Critical Facilities Hazard Exposure

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ⁹	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 ¹⁰	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	Township Hall	-	-	-	19.69	-	-	-	-	-	☑	☑	3.84	-	-
CF-2	Emergency Operations Center	-	-	-	19.69	-	-	-	-	-	☑	☑	3.84	-	-
CF-3	Police Station	-	-	-	19.69	-	-	-	-	-	☑	☑	3.84	-	-
CF-4	Fire Station	-	-	-	19.68	-	-	-	-	☑	☑	☑	2.24	-	-
CF-5	Public Works Yard	-	-	-	19.90	-	-	-	-	-	☑	☑	5.07	-	-
CF-6	Bouton Creek Pump Station	-	-	-	18.91	-	☑	-	☑	☑	☑	☑	1.86	-	-
CF-7	Plant Road Pump Station	-	-	-	20.16	-	☑	-	☑	☑	☑	☑	2.35	-	-
CF-8	Penns Grove High School	-	-	-	19.41	-	-	-	-	-	☑	☑	3.60	-	-
CF-9	Field Street Elementary School	-	-	-	20.81	-	-	-	-	-	☑	☑	4.41	-	-
CF-10	Lafayette-Pershing Elementary School	☑	☑	☑	18.48	-	-	-	-	☑	☑	☑	2.76	-	-
CF-11	Carneys Point Senior Citizen Complex	-	-	-	19.82	-	-	-	-	-	☑	☑	4.04	-	-
CF-12	Southgate Healthcare Center	-	-	-	17.09	-	-	-	-	☑	☑	☑	2.61	-	-
CF-13	Carneys Point Care Center	-	-	-	22.41	-	☑	-	☑	☑	☑	☑	4.96	☑	-
CF-14	Merion Gardens	☑	☑	☑	18.58	-	☑	☑	☑	☑	☑	☑	2.36	-	-

⁹ Distance in miles to nearest dam.

¹⁰ Distance in miles to nearest levee.

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 initial risk reduction efforts
- Improve coordination of dam operations in the neighboring municipalities
- Provide opportunities for residents and property owners to access available information about risk reduction and mitigation measures
- 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 SC.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 SC.3-10.

Table SC.3-10: Status of Carneys Point Township (Salem County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Carneys Point 1: Install bulkheads along Delaware River near Park Drive.	Not completed, not funded	On-going topic of discussions with NJDEP, Army Corps of Engineers, and Salem County Engineering Department. Revised mitigation measure included in updated Municipal Appendix.	MJ-2
Carneys Point 2: Construct steel levees along Delaware River near Plant Road south of Pumping Station.	Not completed, not funded	Project located on DuPont property. On-going topic of discussions with NJDEP, Army Corps of Engineers, and Salem County Engineering Department. Revised mitigation measure included in updated Municipal Appendix.	MJ-3
Carneys Point 3: Retrofit roof at the Township Building.	Completed with Carneys Point Township funds.		
Carneys Point 4: Increase backup power capability to Township Building.	Not completed, not funded	Mitigation measure included in updated Municipal Appendix.	M-5
Carneys Point 5: Construct spillway on Game Creek to control flooding on Sportsman Road.	Not completed, not funded	Outfall from Layton Lake. Project responsibility is believed to be with New Jersey Department of Transportation. Revised mitigation measure included in updated Municipal Appendix.	MJ-4
Carneys Point 6: Construct detention pond near Grandview Court area.	Not completed, not funded	Mitigation measure included in updated Municipal Appendix.	M-18
Carneys Point 7: Elevation/Acquisition of one repetitive loss property on Ives Avenue.	Not completed.	Carneys Point Township Floodplain Administrator is updating records regarding status of all current Repetitive and Severe Repetitive Loss Properties in the Township. Revised mitigation measure included in Municipal Appendix.	M-20

Part 4: Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Carneys Point 8: Working with NJDEP, develop a public outreach program to educate communities and residents that are subject to inundation as a result of rapid rise/storm surge.	Not completed.	Revised mitigation measure included in updated Municipal Appendix.	M-1
Carneys Point 9: Use United States Army Corps of Engineers (USACE) surge maps for community education and outreach.	Not completed.	Revised mitigation measure included in updated Municipal Appendix.	M-1
Carneys Point 10: Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	Not completed.	Revised mitigation measure included in updated Municipal Appendix.	M-1

Table SC.3-10 Notes:

- A. See Tables SC.3-11 and SC.3-12 for municipal (M-#) mitigation measures
 B. See Table SC.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 SC.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 SC.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 SC.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 SC.3-11: Carneys Point Township (Salem 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 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. 	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	Upgrade backup emergency power capability to Township Hall (CF-1).	All	Goal #4	Both
M-6	Install backup emergency power generator at Fire and EMS Station (CF-4).	All	Goal #4	Both
M-7	Upgrade backup emergency power generator at Public Works Yard (CF-5).	All	Goal #4	Both
M-8	Install backup emergency power generator at Bouton Creek Pump Station (CF-6).	All	Goal #4	Both
M-9	Upgrade backup emergency power generator at Penns Grove High School (CF-8).	All	Goal #4	Both
M-10	Install backup emergency power generator at Field Street Elementary School (CF-9).	All	Goal #4	Both
M-11	Upgrade backup emergency power generator at Lafayette-Pershing Elementary School (CF-10).	All	Goal #4	Both
M-12	Install backup emergency power generator at Carneys Point Senior Citizen Complex (CF-11).	All	Goal #4	Both
M-13	Support installation of backup emergency power generator by Southgate Healthcare Center (CF-12).	All	Goal #4	Both
M-14	Support installation of backup emergency power generator by Carneys Point Care Center (CF-13).	All	Goal #4	Both
M-15	Back-up portable stormwater pumps to supplement the existing pumping stations.	Coastal Erosion and Sea Level Rise / Flood	Goal #4	Existing
M-16	New stormwater pumping station to serve the northern section of the Township ² .	Coastal Erosion and Sea Level Rise / Flood	Goal #4	Existing

² Area served by proposed pump station includes Carneys Point Care Center (CF-13).

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
M-17	New storm sewer mains to convey stormwater more efficiently away from floodprone areas	Coastal Erosion and Sea Level Rise / Flood	Goal #4	Existing
M-18	Construct detention pond near Grandview Court area.	Coastal Erosion and Sea Level Rise / Flood	Goal #4	Existing
M-19	Design and installation of approximately 2,000 linear feet of new bulkhead/sheet piling along the Delaware River in the northern section of Carneys Point Township northward from existing bulkhead at 4 th Avenue.	Coastal Erosion and Sea Level Rise / Flood	Goal #4	Existing
M-20	Address identified Repetitive Flood Loss Properties.	Flood	Goal #4	Existing

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 SC.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 SC.3-12: Carneys Point Township (Salem 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	Low	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).

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-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Low	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. In addition, pursue funding for a study to determine as-built conditions in existing stormwater management infrastructure in multiple locations.
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.
M-5	Upgrade backup emergency power capability to Township Hall (CF-1). ⁵	Municipal OEM	High	Back-up Emergency Power Generator	\$890,000 ⁶	One to three years.	Secure funding.
M-6	Install backup emergency power generator at Fire and EMS Station (CF-4).	Fire Department	Moderate	Back-up Emergency Power Generator	⁶	One to three years.	Secure funding.
M-7	Upgrade backup emergency power generator at Public Works Yard (CF-5).	Department of Public Works (DPW)	Moderate	Back-up Emergency Power Generator	⁶	One to three years.	Secure funding.
M-8	Install backup emergency power generator at Bouton Creek Pump Station (CF-6).	Department of Public Works (DPW)	High	Back-up Emergency Power Generator	⁶	One to three years.	Secure funding.
M-9	Upgrade backup emergency power generator at Penns Grove High School (CF-8).	Penns Grove Carneys Point Regional School District	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-10	Install backup emergency power generator at Field Street Elementary School (CF-9).	Penns Grove Carneys Point Regional School District	Moderate	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.

⁵ Mitigation Measures M-5 through M-8 is part of HMGP Grant Application Project #404 under DR 4086, Hurricane Sandy. Total grant application for \$890,000.

⁶ Included in the total cost estimate of \$890,000 in M-5.

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-11	Upgrade backup emergency power generator at Lafayette-Pershing Elementary School (CF-10).	Penns Grove Carneys Point Regional School District	Moderate	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-12	Support installation of backup emergency power generator at Carneys Point Senior Citizen Complex (CF-11).	Carneys Point Senior Citizen Complex	Moderate	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-13	Support installation of backup emergency power generator by Southgate Healthcare Center (CF-12).	Southgate Healthcare Center, Municipal OEM	Moderate	Infrastructure Hardening	< \$100K	One to three years	Conduct project scoping.
M-14	Support installation of backup emergency power generator by Carneys Point Care Center (CF-13).	Carneys Point Care Center, Municipal OEM	Moderate	Infrastructure Hardening	< \$100K	One to three years	Conduct project scoping.
M-15	Back-up portable stormwater pumps to supplement the existing pumping stations. ⁷	Department of Public Works (DPW)	High	Infrastructure Hardening	\$104,000 ⁸	One to three years.	Secure funding.
M-16	New stormwater pumping station to serve the northern section of the Township ^{9, 10} .	Department of Public Works (DPW)	High	Infrastructure Hardening	\$2,179,000 ⁷	One to three years.	Secure funding.
M-17	New storm sewer mains to convey stormwater more efficiently away from floodprone areas. ¹¹	Department of Public Works (DPW)	High	Infrastructure Hardening	\$2,220,000 ⁷	One to three years.	Secure funding. ¹²
M-18	Construct detention pond near Grandview Court area.	Municipal OEM	Moderate	Flood Mitigation – Private Property	To be determined	Three to five years.	Conduct project scoping.

⁷ Mitigation Measure M-14 is part of HMGP Grant Application Project #406 under DR 4086, Hurricane Sandy. Total grant application for \$104,000.

⁸ Cost estimate provided by Township Engineering Consultant.

⁹ Area served by proposed pump station includes Carneys Point Care Center (CF-13).

¹⁰ Mitigation Measure M-15 is part of HMGP Grant Application Project #407 under DR 4086, Hurricane Sandy. Total grant application for \$2,179,000.

¹¹ Mitigation Measure M-16 is part of HMGP Grant Application Project #1559 under DR 4086, Hurricane Sandy. Total grant application for \$2,220,000.

¹² Project was submitted under New Jersey Environmental Infrastructure Trust (NJEIT) Hurricane Sandy Natural Disaster Emergency Financing Program (NDFP).

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-19	Design and installation of approximately 2,000 linear feet of new bulkhead/sheet piling along the Delaware River in the northern section of Carneys Point Township northward from existing bulkhead at 4 th Avenue. ¹³	Department of Public Works (DPW)	High	Flood Mitigation – Private Property	\$3,010,000	One to three years.	Secure funding.
M-20	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.

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 SC.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 SC.3-4.

¹³ Mitigation Measure M-18 is part of HMGP Grant Application Project #553 under DR 4086, Hurricane Sandy. Total grant application for \$3,010,000.

Part 4: Mitigation Measures

Table SC.3-13: Carneys Point Township (Salem County) Multi-Jurisdictional Mitigation Measures

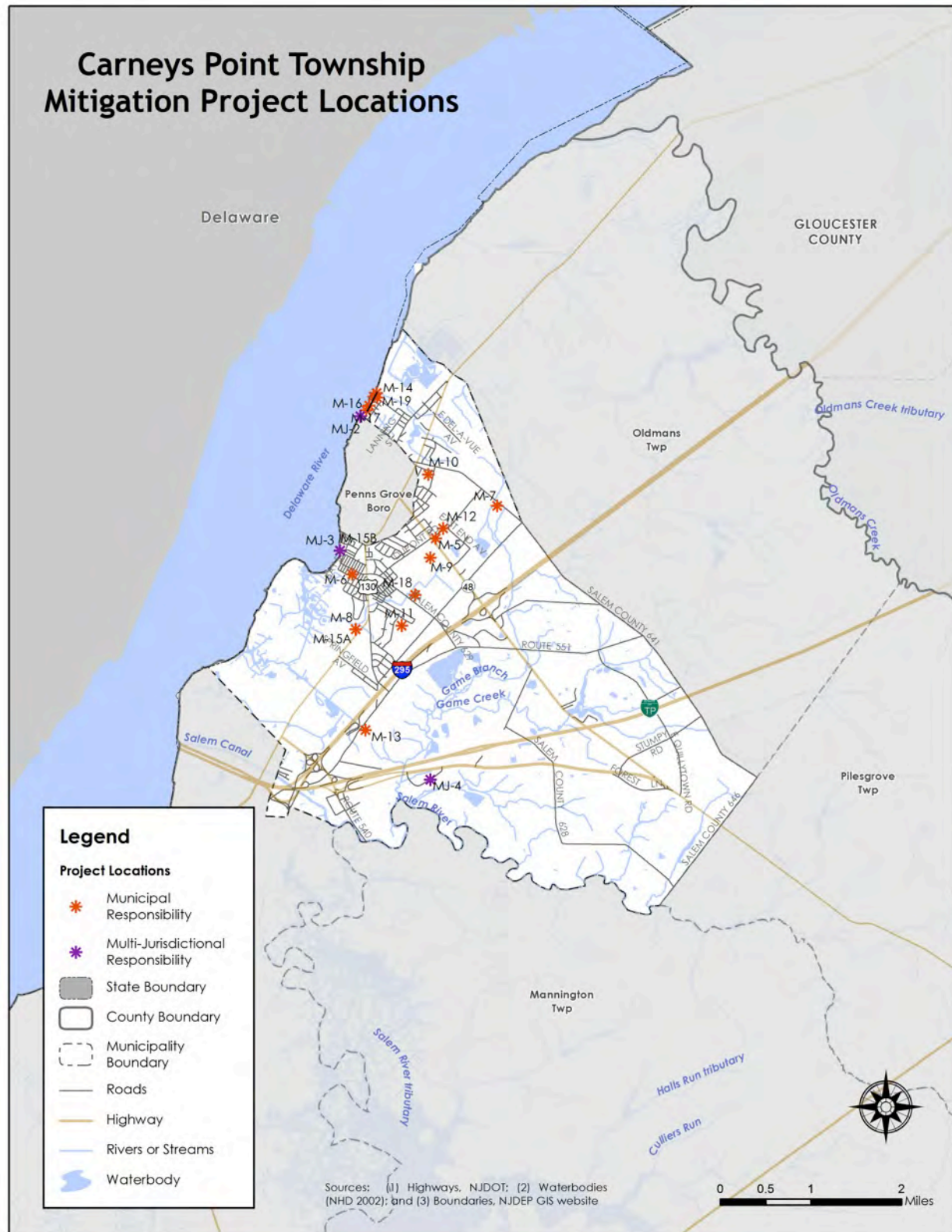
#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-1	Coordinate timing of releases from upstream dams. ¹⁴	Dam Failure	Goal #3	Both	Upstream municipalities, Salem County DPW, Salem County OEM	High
MJ-2	Delaware River Levee at boundary with Carneys Point Township. ¹⁵	Coastal Erosion and Sea Level Rise / Flood / Levee Failure	Goal #4	Both	Penns Grove Borough, NJ DEP	High
MJ-3	Alleviate flooding along Delaware River near Plant Road south of Pumping Station.	Coastal Erosion and Sea Level Rise / Flood / Levee Failure	Goal #4	Both	DuPont (property land owner), NJ DEP	High
MJ-4	Alleviate flooding at Game Creek on Sportsman Road.	Dam Failure	Goal #4	Both	NJDOT	High

¹⁴ Related to multi-jurisdictional mitigation measure included in Penns Grove Borough Municipal Appendix.

¹⁵ Related to multi-jurisdictional mitigation measure included in Penns Grove Borough Municipal Appendix.

Part 4: Mitigation Measures

Figure SC.3-4: Carneys Point 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:

- Carneys Point Township Emergency Operations Plan (2011)
- Carneys Point Township Master Plan (1997) and Reexamination Reports (2014)
- Carneys Point Township Land Use and Development Ordinances including Floodplain Management¹⁶
- Carneys Point Township Zoning Map (2012)¹⁷
- Carneys Point Township 2014 Capital Improvement Budget and Capital Improvement Program

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.

¹⁶ <http://ecode360.com/CA0753?needHash=true> and <http://ecode360.com/9995412>

¹⁷ <http://www.carneypointnj.gov/downloads/041614%20%20ZONING%20MAP.pdf>

Attachment A: Public Review Comments

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

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

Comment Date and Time	Comment	Response

Note: As of September 16, 2016, no public review comments were received for the Carneys Point Township Municipal Appendix.

Attachment B: Adoption Resolution

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

Attachment C: Approval Letter

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



Mitigation Plan for Four New Jersey Counties
Salem County Appendices

Appendix SC.4
Elmer Borough, New Jersey

September 16, 2016

Table of Contents

Table of Contents	SC.4-i
Part 1 Overview	SC.4-1
1.1: Mitigation Plan for Four New Jersey Counties	SC.4-1
1.2: Elmer Borough (Salem County) Municipal Appendix	SC.4-1
Part 2 Participation	SC.4-2
2.1: Municipal Working Group Participation	SC.4-2
2.2: Public Participation	SC.4-4
Part 3 Hazard Identification and Risk Assessment	SC.4-5
3.1: Municipal Profile	SC.4-5
3.2: Hazard Priorities	SC.4-9
3.3: Hazard Mapping	SC.4-10
3.4: Critical Facilities Inventory and Hazard Exposure Assessment	SC.4-11
Part 4 Mitigation Measures	SC.4-14
4.1: Mitigation Goals and Strategy	SC.4-14
4.2: SDVR HMP Mitigation Measures	SC.4-15
4.3: Municipal Mitigation Measures – Identification	SC.4-16
4.4: Municipal Mitigation Measures – Implementation	SC.4-17
4.5: Multi-Jurisdictional Mitigation Measures	SC.4-19
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	SC.4-21

Table of Contents

List of Figures

Figure SC.4-1: Elmer Borough (Salem County) Location Map	SC.4-5
Figure SC.4-2: Elmer Borough Base Map	SC.4-6
Figure SC.4-3: Elmer Borough Housing Units by Year Built	SC.4-8
Figure SC.4-4: Elmer Borough Mitigation Project Locations	SC.4-20

List of Tables

Table SC.4-1: Elmer Borough (Salem County) Working Group	SC.4-2
Table SC.4-2: Public Participation	SC.4-4
Table SC.4-3: Elmer Borough Demographics	SC.4-7
Table SC.4-4: Elmer Borough Demographic Rankings	SC.4-7
Table SC.4-5: Elmer Borough Economics and Housing	SC.4-7
Table SC.4-6: Elmer Borough Ranking (Economics and Housing)	SC.4-8
Table SC.4-7: Supporting Mapping and Exhibits	SC.4-10
Table SC.4-8: Elmer Borough Critical Facilities Inventory	SC.4-12
Table SC.4-9: Elmer Borough Critical Facilities Hazard Exposure	SC.4-13
Table SC.4-10: Status of Elmer Borough SDVR HMP Mitigation Measures	SC.4-15
Table SC.4-11: Elmer Borough Municipal Mitigation Measures Identification	SC.4-16
Table SC.4-12: Elmer Borough Municipal Mitigation Measures Implementation	SC.4-17
Table SC.4-13: Elmer Borough Multi-Jurisdictional Mitigation Measures	SC.4-19

Attachments

Attachment SC.4.A: Public Review Comments	SC.4.A-1
Attachment SC.4.B: Adoption Resolution	SC.4.B-1
Attachment SC.4.C: Approval Letter	SC.4.C-1

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: Elmer Borough (Salem County) Municipal Appendix

This Municipal Appendix is focused on Elmer Borough in Salem County, New Jersey.

The Elmer Borough Municipal Working Group recommended the Elmer Borough (Salem County) Municipal Appendix for adoption to the Elmer Borough Council.

The Elmer Borough Council 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 SC.4-1 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 SC.4-1: Elmer Borough (Salem County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Working Group Meetings ³	Contribution ⁴
Michael	Miller	Elmer Borough Office of Emergency Management	Emergency Management Coordinator / Floodplain Administrator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Organized Working Group and Work Sessions.
Jack	Justice Jr.	Elmer Borough Fire Department	Chief	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Andrew	Williams	Elmer Borough Ambulance Corps	1st Lieutenant	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	

¹ Round 1 Work Session was held on July 22, 2014.

² Round 2 Work Session was held on October 29, 2014.

³ The Municipal Working Group met on December 9, 2014 and January 11, 2015 to review the Preliminary Municipal Appendix.

⁴ 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 SC.4-1.

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.⁵

- Elected and Appointed Officials (e.g., Borough Council and Land Use Board)
- Building Code Official (shared with Pittsgrove Township)
- Public Works Department
- Community / Faith-Based Organizations
- Healthcare Institutions
- School Board Officials

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 (Services provided by contract or by Salem County)
- Business Associations
- Environmental Organizations

⁵ 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 SC.4-2: Public Participation

Date	Type of Involvement	Location
December 9, 2014	Flyers posted announcing Preliminary Appendix is available for public review	Elmer Borough Hall, Elmer Library, Elmer Fire Department, Elmer Ambulance Corps
December 10, 2014	Public hearing included on Elmer Borough Council agenda providing for open discussion, and public comment regarding the Preliminary Municipal Appendix	Elmer Borough Hall
December 11, 2014	Link to Project Website (http://nj4hmp.com) established	Elmer Borough website ⁶ , Elmer Borough facebook page, Elmer OEM facebook page

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.⁷ In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities.⁸

⁶ <http://elmerboroughnj.com/>

⁷ See Mitigation Measure M-1 in Part 4 of the Municipal Appendix.

⁸ 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

Elmer Borough is located in the eastern part of Salem County (See Figure SC.4-1).

Figure SC.4-1: Elmer Borough (Salem County) Location Map

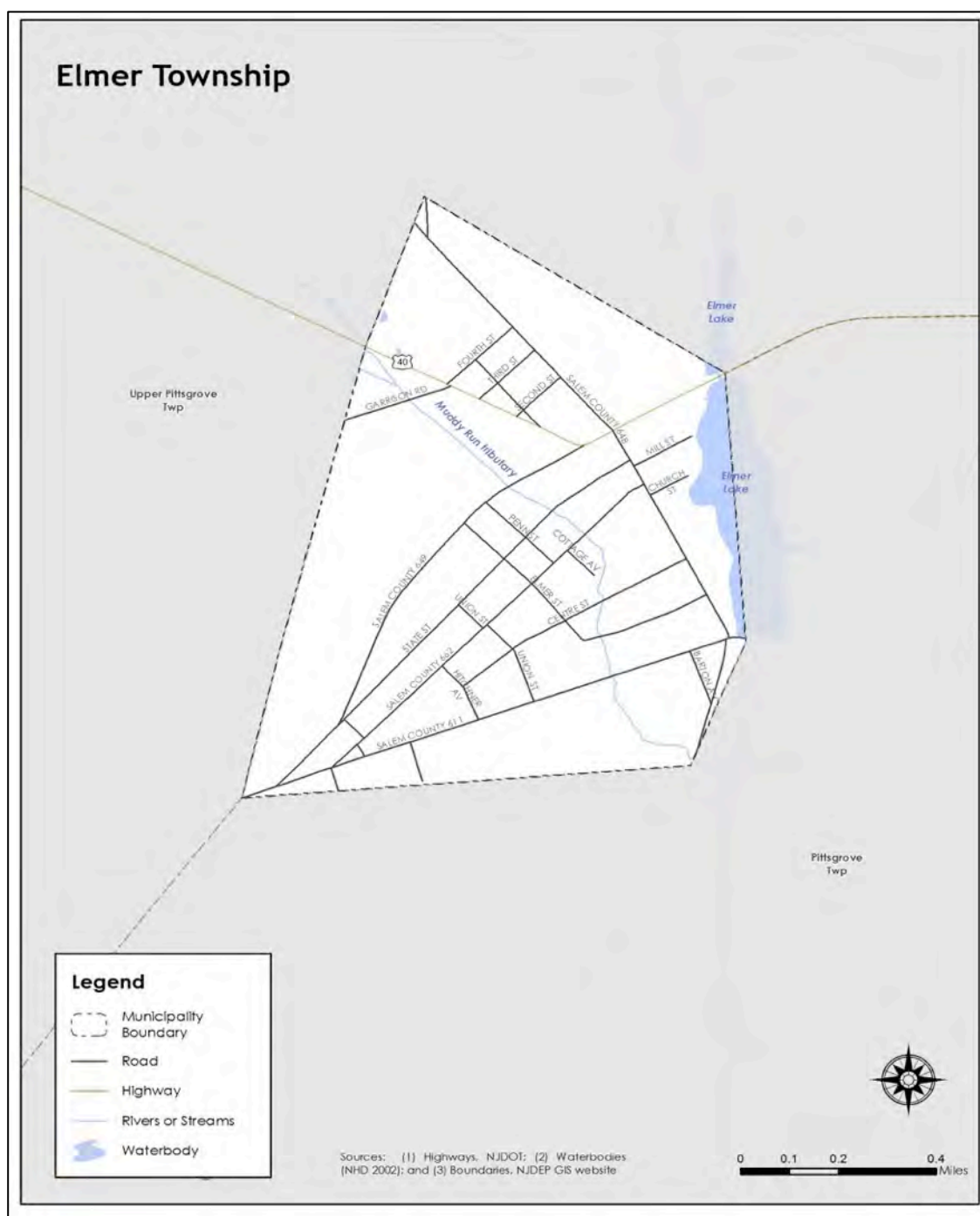


Part 3: Hazard Identification and Risk Assessment

Elmer Borough is an inland, rural residential community with a stable population according to the most recent US Census. The borough is one of the smallest in land area in Salem County and one of the smallest in the region and state both in terms of population and land area. About 68% of homes in Elmer Borough were built prior to 1939.

Per Figure SC.4-2, the major water bodies include Elmer Lake and Muddy Run tributary. Major transportation routes include U.S. Highway 40 and Salem County Route 611. The land is gently rolling.

Figure SC.4-2: Elmer Borough Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table SC.4-3 is a compilation of demographic information for the municipality and comparison with the county, the four county region, and State of New Jersey.

Table SC.4-3: Elmer Borough Demographics
(Source: Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4)

	Elmer Borough	Salem County	Region	New Jersey
2000 Population	1,384	64,285	974,328	8,414,350
2010 Population	1,395	66,083	1,024,926	8,791,894
Percent Change	0.79%	2.80%	5.19%	4.49%
Population Density	1,612.3 / sq. mile	199.1 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	0.87 sq. miles	331.90 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population 18 and younger	22.8	23.5	24.1	23.5
% of Population 18 - 64	63.2	61.5	62.7	63
% of Population 65 and over	14.0	15.0	13.2	13.5

Table SC.4-4 illustrates how Elmer Borough ranks in the county, the four county region, and New Jersey.

Table SC.4-4: Elmer Borough Demographic Rankings

	Salem County (total of 15)	Region (total of 90)	New Jersey (total of 565)
Population Rank	14	83	519
Land Area Rank	15	81	506
Population Density Rank	4	47	324
Population Change Rank	10	45	-

Table SC.4-5 includes information related to economic and housing statistics for Elmer Borough, Salem County, the four county region, and New Jersey.

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

	Elmer Borough	Salem County	Region	New Jersey
Date Incorporated	January 28, 1893	1694	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$65,417	\$59,441	\$60,933	\$69,811
Total Number of Housing Units	577	27,417	397,990	3,529,033
Occupied Housing Units	536	25,290	372,472	3,176,069
Vacant Housing Units	41	2,127	25,518	352,964
Owner Occupied Housing Units	364	18,091	266,593	2,126,279
Renter occupied Housing Units	172	7,199	105,879	1,049,790
Building Permits	1	105	1,554	13,535
Largest Industry	Educational Services, and health care and social assistance	Educational Services, and health care and social assistance	Educational services, and health care and social assistance	Educational services, and health care and social assistance

Part 3: Hazard Identification and Risk Assessment

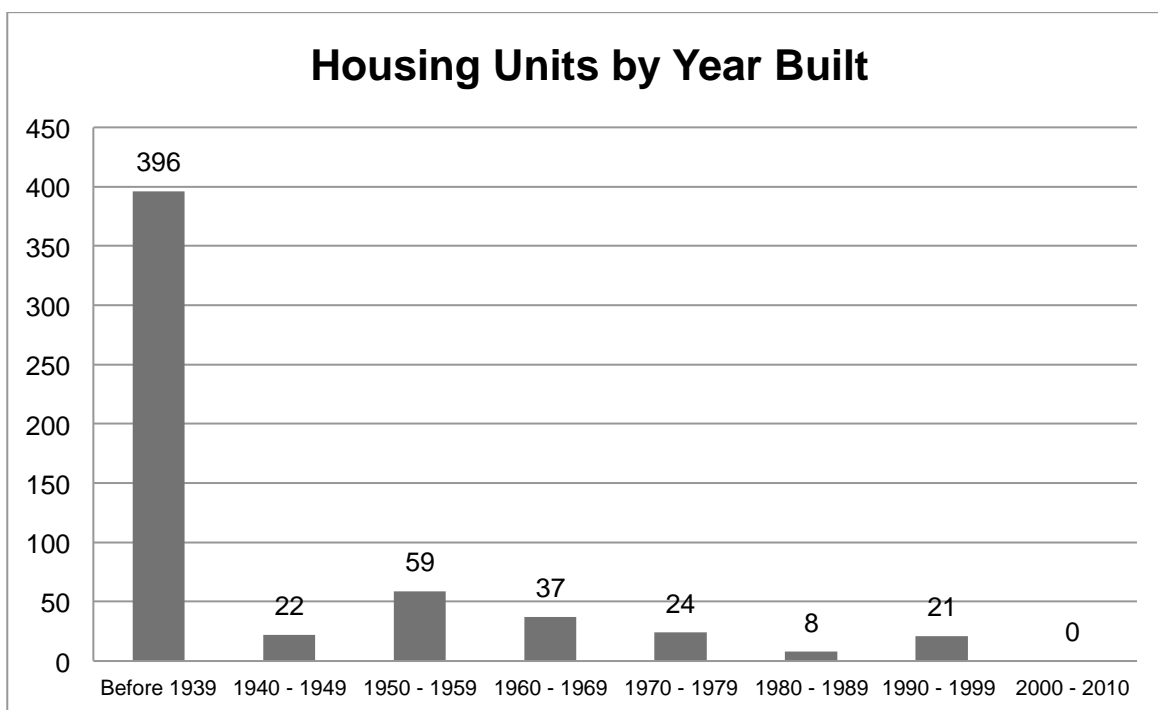
Table SC.4-6 illustrates how Elmer Borough ranks in the county and the four county region.

Table SC.4-6: Elmer Borough Ranking (Economics and Housing)

	Salem County (total of 15)	Region (total of 90)
Median Household Income Rank	7	40
Vacant Housing Rank	15	81
Renter Occupied Housing Rank	9	67
Building Permits Rank	12	71

Figure SC.4-3 illustrates development patterns in Elmer Borough by examining housing units by year built.

Figure SC.4-3: Elmer Borough Housing Units by Year Built
(Source: 2010 ACS 5 Year Estimates, DP 4)



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

- High Wind

Moderate Priority

- Severe Weather – Winter

Low Priority

- Dam Failure
- Earthquake
- Extreme Temperature: Hot & Cold
- Flood
- Geologic Hazards
- Severe Weather – Summer

Four additional hazards were considered but were not considered applicable to the municipality:

- Coastal Erosion & Sea Level Rise
- Drought
- Levee Failure
- Wildfire

¹ See Section 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 SC.4-7 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 was used in the Critical Facilities Hazard Exposure Assessment described in Part 3.4.

Table SC.4-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
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)

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 3.4: 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 SC.4-8 contains updated inventory information for municipal critical facilities including cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix.

Table SC.4-9 contains results of overlaying critical facility locations with hazard mapping identified in Part 3.3. The results indicate critical facilities that are potentially exposed to specific hazards. 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 SC.4-8: Elmer Borough (Salem County) Critical Facilities Inventory

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-1	Borough Hall	Municipal	Administrative Offices	120 South Main Street, Elmer	CF-3	N	N		M-4
CF-2	Emergency Operations Center	EOC	Co-located Facilities	110 Penn Street, Elmer	CF-4	N	N		M-5
CF-3	Police Station	Law Enforcement Facilities		120 South Main Street, Elmer	CF-1	N	N		M-4
CF-4	Fire Station	Fire Stations		110 Penn Street, Elmer	CF-2	N	N		M-5
CF-5	EMS Station	EMS		30 Broad Street, Elmer		N	N		
CF-6	Elmer Presbyterian Church	Emergency Staging Areas	Shelters	107 Chestnut Street, Elmer		Y	N	Back-up shelter location.	M-6
CF-7	Inspira Hospital - Elmer	Health Care Facilities	Private Hospitals	501 West Front Street, Elmer		Y ²	N		
CF-8	Pump Station	Utilities – Water	Pump Stations	Intersection of Broad Street and State Street, Elmer		N/A	N		M-7
CF-9	Pump Station	Utilities – Water	Pump Stations	660 State Street, Elmer		N/A	N		M-8
CF-10	Elmer Elementary School	Schools	Public Schools	207 Front Street, Elmer		Y ³	N	Primary shelter location.	M-9
CF-11	Firm Foundations Pre-School	Schools	Public Schools	431 Front Street, Elmer		N	N		
CF-12	Lakeside Manor	Vulnerable Populations Facilities	Private Transitional Housing	326 South Main Street, Elmer		Y ²	N	Basement flooded frequently prior to recent dam renovation.	

² Shelter-in-place.

³ Elmer Elementary School does not have food preparation area.

Part 3: Hazard Identification and Risk Assessment

Table SC.4-9: Elmer Borough (Salem County) Critical Facilities Hazard Exposure

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ⁴	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 ⁵	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	Borough Hall	N/A	N/A	N/A	10.38	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CF-2	Emergency Operations Center	N/A	N/A	N/A	10.38	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CF-3	Police Station	N/A	N/A	N/A	10.44	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CF-4	Fire Station	N/A	N/A	N/A	10.13	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CF-5	EMS Station	N/A	N/A	N/A	10.89	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CF-6	Elmer Presbyterian Church	N/A	N/A	N/A	11.15	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CF-7	Inspira Hospital - Elmer	N/A	N/A	N/A	10.39	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CF-8	Pump Station	N/A	N/A	N/A	10.38	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CF-9	Pump Station	N/A	N/A	N/A	10.67	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CF-10	Elmer Elementary School	N/A	N/A	N/A	8.18	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CF-11	Firm Foundations Pre-School	N/A	N/A	N/A	8.18	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CF-12	Lakeside Manor	N/A	N/A	N/A	8.10	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A

⁴ Distance in miles to nearest dam.

⁵ Distance in miles to nearest levee.

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
- 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 SC.4-10 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 SC.4-10.

Table SC.4-10: Status of Elmer Borough (Salem County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Elmer 1: Inundation study for Elmer Lake Dam.	Completed.	Salem County developed and implemented plans to renovate Elmer Lake Dam. Work was completed in 2012 using [insert funding source].	
Elmer 2: Provide backup power to EOC (Elmer Fire Department).	Not completed, not funded	Mitigation measure included in updated Municipal Appendix.	M-5
Elmer 3: Provide backup power to Elmer Borough Hall (Police Department).	Not completed, not funded	Mitigation measure included in updated Municipal Appendix.	M-4
Elmer 4: Provide backup power to Elmer Elementary School.	Not completed, not funded	Mitigation measure included in updated Municipal Appendix.	M-9
Elmer 5: Muddy Run Drainage Improvements/Canal Project.	Not completed, not funded	Maintenance work has been performed since hurricane Irene by [insert responsible parties (e.g., Salem County DPW, Salem County Mosquito Control, NJDEP)] using [insert funding source]. However, there are additional areas where drainage improvements are still needed. Revised multi-jurisdictional mitigation measure included in updated Municipal Appendix.	MJ-1
Elmer 6: Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	Not completed.	Revised mitigation measure included in updated Municipal Appendix.	M-1

Table SC.4-10 Notes:

- A. See Tables SC.4-11 and SC.4-12 for municipal (M-#) mitigation measures
- B. See Table SC.4-13 for multi-jurisdictional (MJ-#) mitigation measures

Part 4: 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 SC.4-11 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

Note: Elmer Borough does not currently have RL or SRL properties per information provided by the New Jersey Department of Environmental Protection.

Table SC.4-11 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 SC.4-4.

Table SC.4-11: Elmer Borough (Salem 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 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.	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	Conduct regular Municipal Working Group meetings consistent with the plan maintenance program and the Municipal Adoption Resolution.	All	Goal #3	Both
M-4	Install backup emergency power generator at Elmer Borough Hall (Police Department). (CF-1 and CF-3).	All	Goal #4	Both
M-5	Install backup emergency power generator to EOC (Elmer Fire Department) (CF-2 and CF-4).	All	Goal #4	Both

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

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
M-6	Install backup emergency power generator at Elmer Presbyterian Church (back-up shelter) (CF-6).	All	Goal #4	Both
M-7	Install back-up emergency power generator at municipal water supply pump station (CF-8).	All	Goal #4	Both
M-8	Install back-up emergency power generator at municipal water supply pump station (CF-9).	All	Goal #4	Both
M-9	Install backup emergency power generator at Elmer Elementary School (primary shelter) located at 207 Front Street (CF-10).	All	Goal #4	Both
M-10	Determine structural integrity of abandoned grain elevator structure.	High Wind	Goal #4	Existing

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 SC.4-12 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 criteria²
- Project Type to help determine funding options and implementation mechanisms at the municipal level³
- 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 SC.4-12: Elmer Borough (Salem 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.	Elmer Borough OEM	Moderate	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).

² 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.

³ 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-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Elmer Borough 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	Conduct regular Municipal Working Group meetings.	Elmer Borough OEM and Elmer Borough 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.
M-4	Install backup emergency power generator at Elmer Borough Hall (Police Department). (CF-1 and CF-3).	Elmer Borough OEM	Moderate	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-5	Install backup emergency power generator to EOC (Elmer Fire Department) (CF-2 and CF-4).	Elmer Borough OEM	High	Back-up Emergency Power Generator	\$80,000 ⁴	One year.	Secure funding.
M-6	Install backup emergency power generator at Elmer Presbyterian Church (back-up shelter) (CF-6).	Elmer Borough OEM	Moderate	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-7	Install back-up emergency power generator at municipal water supply pump station (CF-8).	Elmer Borough DPW	Moderate	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-8	Install back-up emergency power generator at municipal water supply pump station (CF-9).	Elmer Borough DPW	Moderate	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-9	Install backup emergency power generator at Elmer Elementary School (primary shelter) located at 207 Front Street (CF-10).	Elmer Borough School Board	Moderate	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-10	Determine structural integrity of abandoned grain elevator structure.	Elmer Borough OEM	Moderate	Building Condition Assessment	<\$5,000	One year	Identify scope of services and secure services of consulting engineer.

⁴ Cost estimate provided by Elmer Borough OEM.

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 SC.4-13.

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

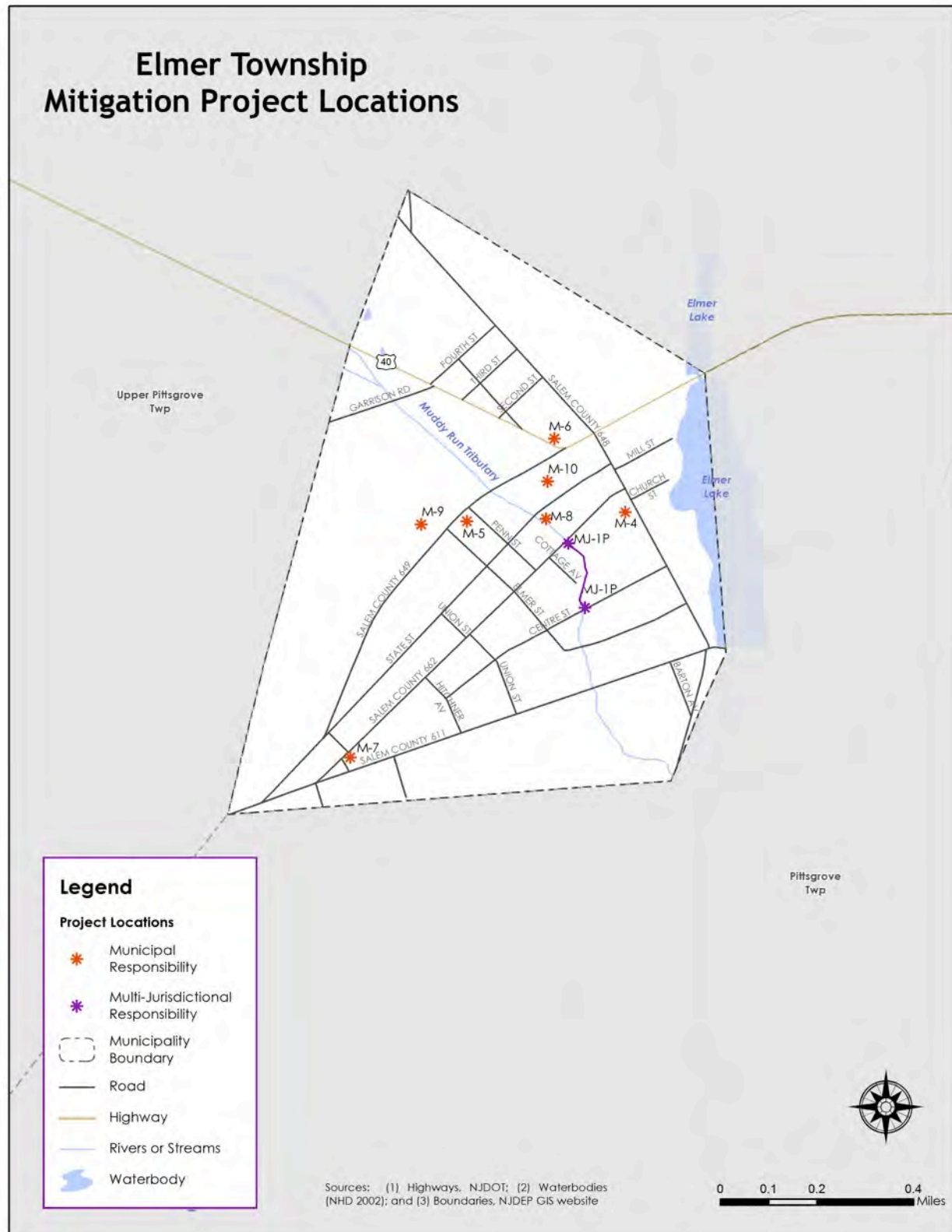
Note: Multi-jurisdictional mitigation measures with discrete locations are shown in Figure SC.4-4.

Table SC.4-13: Elmer Borough (Salem County) Multi-Jurisdictional Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-1	Muddy Run Drainage Improvements/Canal Project.	Flood	Goal #4	Both	Elmer Borough, Salem County Department of Public Works.	High

Part 4: Mitigation Measures

Figure SC.4-4: Elmer Borough Mitigation Project Locations



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:

- Elmer Borough Emergency Operations Plan (2014)
- Elmer Borough Master Plan ([date?]) and Reexamination Report (2015)
- Elmer Borough Land Use and Development Ordinances including Floodplain Management⁵
- Elmer Borough Zoning Map (2002) and Floodplain Map⁶

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.

⁵ <http://www.elmerboroughnj.com/files/91206477.pdf> and <http://clerkshq.com/default.ashx?clientsite=Elmer-nj>, Chapter 24

⁶ <http://www.elmerboroughnj.com/LandUseBoard.html>

Attachment A: Public Review Comments

The following comments were received during the public review of the Elmer Borough Municipal Appendix:

Table SC.4.A-1: Public Review Comments

Comment Date and Time	Comment	Response

Note: As of September 16, 2016, no public review comments were received for the Elmer Borough Municipal Appendix.

Attachment B: Adoption Resolution

Following this page is the Adoption Resolution for the Elmer Borough Municipal Appendix as approved by the Elmer Borough Council.

Attachment C: Approval Letter

Following this page is the Approval Letter for the Elmer Borough Municipal Appendix.



Mitigation Plan for Four New Jersey Counties
Salem County Appendices

Appendix SC.5
Elsinboro Township, New Jersey

September 16, 2016

Table of Contents

Table of Contents	SC.5-i
Part 1 Overview	SC.5-1
1.1: Mitigation Plan for Four New Jersey Counties	SC.5-1
1.2: Elsinboro Township (Salem County) Municipal Appendix	SC.5-1
Part 2 Participation	SC.5-2
2.1: Municipal Working Group Participation	SC.5-2
2.2: Public Participation	SC.5-4
Part 3 Hazard Identification and Risk Assessment	SC.5-5
3.1: Municipal Profile	SC.5-5
3.2: Hazard Priorities	SC.5-9
3.3: Hazard Mapping	SC.5-10
3.4: Critical Facilities Inventory and Hazard Exposure Assessment	SC.5-11
Part 4 Mitigation Measures	SC.5-13
4.1: Mitigation Goals and Strategy	SC.5-13
4.2: SDVR HMP Mitigation Measures	SC.5-14
4.3: Municipal Mitigation Measures – Identification	SC.5-15
4.4: Municipal Mitigation Measures – Implementation	SC.5-16
4.5: Multi-Jurisdictional Mitigation Measures	SC.5-17
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	SC.5-20

Table of Contents

List of Figures

Figure SC.5-1: Elsinboro Township (Salem County) Location Map	SC.5-5
Figure SC.5-2: Elsinboro Township Base Map	SC.5-6
Figure SC.5-3: Elsinboro Township Housing Units by Year Built	SC.5-8
Figure SC.5-4: Elsinboro Township Mitigation Project Locations	SC.5-19

List of Tables

Table SC.5-1: Elsinboro Township (Salem County) Working Group	SC.5-2
Table SC.5-2: Public Participation	SC.5-4
Table SC.5-3: Elsinboro Township Demographics	SC.5-7
Table SC.5-4: Elsinboro Township Demographic Rankings	SC.5-7
Table SC.5-5: Elsinboro Township Economics and Housing	SC.5-7
Table SC.5-6: Elsinboro Township Ranking (Economics and Housing)	SC.5-8
Table SC.5-7: Supporting Mapping and Exhibits	SC.5-10
Table SC.5-8: Elsinboro Township Critical Facilities Inventory	SC.5-12
Table SC.5-9: Elsinboro Township Critical Facilities Hazard Exposure	SC.5-12
Table SC.5-10: Status of Elsinboro Township SDVR HMP Mitigation Measures	SC.5-14
Table SC.5-11: Elsinboro Township Municipal Mitigation Measures Identification	SC.5-15
Table SC.5-12: Elsinboro Township Municipal Mitigation Measures Implementation	SC.5-16
Table SC.5-13: Elsinboro Township Multi-Jurisdictional Mitigation Measures	SC.5-18

Attachments

Attachment SC.5.A: Public Review Comments	SC.5.A-1
Attachment SC.5.B: Adoption Resolution	SC.5.B-1
Attachment SC.5.C: Approval Letter	SC.5.C-1

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: Elsinboro Township (Salem County) Municipal Appendix

This Municipal Appendix is focused on Elsinboro Township in Salem County, New Jersey.

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

The Elsinboro 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 SC.5-1 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 SC.5-1: Elsinboro Township (Salem County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Work Session ³	Contribution ⁴
George	Parris	Elsinboro Township Office of Emergency Management (OEM)	Emergency Management Coordinator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Robert	Klein	Elsinboro Township OEM	Deputy Emergency Management Coordinator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Sean	Elwell	Elsinboro Township Committee	Mayor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Douglas	Hogate	Elsinboro Township Committee	Township Committeeman	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
John	Elk	Elsinboro Township Committee	Township Committeeman / Floodplain Administrator	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Francis	Hogate	Elsinboro Township Committee	Retired	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Steven F	Hannah	Elsinboro Township Fire Company	Fire Chief	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

¹ Round 1 Work Session was held on July 16, 2014.

² Round 2 Work Session was held on September 16, 2014.

³ The Municipal Working Group met on January 5, 2015 to review the Preliminary Municipal Appendix.

⁴ 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 SC.5-1.

Part 2: Participation

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Work Session ³	Contribution ⁴
Sherry	Biddle	Elsinboro Township Fire Company	EMS Captain	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Andy	Hoglin	Elsinboro Construction Department	Construction Official		<input checked="" type="checkbox"/>		
Kurt	Kaufmann	Elsinboro Township Planning Commission	Planning Commission	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Kathleen	Sheffield	Elsinboro Township Board of Education	School Board Member	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
William	McGowan	Elsinboro Township Planning Commission	Planning Commission	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Jeff	Stepler		Resident (former Township Committeeman)	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Frank	Master		Resident			<input checked="" type="checkbox"/>	

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.⁵

- Major Employers and Businesses
- PSEG, Estuary Enhancement Program

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.

- Land Use / Economic Development Planner
- GIS / IT Specialist (Services provided by Salem County)
- Police (Services provided by Lower Alloways Creek Township Police Department)
- Community / Faith-Based Organizations
- Business Associations
- Environmental Organizations
- Healthcare Institutions

⁵ 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 SC.5-2: Public Participation

Date	Type of Involvement	Location
August 4, 2014	Information item included on Township Committee agenda identifying opportunities for public participation	Township Hall
August 8, 2014	Link to Project Website (http://nj4hmp.com) established	Elsinboro Township “News and Resources” webpage ⁶
September 2, 2014	Information item included on Township Committee agenda identifying opportunities for public participation	Township Hall
October 2014	Public outreach	Township Newsletter
December 8, 2014	Preliminary Municipal Appendix posted to website for public comment	Elsinboro Township “News and Resources” webpage ⁷
December 15, 2014	Press release regarding hazard mitigation and plan development issued	
December 15, 2014	Public hearing included on Elsinboro Township Committee agenda providing for open discussion, and public comment regarding the Preliminary Municipal Appendix	Township Hall
January 2015	Public outreach	Township Newsletter

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.⁸ In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities.⁹

⁶ http://elsinborotownship.com/index_files/Community.htm

⁷ http://elsinborotownship.com/index_files/Community.htm

⁸ See Mitigation Measure M-1 in Part 4 of the Municipal Appendix.

⁹ See *Section 4: Mitigation Measures* of the NJ4 HMP Regional Hazard Mitigation Plan.

Part 3: Hazard Identification and Risk Assessment

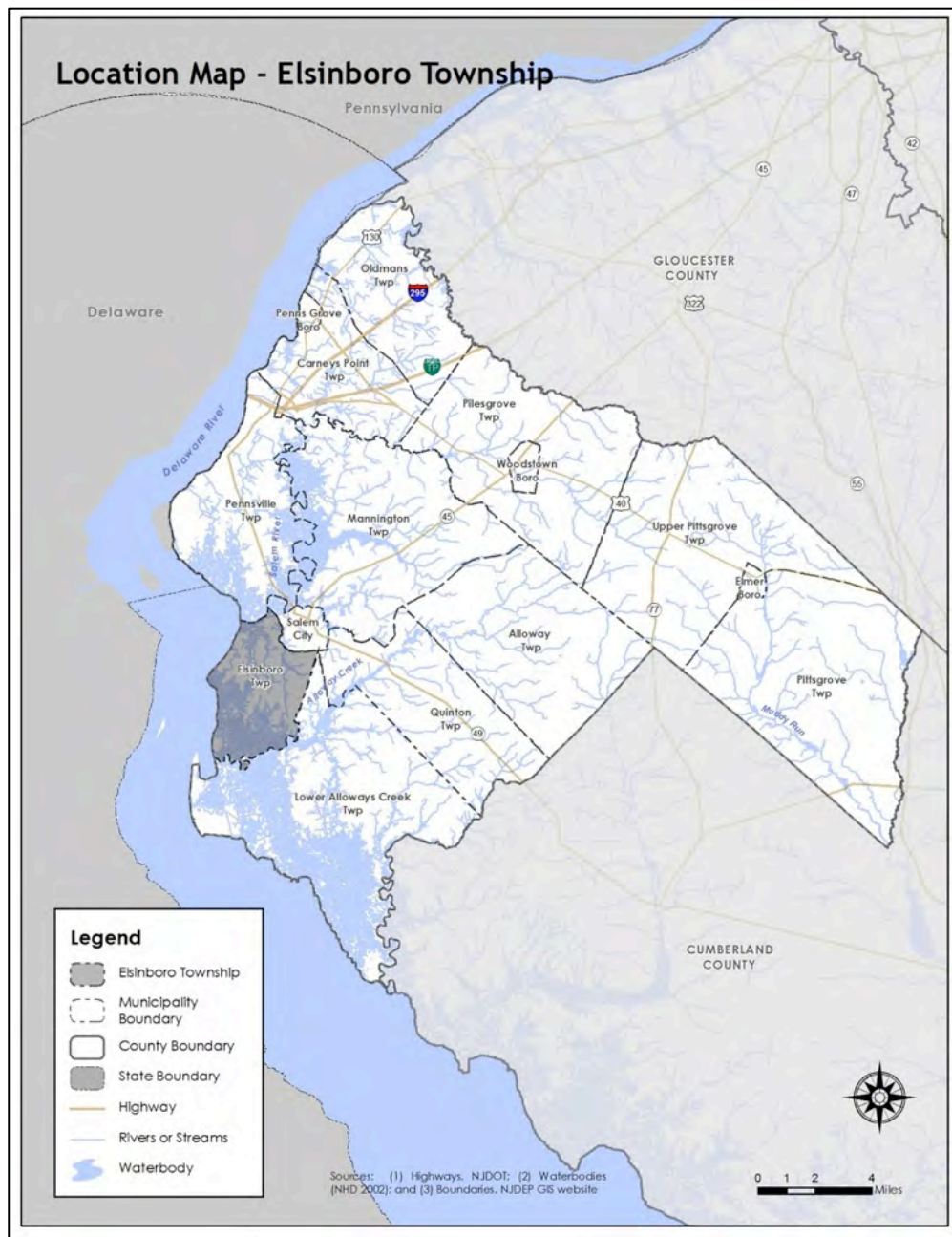
Part 3.1: Municipal Profile

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

Elsinboro Township is located on the western edge of Salem County (See Figure SC.5-1).

Figure SC.5-1: Elsinboro Township (Salem County) Location Map

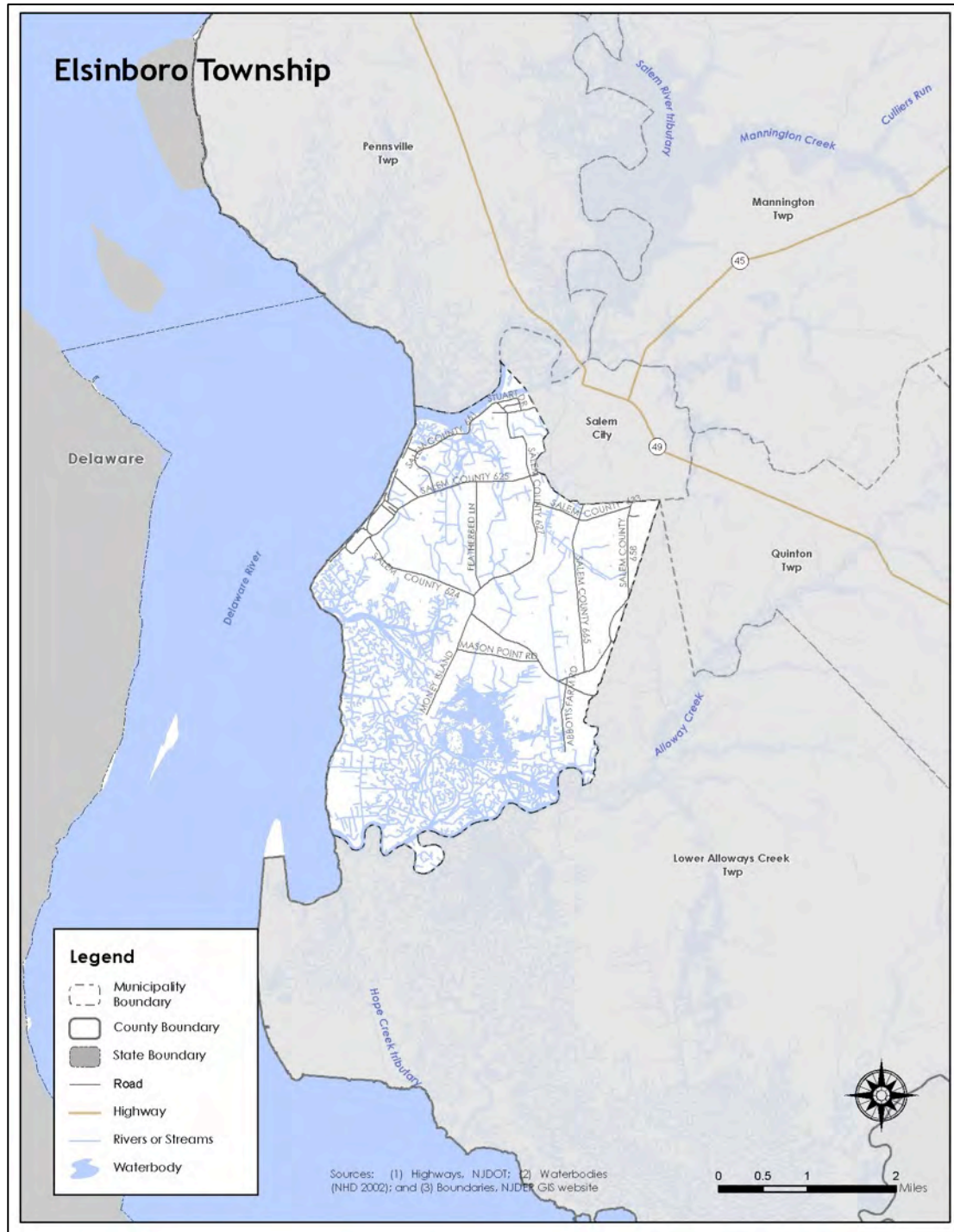


Part 3: Hazard Identification and Risk Assessment

Elsinboro Township is a bay shore, rural residential community located adjacent to the City of Salem . Over 90% of the housing stock was built between 1940 and 1989, and only 10% in the last two decades.

Per Figure SC.5-2, the major water courses include the Delaware River and Alloway Creek, which together form the western and southern borders of the municipality respectively. Major transportation routes include Salem County 624 and 627. The land is predominantly flat with farmland and wetland.

Figure SC.5-2: Elsinboro Township Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table SC.5-3 is a compilation of demographic information for the municipality and comparison with the county, the four county region, and State of New Jersey.

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

	Elsinboro Township	Salem County	Region	New Jersey
2000 Population	1,092	64,285	974,328	8,414,350
2010 Population	1,036	66,083	1,024,926	8,791,894
Percent Change	-5.13%	2.80%	5.19%	4.49%
Population Density	86.9 / sq. mile	199.1 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	11.92 sq. miles	331.90 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population 18 and younger	18.0	23.5	24.1	23.5
% of Population 18 - 64	61.6	61.5	62.7	63
% of Population 65 and over	20.4	15.0	13.2	13.5

Table SC.5-4 illustrates how Elsinboro Township ranks in the county, the four county region, and New Jersey.

Table SC.5-4: Elsinboro Township Demographic Rankings

	Salem County (total of 15)	Region (total of 90)	New Jersey (total of 565)
Population Rank	14	84	531
Land Area Rank	11	39	183
Population Density Rank	12	81	547
Population Change Rank	14	82	-

Table SC.5-5 includes information related to economic and housing statistics for Elsinboro Township, Salem County, the four county region, and New Jersey.

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

	Elsinboro Township	Salem County	Region	New Jersey
Date Incorporated	February 21, 1798	1694	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$64,107	\$59,441	\$60,933	\$69,811
Total Number of Housing Units	524	27,417	397,990	3,529,033
Occupied Housing Units	455	25,290	372,472	3,176,069
Vacant Housing Units	25 ¹	2,127	25,518	352,964
Owner Occupied Housing Units	396	18,091	266,593	2,126,279
Renter occupied Housing Units	59	7,199	105,879	1,049,790
Building Permits	0	105	1,554	13,535

¹ Vacant housing units for Elsinboro Township provided by Township officials as of January 16, 2015

Part 3: Hazard Identification and Risk Assessment

	Elsinboro Township	Salem County	Region	New Jersey
Largest Industry	Educational Services, and health care and social assistance	Educational Services, and health care and social assistance	Educational services, and health care and social assistance	Educational services, and health care and social assistance

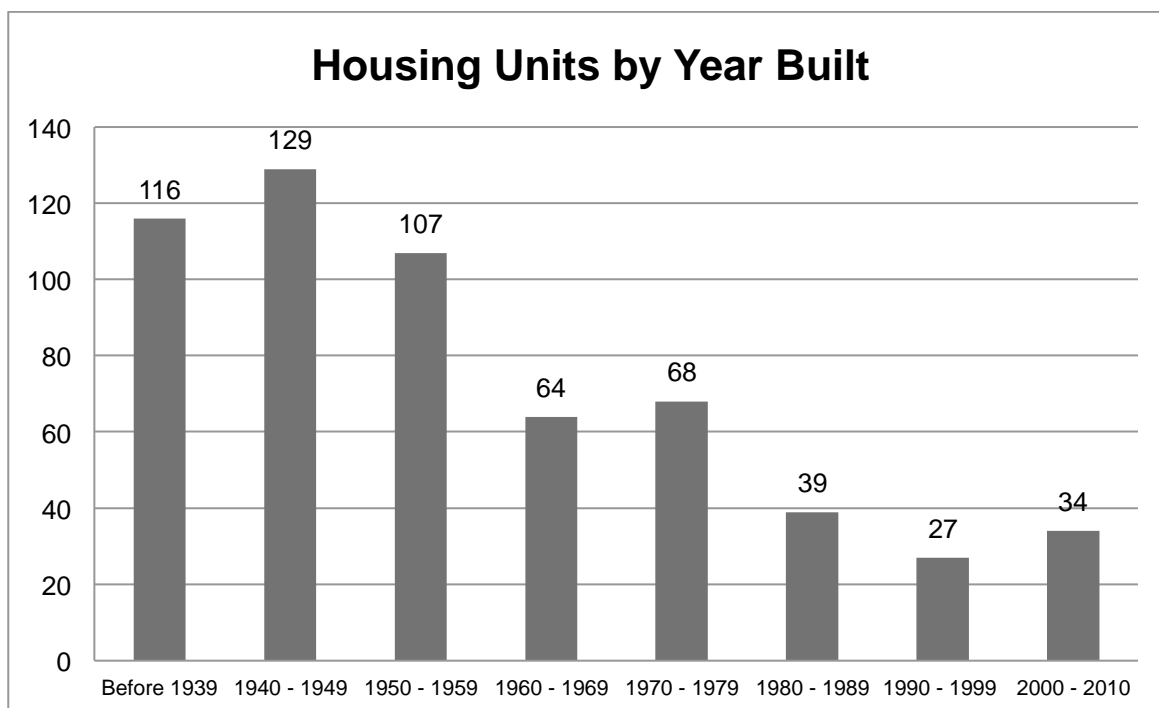
Table SC.5-6 illustrates how Elsinboro Township ranks in the county and the four county region.

Table SC.5-6: Elsinboro Township Ranking (Economics and Housing)

	Salem County (total of 15)	Region (total of 90)
Median Household Income Rank	9	44
Vacant Housing Rank	9	66
Renter Occupied Housing Rank	15	84
Building Permits Rank	13	88

Figure SC.5-3 illustrates development patterns in Elsinboro Township by examining housing units by year built.

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



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 HMP² 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

- Coastal Erosion and Sea Level Rise
- Flood
- High Wind
- Levee Failure

Moderate Priority

- Wildfire

Low Priority

- Drought
- Earthquake
- Severe Weather – Summer
- Severe Weather – Winter

Two additional hazards were considered but were not considered applicable to the municipality:

- Dam Failure
- Geologic Hazards

² 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 SC.5-7 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 was used in the Critical Facilities Hazard Exposure Assessment described in Part 3.4.

Table SC.5-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
Figure RP.D-3	Coastal Erosion and Sea Level Rise	Increased Inundation Areas (Coastal Scenarios) 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-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	Wildland 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 3.4: 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 SC.5-8 contains updated inventory information for municipal critical facilities including cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix.

Table SC.5-9 contains results of overlaying critical facility locations with hazard mapping identified in Part 3.3. The results indicate critical facilities that are potentially exposed to specific hazards. 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 SC.5-8: Elsinboro Township (Salem 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	619 Salem-Fort Elfsborg Road, Salem	CF-2	N	Y		
CF-2	Emergency Operations Center	EOC	Co-located Facilities	619 Salem-Fort Elfsborg Road, Salem	CF-1	N	Y		
CF-3	Fire Station	FireStation/EMS	Stations	35 Delaware Avenue, Salem		N	Y		M-6
CF-4	Elsinboro Elementary School	School	Public Schools	631 Salem-Fort Elfsborg Road, Salem		Y ³	N		M-5

Table SC.5-9: Elsinboro Township (Salem County) Critical Facilities Hazard Exposure

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ⁴	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 ⁵	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	Township Hall	☑	☑	☑	N/A	-	-	☑	-	☑	☑	☑	1.11	-	-
CF-2	Emergency Operations Center	☑	☑	☑	N/A	-	-	☑	-	☑	☑	☑	1.11	-	-
CF-3	Fire Station	-	-	-	N/A	-	-	-	-	-	-	☑	1.24	-	-
CF-4	Elsinboro Elementary School	-	-	☑	N/A	-	-	-	-	☑	☑	☑	0.99	-	-

³ Shelter is not certified by American Red Cross. Anticipated for use only in cases of tidal, transient flooding. Not equipped for overnight stays or food preparation.

⁴ Distance in miles to nearest dam.

⁵ Distance in miles to nearest levee.

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:

- Seek long-term, comprehensive, and balanced protection from flood threats for private property and infrastructure investments
- Address short-term needs to preserve existing sea walls, dikes, and levees that protect existing assets
- 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
- 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 SC.5-10 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 SC.5-10.

Table SC.5-10: Status of Elsinboro Township (Salem County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Elsinboro 1: Stream bank stabilization and augmentation to correct breach along the Tide Marsh.	Not completed.	Revised mitigation measure included in updated Municipal Appendix.	MJ-2
Elsinboro 2: Retrofit / Harden Elsinboro Fire House (roof, windows, doors, garage doors).	Partially completed.	New doors and windows installed consistent with current building code. Remaining work to retrofit old winds included in updated Municipal Appendix.	M-6
Elsinboro 3: Upgrade / replace Sluice Gates on Delaware River.	Partially completed.	Some repair work completed on sluice gates using Township funding. Remaining work included in updated Municipal Appendix.	MJ-1
Elsinboro 4: Identify and map erosion hazard zones.	Not completed, not funded.	Revised mitigation measure included in updated Municipal Appendix.	M-1
Elsinboro 5: Use United States Army Corps of Engineers (USACE) surge maps for community education and outreach.	Not completed.	Revised mitigation measure included in updated Municipal Appendix.	M-1
Elsinboro 6: Acquisition / elevation of one repetitive loss property on South Locust Avenue.	Not completed.	Elsinboro Township Floodplain Administrator is updating records regarding status of all current Repetitive and Severe Repetitive Loss Properties in the Township. Revised mitigation measure included in Municipal Appendix.	M-7
Elsinboro 7: Acquisition / elevation of one repetitive loss property on Tilbury Road.	Not completed.	Same comment as Elsinboro 6.	M-7
Elsinboro 8: Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	On-going.	Elsinboro Township OEM participates in education and outreach opportunities through local schools and events including Elsinboro Day. Revised mitigation measure included in updated Municipal Appendix.	M-1

Part 4: Mitigation Measures

Table SC.5-10 Notes:

- A. See Tables SC.5-11 and SC.5-12 for municipal (M-#) mitigation measures
- B. See Table SC.5-13 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 SC.5-11 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 SC.5-11 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 SC.5-4.

Table SC.5-11: Elsinboro Township (Salem 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 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.	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

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

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
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 backup emergency power generator at Elsinboro Township Elementary School (CF-4).	All	Goal #4	Existing
M-6	Retrofit / harden Elsinboro Fire House (e.g., old windows in need of replacement) (CF-3).	Earthquake / High Wind	Goal #4	Existing
M-7	Address identified Repetitive Flood Loss Properties.	Flood	Goal #4	Existing

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 SC.5-12 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 criteria²
- Project Type to help determine funding options and implementation mechanisms at the municipal level³
- 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 SC.5-12: Elsinboro Township (Salem 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	Moderate	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	High	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.

² 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.

³ 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-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	Moderate	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	High	Capabilities and Coordination	Staff time commitment	On-going	Establish regular Municipal Working Group membership, reporting requirements, and meeting / work session schedule.
M-5	Install backup emergency power generator at Elsinboro Township Elementary School (CF-4).	Elsinboro Board of Education	Low	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-6	Retrofit / harden Elsinboro Fire House (e.g., old windows in need of replacement) (CF-3).	Elsinboro Township Fire Department	Moderate	Building Retrofits	<\$1,000	One year	Secure funding, prepare scope of work and secure contractor.
M-7	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.

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 SC.5-13.

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 SC.5-4.

Part 4: Mitigation Measures

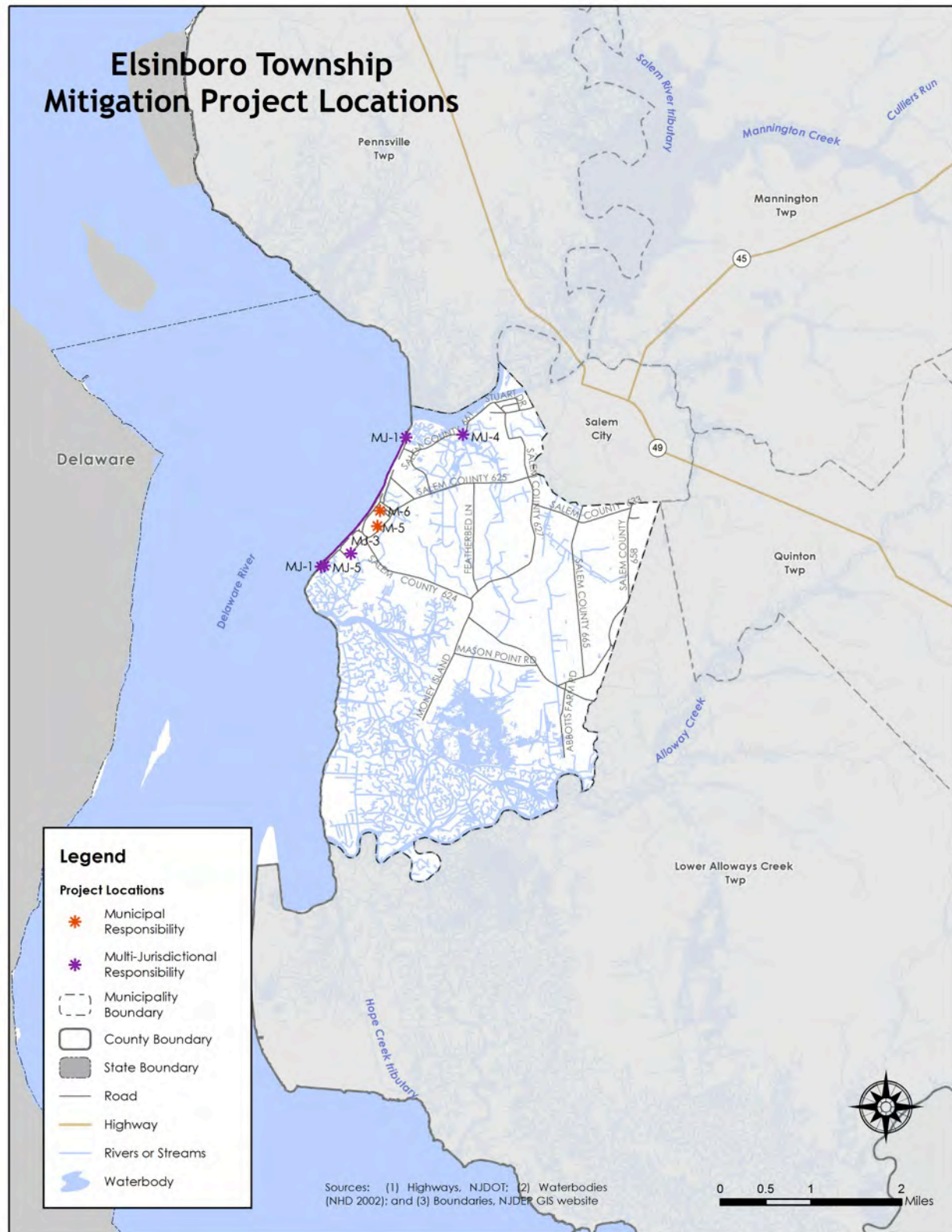
Table SC.5-13: Elsinboro Township (Salem County) Multi-Jurisdictional Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-1	Oakwood Beach Storm Damage Reduction Project ⁴	Coastal Erosion and Sea Level Rise / Flood (Storm Surge & Tidal)	Goal #4	Both	Municipal OEM, NJ DEP, USACE	High
MJ-2	Address breach along the Tide Marsh.	Flood (Storm Surge & Tidal)	Goal #4	Both	Municipal OEM, NJ DEP	High
MJ-3	Alleviate flooding along Salem-Fort Elfsborg Road (County Route 625).	Flood	Goal #4	Existing	Municipal OEM, Salem County DPW	High
MJ-4	Alleviate flooding along Sinnicksin Landing Road (County Route 661).	Flood	Goal #4	Existing	Municipal OEM, Salem County DPW	High
MJ-5	Alleviate flooding associated with Fort Elfsborg Levee (Levee #27).	Levee Failure	Goal #4	Existing	Municipal OEM, Salem County DPW, PSE&G	High

⁴ As of September 16, 2014, bid opening had occurred on September 4, 2014 and a contract award was anticipated by November 2014 with 45-day construction duration.

Part 4: Mitigation Measures

Figure SC.5-4: Elsinboro 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:

- Elsinboro Township Emergency Operations Plan (2011)⁵
- Elsinboro Township Floodplain Management Plan
- Elsinboro Township Master Plan (2007)
- Elsinboro Township Land Development Regulations⁶
- Elsinboro Township Zoning Map (2007)⁷
- Cumberland County Delaware Bayshore Recovery Plan (2013)
- Disaster Relief Appropriations Act, 2013, Second Interim Report (May 2013)
- Delaware Bay Coastline, DE & NJ, Oakwood Beach, NJ Project Description (September 2013)
- Oakwood Beach Project Update per Sean Elwell, Mayor (October 2013)
- Oakwood Beach Storm Damage Reduction Project per NJDEP / USACE Presentation (November 2013)
- Elsinboro Township 2014 Capital Improvement Budget and Capital Improvement Program

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.

⁵ Update due by November 30, 2015.

⁶ http://elsinborotownship.com/index_files/PlanningBoard.htm

⁷ <http://www.elsinborotownship.com/forms/Form%207%20-%20Zoning%20Map%20Rev%202007.pdf>

Attachment A: Public Review Comments

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

Table SC.5.A-1: Public Review Comments

Comment Date and Time	Comment	Response
October 30, 2014 @ 11:06 am and subsequent correspondence with Elsinboro Township Office of Emergency Management.	Concern expressed about flooding and well contamination affecting houses near Hagersville Road and Abbot Farm Roads.	These comments were considered as part of Municipal Working Group meeting on January 5, 2015 as well as previous discussion at the Township Committee. However, this problem was already identified as part of the issues related to multi- jurisdictional mitigation measure MJ-2 (see <i>Part 4: Mitigation Measures</i>).

Note: As of September 16, 2016, no other public review comments were received for the Elsinboro Township Municipal Appendix.

Attachment B: Adoption Resolution

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

Attachment C: Approval Letter

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



Mitigation Plan for Four New Jersey Counties
Salem County Appendices

Appendix SC.6
Lower Alloways Creek Township,
New Jersey

September 16, 2016

Table of Contents

Table of Contents	SC.6-i
Part 1 Overview	SC.6-1
1.1: Mitigation Plan for Four New Jersey Counties	SC.6-1
1.2: Lower Alloways Creek Township (Salem County) Municipal Appendix	SC.6-1
Part 2 Participation	SC.6-2
2.1: Municipal Working Group Participation	SC.6-2
2.2: Public Participation	SC.6-5
Part 3 Hazard Identification and Risk Assessment	SC.6-5
3.1: Municipal Profile	SC.6-5
3.2: Hazard Priorities	SC.6-9
3.3: Hazard Mapping	SC.6-10
3.4: Critical Facilities Inventory and Hazard Exposure Assessment	SC.6-11
Part 4 Mitigation Measures	SC.6-14
4.1: Mitigation Goals and Strategy	SC.6-14
4.2: SDVR HMP Mitigation Measures	SC.6-15
4.3: Municipal Mitigation Measures – Identification	SC.6-16
4.4: Municipal Mitigation Measures – Implementation	SC.6-18
4.5: Multi-Jurisdictional Mitigation Measures	SC.6-20
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	SC.6-22

Table of Contents

List of Figures

Figure SC.6-1: Lower Alloways Creek Township (Salem County) Location Map	SC.6-5
Figure SC.6-2: Lower Alloways Creek Township Base Map	SC.6-6
Figure SC.6-3: Lower Alloways Creek Township Housing Units by Year Built	SC.6-8
Figure SC.6-4: Lower Alloways Creek Township Mitigation Project Locations	SC.6-21

List of Tables

Table SC.6-1: Lower Alloways Creek Township (Salem County) Working Group	SC.6-2
Table SC.6-2: Public Participation	SC.6-4
Table SC.6-3: Lower Alloways Creek Township Demographics	SC.6-7
Table SC.6-4: Lower Alloways Creek Township Demographic Rankings	SC.6-7
Table SC.6-5: Lower Alloways Creek Township Economics and Housing	SC.6-7
Table SC.6-6: Lower Alloways Creek Township Ranking (Economics and Housing)	SC.6-8
Table SC.6-7: Supporting Mapping and Exhibits	SC.6-10
Table SC.6-8: Lower Alloways Creek Township Critical Facilities Inventory	SC.6-12
Table SC.6-9: Lower Alloways Creek Township Critical Facilities Hazard Exposure	SC.6-13
Table SC.6-10: Status of Lower Alloways Creek Township SDVR HMP Mitigation Measures	SC.6-15
Table SC.6-11: Lower Alloways Creek Township Municipal Mitigation Measures Identification	SC.6-16
Table SC.6-12: Lower Alloways Creek Township Municipal Mitigation Measures Implementation	SC.6-18
Table SC.6-13: Lower Alloways Creek Township Multi-Jurisdictional Mitigation Measures	SC.6-20

Attachments

Attachment SC.6.A: Public Review Comments	SC.6.A-1
Attachment SC.6.B: Adoption Resolution	SC.6.B-1
Attachment SC.6.C: Approval Letter	SC.6.C-1

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: Lower Alloways Creek Township (Salem County) Municipal Appendix

This Municipal Appendix is focused on Lower Alloways Creek Township in Salem County, New Jersey.

The Lower Alloways Creek Township Municipal Working Group recommended the Lower Alloways Creek Township (Salem County) Municipal Appendix for adoption to the Lower Alloways Creek Township Committee.

The Lower Alloways Creek 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 SC.6-1 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 SC.6-1: Lower Alloways Creek Township (Salem County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Working Group Meeting ³	Contribution ⁴
David	Sowers	Lower Alloways Creek Township OEM / Police Department	OEM Coordinator / Public Safety Director	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Organized Working Group and Work Sessions.
Douglas	Hassler	Lower Alloways Creek Township Police Department / OEM	Lieutenant / OEM Deputy Coordinator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Organized Working Group and Work Sessions. Provided Municipal documents for review.
Ronald	Campbell	Lower Alloways Creek Township Administration	Municipal Clerk	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Kevin	Clour	Lower Alloways Creek Township Finance Department	CFO		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

¹ Round 1 Work Session was held on June 27, 2014.

² Round 2 Work Session was held on September 9, 2014.

³ Municipal Working Group meeting was held on January 6, 2015.

⁴ 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 SC.6-1.

Part 2: Participation

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Working Group Meeting ³	Contribution ⁴
John	Pulumbo	Lower Alloways Creek Township Construction	Construction Code Official / Floodplain Administrator			<input checked="" type="checkbox"/>	
James	Carll	Lower Alloways Creek Township Public Works	Detail Foreman	<input checked="" type="checkbox"/>			
Lewis	Fogg	Lower Alloways Creek Township Department of Public Works	Foreman		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Jay	Eitner	Lower Alloways Creek Township Board of Education	Superintendent		<input checked="" type="checkbox"/>		
David	Burgin	Emergency Services - PSEG Nuclear LLC	Emergency Preparedness		<input checked="" type="checkbox"/>		

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.

- Elected Officials
- Land Use / Economic Development Planner
- GIS / IT Specialists
- Building Code Official
- Fire and Emergency Medical Services
- Community / Faith-Based Organizations

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.

- Business Associations
- Environmental Organizations
- Non-Governmental Organizations
- Healthcare Institutions

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 SC.6-2 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 SC.6-2: Public Participation

Date	Type of Involvement	Location
July, 2014	Monthly Newsletter	Lower Alloways Creek Township – The Heart of South Jersey ⁵
July 7, 2014	Flyers posted	Police Department
August 7, 2014	Link to Project Website (http://nj4hmp.com) established	Lower Alloways Creek Township – The Heart of South Jersey ⁵
November, 2014	Public meeting with presentation and open discussion	Municipal Building
December 9, 2014	Preliminary Municipal Appendix posted to website for public comment	Lower Alloways Creek Township – The Heart of South Jersey ⁵
December 9, 2014	Public hearing included on Lower Alloways Creek Township Committee agenda providing for open discussion, and public comment regarding the Preliminary Municipal Appendix	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.lowerallowayscreek-nj.gov/>

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

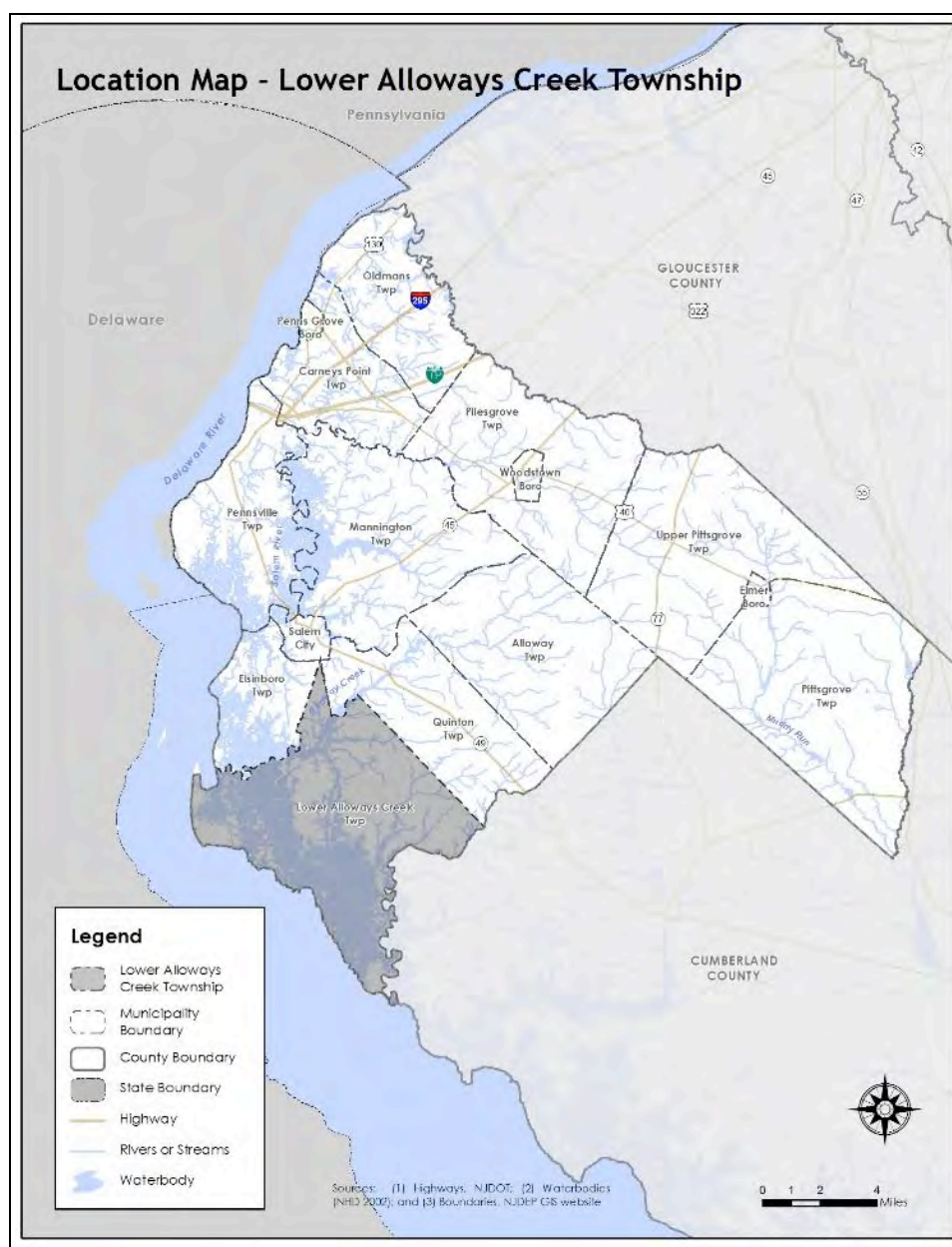
Part 3.1: Municipal Profile

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*

Lower Alloways Creek Township is located in the southwestern corner of Salem County (See Figure SC.6-1).

Figure SC.6-1: Lower Alloways Creek Township (Salem County) Location Map



Part 3: Hazard Identification and Risk Assessment

Lower Alloways Creek Township is a rural residential community where more than a third of the area is water. Unincorporated communities in the municipality include Canton and Hancock's Bridge. PSEG operates three nuclear reactors within the Township.

Per Figure SC.6-2, the major water course includes the Delaware River. Major transportation routes include Salem County Routes 623 and 667. The land is predominantly flat and heavily covered in forests and wetlands.

Figure SC.6-2: Lower Alloways Creek Township Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table SC.6-3 is a compilation of demographic information for the municipality and comparison with the county, the four county region, and State of New Jersey.

Table SC.6-3: Lower Alloways Creek Township Demographics
(Source: Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4)

	Lower Alloways Creek Township	Salem County	Region	New Jersey
2000 Population ¹	1,851	64,285	974,328	8,414,350
2010 Population ¹	1,770	66,083	1,024,926	8,791,894
Percent Change	-4.38%	2.80%	5.19%	4.49%
Population Density	39.1 / sq. mile	199.1 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	45.23 sq. miles	331.90 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population 18 and younger	21.8	23.5	24.1	23.5
% of Population 18 - 64	60.9	61.5	62.7	63
% of Population 65 and over	17.3	15.0	13.2	13.5

Table SC.6-4 illustrates how Lower Alloways Creek Township ranks in the county, the four county region, and New Jersey.

Table SC.6-4: Lower Alloways Creek Township Demographic Rankings

	Salem County (total of 15)	Region (total of 90)	New Jersey (total of 565)
Population Rank	13	78	500
Land Area Rank	1	7	34
Population Density Rank	15	87	557
Population Change Rank	13	79	-

Table SC.6-5 includes information related to economic and housing statistics for Lower Alloways Creek Township, Salem County, the four county region, and New Jersey.

Table SC.6-5: Lower Alloways Creek Township Economics and Housing
(Source: USDA ERS, Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4; NJ LWD 2010)

	Lower Alloways Creek Township	Salem County	Region	New Jersey
Date Incorporated	February 21, 1798	1694	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$66,384	\$59,441	\$60,933	\$69,811
Total Number of Housing Units	727	27,417	397,990	3,529,033
Occupied Housing Units	679	25,290	372,472	3,176,069
Vacant Housing Units	48	2,127	25,518	352,964
Owner Occupied Housing Units	551	18,091	266,593	2,126,279

Part 3: Hazard Identification and Risk Assessment

	Lower Alloways Creek Township	Salem County	Region	New Jersey
Renter Occupied Housing Units	128	7,199	105,879	1,049,790
Building Permits	0	105	1,554	13,535
Largest Industry	Utilities	Educational Services, and health care and social assistance	Educational services, and health care and social assistance	Educational services, and health care and social assistance

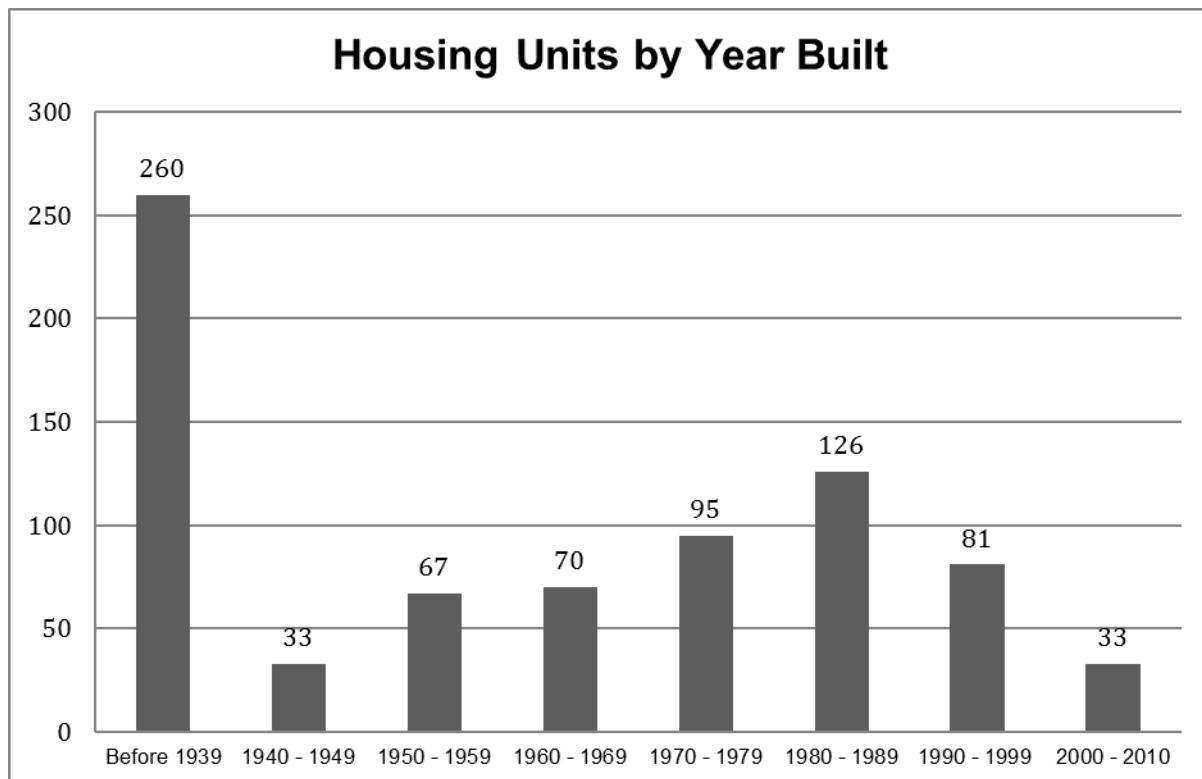
Table SC.6-6 illustrates how Lower Alloways Creek Township ranks in the county and the four county region.

Table SC.6-6: Lower Alloways Creek Township Ranking (Economics and Housing)

	Salem County (total of 15)	Region (total of 90)
Median Household Income Rank	5	36
Vacant Housing Rank	13	73
Renter Occupied Housing Rank	12	74
Building Permits Rank	14	89

Figure SC.6-3 illustrates development patterns in Lower Alloways Creek Township by examining housing units by year built.

Figure SC.6-3: Lower Alloways Creek Township Housing Units by Year Built
(Source: 2010 ACS 5 Year Estimates, DP 4)



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

- Levee Failure

Moderate Priority

- Flood

Low Priority

- Coastal Erosion & Sea Level Rise
- Dam Failure
- Drought
- Earthquake
- Extreme Temperature: Cold & Hot
- High Wind
- Severe Weather – Summer
- Severe Weather – Winter Weather
- Wildfire

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 SC.6-7 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 was used in the Critical Facilities Hazard Exposure Assessment described in Part 3.4.

Table SC.6-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
Figure RP.D-3	Coastal Erosion and Sea Level Rise	Increased Inundation Areas (Coastal Scenarios) 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	Wildland 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 3.4: 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 SC.6-8 contains updated inventory information for municipal critical facilities including cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix.

Table SC.6-9 contains results of overlaying critical facility locations with hazard mapping identified in Part 3.3. The results indicate critical facilities that are potentially exposed to specific hazards. 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 SC.6-8: Lower Alloways Creek Township (Salem County) Critical Facilities Inventory

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-1	Municipal Building	Municipal	Administrative Offices	501 Locust Island Road, Hancocks Bridge	CF-2, CF-3	N	Y		
CF-2	Emergency Operations Center	EOC	Co-located Facilities	501 Locust Island Road, Hancocks Bridge	CF-1	N	Y		
CF-3	Police Station	Law Enforcement Facilities	Stations	501 Locust Island Road, Hancocks Bridge	CF-1	N	Y		
CF-4	Lower Alloways Creek Fire & Rescue – Canton Station	FireStation	Stations	773 Smick Road, Salem		N	N		M-5
CF-5	Lower Alloways Creek Fire & Rescue – Hancocks Bridge Station	FireStation	Stations	15 New Street, Hancocks Bridge		N	N		M-6
CF-6	Lower Alloways Creek EMS & Rescue	EMS	Municipal Stations	8 Pecks Corner Road, Salem		N	N		M-7
CF-7	Public Works	Public Works	Combined Administrative Office, Maintenance / Work Area, Equipment / Material Storage, and Fueling Station	8 Pecks Corner Road, Salem	CF-6	N	Y		
CF-8	Lower Alloways Creek Elementary School	Schools	Public Schools	967 Main Street, Salem	CF-7	Y	Y		M-9

Part 3: Hazard Identification and Risk Assessment

Table SC.6-9: Lower Alloways Creek Township (Salem County) Critical Facilities Hazard Exposure

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ²	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 ³	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	Municipal Building	-	-	-	9.05	-	☑	-	☑	☑	☑	☑	5.13	-	-
CF-2	Emergency Operations Center	-	-	-	9.05	-	☑	-	☑	☑	☑	☑	5.13	-	-
CF-3	Police Station	-	-	-	9.05	-	☑	-	☑	☑	☑	☑	5.13	-	-
CF-4	Lower Alloways Creek Fire & Rescue – Canton Station	-	-	-	9.64	-	-	-	-	-	☑	☑	5.23	-	-
CF-5	Lower Alloways Creek Fire & Rescue – Hancocks Bridge Station	-	-	-	9.07	-	☑	-	☑	☑	☑	☑	1.37	-	-
CF-6	Lower Alloways Creek EMS & Rescue	-	-	-	7.93	-	-	-	-	☑	☑	☑	1.37	-	-
CF-7	Public Works	-	-	-	7.93	-	-	-	-	☑	☑	☑	2.43	-	-
CF-8	Lower Alloways Creek Elementary School	-	-	-	10.54	-	-	-	-	☑	☑	☑	1.46	-	-

² Distance in miles to nearest dam.

³ Distance in miles to nearest levee.

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
- 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 SC.6-10 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 SC.6-10.

Table SC.6-10: Status of Lower Alloways Creek Township (Salem County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Lower Alloways 1: Extend Steel Bulkheads .4 miles starting from Front Street.	Completed	Issue was resolved by constructing a steel bulkhead from Hancocks Bridge to the end of Front Street. Project was funded with Federal funds. Therefore, mitigation measure not included in updated Municipal Appendix.	N/A
Lower Alloways 2: Elevate road at Salem Bridge Road and Front Street and also at New Bridge and Beasley Neck Road.	Not completed, not funded	Revised multi-jurisdictional mitigation measure included in updated Municipal Appendix.	MJ-2
Lower Alloways 3: Identify and map erosion hazard zones.	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-8
Lower Alloways 4: Use United States Army Corps of Engineers (USACE) surge maps for community education and outreach.	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-1
Lower Alloways 5: Working with NJDEP, develop a public outreach program to educate communities and residents that are subject to inundation as a result of rapid rise/storm surge.	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-1
Lower Alloways 6: Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-1

Table SC.6-10 Notes:

- A. See Tables SC.6-11 and SC.6-12 for municipal (M-#) mitigation measures
- B. See Table SC.6-13 for multi-jurisdictional (MJ-#) mitigation measures

Part 4: 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 SC.6-11 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

Note: Lower Alloways Creek Township does not currently have RL or SRL properties per information provided by the New Jersey Department of Environmental Protection.

Table SC.6-11 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 SC.6-4.

Table SC.6-11: Lower Alloways Creek Township (Salem 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 to inform municipal residents, businesses, and property owners regarding: <ul style="list-style-type: none">• Current hazards and risks to include erosion hazard zones and rapid rise / storm surge• 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

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.

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

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
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 Fire Department on 773 Smick Road (CF-4).	All	Goal #4	Both
M-6	Install permanent backup emergency power generator at Lower Alloways Creek Fire & Rescue Fire Department (CF-5).	All	Goal #4	Both
M-7	Install permanent backup emergency power generator hookup at EMS facility (CF-6).	All	Goal #4	Both
M-8	Conduct risk assessment to identify and map erosion hazard zones to include Lower Alloways Creek Neck Road.	Coastal Erosion and Sea Level Rise	Goal #4	Existing
M-9	Retrofit / harden Lower Alloways Creek Elementary School, to include the roof (CF-8).	High Wind	Goal #4	Both
M-10	Conduct risk assessment of levee associated failures in Lower Alloways Creek Township.	Levee Failure	Goal #4	Existing
M-11	Conduct risk assessment of levee at Locust Island to better understand the potential flood hazard and required levee upgrades.	Levee Failure	Goal #4	Existing
M-12	Conduct risk assessment of levee at Silver Lake to better understand the potential flood hazard and required levee upgrades.	Levee Failure	Goal #4	Existing

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 SC.6-12 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 SC.6-12: Lower Alloways Creek Township (Salem 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	Low	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	Low	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	Medium	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	High	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 Canton Station Fire Department (CF-4).	Municipal OEM and Fire Department	Low	Back-up Emergency Power Generator	< \$100K	Three to five years	Conduct project scoping.
M-6	Install permanent backup emergency power generator at Hancocks Bridge Station Fire Department (CF-5).	Municipal OEM and Fire Department	Low	Back-up Emergency Power Generator	< \$100K	Three to five years	Conduct project scoping.
M-7	Install permanent backup emergency power generator hookup at Lower Alloways Creek Township EMS & Rescue facility (CF-6).	Municipal OEM and EMS	Low	Back-up Emergency Power Generator	< \$100K	Three to five years	Conduct project scoping.
M-8	Conduct risk assessment to identify and map erosion hazard zones to include Lower Alloways Creek Neck Road.	Municipal OEM	Low	Private Property Mitigation	< \$50K	Three to five years	Develop scope of work for engineering study and procure professional consulting services.
M-9	Retrofit / harden Lower Alloways Creek Elementary School, to include the roof (CF-8).	Municipal OEM and School Board	Low	Building Retrofit	\$100K - \$500K	Three to five years	Conduct project scoping. ⁵
M-10	Conduct risk assessment of levee associated failures in Lower Alloways Creek Township.	Municipal OEM and Public Works Department	Moderate	Private Property Mitigation	< \$50K	Three to five years	Develop scope of work for engineering study and procure professional consulting services.
M-11	Conduct risk assessment of levee at Locust Island to better understand the potential flood hazard and required levee upgrades.	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-12	Conduct risk assessment of levee at Silver Lake to better understand the potential flood hazard and required levee upgrades.	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.

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 SC.6-13.

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 SC.6-4.

Table SC.6-13: Lower Alloways Creek Township (Salem County) Multi-Jurisdictional Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-1	Alleviate flooding at County Route 658 (Salem Hancock Bridge Road) and County Route 606 (Front Street).	Flood (Storm Surge & Tidal)	Goal #4	Both	Municipal OEM, Salem County DPW	High
MJ-2	Alleviate flooding at County Route 623 ⁵ (New Bridge) and County Route 651 (Beasley Neck Road).	Flood (Storm Surge & Tidal)	Goal #4	Both	Municipal OEM, Salem County DPW	High

⁵ County Route 623 is the main evacuation route for Lower Alloways Creek Township.

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:

- Capital Improvement Budget (2014)⁶
- Emergency Operations Plan – Base Plan
- Land Development Ordinance (2012)⁷
- Master Plan (1992) and Reexamination Report (2012)
- Stormwater Management Plan
- Stormwater NJDEP Report (2014)⁸

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.

⁶ http://www.lowerallowayscreek-nj.gov/downloads/LAC_2014_Budget3182014.pdf

⁷ http://www.lowerallowayscreek-nj.gov/downloads/LAC_CODE_ver09162014.pdf

⁸ <http://www.lowerallowayscreek-nj.gov/downloads/StormWater2014.pdf>

Attachment A: Public Review Comments

The following comments were received during the public review of the Lower Alloways Creek Township Municipal Appendix:

Table SC.6.A-1: Public Review Comments

Comment Date and Time	Comment	Response

Note: As of September 16, 2016, no public review comments were received for the Lower Alloways Creek Township Municipal Appendix.

Attachment B: Adoption Resolution

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

Attachment C: Approval Letter

Following this page is the Approval Letter for the Lower Alloways Creek Township Municipal Appendix.



Mitigation Plan for Four New Jersey Counties
Salem County Appendices

Appendix SC.7
Mannington Township, New Jersey

September 16, 2016

Table of Contents

Table of Contents	SC.7-i
Part 1 Overview	SC.7-1
1.1: Mitigation Plan for Four New Jersey Counties	SC.7-1
1.2: Mannington Township (Salem County) Municipal Appendix	SC.7-1
Part 2 Participation	SC.7-2
2.1: Municipal Working Group Participation	SC.7-2
2.2: Public Participation	SC.7-4
Part 3 Hazard Identification and Risk Assessment	SC.7-5
3.1: Municipal Profile	SC.7-5
3.2: Hazard Priorities	SC.7-9
3.3: Hazard Mapping	SC.7-10
3.4: Critical Facilities Inventory and Hazard Exposure Assessment	SC.7-11
Part 4 Mitigation Measures	SC.7-14
4.1: Mitigation Goals and Strategy	SC.7-14
4.2: SDVR HMP Mitigation Measures	SC.7-15
4.3: Municipal Mitigation Measures – Identification	SC.7-16
4.4: Municipal Mitigation Measures – Implementation	SC.7-17
4.5: Multi-Jurisdictional Mitigation Measures	SC.7-18
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	SC.7-21

Table of Contents

List of Figures

Figure SC.7-1: Mannington Township (Salem County) Location Map	SC.7-5
Figure SC.7-2: Mannington Township Base Map	SC.7-6
Figure SC.7-3: Mannington Township Housing Units by Year Built	SC.7-8
Figure SC.7-4: Mannington Township Mitigation Project Locations	SC.7-20

List of Tables

Table SC.7-1: Mannington Township (Salem County) Working Group	SC.7-2
Table SC.7-2: Public Participation	SC.7-4
Table SC.7-3: Mannington Township Demographics	SC.7-7
Table SC.7-4: Mannington Township Demographic Rankings	SC.7-7
Table SC.7-5: Mannington Township Economics and Housing	SC.7-7
Table SC.7-6: Mannington Township Ranking (Economics and Housing)	SC.7-8
Table SC.7-7: Supporting Mapping and Exhibits	SC.7-10
Table SC.7-8: Mannington Township Critical Facilities Inventory	SC.7-12
Table SC.7-9: Mannington Township Critical Facilities Hazard Exposure	SC.7-13
Table SC.7-10: Status of Mannington Township SDVR HMP Mitigation Measures	SC.7-15
Table SC.7-11: Mannington Township Municipal Mitigation Measures Identification	SC.7-16
Table SC.7-12: Mannington Township Municipal Mitigation Measures Implementation	SC.7-17
Table SC.7-13: Mannington Township Multi-Jurisdictional Mitigation Measures	SC.7-19

Attachments

Attachment SC.7.A: Public Review Comments	SC.7.A-1
Attachment SC.7.B: Adoption Resolution	SC.7.B-1
Attachment SC.7.C: Approval Letter	SC.7.C-1

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: Mannington Township (Salem County) Municipal Appendix

This Municipal Appendix is focused on Mannington Township in Salem County, New Jersey.

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

The Mannington 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 SC.7-1 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 SC.7-1: Mannington Township (Salem County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Working Group Meeting ³	Contribution ⁴
William	Fox	Mannington Township OEM	OEM Coordinator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Organized Working Group and Work Sessions. Provided Township documents for review.
Edward	Abdill	Mannington Township OEM	OEM Deputy Coordinator	<input checked="" type="checkbox"/>			Organized Working Group and Work Sessions.
John	Emel	Mannington Township	Mayor	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Donald	Asay	Mannington Township Committee	Township Committeeman		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Dante	Spina	Mannington Township Committee	Township Committee	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Hubert T.	Layton, Jr.	Mannington Township Zoning Office	Zoning Officer / Floodplain Administrator	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Carl	Gaskill	Mannington Township Municipal Engineer	Municipal Engineer	<input checked="" type="checkbox"/>			

¹ Round 1 Work Session was held on June 16, 2014.

² Round 2 Work Session was held on September 15, 2014.

³ Municipal Working Group meeting was held on January 5, 2015.

⁴ 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 SC.7-1.

Part 2: Participation

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Working Group Meeting ³	Contribution ⁴
Christopher	Quirk	NJ State Police	A/SFC, Assistant Station Commander	<input checked="" type="checkbox"/>			
Lee	Butcher	Mannington Fire Co. #1	Fire Chief	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
John	Swain	Salem County Vocational – Technical / Salem County Special Services School District	Superintendent		<input checked="" type="checkbox"/>		
John	Bolil	Salem County Vocational – Technical / Salem County Special Services School District	School Business Administrator		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Dave	Kitts	Mannington Mills, Inc.	VP-Environment	<input checked="" type="checkbox"/>			
Kathryn	Bailey	Mannington Mills, Inc.	Environmental Engineer	<input checked="" type="checkbox"/>			
Kimberly	Dooley	Memorial Hospital of Salem County	Director of Support Services	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

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.⁵

- GIS / IT Specialist
- Community / Faith-Based Organizations
- 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.

- Building Code Official
- Transportation Department Directors / Supervisors
- Business Associations
- Police
- Environmental Organizations
- Non-Governmental Organizations

⁵ 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 SC.7-2 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 SC.7-2: Public Participation

Date	Type of Involvement	Location
May 30, 2014	Letter sent to local business owners	n/a
July 2, 2014	Public meeting with presentation and open discussion	Township Hall
July 11, 2014	Flyers posted	Township Hall & Municipal Taxes Building
August 6, 2014	Information item included on Mannington Township Committee agenda identifying opportunities for public participation	Township Hall
August 15, 2014	Link to Project Website (http://nj4hmp.com) established	Mannington Township, New Jersey ⁶
September 2, 2014	Public meeting with presentation and open discussion	Township Hall
January 5, 2015	Public hearing included on Mannington Township Committee agenda providing for open discussion, and public comment regarding the Preliminary Municipal Appendix	Township Hall

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.⁷ In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities.⁸

⁶ <http://www.manningtontp.com/offices.html#emergency>

⁷ See Mitigation Measure M-1 in Part 4 of the Municipal Appendix.

⁸ See *Section 4: Mitigation Measures* of the NJ4 HMP Regional Hazard Mitigation Plan.

Part 3: Hazard Identification and Risk Assessment

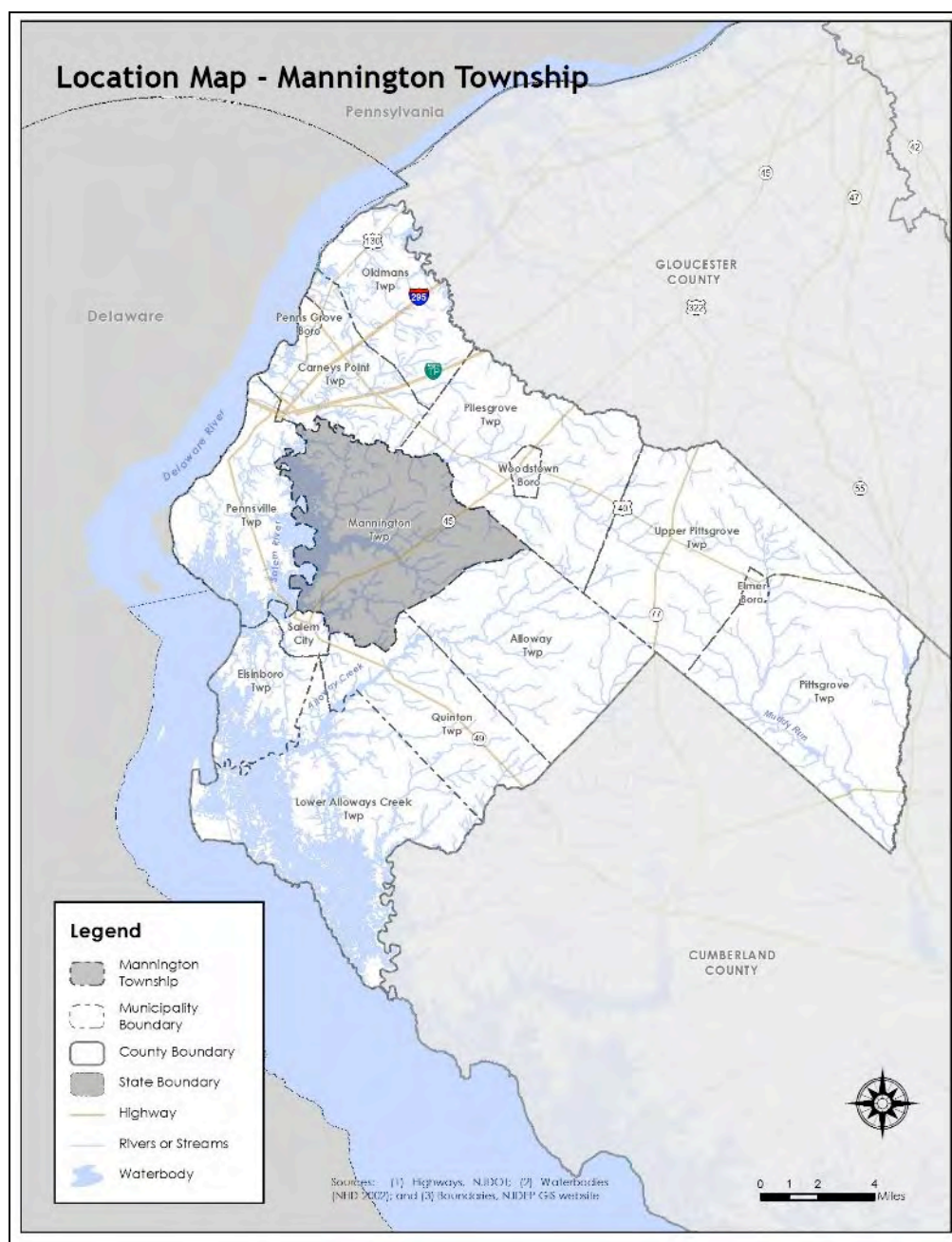
Part 3.1: Municipal Profile

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*

Mannington Township is located in the central portion of Salem County (See Figure SC.7-1).

Figure SC.7-1: Mannington Township (Salem County) Location Map

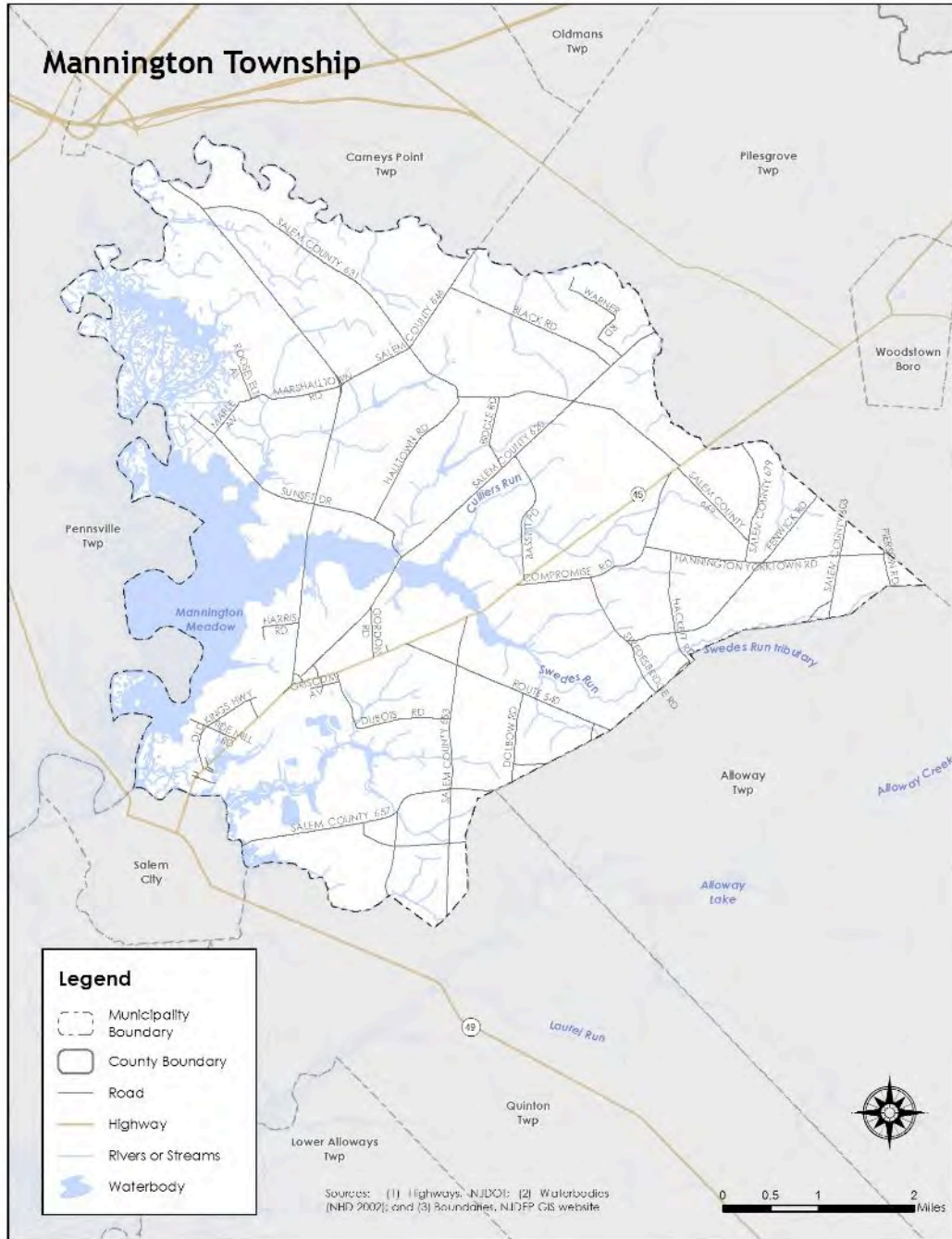


Part 3: Hazard Identification and Risk Assessment

Considered the “heart of Salem County”, Mannington Township has worked to save the agrarian nature of the Township by fostering and partnering with various groups to preserve farmland. Of the 9,000 acres, 40% of the agricultural acres are preserved. Mannington Township is also home to industries such as a major international floor manufacturer and the Memorial Hospital of Salem County.

Per Figure SC.7-2, the major body of water is Mannington Meadow, which forms the western border of the municipality. Major transportation routes include State Highway 45. The land is predominantly flat with a large portion of the municipality utilized as farmland.

Figure SC.7-2: Mannington Township Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table SC.7-3 is a compilation of demographic information for the municipality and comparison with the county, the four county region, and State of New Jersey.

Table SC.7-3: Mannington Township Demographics
(Source: Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4)

	Mannington Township	Salem County	Region	New Jersey
2000 Population	1,559	64,285	974,328	8,414,350
2010 Population	1,806	66,083	1,024,926	8,791,894
Percent Change	15.84%	2.80%	5.19%	4.49%
Population Density	53.6 / sq. mile	199.1 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	33.70 sq. miles	331.90 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population 18 and younger	18.3	23.5	24.1	23.5
% of Population 18 - 64	64.3	61.5	62.7	63
% of Population 65 and over	17.4	15.0	13.2	13.5

Table SC.7-4 illustrates how Mannington Township ranks in the county, the four county region, and New Jersey.

Table SC.7-4: Mannington Township Demographic Rankings

	Salem County (total of 15)	Region (total of 90)	New Jersey (total of 565)
Population Rank	11	76	497
Land Area Rank	5	15	69
Population Density Rank	14	85	553
Population Change Rank	2	12	-

Table SC.7-5 includes information related to economic and housing statistics for Mannington Township, Salem County, the four county region, and New Jersey.

Table SC.7-5: Mannington Township Economics and Housing
(Source: USDA ERS, Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4; NJ LWD 2010)

	Mannington Township	Salem County	Region	New Jersey
Date Incorporated	February 21, 1798	1694	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$63,650	\$59,441	\$60,933	\$69,811
Total Number of Housing Units	587	27,417	397,990	3,529,033
Occupied Housing Units	529	25,290	372,472	3,176,069
Vacant Housing Units	58	2,127	25,518	352,964
Owner Occupied Housing Units	437	18,091	266,593	2,126,279

Part 3: Hazard Identification and Risk Assessment

	Mannington Township	Salem County	Region	New Jersey
Renter Occupied Housing Units	92	7,199	105,879	1,049,790
Building Permits	3	105	1,554	13,535
Largest Industry	Agriculture, Forestry, Fishing and Hunting; Educational Services; Health Care and Social Assistance; and 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

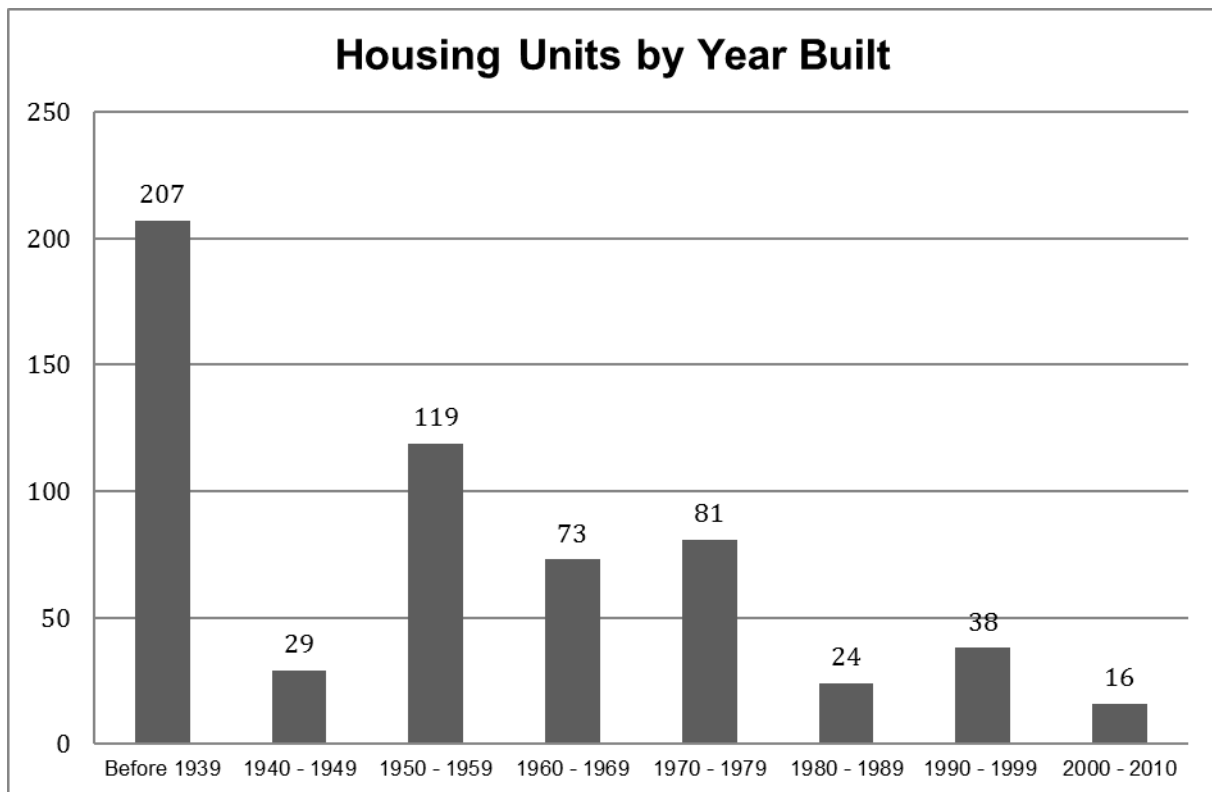
Table SC.7-6 illustrates how Mannington Township ranks in the county and the four county region.

Table SC.7-6: Mannington Township Ranking (Economics and Housing)

	Salem County (total of 15)	Region (total of 90)
Median Household Income Rank	10	46
Vacant Housing Rank	12	72
Renter Occupied Housing Rank	13	76
Building Permits Rank	8	56

Figure SC.7-3 illustrates development patterns in Mannington Township by examining housing units by year built.

Figure SC.7-3: Mannington Township Housing Units by Year Built
(Source: 2010 ACS 5 Year Estimates, DP 4)



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
- Severe Storm – Winter Weather

Moderate Priority

- High Wind
- Severe Weather – Summer

Low Priority

- Coastal Erosion and Sea Level Rise
- Dam Failure
- Drought
- Earthquake
- Extreme Temperature: Cold & Hot
- Levee Failure
- Wildfire

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 3.3: 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 SC.7-7 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 was used in the Critical Facilities Hazard Exposure Assessment described in Part 3.4.

Table SC.7-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
Figure RP.D-3	Coastal Erosion and Sea Level Rise	Increased Inundation Areas (Coastal Scenarios) 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	Wildland 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 3.4: 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 SC.7-8 contains updated inventory information for municipal critical facilities including cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix.

Table SC.7-9 contains results of overlaying critical facility locations with hazard mapping identified in Part 3.3. The results indicate critical facilities that are potentially exposed to specific hazards. 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 SC.7-8: Mannington Township (Salem 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	491 Route 45, Mannington	CF-2	N	Y		
CF-2	Emergency Operations Center	EOC	Co-located Facilities	491 Route 45, Mannington	CF-1	N	Y		
CF-3	Mannington Fire Company 1	Fire Stations / EMS	Stations	175 Route 45, Salem		N	Y		
CF-4	Mannington Township Public Works	Public Works	Combined Administrative Office, Maintenance / Work Area, Equipment / Material Storage, and Fueling Station	9 Tide Mill Road, Salem		N	N		
CF-5	Mannington Township School	Schools	Public Schools	495 Route 45, Salem		N	N		
CF-6	Golden Rehabilitation and Nursing Center	Health Care Facilities	Private Health Clinic / Treatment Centers	438 Route 45, Salem		N ²	Y		
CF-7	Fresenius Medical Care	Health Care Facilities	Private Health Clinic / Treatment Centers	5 Route 45, Salem		N	Y		
CF-8	ARC	Public Works	Equipment Mobilization	150 Route 45, Salem		Y	N		
CF-9	Remsterville Learning Center	Vulnerable Populations Facilities	Private Child Day Care	485 Route 45, Salem		N	N		
CF-10	Mannington Mills	Emergency Staging Areas	Shelter	75 Mannington Mills Road		Y	Y		

Part 3: Hazard Identification and Risk Assessment

Table SC.7-9: Mannington Township (Salem County) Critical Facilities Hazard Exposure

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ²	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 ³	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	Township Hall	-	-	-	6.74	N/A	-	-	-	-	-	-	1.36	-	-
CF-2	Emergency Operations Center	-	-	-	6.74	N/A	-	-	-	-	-	-	1.08	-	-
CF-3	Mannington Fire Company 1	-	-	-	7.83	N/A	-	-	-	-	☑	☑	0.20	-	-
CF-4	Mannington Township Public Works	-	-	-	8.02	N/A	-	-	-	☑	☑	☑	1.18	-	-
CF-5	Mannington Township School	-	-	-	6.78	N/A	-	-	-	-	-	-	1.00	-	-
CF-6	Golden Rehabilitation and Nursing Center	-	-	-	6.85	N/A	-	-	-	-	-	☑	6.70	-	-
CF-7	Fresenius Medical Care	-	-	-	8.26	N/A	☑	-	☑	☑	☑	☑	6.81	-	-
CF-8	ARC	-	-	-	7.82	N/A	-	-	-	-	☑	☑	2.29	-	-
CF-9	Remsterville Learning Center	-	-	-	6.77	N/A	-	-	-	-	-	-	2.17	-	-
CF-10	Mannington Mills	-	-	-	7.37	N/A	-	-	-	☑	☑	☑	2.12	-	-

² Distance in miles to nearest dam.

³ Distance in miles to nearest levee.

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
- 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 SC.7-10 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 SC.7-10.

Table SC.7-10: Status of Mannington Township (Salem County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Mannington 1: Elevate Causeway on Route 540 near Seabrook Road and Sunset Drive (County Road).	Not completed, not funded	Revised multi-jurisdictional mitigation measure included Municipal Appendix.	MJ-1
Mannington 2: Elevate Bridge on Market Street/Route 45 heading out of Salem (State Road).	Completed	Issue was resolved through NJDOT funding. Therefore, multi-jurisdictional mitigation measure is not included in updated Municipal Appendix.	N/A
Mannington 3: Elevate Bridge on Route 45 near Acton Station Road/Mannington Hill (State Road).	Completed	Issue was resolved through NJDOT funding. Therefore, multi-jurisdictional mitigation measure is not included in updated Municipal Appendix.	N/A
Mannington 4: Storm water management upgrade of culvert located on Marshalltown Road.	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-5
Mannington 5: Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-1

Table SC.7-10 Notes:

- A. See Tables SC.7-11 and SC.7-12 for municipal (M-#) mitigation measures
- B. See Table SC.7-13 for multi-jurisdictional (MJ-#) mitigation measures

Part 4: 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 SC.7-11 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

Note: Mannington Township does not currently have RL or SRL properties per information provided by the New Jersey Department of Environmental Protection.

Table SC.7-11 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 SC.7-4.

Table SC.7-11: Mannington Township (Salem 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 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

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.

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

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
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	Upgrade culvert on Marshalltown Road.	Flood	Goal #4	Both

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 SC.7-12 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 SC.7-12: Mannington Township (Salem 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	Low	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	Low	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	Low	Capabilities and Coordination	Staff time commitment	On-going	Identify recurrent drainage problem areas, establish priorities, and identify data collection procedures.

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-4	Conduct regular Municipal Working Group meetings.	Municipal OEM and Municipal Working Group	Low	Capabilities and Coordination	Staff time commitment	On-going	Establish regular Municipal Working Group membership, reporting requirements, and meeting / work session schedule.
M-5	Upgrade culvert on Marshalltown Road.	Municipal OEM and Public Works Department	Low	Private Property Flood Mitigation	< \$100K	Three to five years	Conduct project scoping.

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 SC.7-13.

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 SC.7-4.

Part 4: Mitigation Measures

Table SC.7-13: Mannington Township (Salem County) Multi-Jurisdictional Mitigation Measures

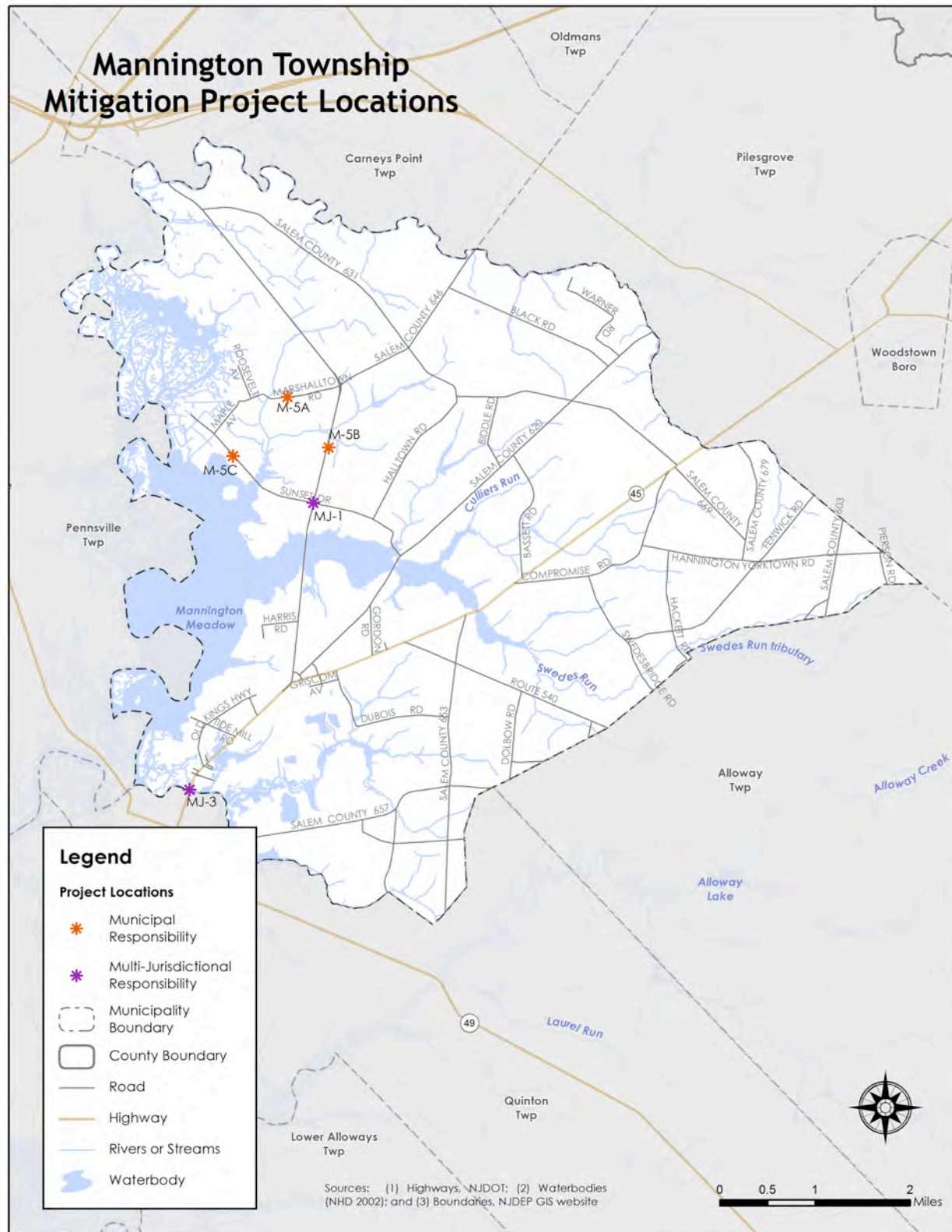
#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-1	Alleviate flooding on County Route 540 near Seabrook Road and Sunset Drive (key evacuation route for residents in Salem County and Nuclear Power Plant).	Flood	Goal #4	Both	Municipal OEM, Carney's Point Township OEM ⁵ , Salem County DPW	Low
MJ-2	Alleviate flooding on NJ Route 45 at Keasbey Creek at border between Mannington Township and Salem City (key egress point for Mannington Township and for Mill Operation). ⁶	Flood	Goal #4	Existing	Municipal OEM, NJDOT	Low

⁵ Evacuation route for residents in Mannington includes taking County Route 540 through Carney's Point Township.

⁶ Related to multi-jurisdictional mitigation measure included in Carney's Point Municipal Appendix.

Part 4: Mitigation Measures

Figure SC.7-4: Mannington 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:

- Floodplain Ordinance
- Floodplain Ordinance Amendment
- Master Plan Amendment (2007)
- Capital Budget and Capital Improvement Program (2014)⁷
- Comprehensive Development Plan, Land Use Element (1978)
- Comprehensive Farmland preservation Plan (2010)
- Environmental Resource Inventory (2007)

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.
Emergency Operations Plan (2011)

⁷ http://www.manningtontp.com/finance/2014_AdoptedBudget.pdf

Attachment A: Public Review Comments

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

Table SC.7.A-1: Public Review Comments

Comment Date and Time	Comment	Response

Note: As of September 16, 2016, no public review comments were received for the Mannington Township Municipal Appendix.

Attachment B: Adoption Resolution

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

Attachment C: Approval Letter

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



Mitigation Plan for Four New Jersey Counties
Salem County Appendices

Appendix SC.8
Oldmans Township, New Jersey

September 16, 2016

Table of Contents

Table of Contents	SC.8-i
Part 1 Overview	SC.8-1
1.1: Mitigation Plan for Four New Jersey Counties	SC.8-1
1.2: Oldmans Township (Salem County) Municipal Appendix	SC.8-1
Part 2 Participation	SC.8-2
2.1: Municipal Working Group Participation	SC.8-2
2.2: Public Participation	SC.8-4
Part 3 Hazard Identification and Risk Assessment	SC.8-5
3.1: Municipal Profile	SC.8-5
3.2: Hazard Priorities	SC.8-9
3.3: Hazard Mapping	SC.8-10
3.4: Critical Facilities Inventory and Hazard Exposure Assessment	SC.8-11
Part 4 Mitigation Measures	SC.8-14
4.1: Mitigation Goals and Strategy	SC.8-14
4.2: SDVR HMP Mitigation Measures	SC.8-15
4.3: Municipal Mitigation Measures – Identification	SC.8-16
4.4: Municipal Mitigation Measures – Implementation	SC.8-17
4.5: Multi-Jurisdictional Mitigation Measures	SC.8-19
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	SC.8-22

Table of Contents

List of Figures

Figure SC.8-1: Oldmans Township (Salem County) Location Map	SC.8-5
Figure SC.8-2: Oldmans Township Base Map	SC.8-6
Figure SC.8-3: Oldmans Township Housing Units by Year Built	SC.8-8
Figure SC.8-4: Oldmans Township Mitigation Project Locations	SC.8-21

List of Tables

Table SC.8-1: Oldmans Township (Salem County) Working Group	SC.8-2
Table SC.8-2: Public Participation	SC.8-4
Table SC.8-3: Oldmans Township Demographics	SC.8-7
Table SC.8-4: Oldmans Township Demographic Rankings	SC.8-7
Table SC.8-5: Oldmans Township Economics and Housing	SC.8-7
Table SC.8-6: Oldmans Township Ranking (Economics and Housing)	SC.8-8
Table SC.8-7: Supporting Mapping and Exhibits	SC.8-10
Table SC.8-8: Oldmans Township Critical Facilities Inventory	SC.8-12
Table SC.8-9: Oldmans Township Critical Facilities Hazard Exposure	SC.8-13
Table SC.8-10: Status of Oldmans Township SDVR HMP Mitigation Measures	SC.8-15
Table SC.8-11: Oldmans Township Municipal Mitigation Measures Identification	SC.8-16
Table SC.8-12: Oldmans Township Municipal Mitigation Measures Implementation	SC.8-18
Table SC.8-13: Oldmans Township Multi-Jurisdictional Mitigation Measures	SC.8-19

Attachments

Attachment SC.8.A: Public Review Comments	SC.8.A-1
Attachment SC.8.B: Adoption Resolution	SC.8.B-1
Attachment SC.8.C: Approval Letter	SC.8.C-1

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: Oldmans Township (Salem County) Municipal Appendix

This Municipal Appendix is focused on Oldmans Township in Salem County, New Jersey.

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

The Oldmans 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 SC.8-1 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 SC.8-1: Oldmans Township (Salem County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Contribution ³
Jeffrey	Newman	Oldmans Township OEM	OEM Coordinator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Organized Working Group and Work Sessions.
Harry	Moore	Oldmans Township Administration	Mayor	<input checked="" type="checkbox"/>		Organized Working Group and Work Sessions.
George	Bradford	Oldmans Township Committee	Deputy Mayor		<input checked="" type="checkbox"/>	
William	Ferrell, Jr.	Logan Volunteer Fire Company / Business Owner – Lacy's Express, Inc.	Volunteer Firefighter / President		<input checked="" type="checkbox"/>	
Melinda	Taylor	Oldmans Township Clerk's Office	Township Clerk / Floodplain Administrator			The Floodplain Administrator reviewed the Preliminary Appendix

¹ Round 1 Work Session was held on August 4, 2014.

² Round 2 Work Session was held on October 7, 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 SC.8-1.

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

- Land Use / Economic Development Planner
- GIS / IT Specialist
- Building Code Official
- Engineering
- Public Works
- Emergency Medical Services
- Community / Faith-Based Organizations
- Critical Infrastructure and Key Resources
- School Board

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.

- Police
- Transportation Department Directors / Supervisors
- Business Associations
- Environmental Organizations
- Non-Governmental Organizations
- 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 SC.8-2 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 SC.8-2: Public Participation

Date	Type of Involvement	Location
December 23, 2014	Public notification included on Oldmans Township Committee agenda providing for open discussion, and public comment regarding the Preliminary Municipal Appendix	Township Hall

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.⁵ In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities.⁶

⁵ See Mitigation Measure M-1 in Part 4 of the Municipal Appendix.

⁶ See *Section 4: Mitigation Measures* of the NJ4 HMP Regional Hazard Mitigation Plan.

Part 3: Hazard Identification and Risk Assessment

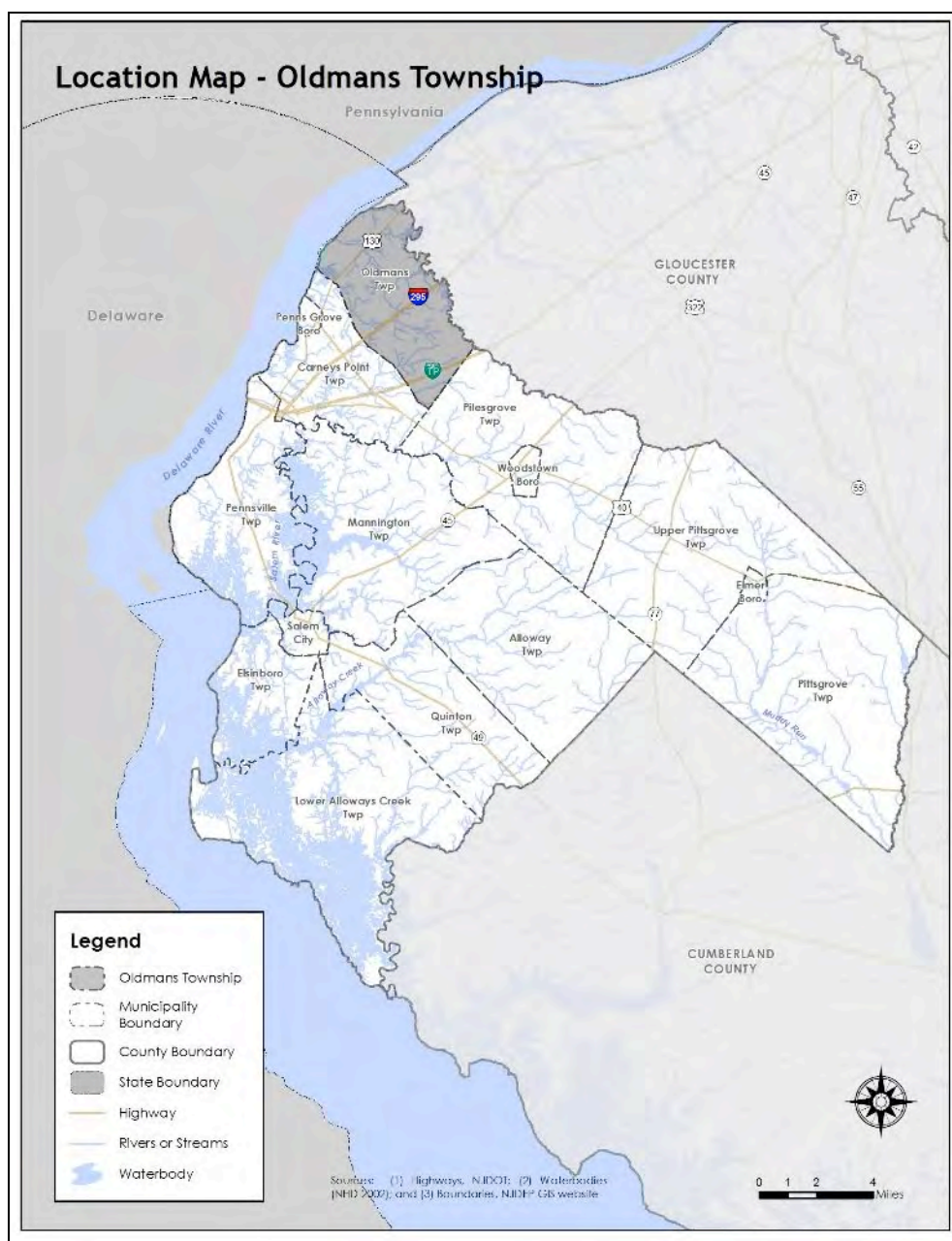
Part 3.1: Municipal Profile

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

Oldmans Township is located on the northern corner of Salem County (See Figure SC.8-1).

Figure SC.8-1: Oldmans Township (Salem County) Location Map

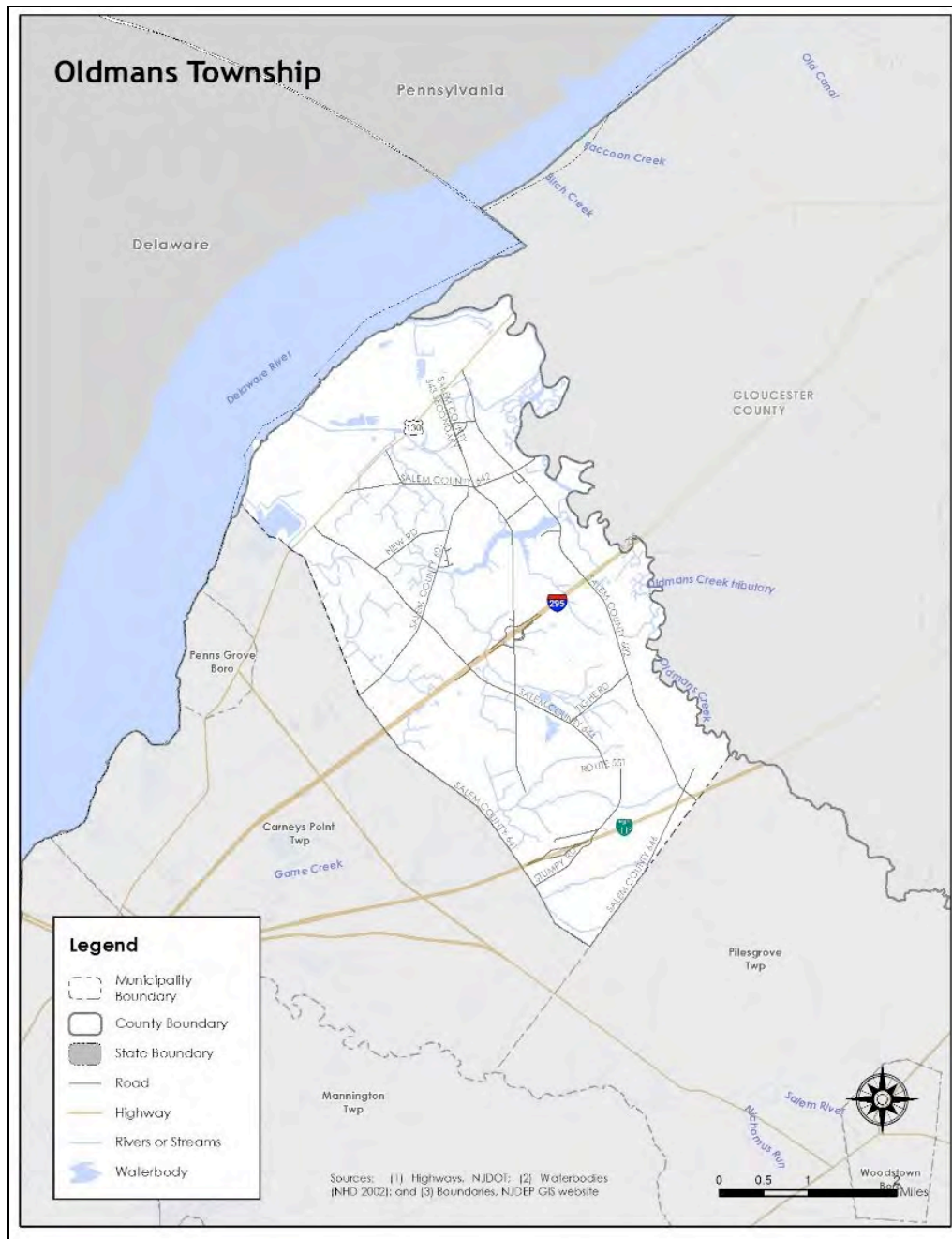


Part 3: Hazard Identification and Risk Assessment

Oldmans Township is a rural community with a majority of the land used as agricultural. Comprising over 50% of the Township's industry, agriculture has been the economic foundation for Oldmans Township. The Township continues to promote farmland preservation and agritourism. Unincorporated communities in the municipality include Auburn and Pedricktown.

Per Figure SC.8-2 the major water courses include Oldmans Creek and the Delaware River. Major transportation routes include Interstate 295, U.S. Highway 130 and the New Jersey Turnpike. The land is predominantly flat.

Figure SC.8-2: Oldmans Township Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table SC.8-3 is a compilation of demographic information for the municipality and comparison with the county, the four county region, and State of New Jersey.

Table SC.8-3: Oldmans Township Demographics
(Source: Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4)

	Oldmans Township	Salem County	Region	New Jersey
2000 Population	1,798	64,285	974,328	8,414,350
2010 Population	1,773	66,083	1,024,926	8,791,894
Percent Change	-1.39%	2.80%	5.19%	4.49%
Population Density	91.1 / sq. mile	199.1 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	19.46 sq. miles	331.90 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population 18 and younger	23.1	23.5	24.1	23.5
% of Population 18 - 64	63.5	61.5	62.7	63
% of Population 65 and over	13.4	15.0	13.2	13.5

Table SC.8-4 illustrates how Oldmans Township ranks in the county, the four county region, and New Jersey.

Table SC.8-4: Oldmans Township Demographic Rankings

	Salem County (total of 15)	Region (total of 90)	New Jersey (total of 565)
Population Rank	12	77	499
Land Area Rank	9	28	142
Population Density Rank	11	79	544
Population Change Rank	11	62	-

Table SC.8-5 includes information related to economic and housing statistics for Oldmans Township, Salem County, the four county region, and New Jersey.

Table SC.8-5: Oldmans Township Economics and Housing
(Source: USDA ERS, Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4; NJ LWD 2010)

	Oldmans Township	Salem County	Region	New Jersey
Date Incorporated	February 7, 1881	1694	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$66,016	\$59,441	\$60,933	\$69,811
Total Number of Housing Units	699	27,417	397,990	3,529,033
Occupied Housing Units	652	25,290	372,472	3,176,069
Vacant Housing Units	47	2,127	25,518	352,964
Owner Occupied Housing Units	566	18,091	266,593	2,126,279
Renter Occupied Housing Units	86	7,199	105,879	1,049,790

Part 3: Hazard Identification and Risk Assessment

	Oldmans Township	Salem County	Region	New Jersey
Building Permits	20	105	1,554	13,535
Largest Industry	Agriculture, Forestry, Fishing and Hunting; Manufacturing, Transportation and Warehousing	Educational Services, and health care and social assistance	Educational services, and health care and social assistance	Educational services, and health care and social assistance

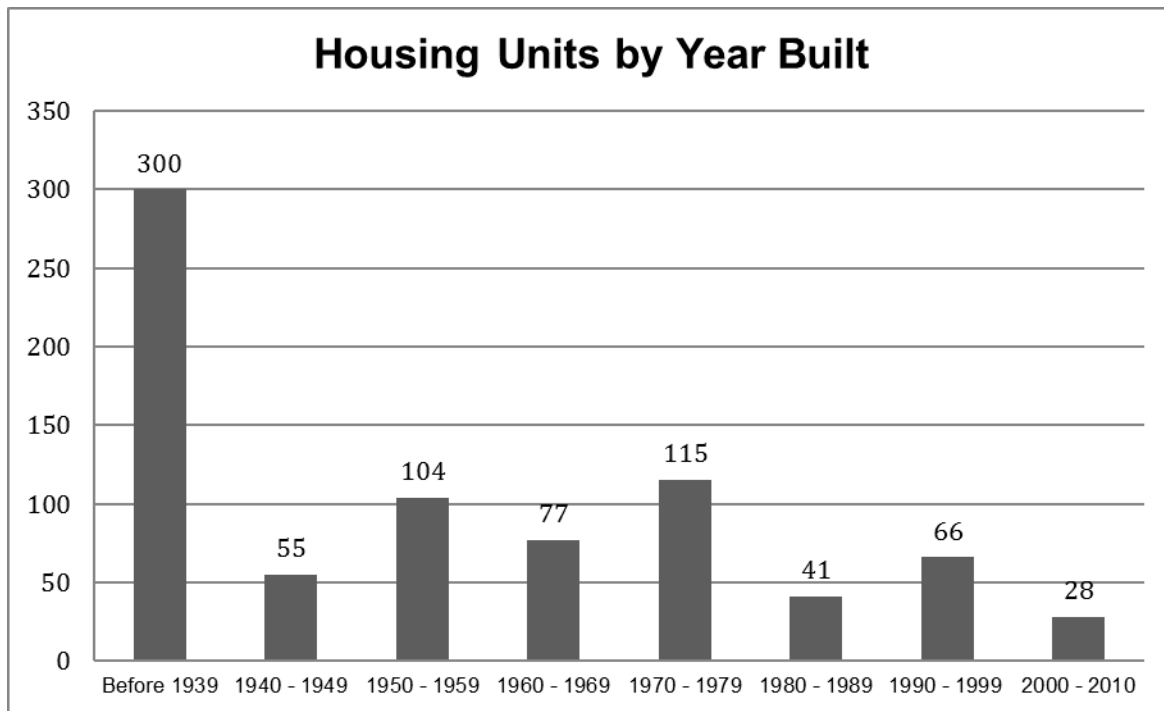
Table SC.8-6 illustrates how Oldmans Township ranks in the county and the four county region.

Table SC.8-6: Oldmans Township Ranking (Economics and Housing)

	Salem County (total of 15)	Region (total of 90)
Median Household Income Rank	6	37
Vacant Housing Rank	14	76
Renter Occupied Housing Rank	14	80
Building Permits Rank	2	21

Figure SC.8-3 illustrates development patterns in Oldmans Township by examining housing units by year built.

Figure SC.8-3: Oldmans Township Housing Units by Year Built
(Source: 2010 ACS 5 Year Estimates, DP 4)



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

- Dam Failure
- Flood
- High Wind

Moderate Priority

- Coastal Erosion and Sea Level Rise
- Levee Failure
- Severe Weather – Summer
- Severe Storm – Winter Weather

Low Priority

- Drought
- Earthquake
- Extreme Temperature: Cold & Hot
- Wildfire

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 SC.8-7 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 was used in the Critical Facilities Hazard Exposure Assessment described in Part 3.4.

Table SC.8-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
Figure RP.D-3	Coastal Erosion and Sea Level Rise	Increased Inundation Areas (Coastal Scenarios) 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	Wildland 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 3.4: 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 SC.8-8 contains updated inventory information for municipal critical facilities including cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix.

Table SC.8-9 contains results of overlaying critical facility locations with hazard mapping identified in Part 3.3. The results indicate critical facilities that are potentially exposed to specific hazards. 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 SC.8-8: Oldmans Township (Salem 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	40 Freed Road, Pedricktown		N	N		
CF-2	Emergency Operations Center	EOC	Co-located Facilities	40 Freed Road, Oldmans	CF-1	N	N		
CF-3	Auburn Volunteer Fire Company	FireStation	Stations	76 Main Street, Auburn		Y ²	N		
CF-4	Logan Volunteer Fire Company	FireStation	Stations	39 South Railroad Avenue, Pedricktown		Y ²	N		M-5 / M-9
CF-5	EMS	EMS	Municipal Station	37 Straughns Mill Road, Pedricktown		N	N		
CF-6	Public Works	Public Works	Combined Administrative Office, Maintenance / Work Area, Equipment / and Material Storage	40 Freed Road, Pedricktown	CF-1	N	N		
CF-7	Water Pumping Station	Utilities – Water	Pump Stations	76 Main Street, Auburn	CF-3	N/A	N		
CF-8	Pedricktown Oldmans Township School	Schools	Public School / Fueling Station for Busses, Fire, EMS	10 Freed Road, Pedricktown		Y	N		M-6 / M-10
CF-9	Ebenezer United Methodist Church	Emergency Staging Areas	Evacuation	59 Main Street, Auburn		N	N		
CF-10	1 st Baptist Church of Pedricktown	Emergency Staging Areas	Evacuation	89 West Mill Street, Pedricktown		Y ²	N		
CF-11	2 nd Baptist Church of Pedricktown	Emergency Staging Areas	Evacuation	26 Pennsville Pedricktown Road, Pedricktown		Y	N		
CF-12	Hudson United Methodist Church Daycare Center	Vulnerable Populations Facilities	Private Child Day Care	29 North Railroad Avenue, Pedricktown		N	N		

² Shelter of last resort.

Part 3: Hazard Identification and Risk Assessment

Table SC.8-9: Oldmans Township (Salem County) Critical Facilities Hazard Exposure

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ³	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 ⁴	Wildfire Wldland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	Township Hall	-	-	-	20.29	-	-	-	-	-	☑	☑	4.84	-	-
CF-2	Emergency Operations Center	-	-	-	20.29	-	-	-	-	-	☑	☑	4.84	-	-
CF-3	Auburn Volunteer Fire Company	-	-	-	20.28	-	-	-	-	-	-	-	9.75	-	-
CF-4	Logan Volunteer Fire Company	-	-	-	20.58	-	-	-	-	-	☑	☑	4.55	-	-
CF-5	EMS	-	-	-	20.29	-	-	-	-	-	☑	☑	5.17	-	-
CF-6	Public Works	-	-	-	20.27	-	-	-	-	-	☑	☑	4.84	-	-
CF-7	Water Pumping Station	-	-	-	21.10	-	-	-	-	-	-	-	9.75	-	-
CF-8	Pedericktown Oldmans Township School	-	-	-	21.35	-	-	-	-	-	☑	☑	4.81	-	-
CF-9	Ebenezer United Methodist Church	-	-	-	20.75	-	-	-	-	-	-	-	9.67	-	-
CF-10	1 st Baptist Church of Pedricktown	-	-	-	17.45	-	-	-	-	-	-	-	4.92	-	-
CF-11	2 nd Baptist Church of Pedricktown	-	-	-	17.45	-	-	-	-	-	-	1	5.38	-	-
CF-12	Hudson United Methodist Church Daycare Center	-	-	-	17.52	-	-	-	-	-	☑	☑	4.33	-	-

³ Distance in miles to nearest dam.

⁴ Distance in miles to nearest levee.

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
- 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 SC.8-10 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 SC.8-10.

Table SC.8-10: Status of Oldmans Township (Salem County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Oldmans 1: Harden Logan Volunteer Fire Department (windows, doors, garage doors).	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-9
Oldmans 2: Provide backup power to Logan Volunteer Fire Department.	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-5
Oldmans 3: Harden Pedricktown Oldmans Elementary (windows, doors).	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-10
Oldmans 4: Provide backup power to Pedricktown Oldmans Elementary.	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-6
Oldmans 5: Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	Not completed, not funded	Mitigation measure included in updated Municipal Appendix.	M-1

Table SC.8-10 Notes:

- A. See Tables SC.8-11 and SC.8-12 for municipal (M-#) mitigation measures
- B. See Table SC.8-13 for multi-jurisdictional (MJ-#) mitigation measures

Part 4: 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 SC.8-11 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

Note: Oldmans Township does not currently have RL or SRL properties per information provided by the New Jersey Department of Environmental Protection.

Table SC.8-11 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 SC.8-4.

Table SC.8-11: Oldmans Township (Salem 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 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

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.

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

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
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 Logan Volunteer Fire Department (CF-4).	All	Goal #4	Both
M-6	Install permanent backup emergency power generator at Pedricktown Oldmans Township School (CF-8).	All	Goal #4	Both
M-7	Engineering assessment of sluice gate.	Dam Failure	Goal #4	Existing
M-8	Engineering study to determine flooding mitigation measure for K Gardens.	Flood	Goal #4	Existing
M-9	Harden / retrofit Logan Volunteer Fire Department to include windows, roof doors, and garage doors (CF-4).	High Wind	Goal #4	Both
M-10	Harden / retrofit Pedricktown Oldmans Township School, to include windows and doors (CF-8).	High Wind	Goal #4	Both
M-11	Upgrade sluice gates in Jumbo Area at railroad and creek.	Levee Failure	Goal #4	Both

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 SC.8-12 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

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

Table SC.8-12: Oldmans Township (Salem 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	Moderate	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, Engineering, and Administration	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.
M-5	Install permanent backup emergency power generator at Logan Volunteer Fire Department (CF-4).	Municipal OEM and Fire Department	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-6	Install permanent backup emergency power generator at Pedricktown Oldmans Township School (CF-8).	Municipal OEM and School Board	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-7	Engineering assessment of sluice gate.	Municipal OEM and Public Works Department	High	Private Property Mitigation	< \$50K	Three to five years	Develop scope of work for engineering study and procure professional consulting services.
M-8	Engineering study to determine flooding mitigation measure for K Gardens.	Municipal OEM and Public Works Department	High	Private Property Mitigation	< \$50K	One to three years	Develop scope of work for engineering study and procure professional consulting services.
M-9	Harden / retrofit Logan Volunteer Fire Department to include windows, roof doors, and garage doors (CF-4).	Municipal OEM and Fire Department	High	Building Retrofit	\$100K - \$500K	One to three years	Conduct project scoping.
M-10	Harden / retrofit Pedricktown Oldmans Township School, to include windows and doors (CF-8).	Municipal OEM and School Board	High	Building Retrofit	\$100K - \$500K	One to three years	Conduct project scoping.

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-11	Upgrade sluice gates in Jumbo Area at railroad and creek.	Municipal OEM and Public Works Department	High	Public Property Mitigation	< \$100K	One to three years	Conduct project scoping.

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 SC.8-13.

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 SC.8-4.

Table SC.8-13: Oldmans Township (Salem County) Multi-Jurisdictional Mitigation Measures

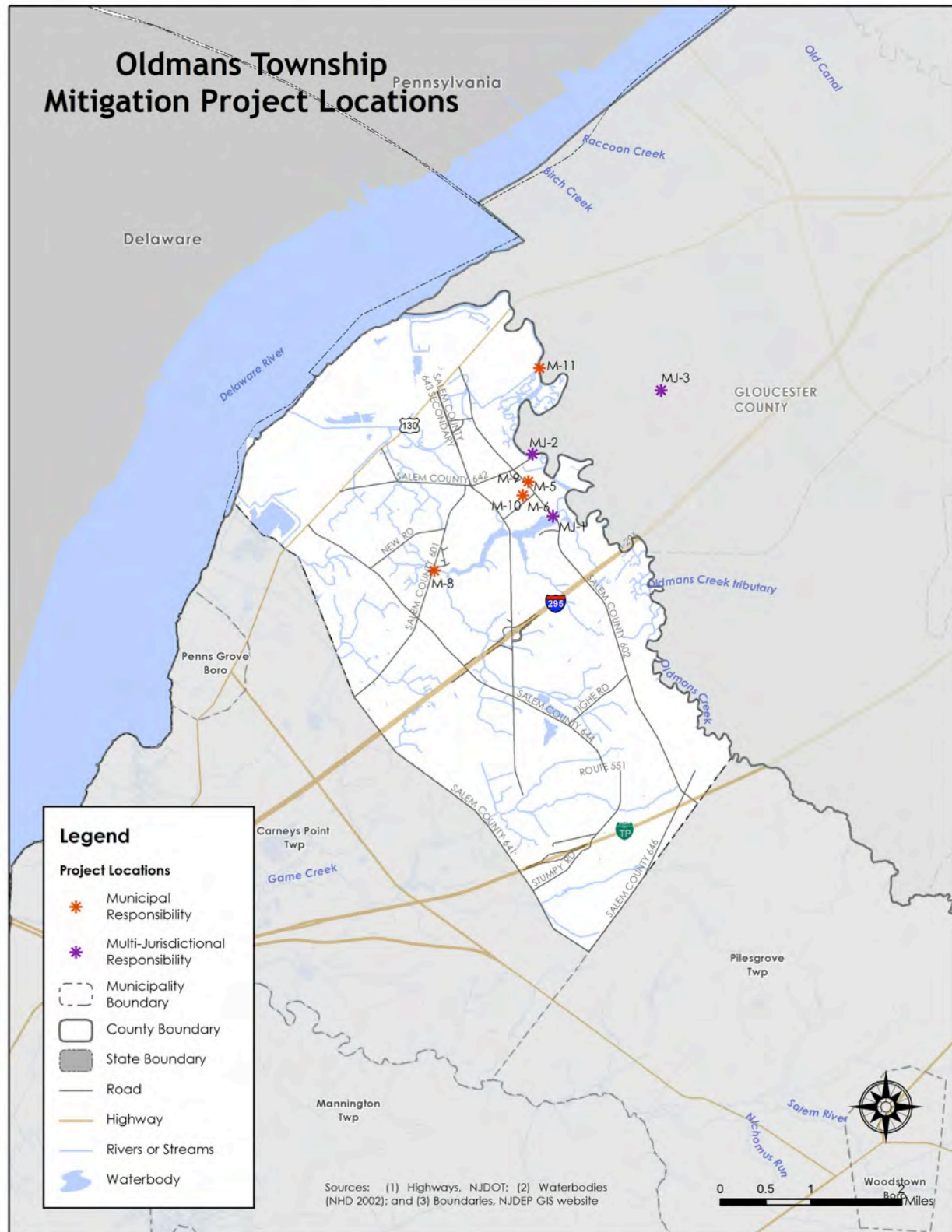
#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-1	Alleviate flooding at South Railroad Avenue where road meets County Route 602 (Pedericktown Woodstown Road).	Flood	Goal #4	Both	Municipal OEM, Salem County DPW	High
MJ-2	Alleviate flooding at Straughns Mill Road and Pennsville-Pedricktown Road.	Flood	Goal #4	Both	Municipal OEM, Salem County DPW	High

Part 4: Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-3	Alleviate flooding at Center Square Road Causeway at intersection of County Route 620 (Center Square Road) and County Route 601 (Pedricktown Road).	Flood	Goal #4	Both	Municipal OEM, Salem County DPW, Gloucester County DPW	High

Part 4: Mitigation Measures

Figure SC.8-4: Oldmans 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
- Master Plan and Reexamination Report
- Stormwater Management Plan
- Existing Land Use Map⁵
- Zoning Map
- Capital Improvement Budget (2014)⁶

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.

⁵ <http://www.oldmantownship.com/PDF/Final%20Existing%20Land%20Use%20Map.pdf>

⁶ <http://www.oldmantownship.com/wp-content/uploads/2013/04/2014-Municipal-Budget.pdf>

Attachment A: Public Review Comments

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

Table SC.8.A-1: Public Review Comments

Comment Date and Time	Comment	Response

Note: As of September 16, 2016, no public review comments were received for the Oldmans Township Municipal Appendix.

Attachment B: Adoption Resolution

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

Attachment C: Approval Letter

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



Mitigation Plan for Four New Jersey Counties
Salem County Appendices

Appendix SC.9
Penns Grove Borough, New Jersey

September 16, 2016

Table of Contents

Table of Contents	SC.9-i
Part 1 Overview	SC.9-1
1.1: Mitigation Plan for Four New Jersey Counties	SC.9-1
1.2: Penns Grove Borough (Salem County) Municipal Appendix	SC.9-1
Part 2 Participation	SC.9-2
2.1: Municipal Working Group Participation	SC.9-2
2.2: Public Participation	SC.9-4
Part 3 Hazard Identification and Risk Assessment	SC.9-5
3.1: Municipal Profile	SC.9-5
3.2: Hazard Priorities	SC.9-9
3.3: Hazard Mapping	SC.9-10
3.4: Critical Facilities Inventory and Hazard Exposure Assessment	SC.9-11
Part 4 Mitigation Measures	SC.9-14
4.1: Mitigation Goals and Strategy	SC.9-14
4.2: SDVR HMP Mitigation Measures	SC.9-15
4.3: Municipal Mitigation Measures – Identification	SC.9-17
4.4: Municipal Mitigation Measures – Implementation	SC.9-19
4.5: Multi-Jurisdictional Mitigation Measures	SC.9-22
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	SC.9-24

Table of Contents

List of Figures

Figure SC.9-1: Penns Grove Borough (Salem County) Location Map	SC.9-5
Figure SC.9-2: Penns Grove Borough Base Map	SC.9-6
Figure SC.9-3: Penns Grove Borough Housing Units by Year Built	SC.9-8
Figure SC.9-4: Penns Grove Borough Mitigation Project Locations	SC.9-23

List of Tables

Table SC.9-1: Penns Grove Borough (Salem County) Working Group	SC.9-2
Table SC.9-2: Public Participation	SC.9-4
Table SC.9-3: Penns Grove Borough Demographics	SC.9-7
Table SC.9-4: Penns Grove Borough Demographic Rankings	SC.9-7
Table SC.9-5: Penns Grove Borough Economics and Housing	SC.9-7
Table SC.9-6: Penns Grove Borough Ranking (Economics and Housing)	SC.9-8
Table SC.9-7: Supporting Mapping and Exhibits	SC.9-10
Table SC.9-8: Penns Grove Borough Critical Facilities Inventory	SC.9-12
Table SC.9-9: Penns Grove Borough Critical Facilities Hazard Exposure	SC.9-13
Table SC.9-10: Status of Penns Grove Borough SDVR HMP Mitigation Measures	SC.9-15
Table SC.9-11: Penns Grove Borough Municipal Mitigation Measures Identification	SC.9-17
Table SC.9-12: Penns Grove Borough Municipal Mitigation Measures Implementation	SC.9-19
Table SC.9-13: Penns Grove Borough Multi-Jurisdictional Mitigation Measures	SC.9-22

Attachments

Attachment SC.9.A: Public Review Comments	SC.9.A-1
Attachment SC.9.B: Adoption Resolution	SC.9.B-1
Attachment SC.9.C: Approval Letter	SC.9.C-1

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: Penns Grove Borough (Salem County) Municipal Appendix

This Municipal Appendix is focused on Penns Grove Borough in Salem County, New Jersey.

The Penns Grove Borough Municipal Working Group recommended the Penns Grove Borough (Salem County) Municipal Appendix for adoption Penns Grove Borough Council.

The Penns Grove Borough Council 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 SC.9-1 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 SC.9-1: Penns Grove Borough (Salem County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Working Group Meeting ³	Contribution ⁴
John	Ashcraft	Penns Grove Borough OEM	Borough of Penns Grove OEM Coordinator ⁵	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
John	Washington	Penns Grove Borough Council	Mayor		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Louis	Pasquale	Penns Grove Borough Flood Committee	Member		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Gene	Gilbert	Carneys Point Township Public Works	Public Works Superintendent	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Mark	Brunermer	Engineering Consultant to the Borough / Floodplain Administrator	President, Sickels & Associates, Inc.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Orlando	Pagan	Penns Grove Police Department	Lieutenant			<input checked="" type="checkbox"/>	
Douglas	Pollitt	Penns Grove Carneys Point School District	Buildings and Grounds Supervisor		<input checked="" type="checkbox"/>		
James	Paylor		Resident		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

¹ Round 1 Work Session was held on July 24, 2014.

² Round 2 Work Session was held on October 16, 2014.

³ The Municipal Working Group met on December 30, 2014 to review the Preliminary Municipal Appendix.

⁴ 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 SC.9-1.

⁵ As of December 31, 2014, Mr. John Boucher, Penns Grove Borough Police Department, holds the position of OEM Coordinator for Penns Grove Borough.

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.

- Construction Code Official
- Police Department

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 (Services provided by Salem County)
- Business Associations
- Environmental Organizations
- Major Employers and Businesses
- Healthcare Institutions

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 SC.9-2: Public Participation

Date	Type of Involvement	Location
October 21, 2014	Flyers posted	Penns Grove Borough Hall
December 5, 2014 and December 15, 2014	Information item included on Resident Drainage / Flood Committee agenda identifying opportunities for public participation	Penns Grove Borough Hall
December 8, 2014	Preliminary Municipal Appendix posted to website for public comment	Penns Grove Borough website home page ⁶
December 16, 2014	Public hearing included on Penns Grove Borough Council agenda providing for open discussion, and public comment regarding the Preliminary Municipal Appendix	Penns Grove Borough Hall
December 30, 2014	Citizen Survey posted	Penns Grove Borough website home page ⁶

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.⁷ In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities.⁸

⁶ <http://www.pennsgrove-nj.org>

⁷ See Mitigation Measure M-1 in Part 4 of the Municipal Appendix.

⁸ 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

Penns Grove Borough is located in the northwestern part of Salem County (See Figure SC.9-1).

Figure SC.9-1: Penns Grove Borough (Salem County) Location Map



Part 3: Hazard Identification and Risk Assessment

Penns Grove Borough is a riverfront municipality. The borough has experienced moderate population growth per recent census data. The Borough has the highest population density in Salem County. About 30% of the housing stock was built before 1940.

Per Figure SC.9-2, the major water courses include the Delaware River and the Delaware River Tributary. Major transportation routes include U.S. Highway 130 and State Highway 48. The land is predominantly flat.

Figure SC.9-2: Penns Grove Borough Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table SC.9-3 is a compilation of demographic information for the municipality and comparison with the county, the four county region, and State of New Jersey.

Table SC.9-3: Penns Grove Borough Demographics
(Source: Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4)

	Penns Grove Borough	Salem County	Region	New Jersey
2000 Population	4,886	64,285	974,328	8,414,350
2010 Population	5,147	66,083	1,024,926	8,791,894
Percent Change	5.34%	2.80%	5.19%	4.49%
Population Density	5,646.0 / sq. mile	199.1 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	0.91 sq. miles	331.90 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population 18 and younger	32.3	23.5	24.1	23.5
% of Population 18 - 64	58.2	61.5	62.7	63
% of Population 65 and over	9.5	15.0	13.2	13.5

Table SC.9-4 illustrates how Penns Grove Borough ranks in the county, the four county region, and New Jersey.

Table SC.9-4: Penns Grove Borough Demographic Rankings

	Salem County (total of 15)	Region (total of 90)	New Jersey (total of 565)
Population Rank	4	48	372
Land Area Rank	14	79	501
Population Density Rank	1	8	92
Population Change Rank	5	29	-

Table SC.9-5 includes information related to economic and housing statistics for Penns Grove Borough, Salem County, the four county region, and New Jersey.

Table SC.9-5: Penns Grove Borough Economics and Housing
(Source: USDA ERS, Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4; NJ LWD 2010)

	Penns Grove Borough	Salem County	Region	New Jersey
Date Incorporated	March 8, 1894	1694	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$30,104	\$59,441	\$60,933	\$69,811
Total Number of Housing Units	2,004	27,417	397,990	3,529,033
Occupied Housing Units	1,801	25,290	372,472	3,176,069
Vacant Housing Units	203	2,127	25,518	352,964
Owner Occupied Housing Units	696	18,091	266,593	2,126,279
Renter occupied Housing Units	1,105	7,199	105,879	1,049,790
Building Permits	0	105	1,554	13,535

Part 3: Hazard Identification and Risk Assessment

	Penns Grove Borough	Salem County	Region	New Jersey
Largest Industry	Retail Trade	Educational Services, and health care and social assistance	Educational services, and health care and social assistance	Educational services, and health care and social assistance

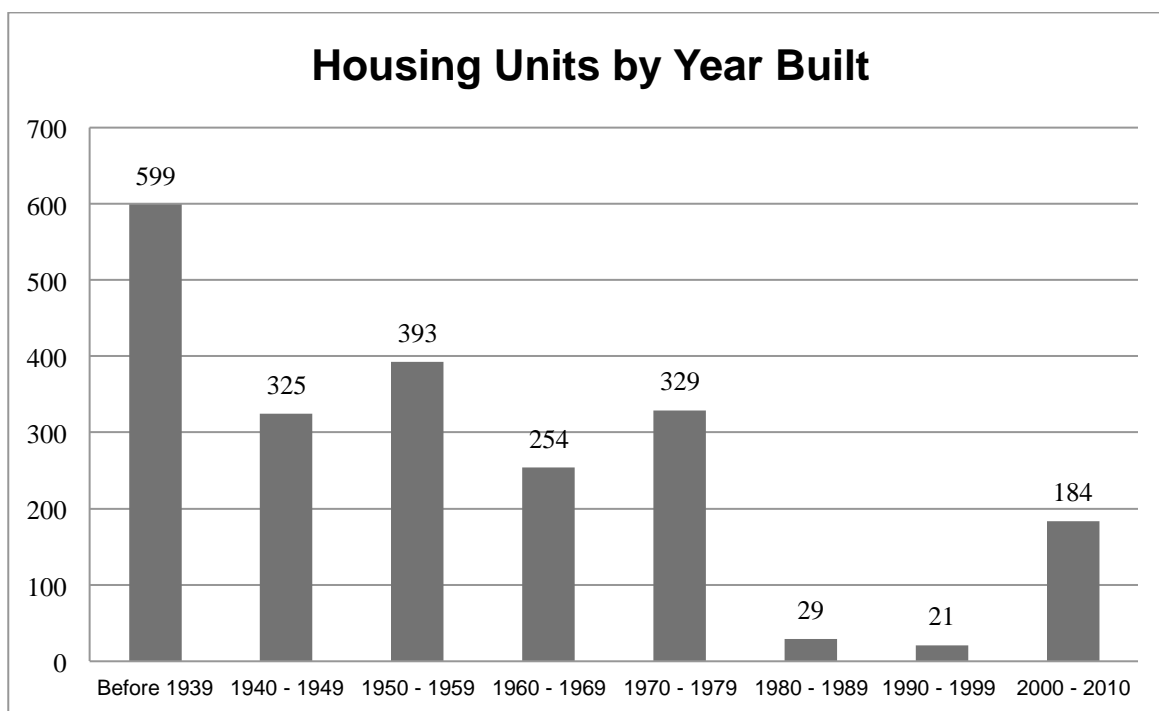
Table SC.9-6 illustrates how Penns Grove Borough ranks in the county and the four county region.

Table SC.9-6: Penns Grove Borough Ranking (Economics and Housing)

	Salem County (total of 15)	Region (total of 90)
Median Household Income Rank	14	87
Vacant Housing Rank	4	34
Renter Occupied Housing Rank	3	25
Building Permits Rank	15	90

Figure SC.9-3 illustrates development patterns in Penns Grove Borough by examining housing units by year built.

Figure SC.9-3: Penns Grove Borough Housing Units by Year Built
(Source: 2010 ACS 5 Year Estimates, DP 4)



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

- Coastal Erosion & Sea Level Rise
- Flood
- High Wind
- Levee Failure

Moderate Priority

- None

Low Priority

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

One additional hazard was considered but was not considered applicable to the municipality.

- Geologic Hazards

¹ See Section 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 SC.9-7 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 was used in the Critical Facilities Hazard Exposure Assessment described in Part 3.4.

Table SC.9-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
Figure RP.D-3	Coastal Erosion and Sea Level Rise	Increased Inundation Areas (Coastal Scenarios) 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	Wildland 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 3.4: 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 SC.9-8 contains updated inventory information for municipal critical facilities including cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix.

Table SC.9-9 contains results of overlaying critical facility locations with hazard mapping identified in Part 3.3. The results indicate critical facilities that are potentially exposed to specific hazards. 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 SC.9-8: Penns Grove Borough (Salem County) Critical Facilities Inventory

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-1	Borough Hall	Municipal	Administrative Offices	1 State Street, Penns Grove	CF-2	N	N ²		M-5 / M-6
CF-2	Police Station	Law Enforcement Facilities	Stations	1 State Street, Penns Grove	CF-1	N	N ²		M-5 / M-6
CF-3	Fire Station	Fire Stations	Stations	39 East Harmony, Penns Grove		N	N		M-7
CF-4	Emergency Medical Services Station	EMS	Stations	25 East Griffith, Penns Grove		N	N		M-8
CF-5	Straughen's Lane Stormwater Pump Station	Utilities - Stormwater	Pump Stations	10 Straughen's Lane, Penns Grove		N/A	N		M-9
CF-6	Mill Street Stormwater Pump Station	Utilities - Stormwater	Pump Stations	71 Mill Street, Penns Grove		N/A	N		M-10
CF-7	Delaware Avenue Stormwater Pump Station	Utilities - Stormwater	Pump Stations	138 Delaware Avenue, Penns Grove		N/A	N		M-11 / M-16
CF-8	Wastewater Treatment Plant	Utilities – Wastewater	Treatment Plans	81 Beach Ave, Penns Grove		N/A	Y		M-18
CF-9	Penns Grove Middle School	Schools	Public Schools	351 Maple Avenue, Penns Grove		N ³	N	Pending ROD Grant ⁴	M-12 / M-14
CF-10	Paul W. Carleton Elementary School	Schools	Public Schools	251 Maple Avenue, Penns Grove		N ³	N	Pending ROD Grant ⁵	M-13 / M-15
CF-11	Penn Towers	Vulnerable Populations Facilities	Age-Restricted Housing	40 South Broad Street, Penns Grove		Y ⁶	Y	Managed by Penns Grove Borough Housing Authority	

² Penns Grove Borough has current plans to fund and install back-up emergency power generator for the Borough Hall / Police Station.

³ As of October 16, 2014, Penns Grove Borough Schools are being evaluated by the American Red Cross for use as shelters.

⁴ As of October 16, 2014, pending ROD Grant for improvements to the Penns Grove Middle School include roof repair / replacement, window replacement, and exterior door/frame replacement.

⁵ As of October 16, 2014, pending ROD Grant for improvements to the Paul W. Carleton Elementary School include exterior door/frame replacement.

⁶ Shelter-in-place.

Part 3: Hazard Identification and Risk Assessment

Notes re: Table SC.9-8:

1. Penns Grove Borough Office of Emergency Management conducts emergency operations through the Carneys Point Township Emergency Operations Center.
2. Penns Grove Borough conducts public works functions through the Carneys Point Township Department of Public Works.
3. Penns Grove Borough currently relies on Salem County College located at 460 Hollywood Avenue in Carneys Point Township (with mailing address in Penns Grove) for sheltering.

Table SC.9-9: Penns Grove Borough (Salem County) Critical Facilities Hazard Exposure

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ⁷	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 ⁸	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	Borough Hall	-	-	-	21.23	-	-	-	-	☑	☑	☑	3.82	-	-
CF-2	Police Station	-	-	-	21.23	-	-	-	-	☑	☑	☑	3.82	-	-
CF-3	Fire Station	-	-	-	21.14	-	-	-	-	☑	☑	☑	4.01	-	-
CF-4	Emergency Medical Services Station	-	-	-	21.17	-	-	-	-	☑	☑	☑	4.06	-	-
CF-5	Mill Street Stormwater Pump Station	-	-	-	21.23	-	☑	-	☑	☑	☑	☑	3.43	-	-
CF-6	Straughn Lane Stormwater Pump Station	-	-	-	20.85	-	☑	-	☑	☑	☑	☑	2.96	-	-
CF-7	Delaware Avenue Stormwater Pump Station	-	-	-	22.09	-	-	-	-	☑	☑	☑	4.50	-	-
CF-8	Wastewater Treatment Plant	-	-	-	21.20	-	☑	-	☑	☑	☑	☑	3.45	-	-
CF-9	Penns Grove Middle School	-	-	-	20.17	-	-	-	-	☑	☑	☑	2.83	-	-
CF-10	Paul W. Carleton Elementary School	-	☑	☑	20.32	-	-	-	-	☑	☑	☑	2.82	-	-
CF-11	Penn Towers	-	-	☑	21.07	-	☑	-	☑	☑	☑	☑	3.67	-	-

⁷ Distance in miles to nearest dam.

⁸ Distance in miles to nearest levee.

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 initial risk reduction efforts
- Improve coordination of dam operations in the neighboring municipalities
- Provide opportunities for residents and property owners to access available information about risk reduction and mitigation measures
- 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 SC.9-10 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 SC.9-10.

Table SC.9-10: Status of Penns Grove Borough (Salem County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Penns Grove 1: Address drainage issues included in the riverfront redevelopment project.	Not completed, not funded	Redevelopment project is located on private property. Borough attempting to obtain funding and to coordinate with new land owner to pursue improvements to address drainage issues. Mitigation measure included in updated Municipal Appendix.	M-23
Penns Grove 2: Upgrade storm sewers along Delaware Avenue, West Line Street, and surrounding area.	On-going	Borough Engineers have completed initial assessment and identification of projects	M-19 through M-22
Penns Grove 3: Provide backup power to EOC/Police Department.	Not completed, not funded	Mitigation measure included in updated Municipal Appendix.	M-6
Penns Grove 4: Retrofit / harden EOC / police department.	Not completed, not funded	Mitigation measure included in updated Municipal Appendix.	M-5
Penns Grove 5: Storm water management upgrades to the Wastewater Treatment Plant.	Completed	Upgrades to Mill Street Stormwater Pump Station have alleviated the problem.	
Penns Grove 6: Enforce elevation Codes with addition of Floodplain Administrator in permit review process.	Not completed – on-going	To be implemented by Floodplain Administrator	
Penns Grove 7: Develop land use policies review with inclusion of Floodplain Administrator.	Not completed – on-going	To be adopted with updated FEMA FIRM in 2015	
Penns Grove 8: Identify and map erosion zones.	Not completed.	Revised mitigation measure included in updated Municipal Appendix.	M-1
Penns Grove 9: Conduct fire-safe building sessions for area contractors.	Not completed.	Revised mitigation measure included in updated Municipal Appendix.	M-1
Penns Grove 10: Acquisition/elevation of one repetitive loss property located on Cove Road.	To be determined	Penns Grove Floodplain Administrator is updating records regarding status of all current Repetitive and Severe Repetitive Loss Properties in the Borough. Revised mitigation measure included in updated Municipal Appendix.	M-25

Part 4: Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Penns Grove 11: Acquisition/elevation of one repetitive loss property located on Mill Street.	To be determined	Same comment as "Penns Grove 10".	M-25
Penns Grove 12: Acquisition/elevation of two repetitive loss properties located on State Street.	To be determined	Same comment as "Penns Grove 10".	M-25
Penns Grove 13: Acquisition/elevation of one repetitive loss property located on South Smith Avenue.	To be determined	Same comment as "Penns Grove 10".	M-25
Penns Grove 14: Use United States Army Corps of Engineers (USACE) surge maps for community education and outreach.	Not completed.	Revised mitigation measure included in updated Municipal Appendix.	M-1
Penns Grove 15: Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	Not completed.	Revised mitigation measure included in updated Municipal Appendix.	M-1

Table SC.9-10 Notes:

- A. See Tables SC.9-11 and SC.9-12 for municipal (M-#) mitigation measures
- B. See Table SC.9-13 for multi-jurisdictional (MJ-#) mitigation measures

Part 4: 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 SC.9-11 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 SC.9-11 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 SC.9-4.

Table SC.9-11: Penns Grove Borough (Salem 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 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.	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	Retrofit / harden Borough Hall / Police Department (CF-1 and CF-2).	All	Goal #4	Both

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

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
M-6	Install backup emergency power generator at Borough Hall / Police Department (CF-1 and CF-2).	All	Goal #4	Both
M-7	Install backup emergency power generator at Fire Station (CF-3).	All	Goal #4	Both
M-8	Install backup emergency power generator at EMS Station (CF-4).	All	Goal #4	Both
M-9	Install backup emergency power generator at Straughen's Lane Pump Station (CF-5).	All	Goal #4	Existing
M-10	Install backup emergency power generator at Mill Street Pump Station (CF-6).	All	Goal #4	Existing
M-11	Install backup emergency power generator at Delaware Avenue Pump Station (CF-7).	All	Goal #4	Existing
M-12	Retrofit / harden Penns Grove Middle School (CF-9).	All	Goal #4	Existing
M-13	Retrofit / harden Paul W. Carleton Elementary School (CF-10).	All	Goal #4	Existing
M-14	Install backup emergency power generator at Penns Grove Middle School (CF-9).	All	Goal #4	Existing
M-15	Install backup emergency power generator at Paul W. Carleton Elementary School (CF-10).	All	Goal #4	Existing
M-16	Replace Delaware Avenue Pump Station (CF-7).	Coastal Erosion and Sea Level Rise / Flood	Goal #4	Existing
M-17	Upgrade storm sewers along Delaware Avenue, West Line Street, and surrounding area.	Coastal Erosion and Sea Level Rise / Flood	Goal #4	Existing
M-18	Alleviate inflow and infiltration problems in wastewater system (CF-8).	Coastal Erosion and Sea Level Rise / Flood	Goal #4	Existing
M-19	Penn Street Storm System Upgrade.	Coastal Erosion and Sea Level Rise / Flood	Goal #4	Existing
M-20	West Main Street Storm System Upgrade.	Coastal Erosion and Sea Level Rise / Flood	Goal #4	Existing
M-21	Railroad Avenue Storm System Upgrade.	Coastal Erosion and Sea Level Rise / Flood	Goal #4	Existing
M-22	Broad Street Storm Discharge System Upgrade.	Coastal Erosion and Sea Level Rise / Flood	Goal #4	Existing
M-23	Address drainage issues included in the riverfront redevelopment project.	Coastal Erosion and Sea Level Rise / Flood	Goal #4	Existing
M-24	Replace bulkhead at Delaware River.	Flood	Goal #4	Existing

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
M-25	Address identified Repetitive Flood Loss Properties.	Flood	Goal #4	Existing

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 SC.9-12 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 criteria²
- Project Type to help determine funding options and implementation mechanisms at the municipal level³
- 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 SC.9-12: Penns Grove Borough (Salem 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.	Penns Grove Borough Office of Emergency Management (OEM)	Medium	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.	Penns Grove Borough OEM and Facility Managers	High	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.	Penns Grove Borough OEM and Penns Grove Borough Municipal Working Group	High	Capabilities and Coordination	Staff time commitment	On-going	Identify recurrent drainage problem areas, establish priorities, and identify data collection procedures.

² 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.

³ 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-4	Conduct regular Municipal Working Group meetings.	Penns Grove Borough OEM and Penns Grove Borough Municipal Working Group	Medium	Capabilities and Coordination	Staff time commitment	On-going	Establish regular Municipal Working Group membership, reporting requirements, and meeting / work session schedule.
M-5	Retrofit / harden Borough Hall / Police Department (CF-1 and CF-2).	Penns Grove Borough OEM / Penns Grove Borough Police Department	Medium	Building Retrofits	\$500,000	Three to five years	Conduct project scoping.
M-6	Install backup emergency power generator at Borough Hall / Police Department (CF-1 and CF-2).	Penns Grove Borough OEM / Penns Grove Borough Police Department	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-7	Install backup emergency power generator at Fire Station (CF-3).	Penns Grove Borough Fire Department	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-8	Install backup emergency power generator at EMS Station (CF-4).	Penns Grove Borough Fire Department	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-9	Install backup emergency power generator at Straughen's Lane Pump Station (CF-5).	Penns Grove Borough Department of Public Works (DPW)	High	Back-up Emergency Power Generator	\$400,000 ⁴	Two to three years	Secure funding.
M-10	Install backup emergency power generator at Mill Street Pump Station (CF-6).	Penns Grove Borough DPW	High	Back-up Emergency Power Generator	\$395,000	1-2 yrs.	Secure funding.
M-11	Install backup emergency power generator at Delaware Avenue Pump Station (CF-7).	Penns Grove Borough DPW	Medium	Back-up Emergency Power Generator	\$300,000	3-4 yrs.	Secure funding.
M-12	Retrofit / harden Penns Grove Middle School (CF-9).	Penns Grove Carneys Point Regional School District	Low	Building Retrofits	\$2,100,000 ⁵		Follow-up regarding status of ROD grant.
M-13	Retrofit / harden Paul W. Carleton Elementary School (CF-10).	Penns Grove Carneys Point Regional School District	Low	Building Retrofits	\$74,400 ⁵		Follow-up regarding status of ROD grant.
M-14	Install backup emergency power generator at Penns Grove Middle School (CF-9).	Penns Grove Carneys Point Regional School District	Low	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.

⁴ Information for Mitigation Measures M-5, M-9 through M-11, M-16, and M-19 through M-22 and M-24 provided by Borough Engineer.

⁵ Information for Mitigation Measures M-12 and M-13 provided by and available through Penns Grove Carneys Point Regional School District.

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-15	Install backup emergency power generator at Paul W. Carleton Elementary School (CF-10).	Penns Grove Carneys Point Regional School District	Low	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-16	Replace Delaware Avenue Pump Station (CF-7). ⁶	Penns Grove Borough DPW	Medium	Infrastructure Improvement	\$1,500,000	Four to six years	Secure funding.
M-17	Upgrade storm sewers along Delaware Avenue, West Line Street, and surrounding area.	Penns Grove Borough OEM	Medium	Infrastructure Improvement	To be determined	Three to five years	Conduct project scoping.
M-18	Alleviate inflow and infiltration problems in wastewater system. (CF-18)	Penns Grove Sewage Authority	Medium	Infrastructure Improvement	To be determined	Three to five years	Conduct project scoping.
M-19	Penn Street Storm System Upgrade.	Penns Grove Borough DPW	High	Infrastructure Improvement	\$350,000	One to three years	Secure funding.
M-20	West Main Street Storm System Upgrade.	Penns Grove Borough DPW	High	Infrastructure Improvement	\$150,000	One to two years	Secure funding.
M-21	Railroad Avenue Storm System Upgrade.	Penns Grove Borough DPW	Medium	Infrastructure Improvement	\$75,000	One to three years	Secure funding.
M-22	Broad Street Storm Discharge System Upgrade.	Penns Grove Borough DPW	High	Infrastructure Improvement	\$75,000	One to three years	Secure funding.
M-23	Address drainage issues included in the riverfront redevelopment project.	Penns Grove Borough OEM	High	Private Property Flood Mitigation	To be determined	One to three years	Develop as-built of existing storm drainage systems.
M-24	Replace bulkhead at Delaware River.	Penns Grove Borough DPW	Medium	Public / Private Property Flood Mitigation	\$11,000,000	Three to five years	Secure funding.
M-25	Address identified Repetitive Flood Loss Properties.	Penns Grove Borough Floodplain Administrator	Medium	Private Property Flood Mitigation	Staff time commitment	On-going	Prior to initiating landowner contacts, identify flood insurance implications and mitigation options including eligible activities per FEMA HMA programs.

⁶ Mitigation Measure M-16 and portions of other infrastructure improvements are part of HMGP Grant Application Project #399 under DR 4086, Hurricane Sandy. Total grant application for \$610,000.

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 SC.9-13.

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 SC.9-4.

Table SC.9-13: Penns Grove Borough (Salem County) Multi-Jurisdictional Mitigation Measures

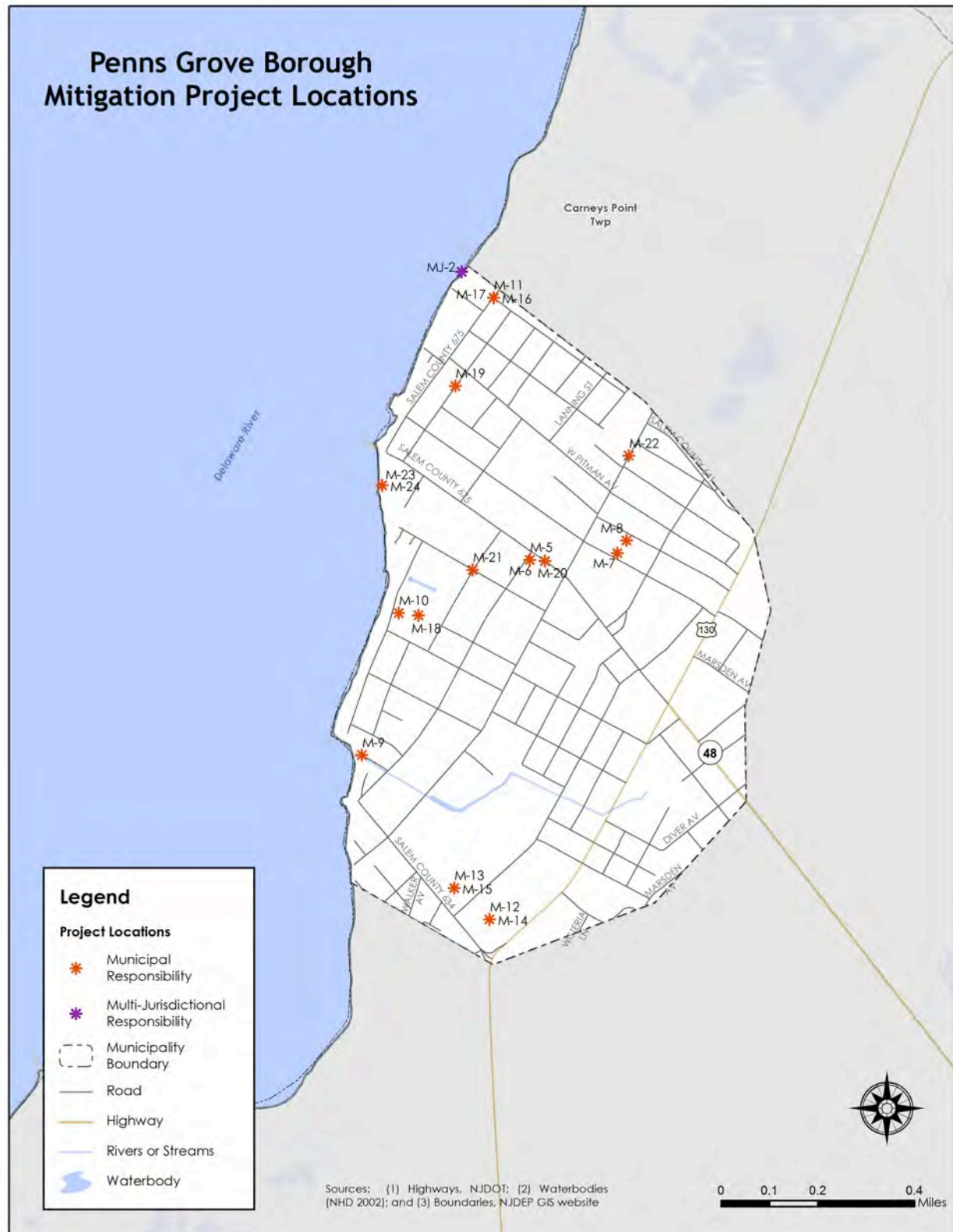
#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-1	Coordinate timing of releases from upstream dams. ⁷	Dam Failure	Goal #3	Both	Upstream municipalities, Salem County DPW, Salem County OEM	High
MJ-2	Delaware River Levee at boundary with Carneys Point Township. ⁸	Coastal Erosion and Sea Level Rise / Flood / Levee Failure	Goal #4	Existing	Municipal OEM, Carneys Point Township, NJ DEP	Medium

⁷ Related to multi-jurisdictional mitigation measure included in Carneys Point Township Municipal Appendix.

⁸ Related to multi-jurisdictional mitigation measure included in Carneys Point Township Municipal Appendix.

Part 4: Mitigation Measures

Figure SC.9-4: Penns Grove Borough 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:

- Penns Grove Borough Emergency Operations Plan (2012)
- Penns Grove Borough Land Use and Development Ordinances including Floodplain Management
- Penns Grove Borough Master Plan and Reexamination Report (1990)
- Penns Grove Borough 2014 Capital Improvement Budget and Capital Improvement Program

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.

Attachment A: Public Review Comments

The following comments were received during the public review of the Penns Grove Borough Municipal Appendix:

Table SC.9.A-1: Public Review Comments

Comment Date and Time	Comment	Response
December 16, 2014 (at Public Meeting during Borough Council Meeting)	Recommended including replacement of sea wall / dike along the Delaware River for all the residential properties in the borough.	Two mitigation measures included in the Municipal Appendix address this issue; mitigation measure M-24 and multi-jurisdictional mitigation measure MJ-2 (see Parts 4.3 through 4.5).

Note: As of September 16, 2016, no other public review comments were received for the Penns Grove Borough Municipal Appendix.

Attachment B: Adoption Resolution

Following this page is the Adoption Resolution for the Penns Grove Borough Municipal Appendix as approved by the Penns Grove Borough Council.

Attachment C: Approval Letter

Following this page is the Approval Letter for the Penns Grove Borough Municipal Appendix.



Mitigation Plan for Four New Jersey Counties
Salem County Appendices

Appendix SC.10
Pennsville Township, New Jersey

September 16, 2016

Table of Contents

Table of Contents	SC.10-i
Part 1 Overview	SC.10-1
1.1: Mitigation Plan for Four New Jersey Counties	SC.10-1
1.2: Pennsville Township (Salem County) Municipal Appendix	SC.10-1
Part 2 Participation	SC.10-2
2.1: Municipal Working Group Participation	SC.10-2
2.2: Public Participation	SC.10-4
Part 3 Hazard Identification and Risk Assessment	SC.10-5
3.1: Municipal Profile	SC.10-5
3.2: Hazard Priorities	SC.10-9
3.3: Hazard Mapping	SC.10-10
3.4: Critical Facilities Inventory and Hazard Exposure Assessment	SC.10-11
Part 4 Mitigation Measures	SC.10-20
4.1: Mitigation Goals and Strategy	SC.10-20
4.2: SDVR HMP Mitigation Measures	SC.10-21
4.3: Municipal Mitigation Measures – Identification	SC.10-23
4.4: Municipal Mitigation Measures – Implementation	SC.10-25
4.5: Multi-Jurisdictional Mitigation Measures	SC.10-28
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	SC.10-31

Table of Contents

List of Figures

Figure SC.10-1: Pennsville Township (Salem County) Location Map	SC.10-5
Figure SC.10-2: Pennsville Township Base Map	SC.10-6
Figure SC.10-3: Pennsville Township Housing Units by Year Built	SC.10-8
Figure SC.10-4: Pennsville Township Mitigation Project Locations	SC.10-30

List of Tables

Table SC.10-1: Pennsville Township (Salem County) Working Group	SC.10-2
Table SC.10-2: Public Participation	SC.10-4
Table SC.10-3: Pennsville Township Demographics	SC.10-7
Table SC.10-4: Pennsville Township Demographic Rankings	SC.10-7
Table SC.10-5: Pennsville Township Economics and Housing	SC.10-7
Table SC.10-6: Pennsville Township Ranking (Economics and Housing)	SC.10-8
Table SC.10-7: Supporting Mapping and Exhibits	SC.10-10
Table SC.10-8: Pennsville Township Critical Facilities Inventory	SC.10-12
Table SC.10-9: Pennsville Township Critical Facilities Hazard Exposure	SC.10-16
Table SC.10-10: Status of Pennsville Township SDVR HMP Mitigation Measures	SC.10-21
Table SC.10-11: Pennsville Township Municipal Mitigation Measures Identification	SC.10-23
Table SC.10-12: Pennsville Township Municipal Mitigation Measures Implementation	SC.10-25
Table SC.10-13: Pennsville Township Multi-Jurisdictional Mitigation Measures	SC.10-28

Attachments

Attachment SC.10.A: Public Review Comments	SC.10.A-1
Attachment SC.10.B: Adoption Resolution	SC.10.B-1
Attachment SC.10.C: Approval Letter	SC.10.C-1

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: Pennsville Township (Salem County) Municipal Appendix

This Municipal Appendix is focused on Pennsville Township in Salem County, New Jersey.

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

The Pennsville 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 SC.10-1 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 SC.10-1: Pennsville Township (Salem County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Working Group Meeting ³	Contribution ⁴
Patrick	McCaffery	Pennsville Township OEM	Emergency Management Coordinator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Organized Working Group and Work Sessions.
James	McLaughlin	Pennsville Township OEM / Pennsville Township Public Works	Deputy Coordinator OEM / Public Works	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Benjamin	Winfield	Pennsville Township Emergency Management & Safety Office	Deputy Safety Coordinator			<input checked="" type="checkbox"/>	
Richard	Barnhart	Pennsville Township Committee	Mayor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Robert	McDade	Pennsville Township Committee	Deputy Mayor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Richie	Raine	Pennsville Township Committee	Township Committeeman	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Jack	Lynch	Pennsville Township Committee	Township Administrator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Provided Township documents for review.

¹ Round 1 Work Session was held on June 18, 2014.

² Round 2 Work Session was held on September 17, 2014.

³ Municipal Working Group Meeting was held on January 5, 2015.

⁴ 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 SC.10-1.

Part 2: Participation

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Working Group Meeting ³	Contribution ⁴
Anthony	Dariano	Pennsville Township Construction Code Office	Construction Code Official / Building and Fire Subcode Official & Inspector / Floodplain Administrator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Mark	Brunermer	Pennsville Township Engineering Department	Township Engineer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Bernard	Sennstrom	Pennsville Township Public Works	GIS Manager	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Provided Township specific GIS information.
Ron	Cooksey	Pennsville Township Sewage Authority	Superintendent		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Charles P.	Maurer	Pennsville Township Highway Department	Supervisor-- Highway / Water Departments	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
AJ	Cummings	Pennsville Police Department	Chief		<input checked="" type="checkbox"/>		

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.⁵

- Fire
- Emergency Medical Services
- Community / Faith-Based Organizations
- Non-Governmental Organizations
- Major Employers and businesses
- Healthcare Institutions
- School Board

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.

- Business Association
- Environmental Organizations

⁵ 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 SC.10-2 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 SC.10-2: Public Participation

Date	Type of Involvement	Location
July 1, 2014	Flyers posted	Township Hall
September 12, 2014	Link to Project Website (http://nj4hmp.com) established	Township of Pennsville – Emergency Management ⁶
December 9, 2014	Preliminary Municipal Appendix posted to website for public comment	Township of Pennsville – Emergency Management ⁶
December 18, 2014	Public hearing included on Pennsville Township Committee agenda providing for open discussion, and public comment regarding the Preliminary Municipal Appendix	Township Hall

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.⁷ In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities.⁸

⁶ <http://www.pennsville.org/services/emergency-management/>

⁷ See Mitigation Measure M-1 in Part 4 of the Municipal Appendix.

⁸ See *Section 4: Mitigation Measures* of the NJ4 HMP Regional Hazard Mitigation Plan.

Part 3: Hazard Identification and Risk Assessment

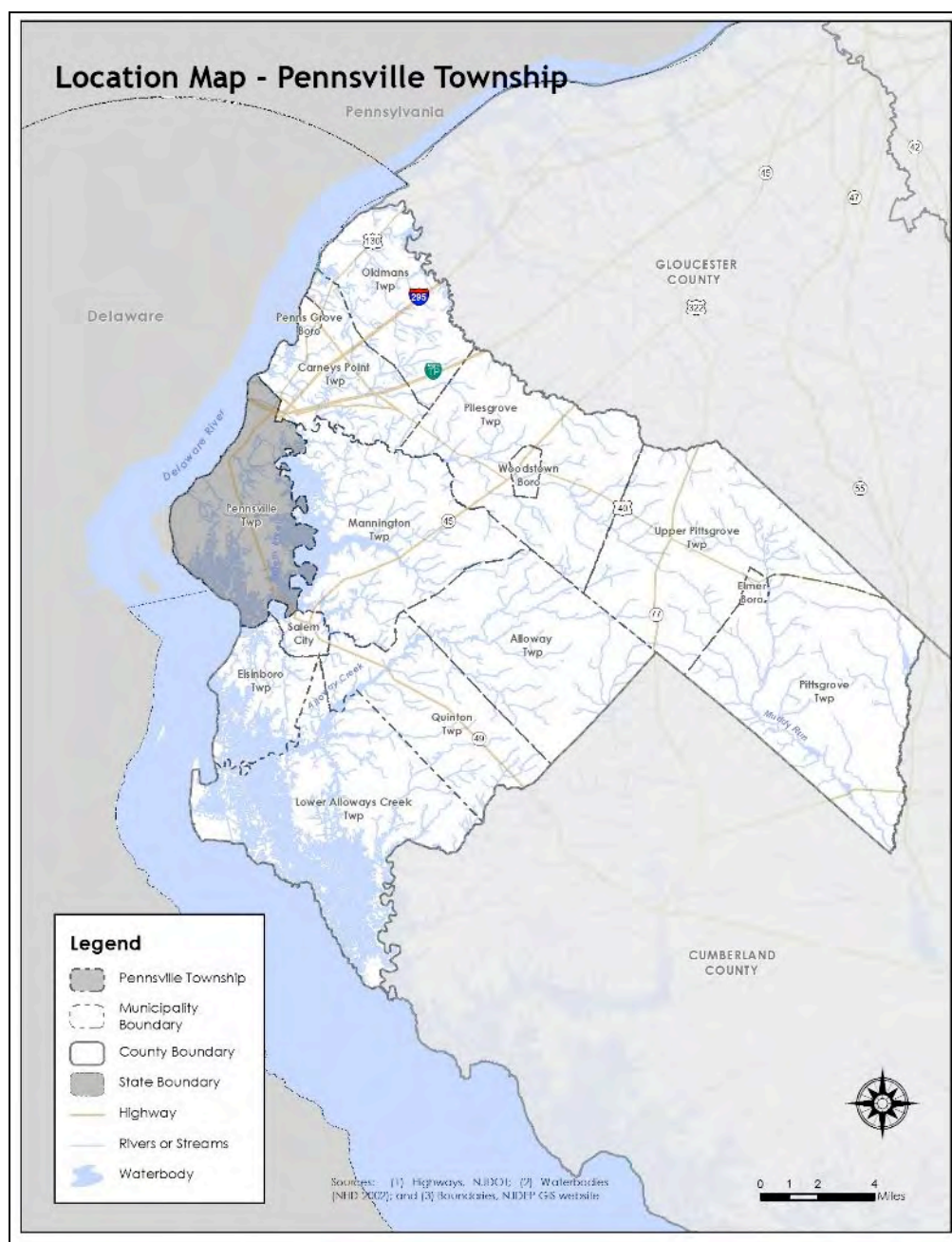
Part 3.1: Municipal Profile

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

Pennsville Township is located on the western edge of Salem County (See Figure SC.10-1).

Figure SC.10-1: Pennsville Township (Salem County) Location Map

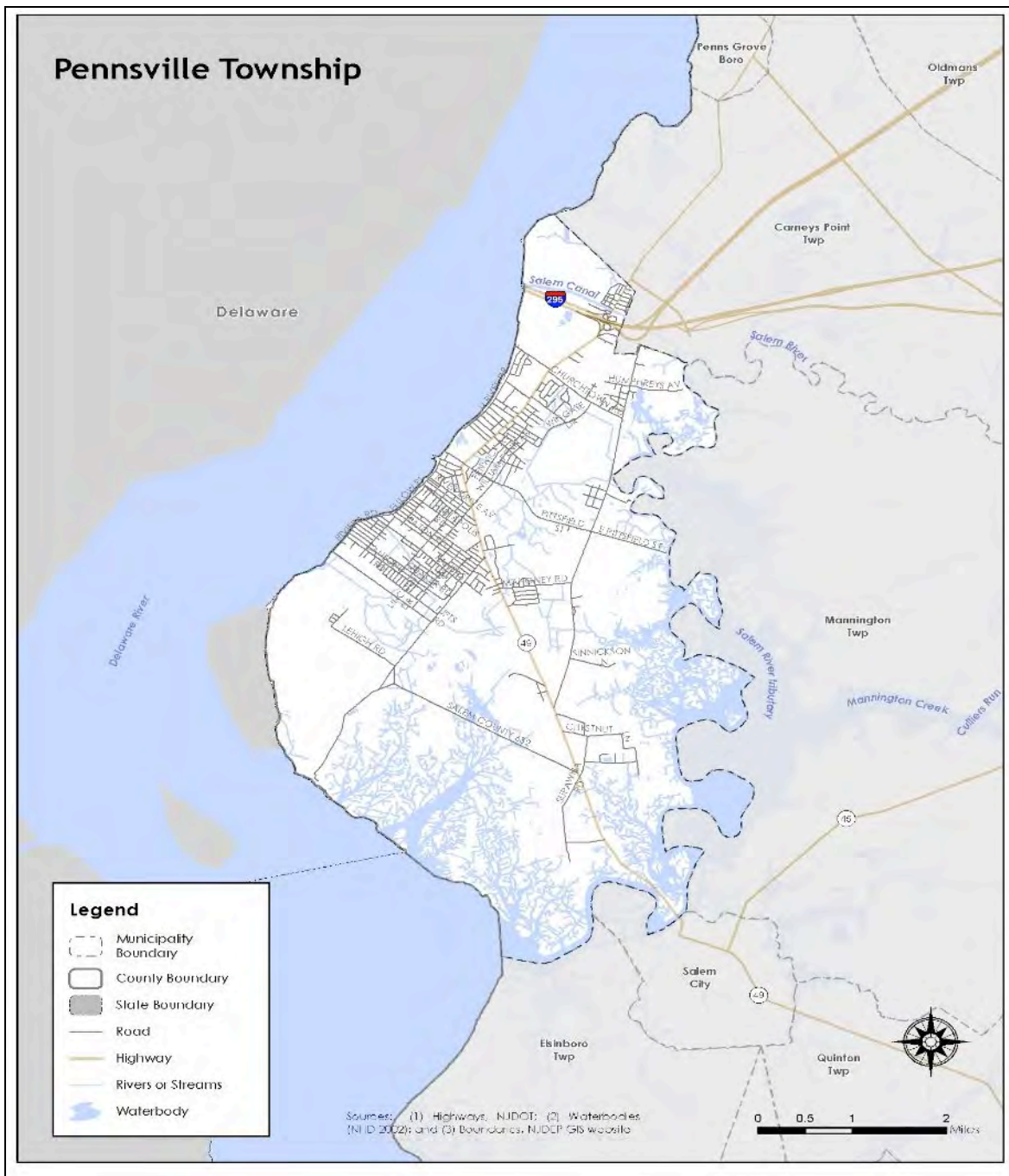


Part 3: Hazard Identification and Risk Assessment

Pennsville Township is a rural community based along the Delaware River.

Per Figure SC.10-2, the major water courses include the Delaware River and the Salem River, which together form the western and eastern borders of the municipality respectively. Major transportation routes include evacuation and county route 551 (Hook Road), Interstate 295, and State Highway 49. The land is predominantly flat with areas of wetlands, and a large portion of the municipality is covered by the Killcohook National Wildlife Refuge and Supawna Meadows National Wildlife Refuge.

Figure SC.10-2: Pennsville Township Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table SC.10-3 is a compilation of demographic information for the municipality and comparison with the county, the four county region, and State of New Jersey.

Table SC.10-3: Pennsville Township Demographics
(Source: Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4)

	Pennsville Township	Salem County	Region	New Jersey
2000 Population	13,194	64,285	974,328	8,414,350
2010 Population	13,409	66,083	1,024,926	8,791,894
Percent Change	1.63%	2.80%	5.19%	4.49%
Population Density	630.2 / sq. mile	199.1 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	21.28 sq. miles	331.90 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population 18 and younger	21.9	23.5	24.1	23.5
% of Population 18 - 64	62.5	61.5	62.7	63
% of Population 65 and over	15.6	15.0	13.2	13.5

Table SC.10-4 illustrates how Pennsville Township ranks in the county, the four county region, and New Jersey.

Table SC.10-4: Pennsville Township Demographic Rankings

	Salem County (total of 15)	Region (total of 90)	New Jersey (total of 565)
Population Rank	1	20	185
Land Area Rank	8	25	127
Population Density Rank	5	60	421
Population Change Rank	8	38	-

Table SC.10-5 includes information related to economic and housing statistics for Pennsville Township, Salem County, the four county region, and New Jersey.

Table SC.10-5: Pennsville Township Economics and Housing
(Source: USDA ERS, Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4; NJ LWD 2010)

	Pennsville Township	Salem County	Region	New Jersey
Date Incorporated	February 21, 1798	1694	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$58,153	\$59,441	\$60,933	\$69,811
Total Number of Housing Units	5,914	27,417	397,990	3,529,033
Occupied Housing Units	5,491	25,290	372,472	3,176,069
Vacant Housing Units	423	2,127	25,518	352,964
Owner Occupied Housing Units	4,060	18,091	266,593	2,126,279
Renter occupied Housing Units	1,413	7,199	105,879	1,049,790

Part 3: Hazard Identification and Risk Assessment

	Pennsville Township	Salem County	Region	New Jersey
Building Permits	2	105	1,554	13,535
Largest Industry	Educational Services, and health care and social assistance	Educational Services, and health care and social assistance	Educational services, and health care and social assistance	Educational services, and health care and social assistance

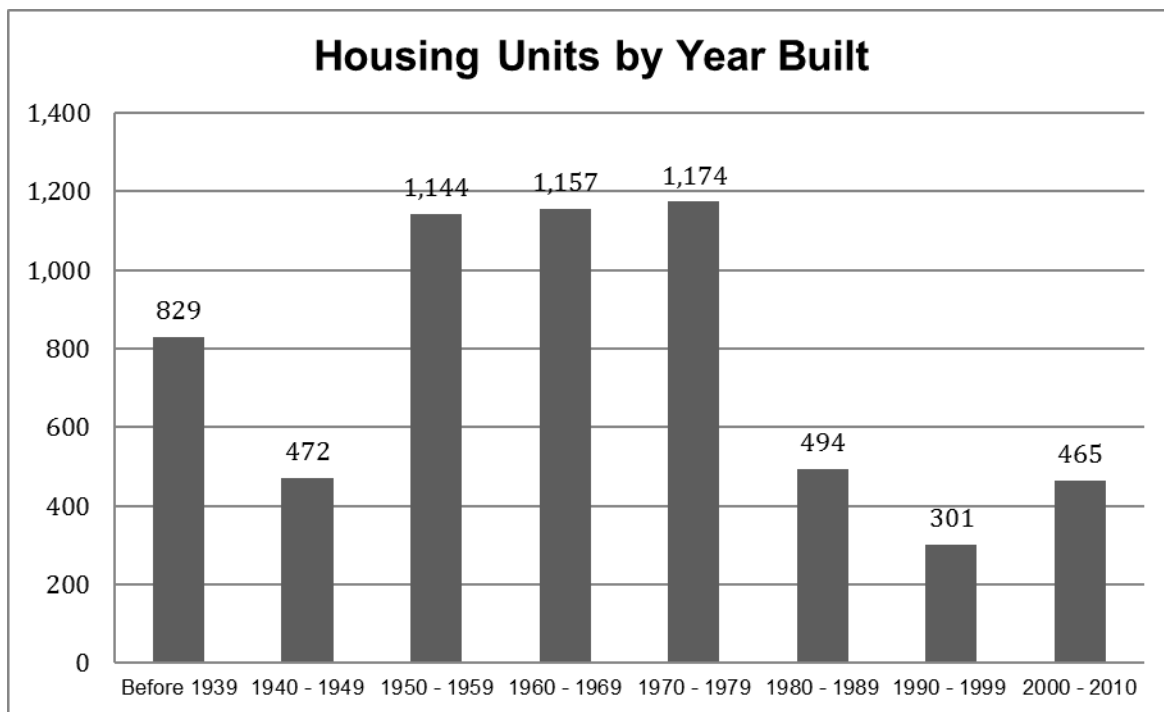
Table SC.10-6 illustrates how Pennsville Township ranks in the county and the four county region.

Table SC.10-6: Pennsville Township Ranking (Economics and Housing)

	Salem County (total of 15)	Region (total of 90)
Median Household Income Rank	12	59
Vacant Housing Rank	2	20
Renter Occupied Housing Rank	1	21
Building Permits Rank	9	63

Figure SC.10-3 illustrates development patterns in Pennsville Township by examining housing units by year built.

Figure SC.10-3: Pennsville Township Housing Units by Year Built
(Source: 2010 ACS 5 Year Estimates, DP 4)



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
- High Wind
- Levee Failure

Moderate Priority

- Coastal Erosion & Sea Level Rise
- Dam Failure
- Extreme Temperature: Cold & Hot
- Severe Weather – Summer
- Severe Storm – Winter Weather

Low Priority

- Drought
- Earthquake
- Wildfire

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 3.3: 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 SC.10-7 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 was used in the Critical Facilities Hazard Exposure Assessment described in Part 3.4.

Table SC.10-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
Figure RP.D-3	Coastal Erosion and Sea Level Rise	Increased Inundation Areas (Coastal Scenarios) 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	Wildland 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 3.4: 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 SC.10-8 contains updated inventory information for municipal critical facilities including cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix.

Table SC.10-9 contains results of overlaying critical facility locations with hazard mapping identified in Part 3.3. The results indicate critical facilities that are potentially exposed to specific hazards. 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 SC.10-8: Pennsville Township (Salem County) Critical Facilities Inventory

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-1	Pennsville Township Hall	Municipal	Administrative Offices	90 North Broadway, Pennsville		N	Y		
CF-2	Emergency Operations Center	EOC	Co-located Facilities	90 North Broadway, Pennsville		N	Y	EOC located behind Municipal facility	
CF-3	Pennsville Police Department	Law Enforcement Facilities	Stations	90 North Broadway, Pennsville		N	Y	Includes a holding cell	
CF-4	Deepwater Fire Department	FireStations	Stations	545 North Broadway, Pennsville		N	N		
CF-5	Pennsville Fire and Rescue Company 1	FireStations / EMS	Stations	91 1st Street, Pennsville		N	Y		
CF-6	Pennsville Township Public Works	Maintenance / Work Areas	Highway Public Works	110 Industrial Park Road, Pennsville		N	N		M-5 / M-22
CF-7	Pennsville Township Sharp Street Water Tower	Utilities – Water	Water Tower	Sharp Street, Pennsville		N/A	N		
CF-8	Pennsville Township Water Tower	Utilities – Water	Combined Treatment Plants / Water Tower	6 Water Street, Pennsville		N/A	N		
CF-9	Benson Avenue Storm Pump Station	Utilities – Water	Pump Stations	North River Drive, Pennsville		N/A	N		M-7
CF-10	North River Drive Storm Pump Station	Utilities – Water	Pump Stations	North River Drive, Pennsville		N/A	N		M-7
CF-11	Riverview Beach Park Storm Pump Station	Utilities – Water	Pump Stations	North River Drive, Pennsville		N/A	N		M-8
CF-12	Enlow Place Storm Pump Station	Utilities – Water	Pump Stations	Enlow Place, Pennsville		N/A	Y		
CF-13	Highland Storm Pump Station	Utilities – Water	Pump Stations	Enlow Place, Pennsville		N/A	N		M-6

Part 3: Hazard Identification and Risk Assessment

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-14	Riviera Drive – Georgia Storm Pump Station	Utilities – Water	Pump Stations	Riviera Drive, Pennsville		N/A	Y		M-18
CF-15	Kansas Road Storm Pump Station	Utilities – Water	Pump Stations	Riviera Drive, Pennsville		N/A	Y		M-17 / M-18
CF-16	Georgia Road Storm Pump Station	Utilities – Water	Pump Stations	Georgia Road, Pennsville		N/A	Y		
CF-17	Beaver Dam – Hook Road Storm Pump Station	Utilities – Water	Pump Stations	North Hook Road, Pennsville		N/A	N		M-6
CF-18	Beaver Dam – Hook Road Pump Station	Utilities – Water	Pump Stations	North Hook Road, Pennsville		N/A	N		M-6
CF-19	Tufts Water Treatment Plan	Utilities – Water	Treatment Plants	2 Sanderlin Road, Pennsville		N/A	Y		
CF-20	Pennsville Township Treatment Plant	Utilities – Water	Treatment Plants	10 Heron Avenue, Pennsville		N/A	N		
CF-21	Public Works Pump Station	Utilities – Wastewater	Pump Stations / Lift Stations	Industrial Park Street, Street		N/A	N		
CF-22	Chestnut Lane Pump Station	Utilities – Wastewater	Pump Stations / Lift Stations	Chestnut Lane, Pennsville		N/A	N	Generator connection available	
CF-23	Goose Lane Pump Station	Utilities – Wastewater	Pump Stations / Lift Stations	Goose Lane, Pennsville		N/A	Y		
CF-24	Main Street Pump Station	Utilities – Wastewater	Pump Stations / Lift Stations	Fifth Street, Pennsville		N/A	Y		
CF-25	Delaware Pump Station	Utilities – Wastewater	Pump Stations / Lift Stations	Delaware Drive, Pennsville		N/A	Y		
CF-26	East Pittsfield Street Pump Station	Utilities – Wastewater	Pump Stations / Lift Stations	East Pittsfield, Pennsville		N/A	Y		

Part 3: Hazard Identification and Risk Assessment

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-27	Kent Avenue Pump Station	Utilities – Wastewater	Pump Stations / Lift Stations	Kent Avenue, Pennsville		N/A	Y		
CF-28	Leap Drive Pump Station	Utilities – Wastewater	Pump Stations / Lift Stations	Leap Drive, Pennsville		N/A	N		
CF-29	Woodside Park Pump Station	Utilities – Wastewater	Pump Stations / Lift Stations	Nicholas Drive, Pennsville		N/A	N		
CF-30	Pump Station-01	Utilities – Wastewater	Pump Stations / Lift Stations	North River Drive, Pennsville		N/A	Y		
CF-31	Pump Station-02	Utilities – Wastewater	Pump Stations / Lift Stations	North River Drive, Pennsville		N/A	Y		
CF-32	Pump Station-03	Utilities – Wastewater	Pump Stations / Lift Stations	North Broadway, Pennsville		N/A	Y		
CF-33	Pump Station-04	Utilities – Wastewater	Pump Stations / Lift Stations	Chester Avenue, Pennsville		N/A	Y		
CF-34	Pump Station-05	Utilities – Wastewater	Pump Stations / Lift Stations	South Broadway, Pennsville		N/A	Y		
CF-35	Pump Station-06	Utilities – Wastewater	Pump Stations / Lift Stations	North Hook Road, Pennsville		N/A	Y		
CF-36	Pump Station-07	Utilities – Wastewater	Pump Stations / Lift Stations	East Pittsfield, Pennsville		N/A	N		
CF-37	Pump Station-08	Utilities – Wastewater	Pump Stations / Lift Stations	Oakdale Lane, Pennsville		N/A	N		
CF-38	Pump Station-09	Utilities – Wastewater	Pump Stations / Lift Stations	White Street, Pennsville		N/A	N		
CF-39	Pump Station-10	Utilities – Wastewater	Pump Stations / Lift Stations	South Hook Road, Pennsville		N/A	N		
CF-40	Laur's Glen Pump Station	Utilities – Wastewater	Pump Stations / Lift Stations	TBD		N/A	TBD	Private Pump Station	
CF-41	Pennsville Market Place Pump Station	Utilities – Wastewater	Pump Stations / Lift Stations	TBD		N/A	TBD	Private Pump Station	
CF-42	Pennsville Township Sewer Treatment Plant	Utilities – Wastewater	Treatment Plants	183 Delaware Drive, Pennsville		N/A	Y		
CF-43	Central Park Elementary School	Schools	Public Schools	43 Oliver Avenue, Pennsville		Y	N		M-9
CF-44	Valley Park Elementary School	Schools	Public Schools	63 Mahoney Road, Pennsville		Y	N		M-10

Part 3: Hazard Identification and Risk Assessment

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-45	Penn Beach Elementary School	Schools	Public Schools	96 Kansas Road, Pennsville		Y	N		M-11
CF-46	Pennsville Middle School	Schools	Public Schools	4 William Penn Avenue, Pennsville		Y	N		M-12
CF-47	Pennsville Memorial High School	Schools	Public Schools	110 South Broadway, Pennsville		Y	N		M-13
CF-48	Salem County Christian Academy	Schools	Private School	104 Sparks Avenue, Pennsville		N	N		M-14
CF-49	Pennsville Assisted Living	Vulnerable Populations Facilities	Private Nursing Home	39 Supawna Road, Pennsville		N	N		
CF-50	Pennsville Towers	Vulnerable Populations Facilities	Private Age-Restricted Housing	40 Eaton Road, Pennsville		N	Y		
CF-51	Kent Avenue Apartments	Vulnerable Populations Facilities	Private Age-Restricted Housing	11 Kent Avenue, Pennsville		N	Y		

Part 3: Hazard Identification and Risk Assessment

Table SC.10-9: Pennsville Township (Salem County) Critical Facilities Hazard Exposure

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ²	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 ³	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	Pennsville Township Hall	☑	☑	☑	16.84	-	-	☑	-	☑	☑	☑	2.52	-	-
CF-2	Emergency Operations Center	☑	☑	☑	16.84	-	-	☑	-	☑	☑	☑	2.52	-	-
CF-3	Pennsville Police Department	☑	☑	☑	16.84	-	-	☑	-	☑	☑	☑	2.52	-	-
CF-4	Deepwater Fire Department	☑	☑	☑	17.51	-	-	☑	-	☑	☑	☑	1.62	-	-
CF-5	Pennsville Fire and Rescue Company 1	☑	☑	☑	16.26	-	-	☑	-	☑	☑	☑	0.90	-	-
CF-6	Pennsville Township Public Works	-	-	-	17.38	-	-	-	-	☑	☑	☑	2.27	-	-
CF-7	Pennsville Township Sharp Street Water Tower	-	-	-	13.14	-	-	-	-	☑	☑	☑	1.48	-	-
CF-8	Pennsville Township Water Tower	-	-	-	17.19	-	☑	-	☑	☑	☑	☑	1.04	-	-
CF-9	Benson Avenue Storm Pump Station	-	-	-	17.40	-	☑	-	☑	☑	☑	☑	0.37	-	-
CF-10	North River Drive Storm Pump Station	-	-	-	17.47	-	☑	-	☑	☑	☑	☑	0.02	-	-
CF-11	Riverview Beach Park Storm Pump Station	-	-	-	17.32	-	☑	-	☑	☑	☑	☑	0.87	-	-
CF-12	Enlow Place Storm Pump Station	-	-	-	17.25	1	☑	-	☑	☑	☑	☑	0.92	-	-
CF-13	Highland Storm Pump Station	-	-	-	17.18	-	☑	-	☑	☑	☑	☑	1.81	-	-

² Distance in miles to nearest dam.

³ Distance in miles to nearest levee.

Part 3: Hazard Identification and Risk Assessment

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ²	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 ³	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-14	Riviera Drive – Georgia Storm Pump Station	-	-	-	17.21	1	☑	-	☑	☑	☑	☑	1.79	-	-
CF-15	Kansas Road Storm Pump Station	-	-	-	17.40	-	☑	-	☑	☑	☑	☑	1.60	-	-
CF-16	Georgia Road Storm Pump Station	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-17	Beaver Dam – Hook Road Storm Pump Station	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-18	Beaver Dam – Hook Road Pump Station	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-19	Tufts Water Treatment Plan	☑	☑	☑	15.85	-	-	☑	-	☑	☑	☑	2.15	-	-
CF-20	Pennsville Township Treatment Plant	-	-	-	16.60	-	☑	-	☑	☑	☑	☑	1.00	-	-
CF-21	Public Works Pump Station	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-22	Chestnut Lane Pump Station	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-23	Goose Lane Pump Station	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-24	Main Street Pump Station	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-25	Delaware Pump Station	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-26	East Pittsfield Street Pump Station	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-27	Kent Avenue Pump Station	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-28	Leap Drive Pump Station	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Part 3: Hazard Identification and Risk Assessment

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ²	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 ³	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-29	Woodside Park Pump Station	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-30	Pump Station-01	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-31	Pump Station-02	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-32	Pump Station-03	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-33	Pump Station-04	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-34	Pump Station-05	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-35	Pump Station-06	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-36	Pump Station-07	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-37	Pump Station-08	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-38	Pump Station-09	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-39	Pump Station-10	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-40	Laur's Glen Pump Station	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-41	Pennsville Market Place Pump Station	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CF-42	Pennsville Township Sewer Treatment Plant	-	-	-	17.23	-	☑	-	☑	☑	☑	☑	1.70	-	-
CF-43	Central Park Elementary School	-	-	-	16.47	-	☑	-	☑	☑	☑	☑	0.51	-	-
CF-44	Valley Park Elementary School	-	-	-	14.29	-	-	-	-	-	☑	☑	2.87	-	-
CF-45	Penn Beach Elementary School	-	-	-	16.50	-	-	-	-	☑	☑	☑	3.08	-	-
CF-46	Pennsville Middle School	-	-	☑	16.17	-	-	☑	-		☑	☑	3.15	-	-
CF-47	Pennsville Memorial High School	-	-	☑	16.31	-	☑	☑	☑	☑	☑	☑	2.28	-	-
CF-48	Salem County Christian Academy	-	-	-	16.27	-	☑	-	☑	☑	☑	☑	2.15	-	-
CF-49	Pennsville Assisted Living	-	-	-	11.98	-	-	-	-	☑	☑	☑	2.19	-	-
CF-50	Pennsville Towers	-	-	-	15.89	-	-	-	-	☑	☑	☑	2.03	-	-

Part 3: Hazard Identification and Risk Assessment

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ²	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 ³	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-51	Kent Avenue Apartments	-	-	-	16.97	-	-	-	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2.81	-	-

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
- 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 SC.10-10 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 SC.10-10.

Table SC.10-10: Status of Pennsville Township (Salem County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Pennsville 1: Flood-proofing measures at DuPont Chamber Works.	Not completed, not funded.	Multi-jurisdictional mitigation measure included in updated Municipal Appendix.	MJ-1
Pennsville 2: Elevate sewage pump station at Pittsfield Street and Salem Creek.	Work-in-progress.	Mitigation measure project is out to bid. Work is scheduled to be completed by December, 2015. Mitigation measure is included in updated Municipal Appendix. ¹	M-15
Pennsville 3: Elevate sewage pump station at Reed Street and White Street.	Not completed, not funded.	Issue is not considered valid. Therefore, mitigation measure is not included in updated Municipal Appendix.	N/A
Pennsville 4: Acquire or elevate/flood-proof private (RL) houses on Route 551 (North Hook Road).	Not completed, not funded.	Revised mitigation measure included in updated Municipal Appendix.	M-21
Pennsville 5: Elevate Route 49 (evacuation route from Public Service Enterprise Group (PSE&G) nuclear plant)	Work-in-progress.	Issue is being addressed through NJDOT. Mitigation measure project is currently underway. Therefore, mitigation measure is included in updated Municipal Appendix.	MJ-5
Pennsville 6: Elevate Hook Rd. (evacuation route from PSE&G nuclear plant).	Work-in-progress.	Pennsville Township has applied for the grant to complete this project. Revised multi-jurisdictional mitigation measure is included in updated Municipal Appendix.	MJ-6
Pennsville 7: Back-up generator for eight pump stations.	Work-in-progress.	Pennsville Township has provided back-up power for a portion of these pump stations. Therefore, revised mitigation measure is included in updated Municipal Appendix to address remaining pump stations.	M-6 / M-7 / M-8
Pennsville 8: Identify and map erosion zones.	Not completed, not funded.	Revised mitigation measure included in updated Municipal Appendix.	M-1

¹ See Shape Files for additional information.

Part 4: Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Pennsville 9: Conduct fire-safe building sessions for area contractors.	Not completed, not funded.	Revised mitigation measure included in updated Municipal Appendix.	M-25
Pennsville 10: Use USACE surge maps for community education and outreach.	Not completed, not funded.	Revised mitigation measure included in updated Municipal Appendix.	M-1
Pennsville 11: Acquisition/elevation of one repetitive loss property located on Jefferson Road.	Not completed, not funded.	Revised mitigation measure included in updated Municipal Appendix.	M-21
Pennsville 12: Acquisition/elevation of one repetitive loss property located on Michigan Road.	Not completed, not funded.	Revised mitigation measure included in updated Municipal Appendix.	M-21
Pennsville 13: Acquisition/elevation of one repetitive loss property located on White Street.	Not completed, not funded.	Revised mitigation measure included in updated Municipal Appendix.	M-21
Pennsville 14: Use United States Army Corps of Engineers (USACE) surge maps for community education and outreach.	Not completed, not funded.	Revised mitigation measure included in updated Municipal Appendix.	M-1
Pennsville 15: Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	Not completed, not funded.	Revised mitigation measure included in updated Municipal Appendix.	M-1

Table SC.10-10 Notes:

- A. See Tables SC.10-11 and SC.10-12 for municipal (M-#) mitigation measures
- B. See Table SC.10-13 for multi-jurisdictional (MJ-#) mitigation measures

Part 4: 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 SC.10-11 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)² if applicable

Table SC.10-11 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 SC.10-4.

Table SC.10-11: Pennsville Township (Salem 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 to inform municipal residents, businesses, and property owners regarding: <ul style="list-style-type: none">• Current hazards and risks to include erosion hazard areas• Changing conditions and actions that may reduce / increase risk• Best practices for hazard mitigation at the individual or property level.³	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

² 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.

³ 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

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
M-5	Install permanent backup emergency power at Public Works Building (CF-6).	All	Goal #4	Both
M-6	Install permanent backup emergency power for stormwater pumping station for Hook Road and Highland Avenue (CF-13 / CF-17 / CF-18). ⁴	All	Goal #4	Both
M-7	Install permanent backup emergency power for stormwater pumping station for Benson Avenue and North River Drive (CF-9 / CF-10). ⁴	All	Goal #4	Both
M-8	Install permanent backup emergency power for stormwater pumping station for Riverview Beach Park (CF-11). ⁴	All	Goal #4	Both
M-9	Install permanent backup emergency power at Central Park Elementary School (CF-43).	All	Goal #4	Both
M-10	Install permanent backup emergency power at Valley Park Elementary School (CF-44).	All	Goal #4	Both
M-11	Install permanent backup emergency power at Penn Beach Elementary School (CF-45).	All	Goal #4	Both
M-12	Install permanent backup emergency power at Pennsville Middle School (CF-46).	All	Goal #4	Both
M-13	Install permanent backup emergency power at Pennsville Memorial High School (CF-47).	All	Goal #4	Both
M-14	Install permanent backup emergency power at Salem County Christian Academy (CF-48).	All	Goal #4	Both
M-15	Elevate sewage pump station at East Pittsfield Street. ⁵	Flood	Goal #4	Both
M-16	Replace and raise bulkhead to meet requirements at North River Drive and Riviera Drive.	Flood	Goal #4	Both
M-17	Upgrade storm pipes at Kansas Road pump station (CF-15).	Flood	Goal #4	Both
M-18	Upgrade Kansas Road and Riviera Drive intersection pump station (CF-14 / CF-15).	Flood	Goal #4	Both
M-19	Elevate Humphries Avenue at 200 feet east of North Hook Road. Raise roadway a distance of approximately 500 feet.	Flood	Goal #4	Both
M-20	Dredge ditch system throughout Pennsville Township.	Flood	Goal #4	Both
M-21	Address identified Repetitive Flood Loss Properties to include Jefferson Road, Michigan Road, North hook Road, Kansas Road, and Georgia Road.	Flood	Goal #4	Both
M-22	Harden / retrofit Public Works building (CF-6).	High Wind	Goal #4	Both
M-23	Engineering assessment of levee at Salem Creek.	Levee Failure	Goal #4	Existing
M-24	Restore levees along Salem Creek.	Levee Failure	Goal #4	Both
M-25	Conduct fire-safe building sessions for area contractors.	Wild Fire	Goal #4	Existing

⁴ Project included in Letter of Interest (LOI) for DR 4086 HMGP. LOI project #417 budget = \$310,998.00.

⁵ Project included in Letter of Interest (LOI) for DR 4086 HMGP. LOI project #415 budget = \$1,500,000.00.

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 SC.10-12 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 criteria⁶
- Project Type to help determine funding options and implementation mechanisms at the municipal level⁷
- 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 SC.10-12: Pennsville Township (Salem 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	Moderate	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	Low	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	Moderate	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	Low	Capabilities and Coordination	Staff time commitment	On-going	Establish regular Municipal Working Group membership, reporting requirements, and meeting / work session schedule.

⁶ 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.

⁷ 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 at Public Works Building (CF-6).	Municipal OEM and Public Works Department	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-6	Install permanent backup emergency power for stormwater pumping station for Hook Road and Highland Avenue (CF-13 / CF-17 / CF-18).	Municipal OEM and Public Works Department	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-7	Install permanent backup emergency power for stormwater pumping station for Benson Avenue and North River Drive (CF-9 / CF-10).	Municipal OEM and Public Works Department	High	Back-up Emergency Power Generator	< \$300K	One to three years	Conduct project scoping.
M-8	Install permanent backup emergency power for stormwater pumping station for Riverview Beach Park (CF-11).	Municipal OEM and Public Works Department	High	Back-up Emergency Power Generator	< \$200K	One to three years	Conduct project scoping.
M-9	Install permanent backup emergency power at Central Park Elementary School (CF-43).	Municipal OEM and School Board	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-10	Install permanent backup emergency power at Valley Park Elementary School (CF-44).	Municipal OEM and School Board	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-11	Install permanent backup emergency power at Penn Beach Elementary School (CF-45).	Municipal OEM and School Board	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-12	Install permanent backup emergency power at Pennsville Middle School (CF-46).	Municipal OEM and School Board	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-13	Install permanent backup emergency power at Pennsville Memorial High School (CF-47).	Municipal OEM and School Board	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-14	Install permanent backup emergency power at Salem County Christian Academy (CF-48).	Municipal OEM and School Board	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-15	Elevate sewage pump station at East Pittsfield Street.	Municipal OEM and Public Works Department	High	Private Property Flood Mitigation	< \$400K	One to three years	Conduct project scoping.
M-16	Replace and raise bulkhead to meet requirements at North River Drive and Riviera Drive.	Municipal OEM and Public Works Department	High	Private Property Flood Mitigation	> \$50 M	Five to twenty years	Conduct project scoping.

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-17	Upgrade storm pipes at Kansas Road pump station (CF-15).	Municipal OEM and Public Works Department	Moderate	Private Property Flood Mitigation	> \$500K	Three to five years	Conduct project scoping.
M-18	Upgrade Kansas Road and Riviera Drive intersection pump station (CF-14 / CF-15).	Municipal OEM and Public Works Department	Moderate	Private Property Flood Mitigation	< \$4M	One to three years	Conduct project scoping.
M-19	Elevate Humphries Avenue at 200 feet east of North Hook Road. Raise roadway a distance of approximately 500 feet.	Municipal OEM and Public Works Department	Moderate	Private Property Flood Mitigation	> \$500K	One to three years	Conduct project scoping.
M-20	Dredge ditch system throughout Pennsville Township.	Municipal OEM and Public Works Department	High	Public Property Flood Mitigation	< \$6M	Three to five years	Conduct project scoping.
M-21	Address identified Repetitive Flood Loss Properties to include Jefferson Road, Michigan Road, North hook Road, Kansas Road, and Georgia Road.	Floodplain Administrator	High	Private Property Flood Mitigation	< \$1M	One to three years	Prior to initiating landowner contacts, identify flood insurance implications and mitigation options including eligible activities per FEMA HMA programs.
M-22	Harden / retrofit Public Works building (CF-6).	Municipal OEM and Public Works Department	Low	Building Retrofit	< \$500K	Two to five years	Conduct project scoping.
M-23	Engineering assessment of levee at Salem Creek.	Municipal OEM, Public Works Department, and Engineering Department	High	Public Property Mitigation	< \$50K	One to three years	Develop scope of work for engineering study and procure professional consulting services.
M-24	Restore levees along Salem Creek.	Municipal OEM, Public Works Department, and Engineering Department	High	Private Property Mitigation	\$500K	One to three years.	Conduct project scoping.
M-25	Conduct fire-safe building sessions for area contractors.	Municipal OEM and Fire Marshall	Low	Private Property Mitigation	< \$50K	Three to five 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 SC.10-13.

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 SC.10-4.

Table SC.10-13: Pennsville Township (Salem County) Multi-Jurisdictional Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partner	Priority
MJ-1	Alleviate flooding at DuPont Chamber Works.	Flood	Goal #4	Both	Municipal OEM, DuPont	High
MJ-2	Alleviate flooding at Salem River Creek. Impacts Salem County Route 551 (North Hook Road) and is the alternate evacuation route for PSEG Nuclear Power Plant.	Flood	Goal #4	Both	Municipal OEM, Salem County DPW, USACE	High
MJ-3	Alleviate flooding at Miles Creek. Salem County right of way.	Flood	Goal #4	Both	Municipal OEM, Salem County DPW	High
MJ-4	Alleviate flooding at Light House Road and County Route 632.	Flood	Goal #4	Both	Municipal OEM, Salem County DPW	Moderate
MJ-5	Alleviate flooding at NJ Route 49 (evacuation route for PSEG nuclear power plant) [Project currently in progress].	Flood	Goal #4	Both	Municipal OEM, Salem County DPW, NJDOT	High

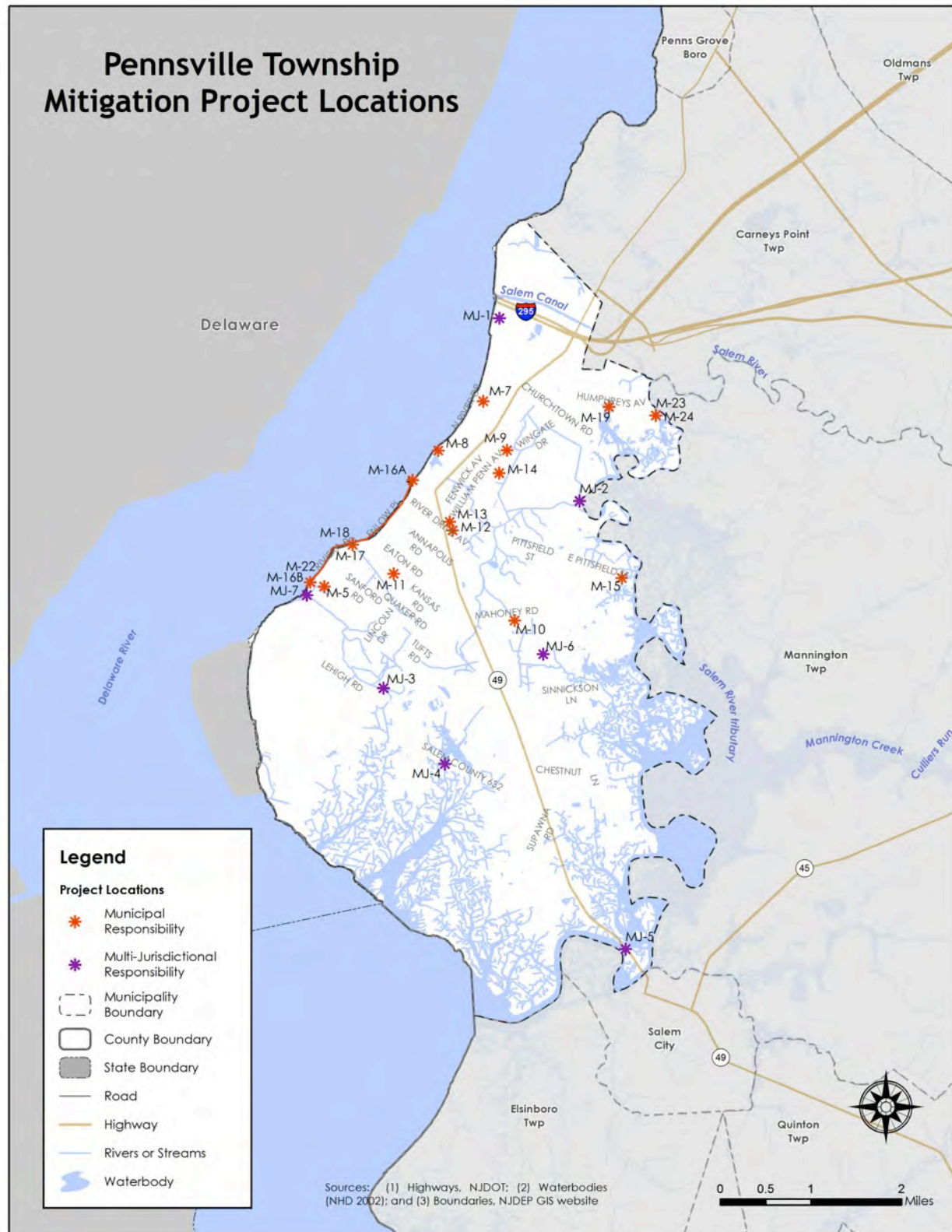
Part 4: Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partner	Priority
MJ-6	Alleviate flooding at County Route 551 (Hook Road) (evacuation route for PSEG nuclear power plant) [Project currently in progress].	Flood	Goal #4	Both	Municipal OEM, Salem County DPW	High
MJ-7	Upgrade tide gates for flooding at pump station. Impacts Salem County Roads. [Project currently in progress]. ⁸	Flood	Goal #4	Both	Municipal OEM, Salem County DPW	Moderate

⁸ Project included in Letter of Interest (LOI) for DR 4086 HMGP. LOI project #551 budget = \$8,273.00.

Part 4: Mitigation Measures

Figure SC.10-4: Pennsville 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 (2006)
- Floodplain Ordinance
- Master Plan and Reexamination Report (2002)
- Stormwater Management Plan (2008)

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.

Attachment A: Public Review Comments

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

Table SC.10.A-1: Public Review Comments

Comment Date and Time	Comment	Response

Note: As of September 16, 2016, no public review comments were received for the Pennsville Township Municipal Appendix.

Attachment B: Adoption Resolution

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

Attachment C: Approval Letter

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



Mitigation Plan for Four New Jersey Counties
Salem County Appendices

Appendix SC.11
Pilesgrove Township, New Jersey

September 16, 2016

Table of Contents

Table of Contents	SC.11-i
Part 1 Overview	SC.11-1
1.1: Mitigation Plan for Four New Jersey Counties	SC.11-1
1.2: Pilesgrove Township (Salem County) Municipal Appendix	SC.11-1
Part 2 Participation	SC.11-2
2.1: Municipal Working Group Participation	SC.11-2
2.2: Public Participation	SC.11-4
Part 3 Hazard Identification and Risk Assessment	SC.11-5
3.1: Municipal Profile	SC.11-5
3.2: Hazard Priorities	SC.11-9
3.3: Hazard Mapping	SC.11-10
3.4: Critical Facilities Inventory and Hazard Exposure Assessment	SC.11-11
Part 4 Mitigation Measures	SC.11-14
4.1: Mitigation Goals and Strategy	SC.11-14
4.2: SDVR HMP Mitigation Measures	SC.11-15
4.3: Municipal Mitigation Measures – Identification	SC.11-16
4.4: Municipal Mitigation Measures – Implementation	SC.11-17
4.5: Multi-Jurisdictional Mitigation Measures	SC.11-20
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	SC.11-22

Table of Contents

List of Figures

Figure SC.11-1: Pilesgrove Township (Salem County) Location Map	SC.11-5
Figure SC.11-2: Pilesgrove Township Base Map	SC.11-6
Figure SC.11-3: Pilesgrove Township Housing Units by Year Built	SC.11-8
Figure SC.11-4: Pilesgrove Township Mitigation Project Locations	SC.11-21

List of Tables

Table SC.11-1: Pilesgrove Township (Salem County) Working Group	SC.11-2
Table SC.11-2: Public Participation	SC.11-4
Table SC.11-3: Pilesgrove Township Demographics	SC.11-7
Table SC.11-4: Pilesgrove Township Demographic Rankings	SC.11-7
Table SC.11-5: Pilesgrove Township Economics and Housing	SC.11-7
Table SC.11-6: Pilesgrove Township Ranking (Economics and Housing)	SC.11-8
Table SC.11-7: Supporting Mapping and Exhibits	SC.11-10
Table SC.11-8: Pilesgrove Township Critical Facilities Inventory	SC.11-12
Table SC.11-9: Pilesgrove Township Critical Facilities Hazard Exposure	SC.11-13
Table SC.11-10: Status of Pilesgrove Township SDVR HMP Mitigation Measures	SC.11-15
Table SC.11-11: Pilesgrove Township Municipal Mitigation Measures Identification	SC.11-16
Table SC.11-12: Pilesgrove Township Municipal Mitigation Measures Implementation	SC.11-18
Table SC.11-13: Pilesgrove Township Multi-Jurisdictional Mitigation Measures	SC.11-20

Attachments

Attachment SC.11.A: Public Review Comments	SC.11.A-1
Attachment SC.11.B: Adoption Resolution	SC.11.B-1
Attachment SC.11.C: Approval Letter	SC.11.C-1

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: Pilesgrove Township (Salem County) Municipal Appendix

This Municipal Appendix is focused on Pilesgrove Township in Salem County, New Jersey.

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

The Pilesgrove 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 SC.11-1 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 SC.11-1: Pilesgrove Township (Salem County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Contribution ³
Kevin	DiPatri	Pilesgrove Township Office of Emergency Management	OEM Coordinator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Organized Working Group and Work Sessions.
Harry	Vanaman	Borough of Woodstown Office of Emergency Management	OEM Coordinator		<input checked="" type="checkbox"/>	
Kevin	Eachus	Pilesgrove Township Committee	Mayor	<input checked="" type="checkbox"/>		
Maureen	Abdill	Pilesgrove Township Administration	Clerk / Administrator	<input checked="" type="checkbox"/>		
Frank	Rizzo	Pilesgrove Township Business Office / Board of Education	SBA / BS		<input checked="" type="checkbox"/>	
James	McKelvie	Pilesgrove Township Consulting Engineer	Township Engineer / Floodplain Administrator		<input checked="" type="checkbox"/>	
Russell	English	Pilesgrove Township Public Works	Superintendent		<input checked="" type="checkbox"/>	
Jeffrey	Bowling, Jr.	Reliance Fire Company	Fire Chief		<input checked="" type="checkbox"/>	

¹ Round 1 Work Session was held on September 11, 2014.

² Round 2 Work Session was held on October 30, 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 SC.11-1.

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

- Land Use / Economic Development Planner
- IT Specialist
- Building Code Official
- Emergency Medical Services
- Business Associations
- Community / Faith Based Organizations
- Major employers and business

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 Specialist
- Transportation Department Directors / Supervisors
- Police
- Environmental Organizations
- Non-Governmental Organizations
- Critical Infrastructure and Key Resources
- 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 SC.11-2 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 SC.11-2: Public Participation

Date	Type of Involvement	Location
October 14, 2014	Link to Project Website (http://nj4hmp.com) established	Pilesgrove Township municipal website ⁵
October 14, 2014	Information item included on Pilesgrove Township Committee meeting agenda identifying opportunities for public participation	Pilesgrove Municipal Building
October 14, 2014	Public meeting with presentation and open discussion	Pilesgrove School Board Meeting
November 3, 2014	Flyers posted	Pilesgrove Municipal Building
November 3, 2014	Township Newsletter	Mailing to all Township residents and businesses
November 3, 2014	Preliminary Municipal Appendix posted to website for public comment	Pilesgrove Township municipal website ⁵

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.pilesgrovenj.org/>

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

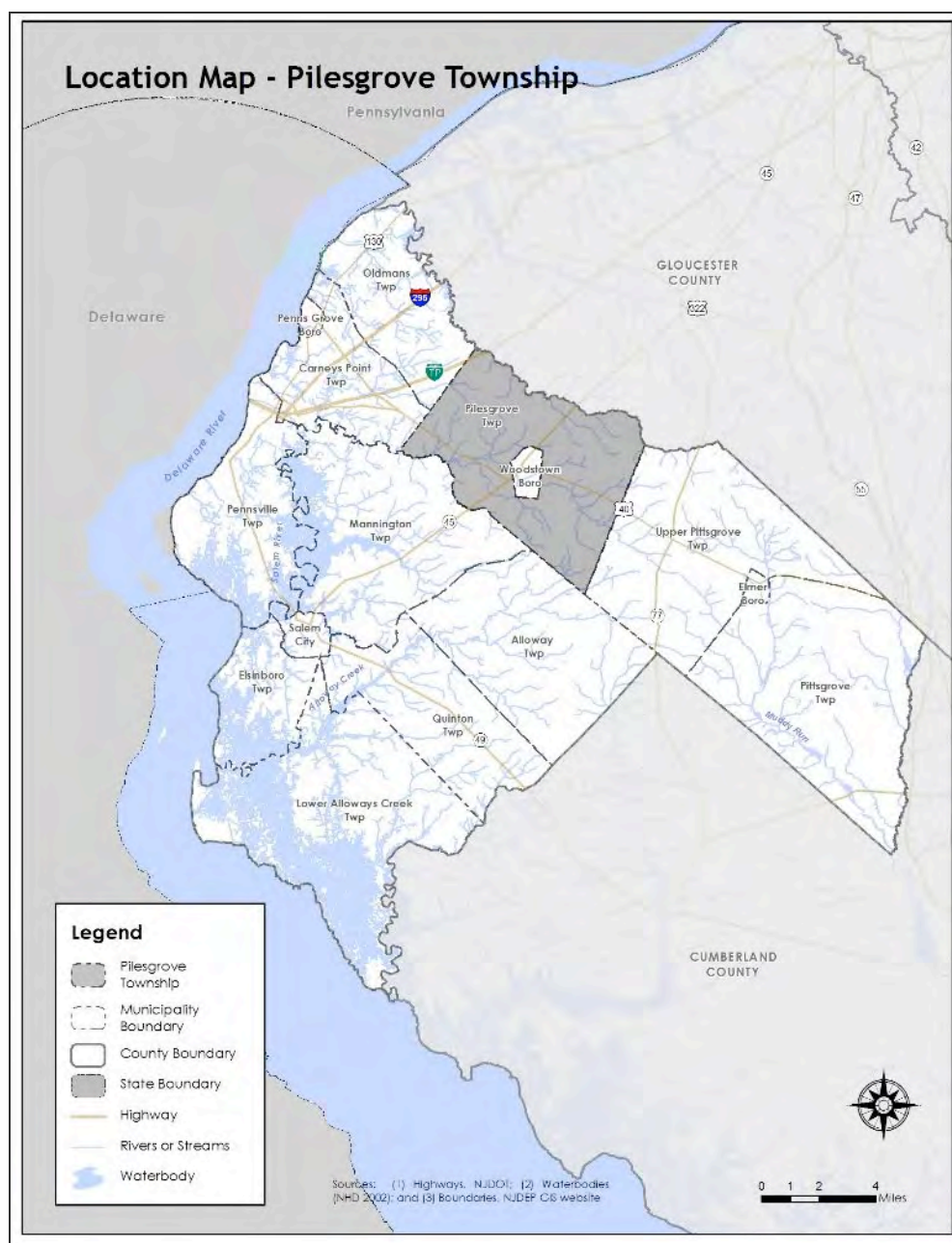
Part 3.1: Municipal Profile

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

Pilesgrove Township is located in the northern edge of Salem County (See Figure SC.11-1).

Figure SC.11-1: Pilesgrove Township (Salem County) Location Map

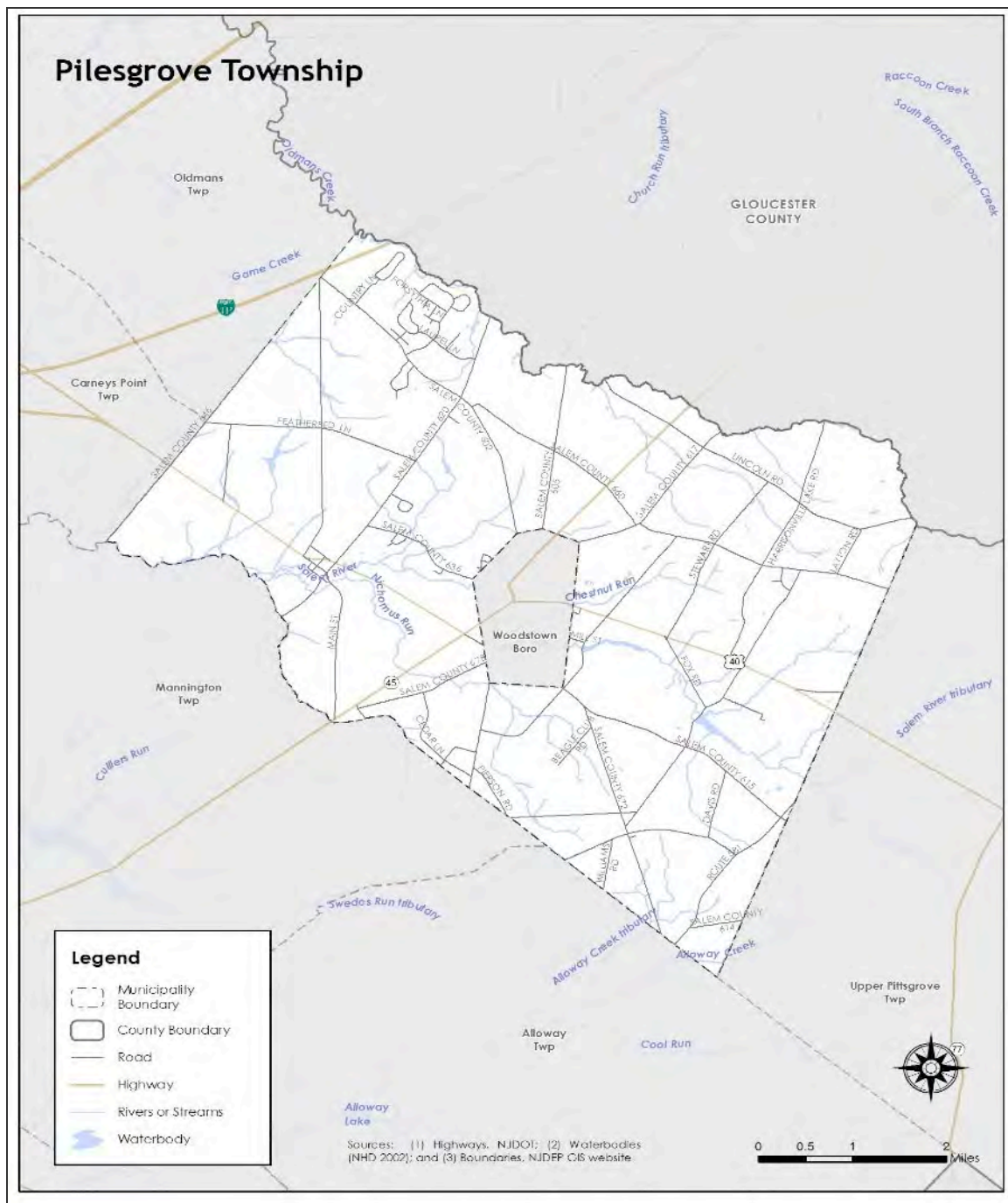


Part 3: Hazard Identification and Risk Assessment

Pilesgrove Township is a small agricultural community.

Per Figure SC.11-2, the major water courses include Oldmans Creek and Salem River. Major transportation routes include U.S. Highway 40 and State Highway 45. The land is predominantly flat.

Figure SC.11-2: Pilesgrove Township Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table SC.11-3 is a compilation of demographic information for the municipality and comparison with the county, the four county region, and State of New Jersey.

Table SC.11-3: Pilesgrove Township Demographics
(Source: Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4)

	Pilesgrove Township	Salem County	Region	New Jersey
2000 Population	3,923	64,285	974,328	8,414,350
2010 Population	4,016	66,083	1,024,926	8,791,894
Percent Change	2.37%	2.80%	5.19%	4.49%
Population Density	115.3 / sq. mile	199.1 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	34.84 sq. miles	331.90 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population 18 and younger	20.4	23.5	24.1	23.5
% of Population 18 - 64	58.6	61.5	62.7	63
% of Population 65 and over	21.0	15.0	13.2	13.5

Table SC.11-4 illustrates how Pilesgrove Township ranks in the county, the four county region, and New Jersey.

Table SC.11-4: Pilesgrove Township Demographic Rankings

	Salem County (total of 15)	Region (total of 90)	New Jersey (total of 565)
Population Rank	6	58	411
Land Area Rank	4	14	66
Population Density Rank	9	76	533
Population Change Rank	7	36	-

Table SC.11-5 includes information related to economic and housing statistics for Pilesgrove Township, Salem County, the four county region, and New Jersey.

Table SC.11-5: Pilesgrove Township Economics and Housing
(Source: USDA ERS, Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4; NJ LWD 2010)

	Pilesgrove Township	Salem County	Region	New Jersey
Date Incorporated	February 21, 1798	1694	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$87,083	\$59,441	\$60,933	\$69,811
Total Number of Housing Units	1,594	27,417	397,990	3,529,033
Occupied Housing Units	1,488	25,290	372,472	3,176,069
Vacant Housing Units	106	2,127	25,518	352,964
Owner Occupied Housing Units	1,218	18,091	266,593	2,126,279
Renter Occupied Housing Units	270	7,199	105,879	1,049,790

Part 3: Hazard Identification and Risk Assessment

	Pilesgrove Township	Salem County	Region	New Jersey
Building Permits	2	105	1,554	13,535
Largest Industry	Construction; Transportation and Warehousing	Educational Services, and health care and social assistance	Educational services, and health care and social assistance	Educational services, and health care and social assistance

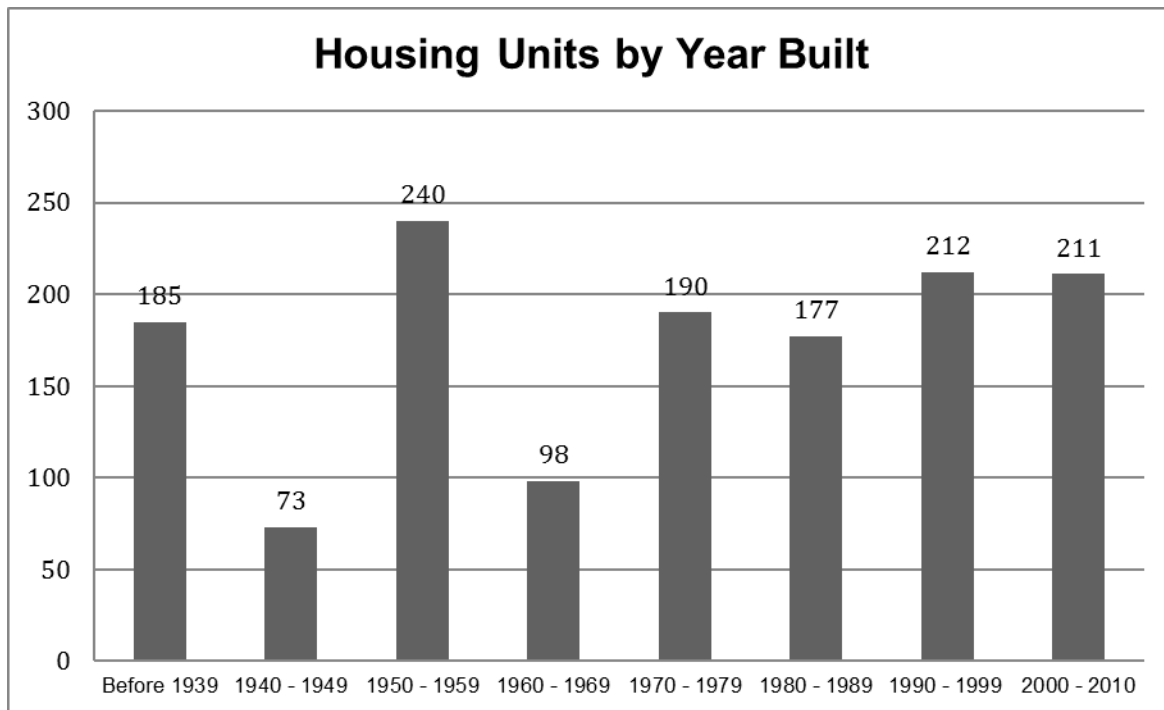
Table SC.11-6 illustrates how Pilesgrove Township ranks in the county and the four county region.

Table SC.11-6: Pilesgrove Township Ranking (Economics and Housing)

	Salem County (total of 15)	Region (total of 90)
Median Household Income Rank	1	10
Vacant Housing Rank	6	54
Renter Occupied Housing Rank	7	60
Building Permits Rank	10	64

Figure SC.11-3 illustrates development patterns in Pilesgrove Township by examining housing units by year built.

Figure SC.11-3: Pilesgrove Township Housing Units by Year Built
(Source: 2010 ACS 5 Year Estimates, DP 4)



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

- Dam Failure

Moderate Priority

- Flood
- High Wind
- Severe Weather - Summer

Low Priority

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

Four additional hazards were identified but were not considered applicable to the municipality:

- Coastal Erosion & Sea Level Rise
- Geologic Hazards
- Levee Failure
- Wildfire

¹ See Section 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 SC.11-7 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 was used in the Critical Facilities Hazard Exposure Assessment described in Part 3.4.

Table SC.11-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
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

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 3.4: 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 SC.11-8 contains updated inventory information for municipal critical facilities including cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix.

Table SC.11-9 contains results of overlaying critical facility locations with hazard mapping identified in Part 3.3. The results indicate critical facilities that are potentially exposed to specific hazards. 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 SC.11-8: Pilesgrove Township (Salem 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	1180 Route 40 East, Pilesgrove		Y ²	N		M-5
CF-2	Emergency Operations Center	EOC	Stand - alone Facilities	25 Broad Street, Woodstown		N	N		M-6
CF-3	Public Works	Public Works	Combined Administrative Office, Maintenance / Work Area, Equipment / Material Storage, and Fueling Station	1180 Route 40 East, Pilesgrove	CF-1	N	Y		
CF-4	Convenience Center	Trash and Recycling Disposal	Convenience Center	Robbins Road & Williams Road		N/A	N		
CF-5	Woodstown Pre-School Academy	Schools	Private Schools	343 Lincoln Road & Route 45, Pilesgrove		N	N		
CF-6	Early Childhood Development Center	Schools	Private Schools	211 East Lake Road, Pilesgrove		Y ²	N		M-7
CF-7	Friends Village	Vulnerable Populations Facilities	Private Age-Restricted Housing	Friends Drive, Woodstown		N	N		

² Shelter of last resort.

Part 3: Hazard Identification and Risk Assessment

Table SC.11-9: Pilesgrove Township (Salem County) Critical Facilities Hazard Exposure

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ³	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 ⁴	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	Township Hall	N/A	N/A	N/A	9.67	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-2	Emergency Operations Center	N/A	N/A	N/A	11.88	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-3	Public Works	N/A	N/A	N/A	11.77	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-4	Convenience Center	N/A	N/A	N/A	11.83	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-5	Woodstown Pre-School Academy	N/A	N/A	N/A	8.39	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-6	Early Childhood Development Center	N/A	N/A	N/A	11.42	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-7	Friends Village	N/A	N/A	N/A	11.55	N/A	-	-	-	-	-	-	N/A	N/A	N/A

³ Distance in miles to nearest dam.

⁴ Distance in miles to nearest levee.

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, Salem, 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
- 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 SC.11-10 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 SC.11-10.

Table SC.11-10: Status of Pilesgrove Township (Salem County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Pilesgrove 1: Improvements to East Lake Dam.	Completed	Issue was resolved through funds received by the NJDOT and NJDEP. Therefore, mitigation measure is not included in the updated Municipal Appendix.	N/A
Pilesgrove 2: Work with State to dredge Camp Crocket Lake (this project is being implemented at the state level).	Work-in-progress	Revised multi-jurisdictional mitigation measure included in updated Municipal Appendix.	MJ-1
Pilesgrove 3: Provide backup power to Pilesgrove Town Hall.	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-5
Pilesgrove 4: Install warning sirens (24+/-).	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-12
Pilesgrove 5: Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-1

Table SC.11-10 Notes:

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

Part 4: 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 SC.11-11 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

Note: Pilesgrove Township does not currently have RL or SRL properties per information provided by the New Jersey Department of Environmental Protection.

Table SC.11-11 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 SC.11-4.

Table SC.11-11: Pilesgrove Township (Salem 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 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

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.

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

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
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	Provide permanent backup emergency power generator to Pilesgrove Township Hall (CF-1).	All	Goal #4	Both
M-6	Provide permanent backup emergency power generator to Pilesgrove Township Emergency Operations Center (CF-2).	All	Goal #4	Both
M-7	Support installation of permanent backup emergency power generator for Early Childhood Development Center (CF-6).	All	Goal #4	Both
M-8	Develop and implement tree maintenance plan to assist with the reduction of power outages, damages to homes, and evacuation issues.	All	Goal #4	Both
M-9	Engineering study to determine flood mitigation measure for Lincoln Road.	Flood	Goal #4	Existing
M-10	Engineering study to determine flood mitigation measure on Hazel and Avis Mill Road.	Flood	Goal #4	Existing
M-11	Engineering study to determine erosion mitigation measure for Waterview Drive.	Flood	Goal #4	Existing
M-12	Engineering study to determine best location for warning sirens throughout Township.	High Wind	Goal #4	Existing

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 SC.11-12 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

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

Table SC.11-12: Pilesgrove Township (Salem 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	Moderate	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, Municipal Working Group, and Township Engineer	High	Capabilities and Coordination	Staff and consultant time commitment (<\$3,000)	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.
M-5	Provide permanent backup power generator to Pilesgrove Township Hall (CF-1).	Municipal OEM and Public Works Department	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-6	Provide permanent backup emergency power generator to Pilesgrove Township Emergency Operations Center (CF-2).	Municipal OEM and Public Works Department	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-7	Support installation of permanent backup emergency power generator for Early Childhood Development Center (CF-6).	Municipal OEM and Early Childhood Development Center	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-8	Develop and implement tree maintenance plan to assist with the reduction of power outages, damages to homes, and evacuation issues.	Municipal OEM and Public Works Department	Moderate	Private Property Mitigation	< \$50K	One to three years	Conduct project scoping.
M-9	Engineering study to determine flood mitigation measure for Lincoln Road.	Municipal OEM, Public Works Department, and Engineering	Low	Private Property Mitigation	< \$50K	Three to five years	Develop scope of work for engineering study and procure professional consulting services.

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-10	Engineering study to determine flood mitigation measure on Hazel and Avis Mill Road.	Municipal OEM, Public Works Department, and Engineering	Moderate	Private Property Mitigation	< \$50K	One to three years	Develop scope of work for engineering study and procure professional consulting services.
M-11	Engineering study to determine erosion mitigation measure for Waterview Drive.	Municipal OEM, Public Works Department, and Engineering	Moderate	Private Property Mitigation	< \$50K	One to three years	Develop scope of work for engineering study and procure professional consulting services.
M-12	Engineering study to determine best location for warning sirens throughout Township.	Municipal OEM, Public Works Department, and Engineering	Low	Private Property Mitigation	< \$50K	One to three years	Develop scope of work for engineering study and procure professional consulting services.

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 SC.11-13.

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 SC.11-4.

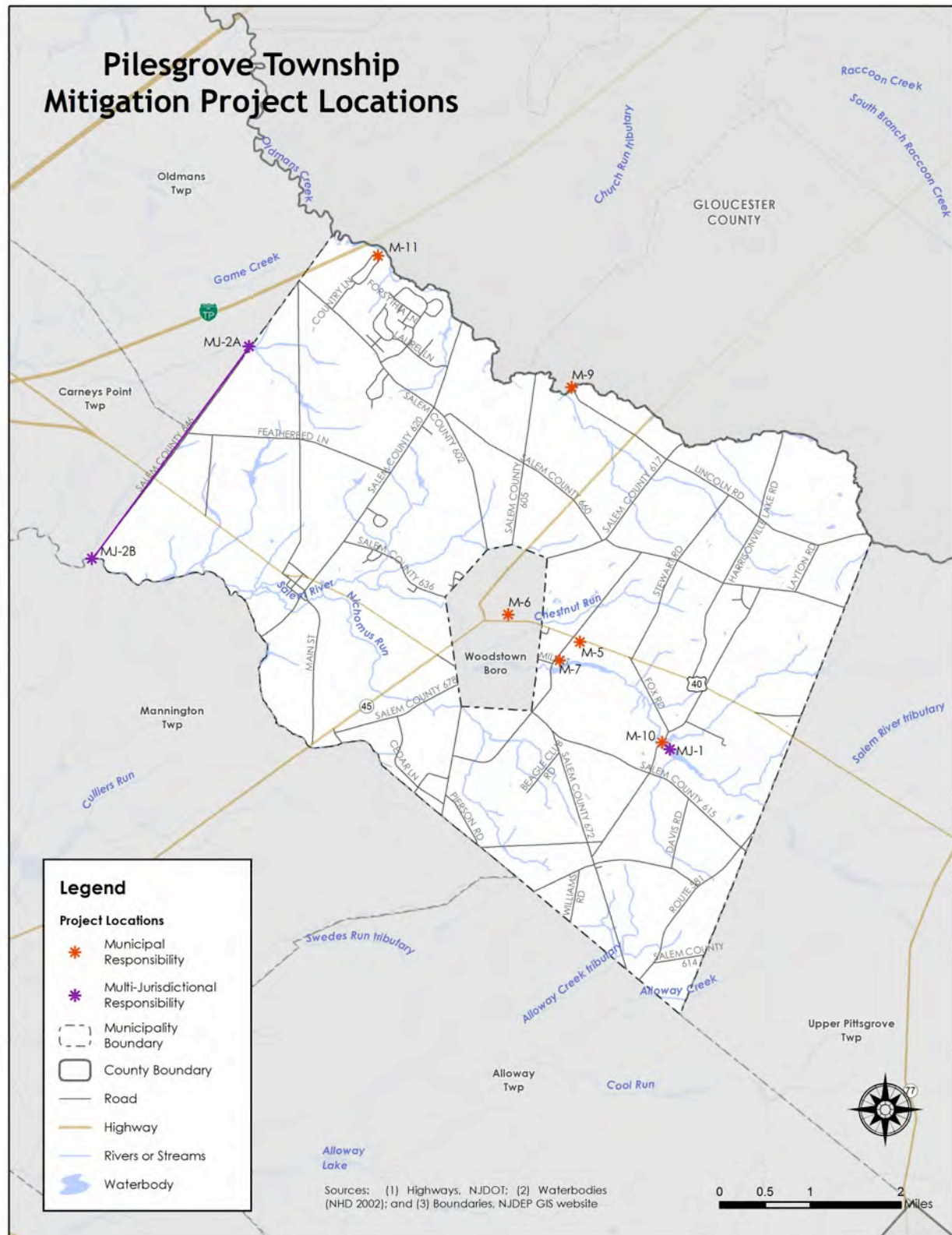
Table SC.11-13: Pilesgrove Township (Salem County) Multi-Jurisdictional Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-1	Alleviate flooding Camp Crocket Lake ⁵ at Avis Mill Pond.	Flood	Goal #4	Both	Municipal OEM, Salem County DPW, NJ DEP	Moderate
MJ-2	Alleviate flooding and erosion on County Road 602 (Pointers Auburn Road).	Flood	Goal #4	Both	Municipal OEM, Salem County DPW	Low

⁵ Crocket Lake is located in Camp Crocket County Park.

Part 4: Mitigation Measures

Figure SC.11-4: Pilesgrove 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 (2001)
- Floodplain Ordinance (1987)
- Master Plan and Reexamination Report (2011)
- Land Use Development⁶
- Stormwater Management Plan (2006)
- Capital Improvement Program (2014)⁷

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.

⁶ <http://ecode360.com/11317493#11317493>

⁷ <http://www.pilesgrovenj.org/pg2014budget.pdf>

Attachment A: Public Review Comments

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

Table SC.11.A-1: Public Review Comments

Comment Date and Time	Comment	Response

Note: As of September 16, 2016, no public review comments were received for the Pilesgrove Township Municipal Appendix.

Attachment B: Adoption Resolution

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

Attachment C: Approval Letter

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



Mitigation Plan for Four New Jersey Counties
Salem County Appendices

Appendix SC.12
Pittsgrove Township, New Jersey

September 16, 2016

Table of Contents

Table of Contents	SC.12-i
Part 1 Overview	SC.12-1
1.1: Mitigation Plan for Four New Jersey Counties	SC.12-1
1.2: Pittsgrove Township (Salem County) Municipal Appendix	SC.12-1
Part 2 Participation	SC.12-2
2.1: Municipal Working Group Participation	SC.12-2
2.2: Public Participation	SC.12-4
Part 3 Hazard Identification and Risk Assessment	SC.12-5
3.1: Municipal Profile	SC.12-5
3.2: Hazard Priorities	SC.12-9
3.3: Hazard Mapping	SC.12-10
3.4: Critical Facilities Inventory and Hazard Exposure Assessment	SC.12-11
Part 4 Mitigation Measures	SC.12-14
4.1: Mitigation Goals and Strategy	SC.12-14
4.2: SDVR HMP Mitigation Measures	SC.12-15
4.3: Municipal Mitigation Measures – Identification	SC.12-16
4.4: Municipal Mitigation Measures – Implementation	SC.12-17
4.5: Multi-Jurisdictional Mitigation Measures	SC.12-19
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	SC.12-22

Table of Contents

List of Figures

Figure SC.12-1: Pittsgrove Township (Salem County) Location Map	SC.12-5
Figure SC.12-2: Pittsgrove Township Base Map	SC.12-6
Figure SC.12-3: Pittsgrove Township Housing Units by Year Built	SC.12-8
Figure SC.12-4: Pittsgrove Township Mitigation Project Locations	SC.12-21

List of Tables

Table SC.12-1: Pittsgrove Township (Salem County) Working Group	SC.12-2
Table SC.12-2: Public Participation	SC.12-4
Table SC.12-3: Pittsgrove Township Demographics	SC.12-7
Table SC.12-4: Pittsgrove Township Demographic Rankings	SC.12-7
Table SC.12-5: Pittsgrove Township Economics and Housing	SC.12-7
Table SC.12-6: Pittsgrove Township Ranking (Economics and Housing)	SC.12-8
Table SC.12-7: Supporting Mapping and Exhibits	SC.12-10
Table SC.12-8: Pittsgrove Township Critical Facilities Inventory	SC.12-12
Table SC.12-9: Pittsgrove Township Critical Facilities Hazard Exposure	SC.12-13
Table SC.12-10: Status of Pittsgrove Township SDVR HMP Mitigation Measures	SC.12-15
Table SC.12-11: Pittsgrove Township Municipal Mitigation Measures Identification	SC.12-16
Table SC.12-12: Pittsgrove Township Municipal Mitigation Measures Implementation	SC.12-18
Table SC.12-13: Pittsgrove Township Multi-Jurisdictional Mitigation Measures	SC.12-20

Attachments

Attachment SC.12.A: Public Review Comments	SC.12.A-1
Attachment SC.12.B: Adoption Resolution	SC.12.B-1
Attachment SC.12.C: Approval Letter	SC.12.C-1

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: Pittsgrove Township (Salem County) Municipal Appendix

This Municipal Appendix is focused on Pittsgrove Township in Salem County, New Jersey.

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

The Pittsgrove 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 SC.12-1 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 SC.12-1: Pittsgrove Township (Salem County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Contribution ³
Edward	Myers	Pittsgrove OEM	OEM Coordinator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Organized Working Group and Work Sessions.
Richard	Kurtz	Pittsgrove TWP OEM	Deputy Coordinator		<input checked="" type="checkbox"/>	
Nash	Hetzell	Pittsgrove TWP OEM	Deputy OEM		<input checked="" type="checkbox"/>	
Ralph	Padilla	Pittsgrove Township Executive Committee / Land Use Board	Mayor / Land Use Board Member		<input checked="" type="checkbox"/>	
Steven	Wymbs	Pittsgrove Township Administrator	Township Administrator			Reviewed Preliminary and Draft Appendix.
Mike	Digregorio	Pittsgrove Township Zoning Office	Township Zoning Officer / Floodplain Administrator			Reviewed Preliminary and Draft Appendix.

¹ Round 1 Work Session was held on August 7, 2014.

² Round 2 Work Session was held on October 20, 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 SC.12-1.

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

- Building Code Official
- Engineering
- Public Works
- Emergency Medical Services
- Community / Faith-Based Organizations
- Healthcare Institutions
- School Board

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
- Business Associations
- Environmental Organizations
- Non-Governmental Organizations
- Critical Infrastructure and Key Resources
- Major employers and businesses

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 SC.12-2 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 SC.12-2: Public Participation

Date	Type of Involvement	Location
September 29, 2014	Flyers posted	Crystal's Corner Shopping Center / Anderson's Country Store
September 30, 2014	Link to Project Website (http://nj4hmp.com) established	Pittsgrove Township ⁵
January 5, 2015	Public hearing included on Pittsgrove Township Committee agenda providing for open discussion, and public comment regarding the Preliminary Municipal Appendix	Pittsgrove 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.pittsgrovetownship.com/committees/emergency-management/hazardous-mitigation-plan-updates.aspx>

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

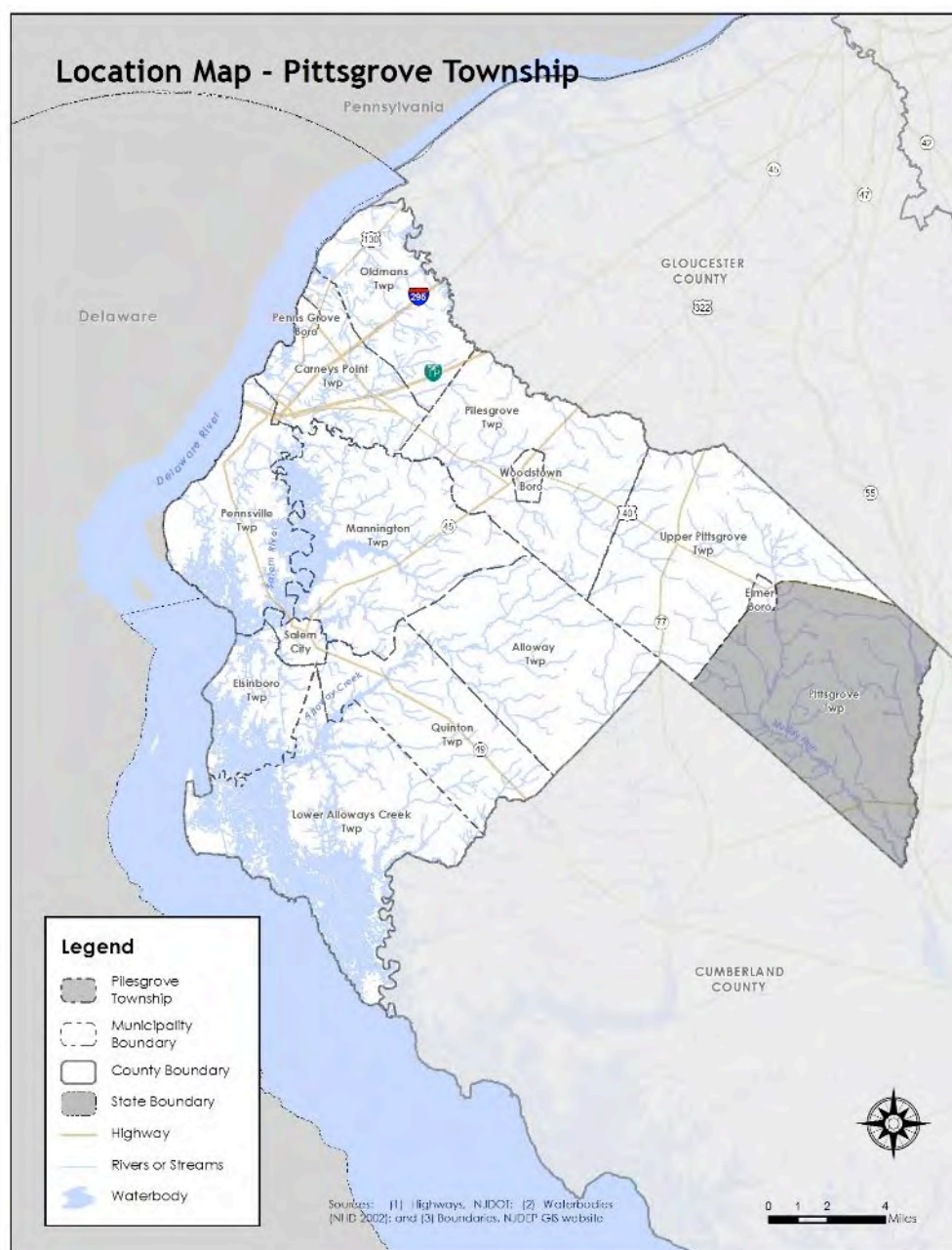
Part 3.1: Municipal Profile

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

Pittsgrove Township is located in the southwest corner of Salem County (See Figure SC.12-1).

Figure SC.12-1: Pittsgrove Township (Salem County) Location Map

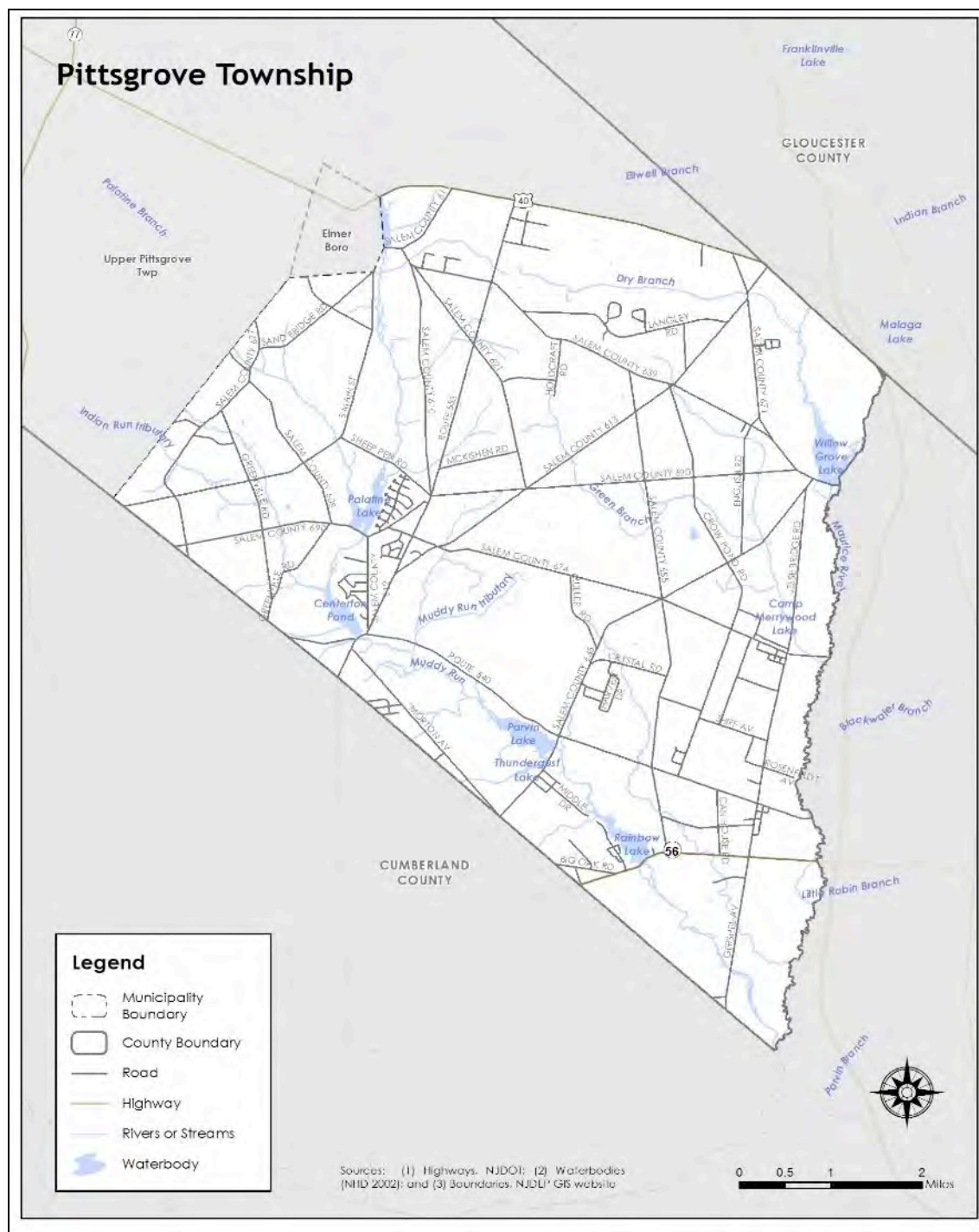


Part 3: Hazard Identification and Risk Assessment

Pittsgrove Township is a rural, agricultural community. Unincorporated communities in the municipality include Brotmanville, Centerton, Willowgrove, and Norma.

Per Figure SC.12-2, the major water bodies include Palatine Lake and Willow Grove Lake. Major transportation routes include N.J. State Highways 40 and 56 and Salem County Routes 613 and 55. The land is gently rolling with forested areas.

Figure SC.12-2: Pittsgrove Township Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table SC.12-3 is a compilation of demographic information for the municipality and comparison with the county, the four county region, and State of New Jersey.

Table SC.12-3: Pittsgrove Township Demographics
(Source: Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4)

	Pittsgrove Township	Salem County	Region	New Jersey
2000 Population	8,893	64,285	974,328	8,414,350
2010 Population	9,393	66,083	1,024,926	8,791,894
Percent Change	5.62%	2.80%	5.19%	4.49%
Population Density	208.3 / sq. mile	199.1 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	45.20 sq. miles	331.90 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population 18 and younger	23.3	23.5	24.1	23.5
% of Population 18 - 64	64.2	61.5	62.7	63
% of Population 65 and over	12.5	15.0	13.2	13.5

Table SC.12-4 illustrates how Pittsgrove Township ranks in the county, the four county region, and New Jersey.

Table SC.12-4: Pittsgrove Township Demographic Rankings

	Salem County (total of 15)	Region (total of 90)	New Jersey (total of 566)
Population Rank	2	30	252
Land Area Rank	2	8	35
Population Density Rank	7	70	503
Population Change Rank	4	28	-

Table SC.12-5 includes information related to economic and housing statistics for Pittsgrove Township, Salem County, the four county region, and New Jersey.

Table SC.12-5: Pittsgrove Township Economics and Housing
(Source: USDA ERS, Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4; NJ LWD 2010)

	Pittsgrove Township	Salem County	Region	New Jersey
Date Incorporated	February 21, 1798	1694	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$74,348	\$59,441	\$60,933	\$69,811
Total Number of Housing Units	3,445	27,417	397,990	3,529,033
Occupied Housing Units	3,307	25,290	372,472	3,176,069
Vacant Housing Units	138	2,127	25,518	352,964
Owner Occupied Housing Units	2,980	18,091	266,593	2,126,279
Renter Occupied Housing Units	327	7,199	105,879	1,049,790

Part 3: Hazard Identification and Risk Assessment

	Pittsgrove Township	Salem County	Region	New Jersey
Building Permits	2	105	1,554	13,535
Largest Industry	Agriculture, Forestry, Fishing and Hunting; Educational Services; and Health Care and Social Assistance	Educational Services, and health care and social assistance	Educational services, and health care and social assistance	Educational services, and health care and social assistance

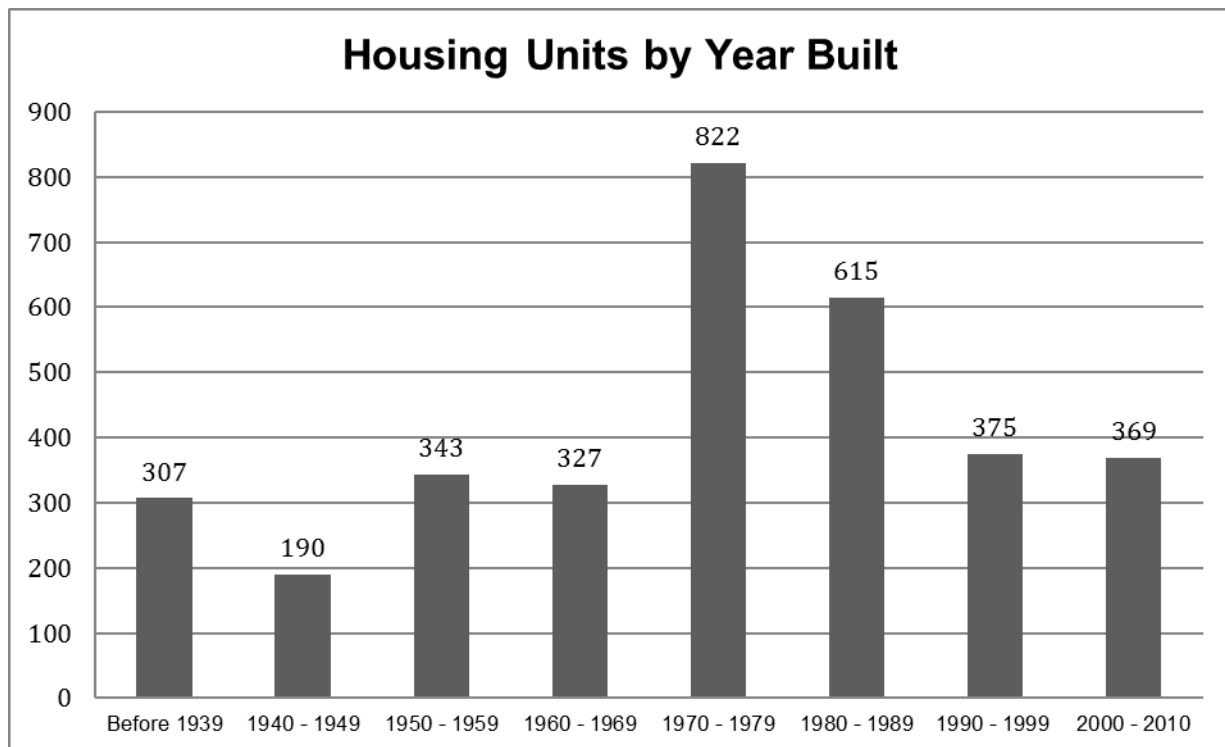
Table SC.12-6 illustrates how Pittsgrove Township ranks in the county and the four county region.

Table SC.12-6: Pittsgrove Township Ranking (Economics and Housing)

	Salem County (total of 15)	Region (total of 90)
Median Household Income Rank	4	20
Vacant Housing Rank	5	48
Renter Occupied Housing Rank	6	54
Building Permits Rank	11	65

Figure SC.12-3 illustrates development patterns in Pittsgrove Township by examining housing units by year built.

Figure SC.12-3: Pittsgrove Township Housing Units by Year Built
(Source: 2010 ACS 5 Year Estimates, DP 4)



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

- None

Moderate Priority

- Dam Failure
- Flood
- High Wind

Low Priority

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

Three additional hazards were identified but were not considered applicable to the municipality:

- Coastal Erosion & Sea Level Rise
- Geologic Hazards
- Levee Failure

¹ See Section 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 SC.12-7 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 was used in the Critical Facilities Hazard Exposure Assessment described in Part 3.4.

Table SC.12-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
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-99	Wildfire	Wildland 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 3.4: 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 SC.12-8 contains updated inventory information for municipal critical facilities including cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix.

Table SC.12-9 contains results of overlaying critical facility locations with hazard mapping identified in Part 3.3. The results indicate critical facilities that are potentially exposed to specific hazards. 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 SC.12-8: Pittsgrove Township (Salem County) Critical Facilities Inventory

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-1	Municipal Building	Municipal	Administrative Offices	989 Centerton Road, Pittsgrove		Y ²	Y		
CF-2	Emergency Operations Center	EOC	Co-located Facilities	989 Centerton Road, Pittsgrove	CF-1	Y	Y		
CF-3	Willow Grove Fire Company	FireStation	Stations	879 Willow Grove Road, Pittsgrove		Y ³	Y		
CF-4	Centerton Fire Station	FireStation	Stations	64 Dealtown Road, Pittsgrove		Y ³	N		M-5
CF-5	Norma-Alliance Volunteer Fire Company	FireStation / EMS	Stations	160 Almond Road, Pittsgrove		Y ³	N		M-6
CF-6	Public Works Annex	Public Works	Combined Administrative Office, Maintenance / Work Area, Equipment / Material Storage , and Fueling Station	1104 Centerton Road, Pittsgrove		N	N		M-7
CF-7	Norma Elementary School	Schools	Public Schools	873 Gershal Avenue, Pittsgrove		Y	N		M-8
CF-8	Olivet Elementary School	Schools	Public Schools	235 Sheep Pen Road, Pittsgrove		Y	N		M-9
CF-9	Pittsgrove Township Middle School	Schools	Public Schools	1082 Almond Road, Pittsgrove		Y ³	N		M-10
CF-10	Arthur P. Schalick High School	Schools	Public Schools	718 Centerton Road, Pittsgrove		Y	Y ³	Red Cross designated shelter	M-11
CF-11	Eagleview Health and Rehabilitation	Health Care Facilities	Private Rehabilitation Centers	849 Big Oak Road, Pittsgrove		N	Y		
CF-12	Pittsgrove Township Senior Center	Vulnerable Populations Facilities	Senior Centers	743 Centerton Road, Pittsgrove		Y ³	N		M-12

² Shelter of last resort.

³ Back-up generator provides partial building coverage for emergency lighting.

Part 3: Hazard Identification and Risk Assessment

Table SC.12-9: Pittsgrove Township (Salem County) Critical Facilities Hazard Exposure

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ⁴	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 ⁵	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	Township Hall	N/A	N/A	N/A	10.98	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-2	Emergency Operations Center	N/A	N/A	N/A	10.74	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-3	Willow Grove Fire Company	N/A	N/A	N/A	11.02	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-4	Centerton Fire Station	N/A	N/A	N/A	11.13	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-5	Norma-Alliance Volunteer Fire Company	N/A	N/A	N/A	10.34	N/A	<input checked="" type="checkbox"/>	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-6	Public Works	N/A	N/A	N/A	10.34	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-7	Norma Elementary School	N/A	N/A	N/A	6.47	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-8	Olivet Elementary School	N/A	N/A	N/A	9.73	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-9	Pittsgrove Township Middle School	N/A	N/A	N/A	10.15	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-10	Arthur P. Schalick High School	N/A	N/A	N/A	11.27	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-11	Eagleview Health and Rehabilitation	N/A	N/A	N/A	11.42	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-12	Pittsgrove Township Senior Center	N/A	N/A	N/A	11.09	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-

⁴ Distance in miles to nearest dam.

⁵ Distance in miles to nearest levee.

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
- 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 SC.12-10 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 SC.12-10.

Table SC.12-10: Status of Pittsgrove Township (Salem County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Pittsgrove 1: Develop wildfire action and evacuation plan.	Not completed, not funded	Issue is no longer considered valid. Therefore, mitigation measure is not included in updated Municipal Appendix.	N/A
Pittsgrove 2: Inquire homeowners along Maurice River near Riverside Drive about possible acquisition project.	Completed	Issue was resolved through staff outreach and staff time commitment. Therefore, mitigation measure is not included in updated Municipal Appendix.	N/A
Pittsgrove 3: Provide back-up emergency power to Norma Fire Station.	Not completed, not funded	Revised mitigation measure included in Municipal Appendix.	M-6
Pittsgrove 4: Provide back-up emergency power to Centerton Fire Station.	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-5
Pittsgrove 5: Provide back-up emergency power to Willowgrove Fire Station.	Completed	Issue was resolved through the reward of a FEMA grant. Therefore, mitigation measure is not included in updated Municipal Appendix.	N/A
Pittsgrove 6: Create safety zones around critical facilities in wildfire risk areas.	Not completed, not funded	Issue is no longer considered valid. Therefore, mitigation measure is not included in updated Municipal Appendix.	N/A
Pittsgrove 7: Conduct fire-safe building training sessions for area contractors.	Not completed, not funded	Issue is no longer considered valid. Therefore, mitigation measure is not included in updated Municipal Appendix.	N/A
Pittsgrove 8: Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-1

Table SC.12-10 Notes:

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

Part 4: 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 SC.12-11 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

Note: Pittsgrove Township does not currently have RL or SRL properties per information provided by the New Jersey Department of Environmental Protection.

Table SC.12-11 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 SC.12-4.

Table SC.12-11: Pittsgrove Township (Salem 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 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

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.

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

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
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 back-up emergency power generator at Centerton Fire Station (CF-4).	All	Goal #4	Both
M-6	Install permanent back-up emergency power generator at Norma Fire Station (CF-5).	All	Goal #4	Both
M-7	Install permanent back-up emergency power generator at Public Works building (CF-6).	All	Goal #4	Both
M-8	Install permanent back-up emergency power generator at Norma Elementary School (CF-7).	All	Goal #4	Both
M-9	Install permanent back-up emergency power generator at Olivet Elementary School (CF-8).	All	Goal #4	Both
M-10	Install permanent back-up emergency power generator at Pittsgrove Township Middle School (CF-9).	All	Goal #4	Both
M-11	Upgrade permanent back-up emergency power generator at Arthur P. Schalick High School (CF-10).	All	Goal #4	Both
M-12	Install permanent back-up emergency power generator at Pittsgrove Township Senior Center (CF-12).	All	Goal #4	Both
M-13	Engineering study to determine flood mitigation measure at Riverside Drive.	Flood	Goal #4	Existing

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 SC.12-12 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

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

Table SC.12-12: Pittsgrove Township (Salem 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	Moderate	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.	Public Works Department	Moderate	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	Low	Capabilities and Coordination	Staff time commitment	On-going	Establish regular Municipal Working Group membership, reporting requirements, and meeting / work session schedule.
M-5	Install permanent back-up emergency power generator at Centerton Fire Station (CF-4).	Municipal OEM and Fire Company	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-6	Install permanent back-up emergency power generator at Norma Fire Station (CF-5).	Municipal OEM and Fire Company	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-7	Install permanent back-up emergency power generator at Public Works building (CF-6).	Municipal OEM and Public Works Department	Low	Back-up Emergency Power Generator	< \$100K	Three to five years	Conduct project scoping.
M-8	Install permanent back-up emergency power generator at Norma Elementary School (CF-7).	Municipal OEM and School Board	Low	Back-up Emergency Power Generator	< \$100K	Three to five years	Conduct project scoping.
M-9	Install permanent back-up emergency power generator at Olivet Elementary School (CF-8).	Municipal OEM and School Board	Low	Back-up Emergency Power Generator	< \$100K	Three to five years	Conduct project scoping.
M-10	Install permanent back-up emergency power generator at Pittsgrove Township Middle School (CF-9).	Municipal OEM and School Board	Low	Back-up Emergency Power Generator	< \$100K	Three to five years	Conduct project scoping.

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-11	Upgrade permanent back-up emergency power generator at Arthur P. Schalick High School (CF-10).	Municipal OEM and School Board	Low	Back-up Emergency Power Generator	< \$100K	Three to five years	Conduct project scoping.
M-12	Install permanent back-up emergency power generator at Pittsgrove Township Senior Center (CF-12).	Municipal OEM	Low	Back-up Emergency Power Generator	< \$100K	Three to five years	Conduct project scoping.
M-13	Engineering study to determine flood mitigation measure at Riverside Drive.	Municipal OEM and Public Works Department	Moderate	Private Property Flood Mitigation	< \$50K	Three to five years	Develop scope of work for engineering study and procure professional consulting services.

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 SC.12-13.

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 SC.12-4.

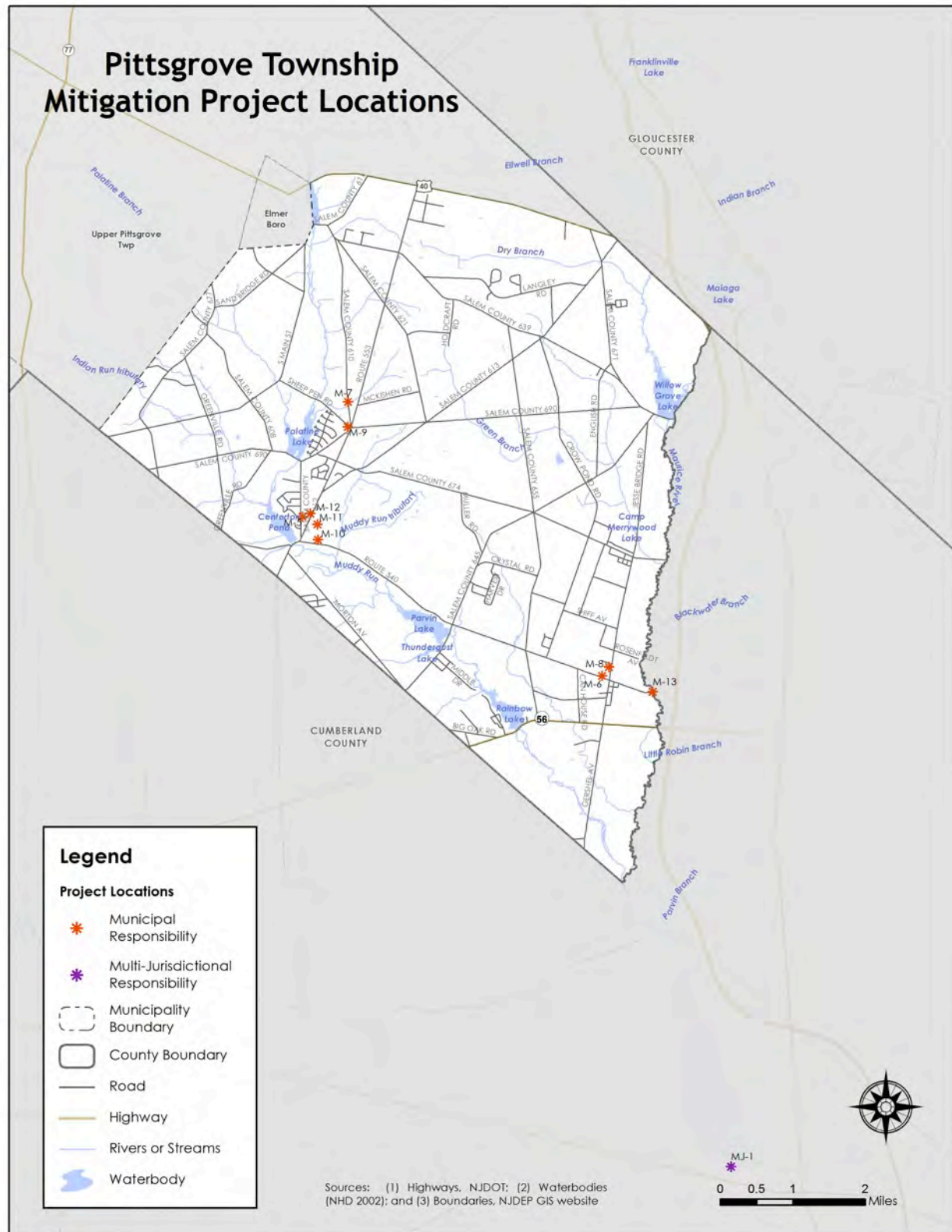
Part 4: Mitigation Measures

Table SC.12-13: Pittsgrove Township (Salem County) Multi-Jurisdictional Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-1	Coordination plan to outline procedures regarding draining and storm preparations related to downstream Union Dam in Millville City (Cumberland County).	Dam Failure	Goal #4	Both	Municipal OEM, Millville City	Moderate

Part 4: Mitigation Measures

Figure SC.12-4: Pittsgrove 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
- Master Plan (2000)⁵ and Reexamination Report (2006)⁶
- Land Use and Development Ordinance⁷
- Flood Damage Ordinance (1987)⁸
- Capital Improvement Budget (2014)

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.

⁵ <http://www.pittsgrovetownship.com/media/72317/Master%20Plan1.pdf>

⁶ <http://www.pittsgrovetownship.com/media/72344/Master%20Plan%20Re-Examination%20Report.pdf>

⁷ <http://ecode360.com/9111539#9111539>

⁸ <http://ecode360.com/9111327>

Attachment A: Public Review Comments

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

Table SC.12.A-1: Public Review Comments

Comment Date and Time	Comment	Response

Note: As of September 16, 2016, no public review comments were received for the Pittsgrove Township Municipal Appendix.

Attachment B: Adoption Resolution

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

Attachment C: Approval Letter

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



Mitigation Plan for Four New Jersey Counties
Salem County Appendices

Appendix SC.13
Quinton Township, New Jersey

September 16, 2016

Table of Contents

Table of Contents	SC.13-i
Part 1 Overview	SC.13-1
1.1: Mitigation Plan for Four New Jersey Counties	SC.13-1
1.2: Quinton Township (Salem County) Municipal Appendix	SC.13-1
Part 2 Participation	SC.13-2
2.1: Municipal Working Group Participation	SC.13-2
2.2: Public Participation	SC.13-4
Part 3 Hazard Identification and Risk Assessment	SC.13-5
3.1: Municipal Profile	SC.13-5
3.2: Hazard Priorities	SC.13-9
3.3: Hazard Mapping	SC.13-10
3.4: Critical Facilities Inventory and Hazard Exposure Assessment	SC.13-11
Part 4 Mitigation Measures	SC.13-14
4.1: Mitigation Goals and Strategy	SC.13-14
4.2: SDVR HMP Mitigation Measures	SC.13-15
4.3: Municipal Mitigation Measures – Identification	SC.13-16
4.4: Municipal Mitigation Measures – Implementation	SC.13-17
4.5: Multi-Jurisdictional Mitigation Measures	SC.13-19
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	SC.13-22

Table of Contents

List of Figures

Figure SC.13-1: Quinton Township (Salem County) Location Map	SC.13-5
Figure SC.13-2: Quinton Township Base Map	SC.13-6
Figure SC.13-3: Quinton Township Housing Units by Year Built	SC.13-8
Figure SC.13-4: Quinton Township Mitigation Project Locations	SC.13-21

List of Tables

Table SC.13-1: Quinton Township (Salem County) Working Group	SC.13-2
Table SC.13-2: Public Participation	SC.13-4
Table SC.13-3: Quinton Township Demographics	SC.13-7
Table SC.13-4: Quinton Township Demographic Rankings	SC.13-7
Table SC.13-5: Quinton Township Economics and Housing	SC.13-7
Table SC.13-6: Quinton Township Ranking (Economics and Housing)	SC.13-8
Table SC.13-7: Supporting Mapping and Exhibits	SC.13-10
Table SC.13-8: Quinton Township Critical Facilities Inventory	SC.13-12
Table SC.13-9: Quinton Township Critical Facilities Hazard Exposure	SC.13-13
Table SC.13-10: Status of Quinton Township SDVR HMP Mitigation Measures	SC.13-15
Table SC.13-11: Quinton Township Municipal Mitigation Measures Identification	SC.13-16
Table SC.13-12: Quinton Township Municipal Mitigation Measures Implementation	SC.13-18
Table SC.13-13: Quinton Township Multi-Jurisdictional Mitigation Measures	SC.13-19

Attachments

Attachment SC.13.A: Public Review Comments	SC.13.A-1
Attachment SC.13.B: Adoption Resolution	SC.13.B-1
Attachment SC.13.C: Approval Letter	SC.13.C-1

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: Quinton Township (Salem County) Municipal Appendix

This Municipal Appendix is focused on Quinton Township in Salem County, New Jersey.

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

The Quinton 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 SC.13-1 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 SC.13-1: Quinton Township (Salem County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Contribution ³
Edward	Counsellor	Quinton Township OEM / Land Use Board / Quinton Fire Department / Building Committee	OEM Director / Land Use Board Member / Firefighter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Organized Working Group and Work Sessions.
Joseph	Elwell, Jr.	Quinton Township OEM / Quinton Fire Department	Deputy OEM Director / Firefighter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Organized Working Group and Work Sessions.
Jeryl	Goff	Quinton Township Housing Office	Construction Code Official / Housing Officer / Floodplain Administrator			Reviewed Preliminary Municipal Appendix

¹ Round 1 Work Session was held on June 25, 2014.

² Round 2 Work Session was held on October 28, 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 SC.13-1.

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

- Elected Officials
- Engineering
- Public Works
- EMS
- Community / Faith-Based Organizations
- Major Employers and Businesses
- School Board

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
- Business Associations
- Environmental Organizations
- Non-Governmental Organizations
- Critical Infrastructure and Key Resources
- 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 SC.13-2 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 SC.13-2: Public Participation

Date	Type of Involvement	Location
September 5, 2014	Link to Project Website (http://nj4hmp.com) established	Historic Quinton Township ⁵
September 5, 2014	Flyers posted	Township Hall
December 3, 2014	Information item included on Quinton Township Committee agenda identifying opportunities for public participation	Township Hall
December 17, 2014	Public hearing included on Quinton Township Committee agenda providing for open discussion, and public comment regarding the Preliminary Municipal Appendix	Township Hall

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.quintonnj.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

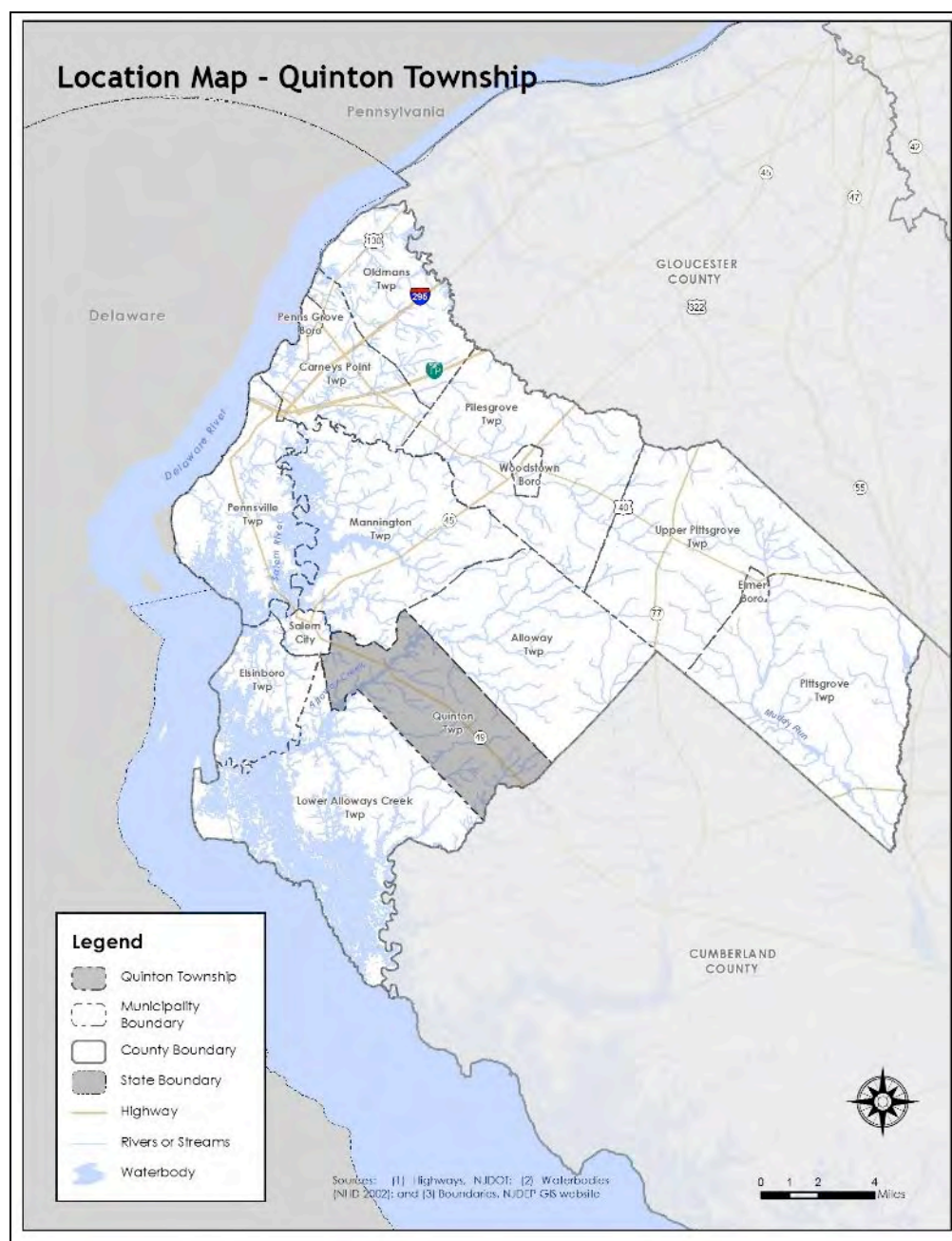
Part 3.1: Municipal Profile

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

Quinton Township is located in the south-central part of Salem County (See Figure SC.13-1).

Figure SC.13-1: Quinton Township (Salem County) Location Map

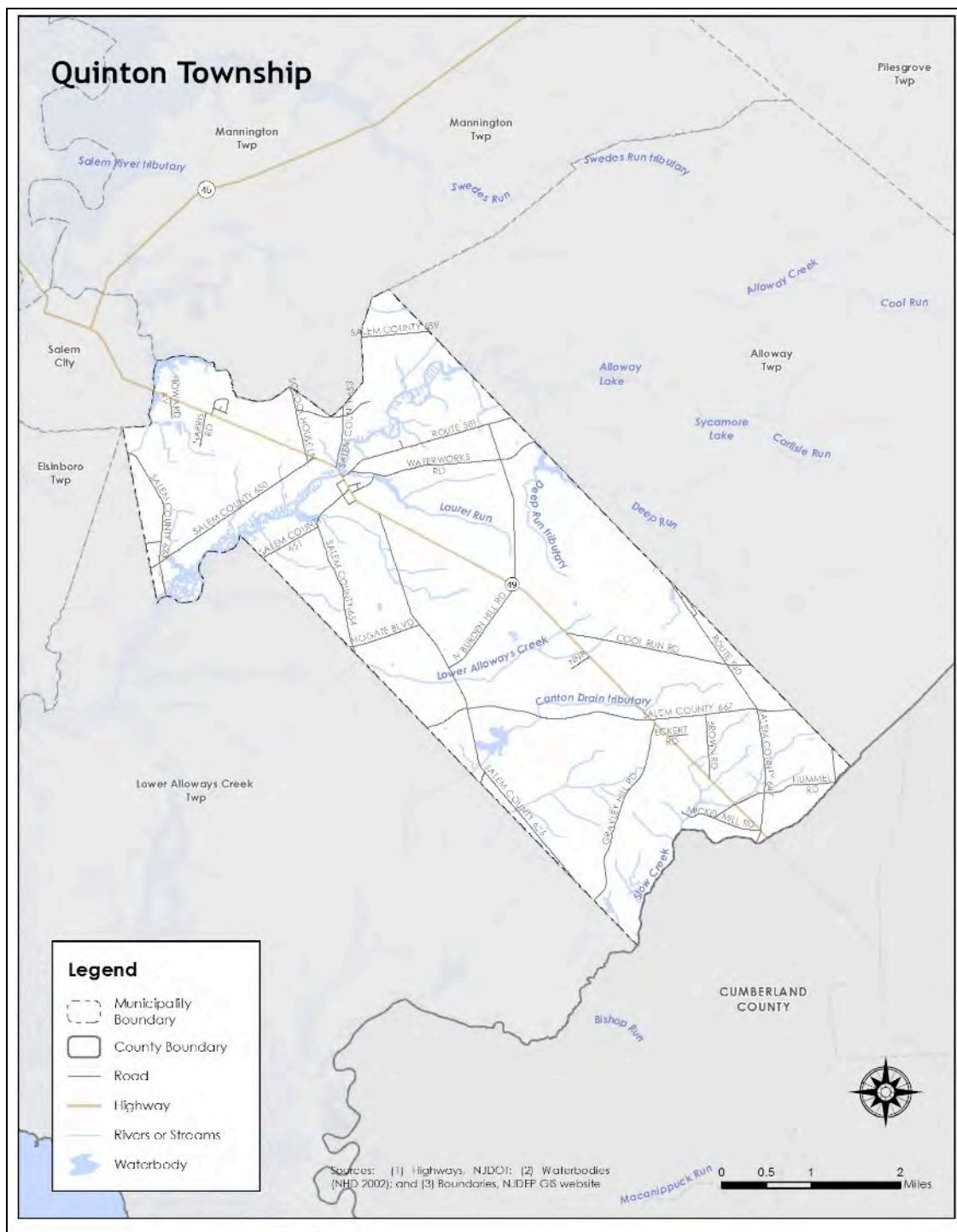


Part 3: Hazard Identification and Risk Assessment

Quinton Township is a rural, historic farming community in Salem County.

Per Figure SC.13-2, the major water courses include the Laurel Run and Lower Alloways Creek. Major transportation routes include State Highway 49 and Salem County Route 667. The land is predominantly flat and has a combination of forests and farmland.

Figure SC.13-2: Quinton Township Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table SC.13-3 is a compilation of demographic information for the municipality and comparison with the county, the four county region, and State of New Jersey.

Table SC.13-3: Quinton Township Demographics
(Source: Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4)

	Quinton Township	Salem County	Region	New Jersey
2000 Population	2,786	64,285	974,328	8,414,350
2010 Population	2,666	66,083	1,024,926	8,791,894
Percent Change	-4.31%	2.80%	5.19%	4.49%
Population Density	110.7 / sq. mile	199.1 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	24.01 sq. miles	331.90 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population 18 and younger	23.6	23.5	24.1	23.5
% of Population 18 - 64	60.2	61.5	62.7	63
% of Population 65 and over	16.2	15.0	13.2	13.5

Table SC.13-4 illustrates how Quinton Township ranks in the county, the four county region, and New Jersey.

Table SC.13-4: Quinton Township Demographic Rankings

	Salem County (total of 15)	Region (total of 90)	New Jersey (total of 565)
Population Rank	10	70	463
Land Area Rank	7	21	106
Population Density Rank	10	77	536
Population Change Rank	12	78	-

Table SC.13-5 includes information related to economic and housing statistics for Quinton Township, Salem County, the four county region, and New Jersey.

Table SC.13-5: Quinton Township Economics and Housing
(Source: USDA ERS, Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4; NJ LWD 2010)

	Quinton Township	Salem County	Region	New Jersey
Date Incorporated	February 18, 1873	1694	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$65,061	\$59,441	\$60,933	\$69,811
Total Number of Housing Units	1,099	27,417	397,990	3,529,033
Occupied Housing Units	1,036	25,290	372,472	3,176,069
Vacant Housing Units	63	2,127	25,518	352,964
Owner Occupied Housing Units	864	18,091	266,593	2,126,279
Renter occupied Housing Units	172	7,199	105,879	1,049,790

Part 3: Hazard Identification and Risk Assessment

	Quinton Township	Salem County	Region	New Jersey
Building Permits	7	105	1,554	13,535
Largest Industry	Educational Services; and Health Care and Social Assistance	Educational Services, and health care and social assistance	Educational services, and health care and social assistance	Educational services, and health care and social assistance

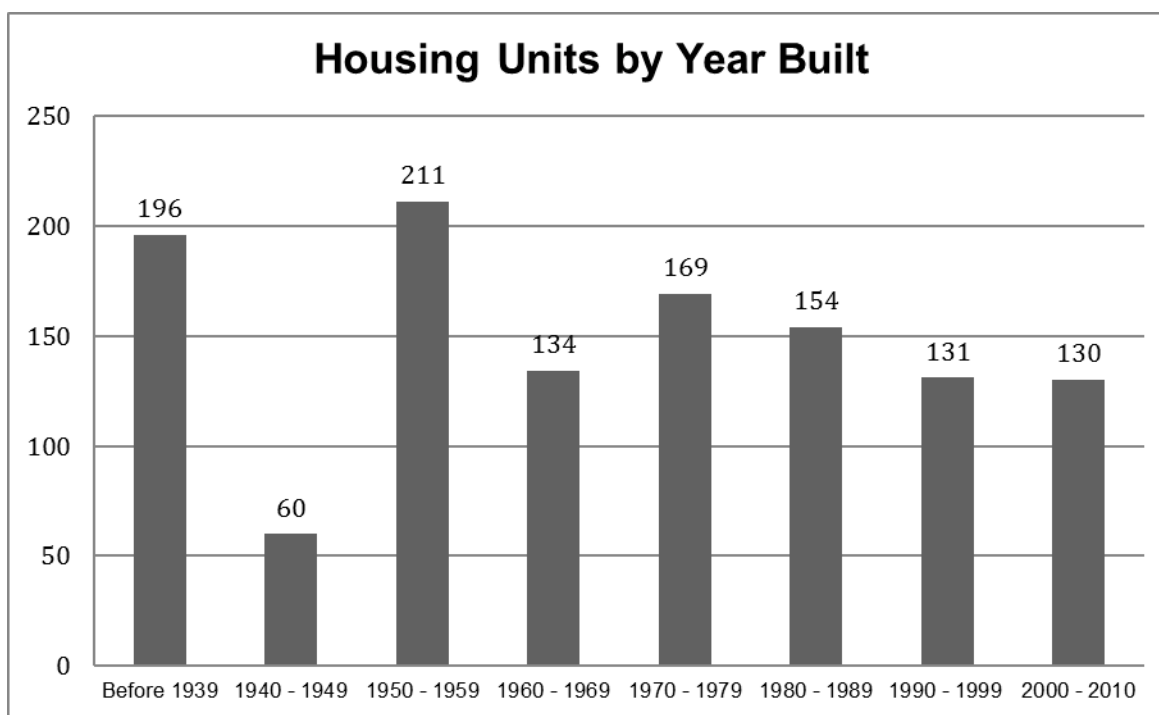
Table SC.13-6 illustrates how Quinton Township ranks in the county and the four county region.

Table SC.13-6: Quinton Township Ranking (Economics and Housing)

	Salem County (total of 15)	Region (total of 90)
Median Household Income Rank	8	42
Vacant Housing Rank	10	68
Renter Occupied Housing Rank	8	66
Building Permits Rank	6	43

Figure SC.13-3 illustrates development patterns in Quinton Township by examining housing units by year built.

Figure SC.13-3: Quinton Township Housing Units by Year Built
(Source: 2010 ACS 5 Year Estimates, DP 4)



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

Moderate Priority

- Dam Failure
- High Wind
- Severe Weather – Summer
- Severe Weather – Winter
- Wildfire

Low Priority

- Coastal Erosion & Sea Level Rise
- Drought
- Earthquake
- Extreme Temperature: Cold & Hot

Two additional hazards were identified but were not considered applicable to the municipality:

- Geologic Hazards
- Levee Failure

¹ See Section 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 SC.13-7 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 was used in the Critical Facilities Hazard Exposure Assessment described in Part 3.4.

Table SC.13-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
Figure RP.D-3	Coastal Erosion and Sea Level Rise	Increased Inundation Areas (Coastal Scenarios) 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
Figure RP.D-99	Wildfire	Wildland 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 3.4: 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 SC.13-8 contains updated inventory information for municipal critical facilities including cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix.

Table SC.13-9 contains results of overlaying critical facility locations with hazard mapping identified in Part 3.3. The results indicate critical facilities that are potentially exposed to specific hazards. 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 SC.13-8: Quinton Township (Salem 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	885 Salem Quinton Road, Quinton		N	N		
CF-2	Emergency Operations Center	EOC	Co-located Facilities	18 New Street, Quinton		Y	Y		M-10
CF-3	Fire Station / EMS	FireStations / EMS	Stations	42 Main Street, Quinton		Y	Y		
CF-4	Public Works	Public Works	Combined Administrative Office, Maintenance / Work Area, Equipment / Material Storage, and Fueling Station	20 New Street, Quinton		Y	Y		
CF-5	Waterworks Lake Pump	Utilities – Water	Water Towers	Waterworks Road		N/A	Y		
CF-6	Quinton Elementary School	Schools	Public Schools	8 Robinson Street P.O. Box 85, Quinton		Y	Y ²		M-2 / M-5
CF-7	Quinton Baptist Church	Emergency Staging Areas	Evacuation	46 Main Street, Quinton		Y ³	N		M-6 / M-9
CF-8	Quinton United Methodist	Emergency Staging Areas	Evacuation	55 Main Street, Quinton		Y ³	N		M-7

² Back-up generator provides partial building coverage for emergency lighting.

³ Temporary shelter.

Part 3: Hazard Identification and Risk Assessment

Table SC.13-9: Quinton Township (Salem County) Critical Facilities Hazard Exposure

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ⁴	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 ⁵	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	Township Hall	-	-	-	5.99	N/A	-	-	-	-	☑	☑	N/A	-	-
CF-2	Emergency Operations Center	-	-	-	3.62	N/A	-	-	-	☑	☑	☑	N/A	-	-
CF-3	Fire Station / EMS	-	-	-	3.40	N/A	-	-	-	-	-	☑	N/A	-	-
CF-4	Public Works	-	-	-	3.62	N/A	-	-	-	☑	☑	☑	N/A	-	-
CF-5	Waterworks Lake Pump	-	-	-	2.92	N/A	-	-	☑	☑	☑	☑	N/A	-	-
CF-6	Quinton Elementary School	-	-	-	3.46	N/A	-	-	-	-	☑	☑	N/A	-	-
CF-7	Quinton Baptist Church	-	-	-	3.33	N/A	-	-	-	-	-	☑	N/A	-	-
CF-8	Quinton United Methodist	-	-	-	3.48	N/A	-	-	-	-	☑	☑	N/A	-	-

⁴ Distance in miles to nearest dam.

⁵ Distance in miles to nearest levee.

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 regarding storm surge and rapid flooding
- 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 SC.13-10 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 SC.13-10.

Table SC.13-10: Status of Quinton Township (Salem County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Quinton 1: Elevate Sickler Street (County Road).	Not completed, not funded	Multi-jurisdictional mitigation measure included in updated Municipal Appendix.	MJ-1
Quinton 2: Shutter Quinton Elementary School.	Not completed.	Mitigation measure to assess overall vulnerability of Quinton Elementary School included in the updated Municipal Appendix.	M-2
Quinton 3: Replace/upgrade spillway on Waterworks Lake.	Completed	Issue was resolved through funds provided by the City of Salem. Therefore, mitigation measure is not included in the updated Municipal Appendix.	N/A
Quinton 4: Use USACE detailed surge maps for community outreach.	Work-in progress	Quinton Township used maps to communicate with residents during Hurricane Irene. Outreach efforts continue to be a priority for Quinton Township. Therefore, revised mitigation measure has been included in updated Municipal Appendix.	M-1
Quinton 5: Working with NJDEP, develop a public outreach program to educate communities and residents that are subject to inundation as a result of rapid rise/storm surge.	Work-in progress	Revised mitigation measure has been included in updated Municipal Appendix	M-1
Quinton 6: Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	Work-in progress	Revised mitigation measure has been included in updated Municipal Appendix	M-1

Table SC.13-10 Notes:

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

Part 4: 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 SC.13-11 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

Note: Quinton Township does not currently have RL or SRL properties per information provided by the New Jersey Department of Environmental Protection.

Table SC.13-11 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 SC.13-4.

Table SC.13-11: Quinton Township (Salem 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 using tools such as FEMA maps, to inform municipal residents, businesses, and property owners regarding: <ul style="list-style-type: none">• Current hazards and risks, with special attention to inundation and storm surge• 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 including initial priority identified to conduct assessment of Quinton Elementary School to determine risk of natural hazards to the facility (CF-6).	All	Goal #2	Existing

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.

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

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
M-3	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	All	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	Upgrade permanent backup emergency power generator at Quinton Elementary School (CF-6).	All	Goal #4	Both
M-6	Support installation of permanent back-up emergency power generator at Quinton Baptist Church (temporary shelter) (CF-7).	All	Goal #4	Both
M-7	Support installation of permanent back-up emergency power generator at Quinton United Methodist Church (temporary shelter) (CF-8).	All	Goal #4	Both
M-8	Elevation / acquisition of home in flood prone areas throughout Quinton Township, in particular Waterworks Road.	Flood	Goal #4	Both
M-9	Fencing for protection of drainage ditch at Quinton Baptist Church (CF-7).	Flood	Goal #4	Both
M-10	Harden / retrofit EOC (CF-2).	High Wind	Goal #4	Both
M-11	Upgrade fire system equipment for Quinton Township.	Wildfire	Goal #4	Both
M-12	Assessment to identify Quinton Township fire roads / lanes.	Wildfire	Goal #4	Existing

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 SC.13-12 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

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

Table SC.13-12: Quinton Township (Salem 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	Low	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	Low	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.
M-5	Upgrade permanent backup emergency power generator at Quinton Elementary School (CF-6).	Municipal OEM and School Board	Moderate	Public Property Mitigation	< \$100K	Three to five years	Conduct project scoping.
M-6	Support installation of permanent back-up emergency power generator at Quinton Baptist Church (temporary shelter) (CF-7).	Municipal OEM and Quinton Baptist Church	Moderate	Back-up Emergency Power Generator	< \$100K	Three to five years	Conduct project scoping.
M-7	Support installation of permanent back-up emergency power generator at Quinton United Methodist Church (temporary shelter) (CF-8).	Municipal OEM and Quinton United Methodist Church	Moderate	Back-up Emergency Power Generator	< \$100K	Three to five years	Conduct project scoping.
M-6	Elevation / acquisition of home in flood prone areas throughout Quinton Township, in particular Waterworks Road.	Floodplain Administrator	High	Private Property Flood Mitigation	\$500K - \$1M	One to three years	Identify mitigation options including eligible activities per FEMA HMA programs.
M-7	Fencing for protection of drainage ditch at Quinton Baptist Church (CF-9).	Municipal OEM and Church Staff	Moderate	Private Property Flood Mitigation	< \$25K	Three to five years	Conduct project scoping.
M-8	Harden / retrofit EOC (CF-2).	Municipal OEM and Public Works Department	High	Building Retrofit	<\$100K	One to three years	Conduct project scoping.

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-9	Upgrade fire system equipment for Quinton Township.	Municipal OEM and Fire/EMS Department	Moderate	Public Property Mitigation	\$500K - \$1M	Three to five years	Conduct project scoping.
M-10	Assessment to identify Quinton Township fire roads / lanes.	Municipal OEM and Fire/EMS Department	Moderate	Public Property Mitigation	< \$50K	One to three years	Develop scope of work for engineering study and procure professional consulting services.

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 SC.13-13.

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 SC.13-4.

Table SC.13-13: Quinton Township (Salem County) Multi-Jurisdictional Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-1	Alleviate flooding at County Route 655 (Sickler Street) between Smithfield Street and County Route 651 (Beasley Neck Road).	Flood	Goal #4	Both	Municipal OEM, Salem County DPW	High

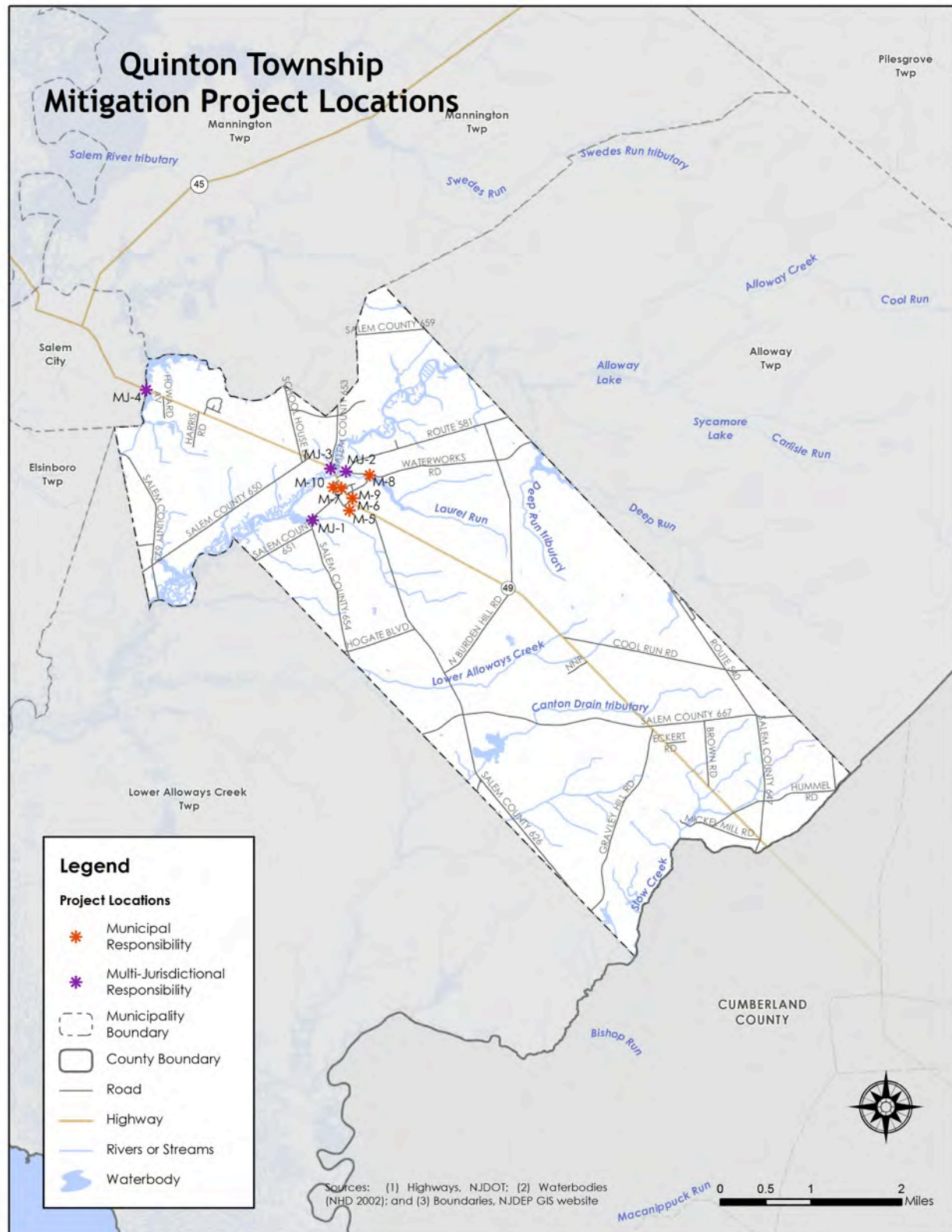
Part 4: Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-2	Alleviate flooding at Waterworks Road and County Route 581 (Quinton Alloway Road).	Flood	Goal #4	Both	Municipal OEM, Salem County DPW	High
MJ-3	Alleviate flooding at intersection of County Route 653 and NJ Route 49 (Acton Station Road).	Flood	Goal #4	Both	Municipal OEM, Salem County DPW	High
MJ-4	Alleviate flooding on NJ Route 49 (evacuation route) at Keasbey Creek at border between Quinton Township and Salem City. ⁵	Flood	Goal #4	Both	Municipal OEM, Salem City OEM, NJ DOT	High

⁵ Related to multi-jurisdictional mitigation measure included in Salem City Municipal Appendix.

Part 4: Mitigation Measures

Figure SC.13-4: Quinton 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
- Master Plan and Reexamination Report (2007)
- Land Use and Development Ordinance⁶
- Stormwater Management Plan (2006)⁷
- Waterworks Resolution (2011)
- Capital Improvement Budget (2013)

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.

⁶ <http://ecode360.com/14188496#14188496>

⁷ <http://ecode360.com/14194865>

Attachment A: Public Review Comments

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

Table SC.13.A-1: Public Review Comments

Comment Date and Time	Comment	Response

Note: As of September 16, 2016, no public review comments were received for the Quinton Township Municipal Appendix.

Attachment B: Adoption Resolution

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

Attachment C: Approval Letter

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



Mitigation Plan for Four New Jersey Counties
Salem County Appendices

Appendix SC.14
Salem City, New Jersey

September 16, 2016

Table of Contents

Table of Contents	SC.14-i
Part 1 Overview	SC.14-1
1.1: Mitigation Plan for Four New Jersey Counties	SC.14-1
1.2: Salem City (Salem County) Municipal Appendix	SC.14-1
Part 2 Participation	SC.14-2
2.1: Municipal Working Group Participation	SC.14-2
2.2: Public Participation	SC.14-4
Part 3 Hazard Identification and Risk Assessment	SC.14-5
3.1: Municipal Profile	SC.14-5
3.2: Hazard Priorities	SC.14-9
3.3: Hazard Mapping	SC.14-10
3.4: Critical Facilities Inventory and Hazard Exposure Assessment	SC.14-11
Part 4 Mitigation Measures	SC.14-16
4.1: Mitigation Goals and Strategy	SC.14-16
4.2: SDVR HMP Mitigation Measures	SC.14-17
4.3: Municipal Mitigation Measures – Identification	SC.14-18
4.4: Municipal Mitigation Measures – Implementation	SC.14-20
4.5: Multi-Jurisdictional Mitigation Measures	SC.14-23
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	SC.14-25

Table of Contents

List of Figures

Figure SC.14-1: Salem City (Salem County) Location Map	SC.14-5
Figure SC.14-2: Salem City Base Map	SC.14-6
Figure SC.14-3: Salem City Housing Units by Year Built	SC.14-8
Figure SC.14-4: Salem City Mitigation Project Locations	SC.14-24

List of Tables

Table SC.14-1: Salem City (Salem County) Working Group	SC.14-2
Table SC.14-2: Public Participation	SC.14-4
Table SC.14-3: Salem City Demographics	SC.14-7
Table SC.14-4: Salem City Demographic Rankings	SC.14-7
Table SC.14-5: Salem City Economics and Housing	SC.14-7
Table SC.14-6: Salem City Ranking (Economics and Housing)	SC.14-8
Table SC.14-7: Supporting Mapping and Exhibits	SC.14-10
Table SC.14-8: Salem City Critical Facilities Inventory	SC.14-12
Table SC.14-9: Salem City Critical Facilities Hazard Exposure	SC.14-14
Table SC.14-10: Status of Salem City SDVR HMP Mitigation Measures	SC.14-17
Table SC.14-11: Salem City Municipal Mitigation Measures Identification	SC.14-18
Table SC.14-12: Salem City Municipal Mitigation Measures Implementation	SC.14-20
Table SC.14-13: Salem City Multi-Jurisdictional Mitigation Measures	SC.14-23

Attachments

Attachment SC.14.A: Public Review Comments	SC.14.A-1
Attachment SC.14.B: Adoption Resolution	SC.14.B-1
Attachment SC.14.C: Approval Letter	SC.14.C-1

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: Salem City (Salem County) Municipal Appendix

This Municipal Appendix is focused on Salem City in Salem County, New Jersey.

The Salem City Municipal Working Group recommended the Salem City (Salem County) Municipal Appendix for adoption to the Salem City Council.

The Salem City Council 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 SC.14-1 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 SC.14-1: Salem City (Salem County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Contribution ³
John	Pelura, III	<ul style="list-style-type: none"> Salem City Police Department Salem City OEM 	<ul style="list-style-type: none"> Chief of Police OEM Coordinator 	<input checked="" type="checkbox"/>		Organized Working Group and Work Sessions.
Michael	Pelura	<ul style="list-style-type: none"> Salem City Police Department Salem City OEM 	<ul style="list-style-type: none"> Detective Deputy OEM Coordinator 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Charles	Washington, Jr.	Salem City Council	Mayor	<input checked="" type="checkbox"/>		
Charles	Hassler	Salem City Council	Councilman	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Thomas	Gant	<ul style="list-style-type: none"> Salem Water and Sewer Department Public Works Department 	<ul style="list-style-type: none"> Sewer Department Superintendent Public Works Department Manager 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Provided detailed information regarding Salem City Public Works facilities.
Carol	Wright	Salem City Inspections and Permits Department	<ul style="list-style-type: none"> Housing Inspector Zoning Officer Floodplain Administrator 	<input checked="" type="checkbox"/>		

¹ Round 1 Work Session was held on July 31, 2014.

² Round 2 Work Session was held on October 7, 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 SC.14-1.

Part 2: Participation

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Contribution ³
Valerie	Adams	Salem Historic Homes (Pennrose Management)	Assistant Site Manager	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Jennifer	Jones	Salem County Chamber of Commerce	Executive Director	<input checked="" type="checkbox"/>		
Carol	Adams	Salem City School District	Vice President	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Mary	Matthew	Catholic Charities	Volunteer		<input checked="" type="checkbox"/>	

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

- City Engineer / GIS/IT Specialist
- Emergency Medical Services
- Healthcare Institutions

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.

- Land Use / Economic Development Planner
- Environmental Organizations

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 SC.14-2: Public Participation

Date	Type of Involvement	Location
October 2014	Link to Project Website (http://nj4hmp.com) established	City of Salem website, home page ⁵
December 30, 2014	Preliminary Municipal Appendix posted to website for public comment	City of Salem website, "Latest News" page ⁶
January 12, 2015	Public hearing included on Salem City Council agenda providing for open discussion, and public comment regarding the Preliminary Municipal Appendix	Old Courthouse, Market Street and Broadway, Salem

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.⁷ In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities.⁸

⁵ <http://cityofsalemnj.org>

⁶ <http://www.cityofsalemnj.gov/salem-county-multi-jurisdictional-hazard-mitigation-plan-notice/>

⁷ See Mitigation Measure M-1 in Part 4 of the Municipal Appendix.

⁸ See *Section 4: Mitigation Measures* of the NJ4 HMP Regional Hazard Mitigation Plan.

Part 3: Hazard Identification and Risk Assessment

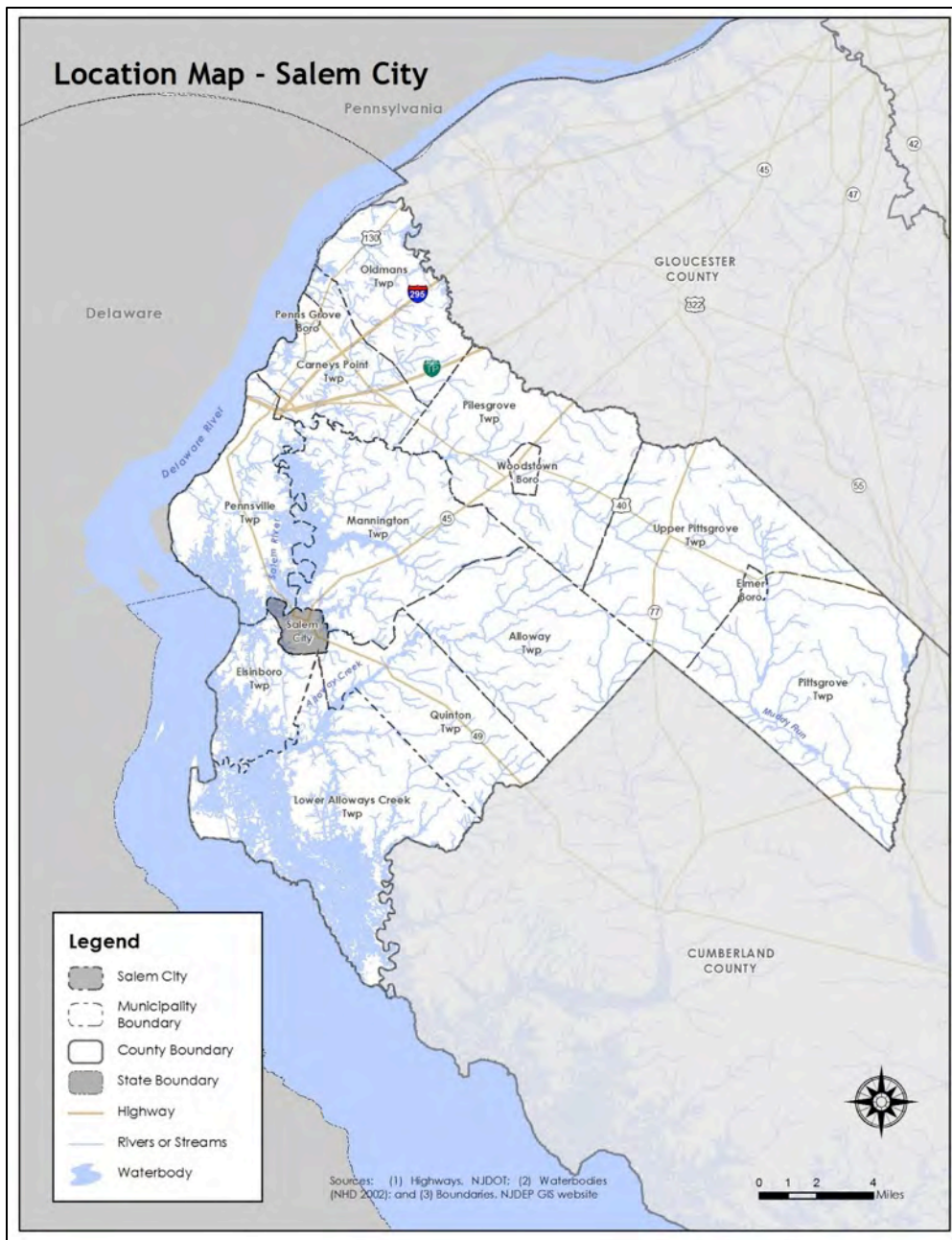
Part 3.1: Municipal Profile

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

Salem City is located in the west-central part of Salem County (See Figure SC.14-1).

Figure SC.14-1: Salem City (Salem County) Location Map

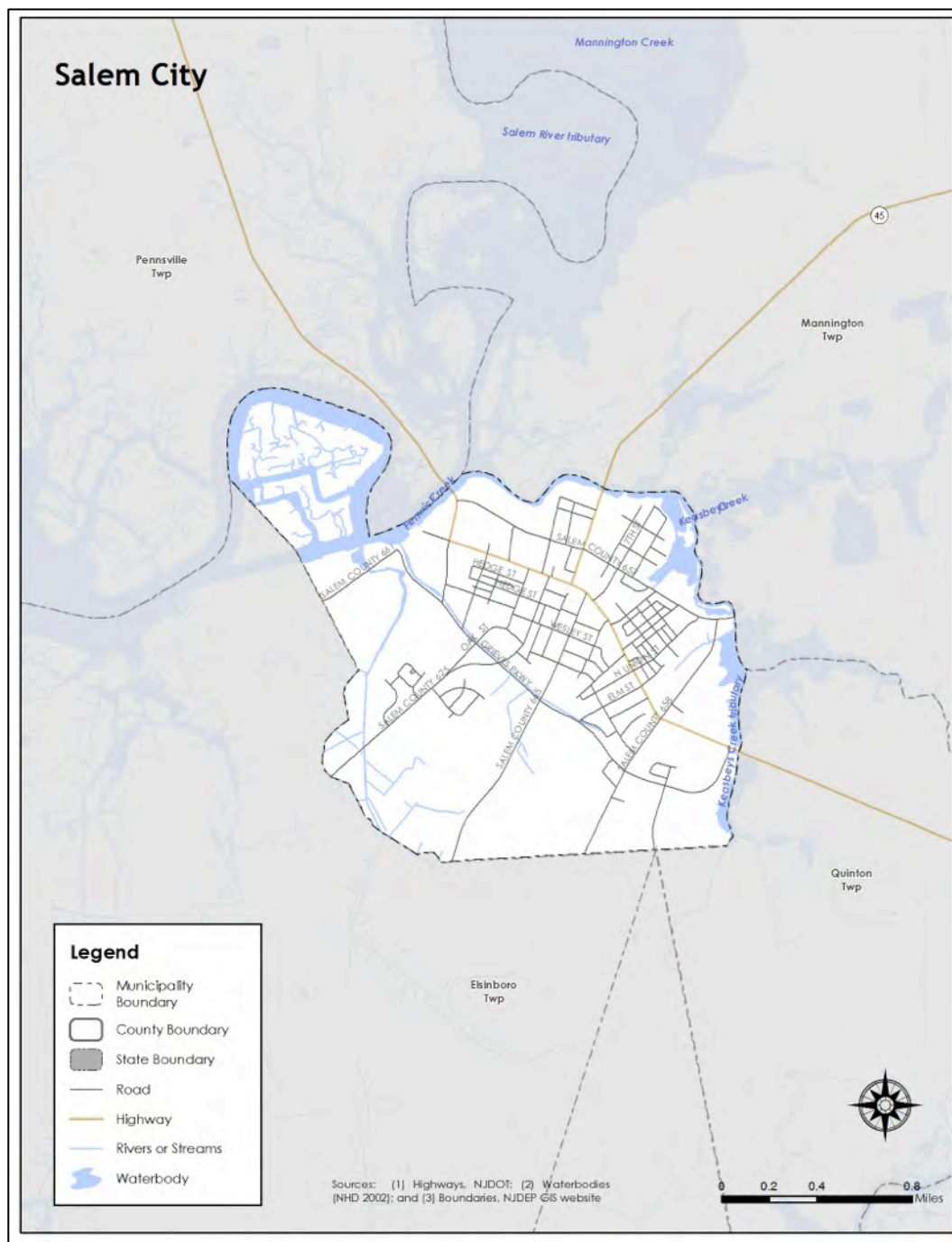


Part 3: Hazard Identification and Risk Assessment

Salem City is a small city located near the Delaware River shoreline. Over 90% of the housing stock was built before 1980, and more than 50% are more than 70 years old.

Per Figure SC.14-2, the major water courses include Fenwick Creek and Keasbeys Creek. Major transportation routes include State Highway 45 and 49. The land is predominantly flat.

Figure SC.14-2: Salem City Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table SC.14-3 is a compilation of demographic information for the municipality and comparison with the county, the four county region, and State of New Jersey.

Table SC.14-3: Salem City Demographics
(Source: Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4)

	Salem City	Salem County	Region	New Jersey
2000 Population	5,857	64,285	974,328	8,414,350
2010 Population	5,146	66,083	1,024,926	8,791,894
Percent Change	-12.14%	2.80%	5.19%	4.49%
Population Density	2,195.9 / sq. mile	199.1 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	2.34 sq. miles	331.90 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population 18 and younger	28.2	23.5	24.1	23.5
% of Population 18 - 64	59.3	61.5	62.7	63
% of Population 65 and over	12.5	15.0	13.2	13.5

Table SC.14-4 illustrates how Salem City ranks in the county, the four county region, and New Jersey.

Table SC.14-4: Salem City Demographic Rankings

	Salem County (total of 15)	Region (total of 90)	New Jersey (total of 565)
Population Rank	5	49	373
Land Area Rank	12	54	364
Population Density Rank	3	41	275
Population Change Rank	15	87	-

Table SC.14-5 includes information related to economic and housing statistics for Salem City, Salem County, the four county region, and New Jersey.

Table SC.14-5: Salem City Economics and Housing
(Source: USDA ERS, Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4; NJ LWD 2010)

	Salem City	Salem County	Region	New Jersey
Date Incorporated	February 25, 1858	1694	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$25,682	\$59,441	\$60,933	\$69,811
Total Number of Housing Units	2,633	27,417	397,990	3,529,033
Occupied Housing Units	2,157	25,290	372,472	3,176,069
Vacant Housing Units	476	2,127	25,518	352,964
Owner Occupied Housing Units	765	18,091	266,593	2,126,279
Renter occupied Housing Units	1,392	7,199	105,879	1,049,790
Building Permits	25	105	1,554	13,535
Largest Industry	Educational Services, and health care and social assistance	Educational Services, and health care and social assistance	Educational services, and health care and social assistance	Educational services, and health care and social assistance

Part 3: Hazard Identification and Risk Assessment

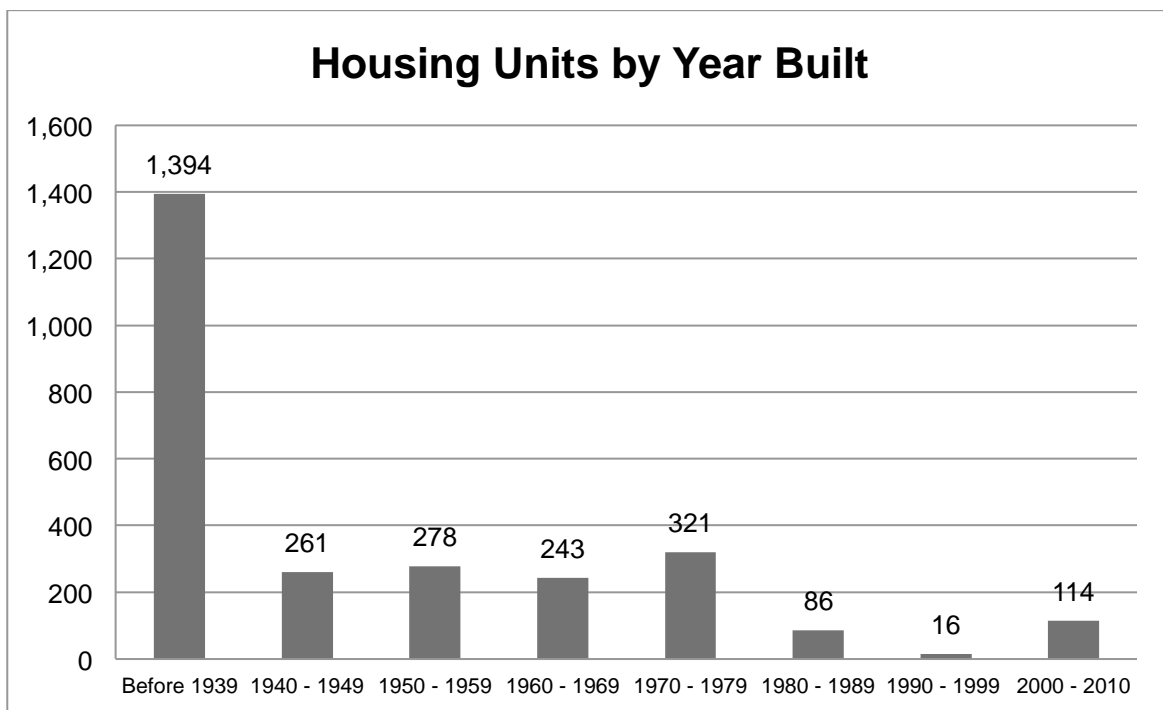
Table SC.14-6 illustrates how Salem City ranks in the county and the four-county region.

Table SC.14-6: Salem City Ranking (Economics and Housing)

	Salem County (total of 15)	Region (total of 90)
Median Household Income Rank	15	89
Vacant Housing Rank	1	16
Renter Occupied Housing Rank	2	22
Building Permits Rank	1	18

Figure SC.14-3 illustrates development patterns in Salem City by examining housing units by year built.

Figure SC.14-3: Salem City Housing Units by Year Built
(Source: 2010 ACS 5 Year Estimates, DP 4)



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
- High Wind
- Levee Failure

Moderate Priority

- Coastal Erosion and Sea Level Rise
- Earthquake
- Extreme Temperature: Cold & Hot
- Severe Weather – Winter

Low Priority

- Drought
- Severe Weather – Summer
- Wildfire

Three additional hazards were considered but were not considered applicable to the municipality:

- Dam Failure
- Geologic Hazards

¹ See *Section 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 SC.14-7 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 was used in the Critical Facilities Hazard Exposure Assessment described in Part 3.4.

Table SC.14-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
Figure RP.D-3	Coastal Erosion and Sea Level Rise	Increased Inundation Areas (Coastal Scenarios) 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-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	Wildland 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 3.4: 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 SC.14-8 contains updated inventory information for municipal critical facilities including cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix.

Table SC.14-9 contains results of overlaying critical facility locations with hazard mapping identified in Part 3.3. The results indicate critical facilities that are potentially exposed to specific hazards. 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 SC.14-8: Salem City (Salem County) Critical Facilities Inventory

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-1	City Hall	Municipal	Administrative Offices	1 New Market Street, Salem		N	N	Council Meeting Location	
CF-2	New City Hall	Municipal	Administrative Offices	17 New Market Street, Salem		N	N	New Location	
CF-3	Police Station	Law Enforcement Facilities	Stations	129 West Broadway, Salem		N	Y		
CF-4	Emergency Operations Center	EOC	Co-located Officials	129 West Broadway, Salem	CF-3	N	Y		
CF-5	Liberty Fire Company	FireStations	Stations	75 5 th Street, Salem		N	N		M-5
CF-6	Union Fire Company	FireStations	Stations	21 Walnut Street, Salem		N	N		M-6
CF-7	Washington Fire Company	FireStations	Stations	374 East Broadway, Salem		N	N		M-7
CF-8	Fenwick City Ambulance	EMS	Municipal Stations	94 Market Street, Salem	CF-2	N	N	Located at rear of Courthouse Parking Lot	M-8
CF-9	South Jersey Medical Transportation	EMS	Private Stations	26 Front Street, Salem		N	N	Subject to periodic flooding	M-17
CF-10	Water Treatment Plant	Utilities – Water	Treatment Plants	515 Grieves Parkway, Salem		N/A	Y		
CF-11	Wastewater Treatment Plan	Utilities – Wastewater	Treatment Plants	19 South Front Street, Salem		N/A	Y		
CF-12	Wastewater Pump Station #1	Utilities – Wastewater	Pump Stations / Lift Stations	415A Magnolia Street, Salem		N/A	Y		
CF-13	Wastewater Pump Station #2	Utilities – Wastewater	Pump Stations / Lift Stations	173 Oak Street, Salem		N/A	Y		
CF-14	Wastewater Pump Station #3	Utilities – Wastewater	Pump Stations / Lift Stations	219 Walnut Street, Salem		N/A	Y		
CF-15	Town Bank Stormwater Pump Station	Utilities – Stormwater Management Pump Station(s)	Treatment Plants	Grieves and Tilburg Road, Salem	CF-11	N/A	Y		M-15
CF-16	Board of Education Offices	Schools	Public Schools Administrative Offices	219 Walnut Street, Salem		N/A	N		M-11
CF-17	John Fenwick Elementary	Schools	Public Schools	183 Smith Street, Salem		N	N		M-9

Part 3: Hazard Identification and Risk Assessment

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-18	Salem Middle School	Schools	Public Schools	51 New Market Street, Salem		Y	N		M-10
CF-19	Salem High School	Schools	Public Schools	219 Walnut Street, Salem	CF-16	Y	N		M-11
CF-20	Alternative Middle & High School /	Schools	Public Schools	118 Walnut Street, Salem		Y	N		M-12
CF-21	John B. Campbell Family and Fitness Center	Vulnerable Populations Facilities	Community Centers	118 Walnut Street, Salem	CF-20	Y	N		M-12
CF-22	Children's Space Child Care	Vulnerable Populations Facilities	Public Child Day Care	118 Walnut Street, Salem	CF-20	Y	N	Capacity = 100	M-12
CF-23	Salvation Army Day Care	Vulnerable Populations Facilities	Private Child Day Care	West Broadway, Salem		Y	N	Capacity = 20	M-13
CF-24	St. John's Day Care	Vulnerable Populations Facilities	Private Child Day Care	22 New Market Street, Salem		Y	N	Capacity = 50	M-13
CF-25	Community Center	Vulnerable Populations Facilities	Private Child Day Care	West Side Court, Salem		Y	N	Capacity = 20	M-13
CF-26	Community Center	Vulnerable Populations Facilities	Private Child Day Care	Anderson Drive, Salem		Y	N	Capacity = 20	M-13
CF-27	Noah's Ark	Vulnerable Populations Facilities	Private Child Day Care	424 East Broadway, Salem		Y	N		M-13
CF-28	Mid Town Rest Home	Vulnerable Populations Facilities	Private Nursing Home	258 East Broadway, Salem		Y	N		M-13
CF-29	Salem Group Home	Vulnerable Populations Facilities	Private Nursing Home	74. West Broadway, Salem		Y	N		M-13
CF-30	Broadway Towers	Vulnerable Populations Facilities	Public Age Restricted Housing	205 7 th Street, Salem		Y ²	Y ³		M-14
CF-31	Salem Senior Village	Vulnerable Population Facilities	Private Age Restricted Housing	2 Hires Avenue, Salem		Y ²	Y		

² Shelter-in-place.

³ Back-up emergency generator limited to operating fire pump.

Part 3: Hazard Identification and Risk Assessment

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-32	Salem County Adult Day Care	Vulnerable Population Facilities	Private Adult Day Care	1 Fenwick Plaza, Salem		Y ²	N		M-13

Table SC.14-9: Salem City (Salem County) Critical Facilities Hazard Exposure

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ⁴	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 ⁵	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	City Hall	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	0.61	-	-
CF-2	New City Hall	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	0.24	-	-
CF-3	Police Station	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	0.84	-	-
CF-4	Emergency Operations Center	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	1.83	-	-
CF-5	Washington Fire Company	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	0.16	-	-
CF-6	Union Fire Company	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	1.92	-	-
CF-7	Liberty Fire Company	☑	☑	☑	N/A	N/A	-	☑	-	☑	☑	☑	1.66	-	-
CF-8	Fenwick City Ambulance	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	0.50	-	-
CF-9	South Jersey Medical Transportation	☑	☑	☑	N/A	N/A	☑	☑	☑	☑	☑	☑	0.66	-	-
CF-10	Wastewater Treatment Plant	☑	☑	☑	N/A	N/A	-	☑	-	☑	☑	☑	0.80	-	-
CF-11	Water Treatment Plant	-	-	-	N/A	N/A	☑	-	☑	☑	☑	☑	0.88	-	-
CF-12	Wastewater Pump Station #1	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	0.82	-	-
CF-13	Wastewater Pump Station #2	-	-	-	N/A	N/A	☑	-	☑	☑	☑	☑	0.82	-	-

⁴ Distance in miles to nearest dam.

⁵ Distance in miles to nearest levee.

Part 3: Hazard Identification and Risk Assessment

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ⁴	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 ⁵	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-14	Wastewater Pump Station #3	-	-	-	N/A	N/A	☑	-	☑	☑	☑	☑	0.67	-	-
CF-15	Town Bank Stormwater Pump Station	-	-	-	N/A	N/A	☑	-	☑	☑	☑	☑	0.94	-	-
CF-16	Board of Education Offices	-	-	-	N/A	N/A	☑	-	☑	☑	☑	☑	1.40	-	-
CF-17	John Fenwick Elementary	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	0.63	-	-
CF-18	Salem Middle School	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	1.94	-	-
CF-19	Salem High School	☑	☑	☑	N/A	N/A	☑	☑	☑	☑	☑	☑	1.77	-	-
CF-20	Alternative Middle & High School /	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	1.33	-	-
CF-21	John B. Campbell Family and Fitness Center	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	1.01	-	-
CF-22	Children's Space Child Care	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	1.48	-	-
CF-23	Salvation Army Day Care	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	1.48	-	-
CF-24	St. John's Day Care	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	1.48	-	-
CF-25	Community Center	☑	☑	☑	N/A	N/A	-	☑	-	☑	☑	☑	0.86	-	-
CF-26	Community Center	☑	☑	☑	N/A	N/A	-	☑	-	☑	☑	☑	0.90	-	-
CF-27	Noah's Ark	-	☑	☑	N/A	N/A	-	☑	-	☑	☑	☑	1.38	-	-
CF-28	Mid Town Rest Home	-	☑	☑	N/A	N/A	-	☑	-	☑	☑	☑	1.60	-	-
CF-29	Salem Group Home	-	-	☑	N/A	N/A	-	-	-	☑	☑	☑	0.87	-	-
CF-30	Broadway Towers	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	0.74	-	-
CF-31	Salem Senior Village	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	0.85	-	-
CF-32	Salem County Adult Day Care	-	-	-	N/A	N/A	-	-	-	☑	☑	☑	0.78	-	-

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
- 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 SC.14-10 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 SC.14-10.

Table SC.14-10: Status of Salem City (Salem County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Salem 1: Flood mitigation improvements to Sewer Treatment Plant.	On-going.	Treatment Plant (CF-10) is located in area receiving runoff from Salem City, Lower Alloways Creek Township, Quinton Township, and Elsinboro Township (primary source). Salem City has submitted grant application to upgrade Town Bank Stormwater Pump Station (CF-15). Revised mitigation measure included in updated Municipal Appendix.	M-15
Salem 2: Provide backup emergency power to Liberty Fire Company.	Not completed, not funded.	Mitigation measure included in updated Municipal Appendix.	M-5
Salem 3: Provide backup emergency power to Union Fire Company.	Not completed, not funded.	Mitigation measure included in updated Municipal Appendix.	M-6
Salem 4: Provide backup emergency power to Washington Fire Company.	Not completed, not funded.	Mitigation measure included in updated Municipal Appendix.	M-7
Salem 5: Storm-water management system upgrade and improvement along Grieves Parkway, York Street, Salem Manor Complex, and Keasbey Creek.	On-going.	Salem City currently working with Salem County Department of Roads to clean-up ditch adjacent to Grieves Parkway. Mitigation measure included in updated Municipal Appendix.	M-16
Salem 6: Use USACE detailed surge maps for community outreach.	Not completed.	Revised mitigation measure included in updated Municipal Appendix.	M-1
Salem 7: Working with NJDEP, develop a public outreach program to educate communities and residents that are subject to inundation as a result of rapid rise/storm surge.	Not completed.	Revised mitigation measure included in updated Municipal Appendix.	M-1
Salem 8: Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	Not completed.	Revised mitigation measure included in updated Municipal Appendix.	M-1

Part 4: Mitigation Measures

Table SC.14-10 Notes:

- A. See Tables SC.14-11 and SC.14-12 for municipal (M-#) mitigation measures
- B. See Table SC.14-13 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 SC.14-11 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

Note: Salem City does not currently have RL or SRL properties per information provided by the New Jersey Department of Environmental Protection.

Table SC.14-11 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 SC.14-4.

Table SC.14-11: Salem City (Salem 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 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.	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

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

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
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 backup emergency power generator at Liberty Fire Station (CF-5).	All	Goal #4	Both
M-6	Install backup emergency power generator at Union Fire Station (CF-6).	All	Goal #4	Both
M-7	Install backup emergency power generator at Washington Fire Station (CF-7).	All	Goal #4	Both
M-8	Install backup emergency power generator at Fenwick City Ambulance (CF-8).	All	Goal #4	Existing
M-9	Install backup emergency power generator at John Fenwick Elementary Scholl (CF-17).	All	Goal #4	Existing
M-10	Install backup emergency power generator at Salem Middle School (CF-18).	All	Goal #4	Existing
M-11	Install backup emergency power generator at Salem High School and Board of Education Offices (CF-19 and CF-16).	All	Goal #4	Existing
M-12	Install backup emergency power generator at Alternative Middle & High School, John B. Campbell Family and Fitness Center, and Children's Space Day Care (CF-20, CF-21 and CF-22).	All	Goal #4	Existing
M-13	Support acquisition and installation of back-up emergency power generators for private day care and nursing homes (CF-23 through CF-29 and CF-32).	All	Goal #4	Existing
M-14	Upgrade backup emergency power generator at Broadway Towers (CF-30).	All	Goal #4	Existing
M-15	Address flooding impacts to Wastewater Treatment Plant (CF-11) by upgrading Town Bank Stormwater Pumping Station (CF-15).	Coastal Erosion and Sea Level Rise / Flood	Goal #4	Both
M-16	Storm-water management system upgrade and improvement along Grieves Parkway, York Street, Salem Manor Complex, and Keasbey Creek.	Coastal Erosion and Sea Level Rise / Flood	Goal #4	Existing
M-17	Address flooding impacts to private EMS Station located at 26 Front Street (CF-9).	Coastal Erosion and Sea Level Rise / Flood	Goal #4	Existing

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 SC.14-12 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 criteria²
- Project Type to help determine funding options and implementation mechanisms at the municipal level³
- 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 SC.14-12: Salem City (Salem 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.	Salem City OEM	Moderate	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.	Salem City OEM and Facility Managers	Low	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.	Salem City OEM and Municipal Working Group	Low	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.	Salem City 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.

² 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.

³ 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 backup emergency power generator at Liberty Fire Station (CF-5).	Salem City Fire Department	Moderate	Back-up Emergency Power Generator	⁴	One to three years	Once grant funding is secured, develop scope of work description and solicit contractor / supplier via procurement system.
M-6	Install backup emergency power generator at Union Fire Station (CF-6).	Salem City Fire Department	Low	Back-up Emergency Power Generator	⁴	Three to five years	Same as M-5
M-7	Install backup emergency power generator at Washington Fire Station (CF-7).	Salem City Fire Department	Moderate	Back-up Emergency Power Generator	⁴	One to three years	Same as M-5
M-8	Install backup emergency power generator at Fenwick City Ambulance (CF-8).	Salem City Fire Department	Moderate	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-9	Install backup emergency power generator at John Fenwick Elementary Scholl (CF-17).	Salem City Board of Education	Low	Back-up Emergency Power Generator	< \$100K	Three to five years	Conduct project scoping.
M-10	Install backup emergency power generator at Salem Middle School (CF-18).	Salem City Board of Education	Moderate	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-11	Install backup emergency power generator at Salem High School and Board of Education Offices (CF-19 and CF-16).	Salem City Board of Education	High	Back-up Emergency Power Generator	< \$100K	One year	Conduct project scoping.
M-12	Install backup emergency power generator at Alternative Middle & High School, John B. Campbell Family and Fitness Center, and Children's Space Day Care (CF-20, CF-21 and CF-22).	Salem City Board of Education	Moderate	Back-up Emergency Power Generator	\$100K - \$200K	One to three years	Conduct project scoping.
M-13	Support acquisition and installation of back-up emergency power generators for private day care and nursing homes (CF-23 through CF-29 and CF-32).	Salem City OEM, Facility Owners / Operators	Low	Back-up Emergency Power Generator	To be determined	Three to five years	Conduct project scoping.
M-14	Upgrade backup emergency power generator at Broadway Towers (CF-30).	Salem City Housing Authority	Moderate	Back-up Emergency Power Generator	< \$100K	One to three years	To be determined

⁴ M-5 through M-7 included as part of Superstorm Sandy Energy Resilience Grant application.

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-15	Address flooding impacts to Wastewater Treatment Plant (CF-11) by upgrading Town Bank Stormwater Pumping Station (CF-15). ⁵	Salem City Water and Sewer Department	High	Infrastructure Improvement	\$6,329,000	One to three years	Secure funding.
M-16	Storm-water management system upgrade and improvement along Grieves Parkway, York Street, Salem Manor Complex, and Keasbey Creek.	Salem City Department of Public Works	High	Infrastructure Improvement	To be determined	One to three years	Conduct project scoping.
M-17	Address flooding impacts to private EMS Station located at 26 Front Street (CF-9).	Salem City OEM	Low	Private Property Flood Mitigation	To be determined	Three to five years	Conduct project scoping.

⁵ Mitigation Measure M-15 is part of HMGP Grant Application Project #398 under DR 4086, Hurricane Sandy.

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 SC.14-13.

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 SC.14-4.

Table SC.14-13: Salem City (Salem County) Multi-Jurisdictional Mitigation Measures

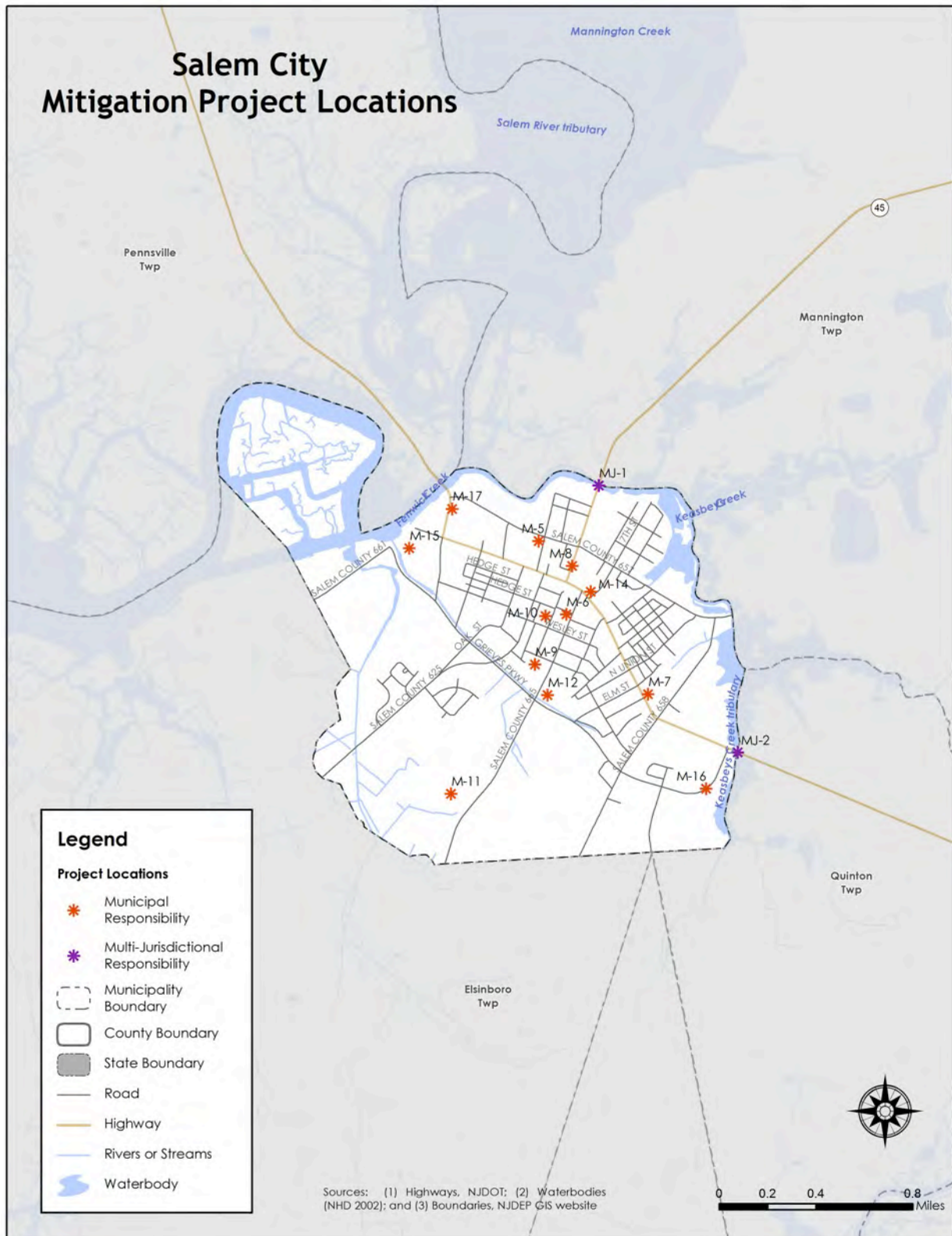
#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-1	Alleviate flooding on NJ Route 45 at Keasbey Creek at border between Salem City and Mannington Township ⁶ .	Flood	Goal #4	Existing	Municipal OEM, Mannington Township OEM, NJ DOT	High
MJ-2	Alleviate flooding on NJ Route 49 (evacuation route) at Keasbey Creek at border between Salem City and Quinton Township. ⁷	Flood	Goal #4	Existing	Municipal OEM, Quinton Township OEM, NJ DOT.	Moderate

⁶ Related to multi-jurisdictional mitigation measure included in Mannington Township Municipal Appendix.

⁷ Related to multi-jurisdictional mitigation measure included in Quinton Township Municipal Appendix.

Part 4: Mitigation Measures

Figure SC.14-4: Salem City 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:

- Salem City Emergency Operations Plan (2012)
- Salem City Floodplain Management Ordinance
- Salem City Master Plan (2012)
- Salem City Zoning Ordinance and Land Development Code Sections⁸
- Salem City Zoning Map (2004)⁹
- Salem City Mitigation 20/20 Input Data (2005)

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.

⁸ <http://www.ecode360.com/SA1410>

⁹ <http://www.cityofsalemnj.gov/download/zoning-map-of-salem-city/>

Attachment A: Public Review Comments

The following comments were received during the public review of the Salem City Municipal Appendix:

Table SC.14.A-1: Public Review Comments

Comment Date and Time	Comment	Response

Note: As of September 16, 2016, no public review comments were received for the Salem City Municipal Appendix.

Attachment B: Adoption Resolution

Following this page is the Adoption Resolution for the Salem City Municipal Appendix as approved by the Salem City Council.

Attachment C: Approval Letter

Following this page is the Approval Letter for the Salem City Municipal Appendix.



Mitigation Plan for Four New Jersey Counties
Salem County Appendices

Appendix SC.15
Upper Pittsgrove Township, New Jersey

September 16, 2016

Table of Contents

Table of Contents	SC.15-i
Part 1 Overview	SC.15-1
1.1: Mitigation Plan for Four New Jersey Counties	SC.15-1
1.2: Upper Pittsgrove Township (Salem County) Municipal Appendix	SC.15-1
Part 2 Participation	SC.15-2
2.1: Municipal Working Group Participation	SC.15-2
2.2: Public Participation	SC.15-4
Part 3 Hazard Identification and Risk Assessment	SC.15-5
3.1: Municipal Profile	SC.15-5
3.2: Hazard Priorities	SC.15-9
3.3: Hazard Mapping	SC.15-10
3.4: Critical Facilities Inventory and Hazard Exposure Assessment	SC.15-11
Part 4 Mitigation Measures	SC.15-14
4.1: Mitigation Goals and Strategy	SC.15-14
4.2: SDVR HMP Mitigation Measures	SC.15-15
4.3: Municipal Mitigation Measures – Identification	SC.15-16
4.4: Municipal Mitigation Measures – Implementation	SC.15-17
4.5: Multi-Jurisdictional Mitigation Measures	SC.15-18
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	SC.15-20

Table of Contents

List of Figures

Figure SC.15-1: Upper Pittsgrove Township (Salem County) Location Map	SC.15-5
Figure SC.15-2: Upper Pittsgrove Township Base Map	SC.15-6
Figure SC.15-3: Upper Pittsgrove Township Housing Units by Year Built	SC.15-8
Figure SC.15-4: Upper Pittsgrove Township Mitigation Project Locations	SC.15-19

List of Tables

Table SC.15-1: Upper Pittsgrove Township (Salem County) Working Group	SC.15-2
Table SC.15-2: Public Participation	SC.15-4
Table SC.15-3: Upper Pittsgrove Township Demographics	SC.15-7
Table SC.15-4: Upper Pittsgrove Township Demographic Rankings	SC.15-7
Table SC.15-5: Upper Pittsgrove Township Economics and Housing	SC.15-7
Table SC.15-6: Upper Pittsgrove Township Ranking (Economics and Housing)	SC.15-8
Table SC.15-7: Supporting Mapping and Exhibits	SC.15-10
Table SC.15-8: Upper Pittsgrove Township Critical Facilities Inventory	SC.15-12
Table SC.15-9: Upper Pittsgrove Township Critical Facilities Hazard Exposure	SC.15-13
Table SC.15-10: Status of Upper Pittsgrove Township SDVR HMP Mitigation Measures	SC.15-15
Table SC.15-11: Upper Pittsgrove Township Municipal Mitigation Measures Identification	SC.15-16
Table SC.15-12: Upper Pittsgrove Township Municipal Mitigation Measures Implementation	SC.15-17

Attachments

Attachment SC.15.A: Public Review Comments	SC.15.A-1
Attachment SC.15.B: Adoption Resolution	SC.15.B-1
Attachment SC.15.C: Approval Letter	SC.15.C-1

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: Upper Pittsgrove Township (Salem County) Municipal Appendix

This Municipal Appendix is focused on Upper Pittsgrove Township in Salem County, New Jersey.

The Upper Pittsgrove Township Municipal Working Group recommended the Upper Pittsgrove Township (Salem County) Municipal Appendix for adoption to the Upper Pittsgrove Township Committee.

The Upper Pittsgrove 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 SC.15-1 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 SC.15-1: Upper Pittsgrove Township (Salem County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Contribution ³
John (Jack)	Heritage	Upper Pittsgrove OEM / Township Committee / Daretown Fire Department	OEM Coordinator / Township Committee / Deputy Fire Coordinator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Organized Working Group and Work Sessions.
Linda	Buzby	Upper Pittsgrove Township Clerk	Township Clerk / Floodplain Administrator			Arranged for public meeting with Township Committee / Reviewed Preliminary Appendix.
Barry	Foote	Upper Pittsgrove Public Works Department / Monroeville Fire Company	Road Superintendent / Firefighter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
John	Robinson	Daretown Fire Company / Pittsgrove Baptist Church / Elmer Grange No 29 (NGO)	Fire Company / Church / Community Leader		<input checked="" type="checkbox"/>	

¹ Round 1 Work Session was held on July 8, 2014

² Round 2 Work Session was held on September 9, 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 SC.15-1.

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

- Land Use / Economic Development Planner
- Building Code Official
- Emergency Medical Services
- School Board

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
- Police
- Business Associations
- Environmental Organizations
- Critical Infrastructure and Key Resources
- Major employers and businesses
- 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 SC.15-2 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 SC.15-2: Public Participation

Date	Type of Involvement	Location
May 14, 2015	Link to Project Website (http://nj4hmp.com) established and Preliminary Municipal Appendix posted to website for public comment	Township website ⁵
May 21, 2015	Public hearing included on Upper Pittsgrove Land Use Board agenda providing for open discussion, and public comment regarding the Preliminary Municipal Appendix	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://upperpittsgrovenj.org/>

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

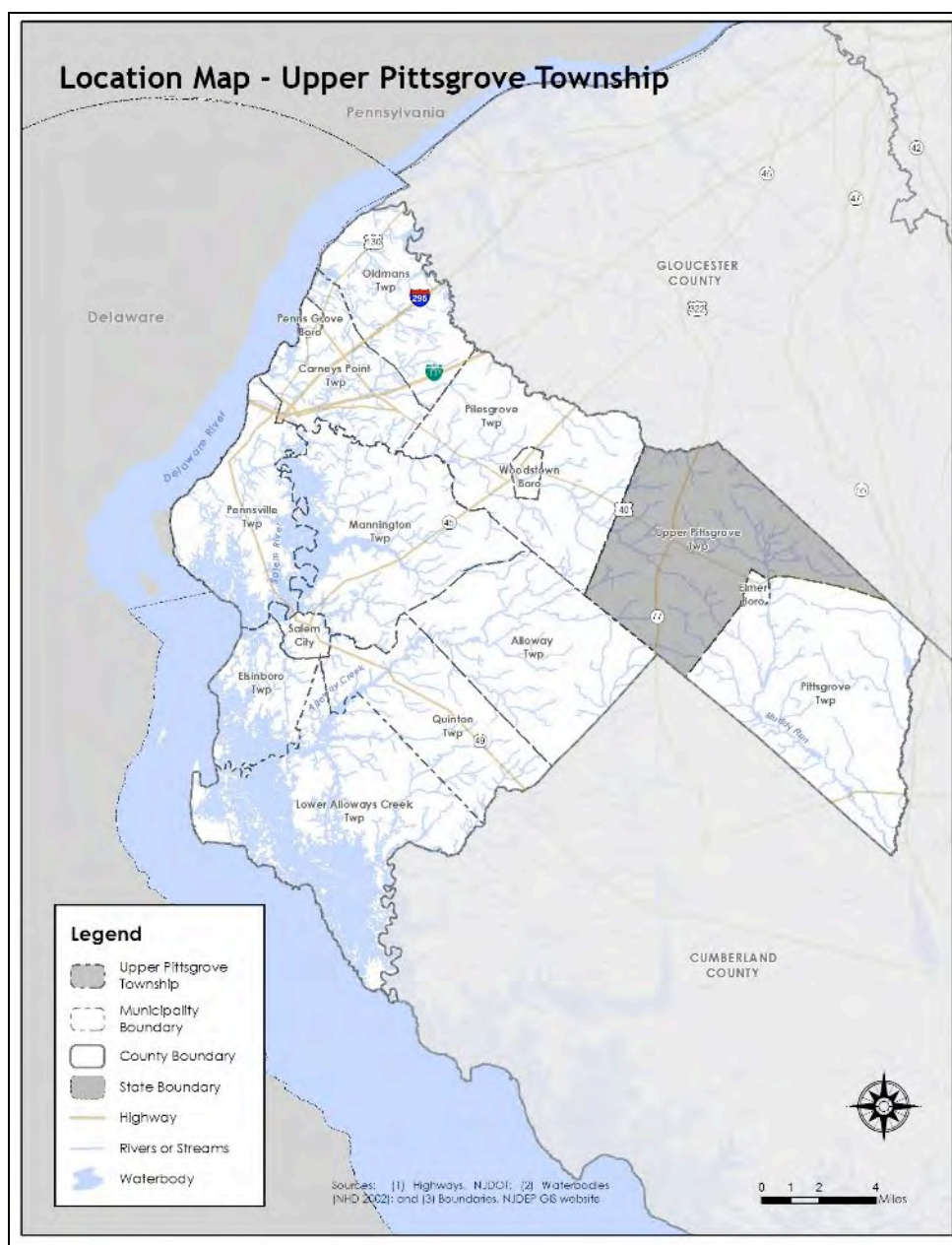
Part 3.1: Municipal Profile

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*

Upper Pittsgrove Township is located in the eastern part of Salem County (See Figure SC.15-1).

Figure SC.15-1: Upper Pittsgrove Township (Salem County) Location Map

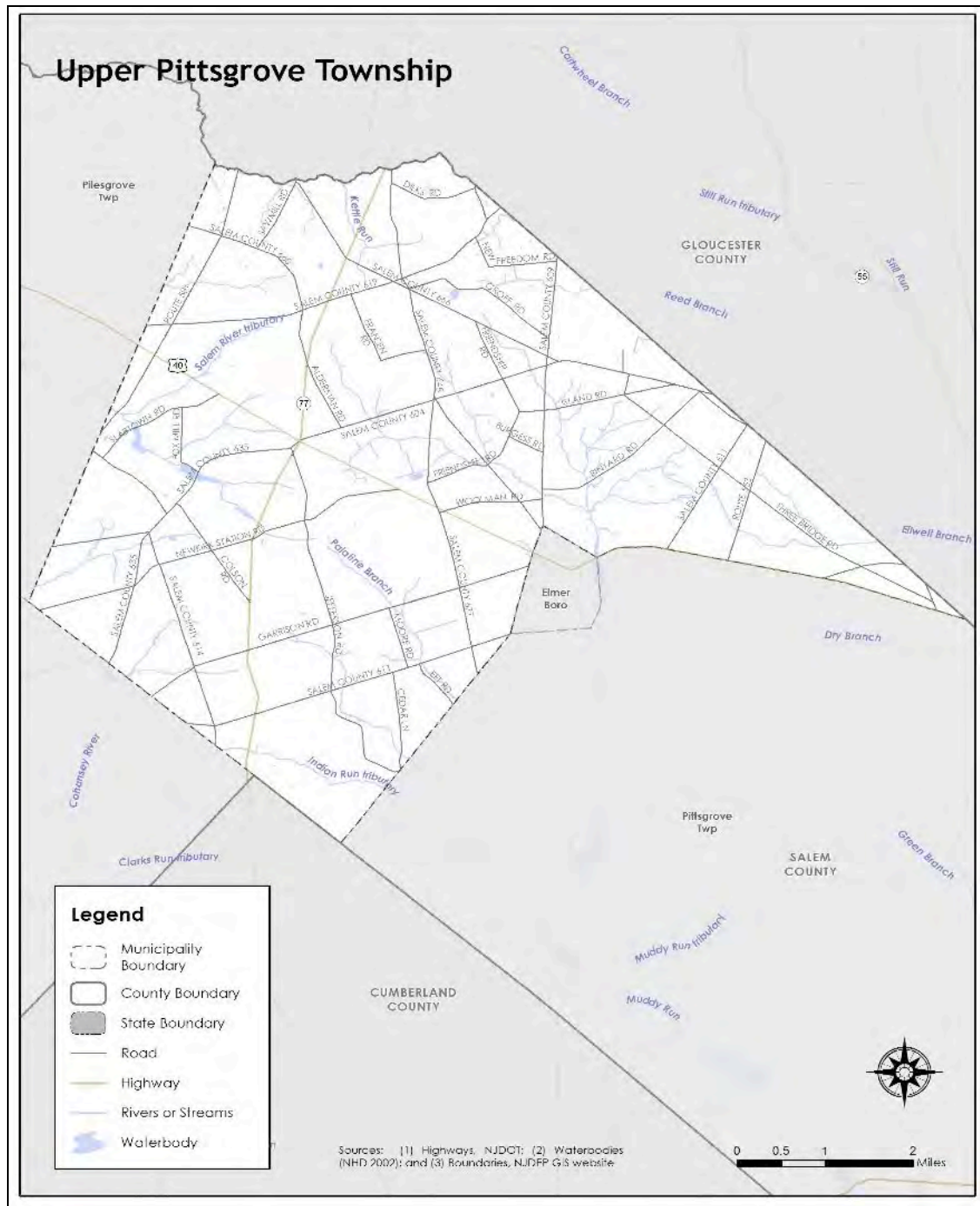


Part 3: Hazard Identification and Risk Assessment

Upper Pittsgrove Township is a rural farm community. The almost 8,000 acres of the 25,000 total acres within the Township that are preserved for farmland, makes Upper Pittsgrove Township number one in the state for total acres of preserved farmland. The Township also leads New Jersey in total number of active agricultural acres.

Per Figure SC.15-2, major water courses include the Salem River tributary, Kettle Run, Palatine Branch, and the Indian Run tributary. Major transportation routes include U.S. Highway 40 and State Highway 77. Upper Pittsgrove Township includes Monroeville, an unincorporated community within the municipality.

Figure SC.15-2: Upper Pittsgrove Township Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table SC.15-3 is a compilation of demographic information for the municipality and comparison with the county, the four county region, and State of New Jersey.

Table SC.15-3: Upper Pittsgrove Township Demographics
(Source: Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4)

	Upper Pittsgrove Township	Salem County	Region	New Jersey
2000 Population	3,468	64,285	974,328	8,414,350
2010 Population	3,505	66,083	1,024,926	8,791,894
Percent Change	1.07%	2.80%	5.19%	4.49%
Population Density	86.9 / sq. mile	199.1 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	40.33 sq. miles	331.90 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population 18 and younger	22.4	23.5	24.1	23.5
% of Population 18 - 64	61.9	61.5	62.7	63
% of Population 65 and over	15.7	15.0	13.2	13.5

Table SC.15-4 illustrates how Upper Pittsgrove Township ranks in the county, the four county region, and New Jersey.

Table SC.15-4: Upper Pittsgrove Township Demographic Rankings

	Salem County (total of 15)	Region (total of 90)	New Jersey (total of 565)
Population Rank	7	60	430
Land Area Rank	3	11	51
Population Density Rank	13	82	548
Population Change Rank	9	44	-

Table SC.15-5 includes information related to economic and housing statistics for Upper Pittsgrove Township, Salem County, the four county region, and New Jersey.

Table SC.15-5: Upper Pittsgrove Township Economics and Housing
(Source: USDA ERS, Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4; NJ LWD 2010)

	Upper Pittsgrove Township	Salem County	Region	New Jersey
Date Incorporated	March 10, 1846	1694	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$80,957	\$59,441	\$60,933	\$69,811
Total Number of Housing Units	1,310	27,417	397,990	3,529,033
Occupied Housing Units	1,247	25,290	372,472	3,176,069
Vacant Housing Units	63	2,127	25,518	352,964
Owner Occupied Housing Units	1,079	18,091	266,593	2,126,279

Part 3: Hazard Identification and Risk Assessment

	Upper Pittsgrove Township	Salem County	Region	New Jersey
Renter Occupied Housing Units	168	7,199	105,879	1,049,790
Building Permits	10	105	1,554	13,535
Largest Industry	Agriculture, Forestry, Fishing and Hunting; Educational Services; and Health Care and Social Assistance	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 SC.15-6 illustrates how Upper Pittsgrove Township ranks in the county and the four county region.

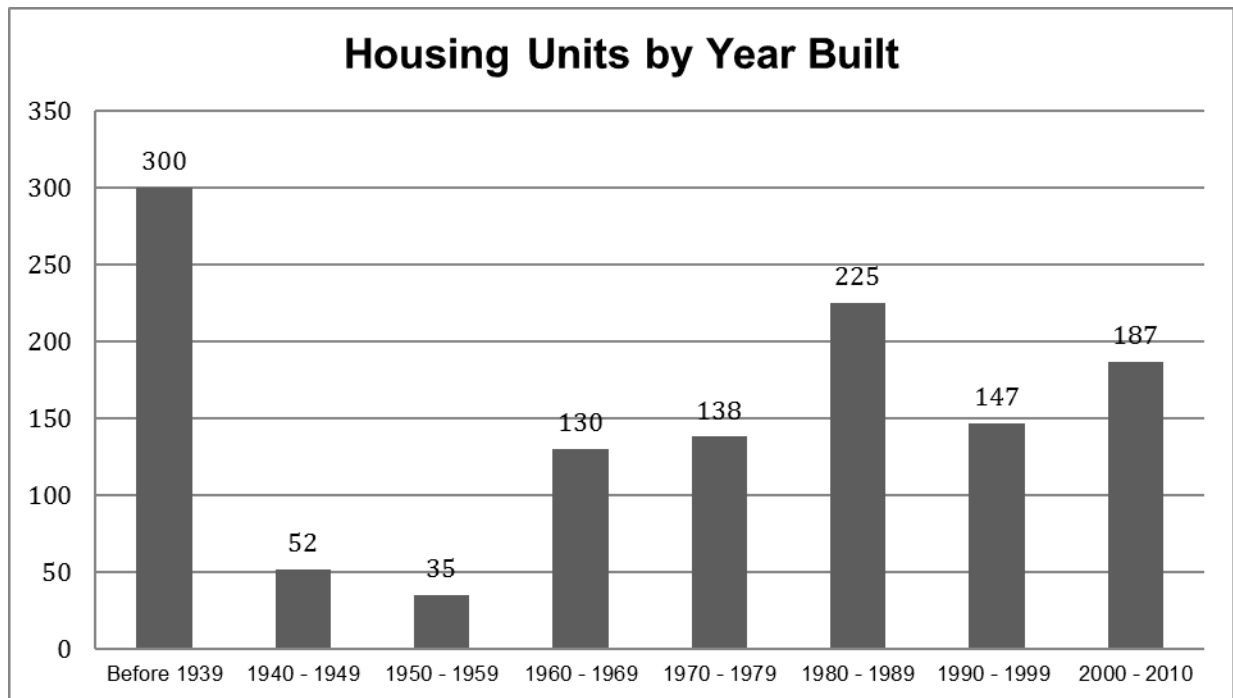
Table SC.15-6: Upper Pittsgrove Township Ranking (Economics and Housing)

	Salem County (total of 15)	Region (total of 90)
Median Household Income Rank	3	15
Vacant Housing Rank	11	69
Renter Occupied Housing Rank	10	68
Building Permits Rank	5	34

Figure SC.15-3 illustrates development patterns in Upper Pittsgrove Township by examining housing units by year built.

Figure SC.15-3: Upper Pittsgrove Township Housing Units by Year Built

(Source: 2010 ACS 5 Year Estimates, DP 4)



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

- None

Moderate Priority

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

Low Priority

- Dam Failure
- Drought
- Earthquake
- Extreme Temperature: Cold & Hot
- Flood
- Wildfire

Three additional hazards were identified but were not considered applicable to the municipality:

- Coastal Erosion and Sea Level Rise
- Levee Failure
- Geologic Hazards

¹ See Section 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 SC.15-7 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 was used in the Critical Facilities Hazard Exposure Assessment described in Part 3.4.

Table SC.15-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
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-99	Wildfire	Wildland 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 3.4: 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 SC.15-8 contains updated inventory information for municipal critical facilities including cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix.

Table SC.15-9 contains results of overlaying critical facility locations with hazard mapping identified in Part 3.3. The results indicate critical facilities that are potentially exposed to specific hazards. 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 SC.15-8: Upper Pittsgrove Township (Salem County) Critical Facilities Inventory

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-1	Upper Pittsgrove Township Hall	Municipal	Administrative Offices	431 Route 77, Elmer	CF-2, CF-3	N	N		M-4
CF-2	Upper Pittsgrove Public Works	Public Works	Combined Administrative Office Maintenance / Work Area, Equipment / Material Storage, and Fueling Station	431 Route 77, Elmer	CF-1, CF-3	N	N		
CF-3	Emergency Operations Center	EOC	Co-located Facilities	431 Route 77, Elmer	CF-1, CF-2	N	N		
CF-4	Monroeville Fire Company	FireStation	Stations	414 Monroeville Road, Monroeville		N	Y		
CF-5	Daretown Fire Company	FireStation	Stations	25 Woodstown Daretown Road, Elmer		N	N		M-5
CF-6	Upper Pittsgrove Elementary School	Schools	Public Schools	235 Pine Tavern Road, Monroeville		N	N	Includes sewer pump station	M-6
CF-7	Elmer Grange Hall	Emergency Staging Areas	Equipment Mobilization	535 Daretown Road, Elmer		N	N		

Part 3: Hazard Identification and Risk Assessment

Table SC.15-9: Upper Pittsgrove Township (Salem County) Critical Facilities Hazard Exposure

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ²	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 ³	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	Upper Pittsgrove Township Hall	N/A	N/A	N/A	8.62	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-2	Upper Pittsgrove Public Works	N/A	N/A	N/A	8.62	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-3	Emergency Operations Center	N/A	N/A	N/A	8.62	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-4	Monroeville Fire Company	N/A	N/A	N/A	6.65	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-5	Daretown Fire Company	N/A	N/A	N/A	10.93	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-6	Upper Pittsgrove Elementary School	N/A	N/A	N/A	6.53	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-
CF-7	Elmer Grange Hall	N/A	N/A	N/A	8.80	N/A	-	-	N/A	N/A	N/A	N/A	N/A	-	-

² Distance in miles to nearest dam.

³ Distance in miles to nearest levee.

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
- 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 SC.15-10 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 SC.15-10.

Table SC.15-10: Status of Upper Pittsgrove Township (Salem County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Upper Pittsgrove 1: Purchase and install snow fences along Three Bridge Road.	Not completed, not funded	Issue is not considered valid. Therefore, mitigation measure is not included in updated Municipal Appendix.	N/A
Upper Pittsgrove 2: Upgrade and improvements to the spillway on Slabtown Lake.	Work-in-progress	Issue is being resolved privately through home-owner. Estimated completion date of project is to be determined. Therefore, revised mitigation measure is included in updated Municipal Appendix.	M-7
Upper Pittsgrove 3: Provide back-up emergency power to Upper Pittsgrove Town Hall and make necessary electrical upgrades.	Work-in-progress	Issue is being resolved through Capital Improvement funds. Estimated completion date of project is to be determined. Therefore, mitigation measure is included in updated Municipal Appendix.	M-4
Upper Pittsgrove 4: Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-1

Table SC.15-10 Notes:

- A. See Tables SC.15-11 and SC.15-12 for municipal (M-#) mitigation measures
- B. See Table SC.15-13 for multi-jurisdictional (MJ-#) mitigation measures

Part 4: 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 SC.15-11 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

Note: Upper Pittsgrove Township does not currently have RL or SRL properties per information provided by the New Jersey Department of Environmental Protection.

Table SC.15-11 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 SC.15-4.

Table SC.15-11: Upper Pittsgrove Township (Salem 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 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	Conduct regular Municipal Working Group meetings consistent with the plan maintenance program and the Municipal Adoption Resolution.	All	Goal #3	Both
M-4	Install permanent back-up emergency power generator at Upper Pittsgrove Township Town Hall (CF-1).	All	Goal #4	Both

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.

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

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
M-5	Install permanent back-up emergency power generator at Daretown Fire Company (CF-5).	All	Goal #4	Both
M-6	Install permanent back-up emergency power generator at Upper Pittsgrove Elementary School (CF-6).	All	Goal #4	Both
M-7	Upgrade and improvements to the spillway on Slabstown Lake.	Dam Failure	Goal #4	Both

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 SC.15-12 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 SC.15-12: Upper Pittsgrove Township (Salem 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	Low	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	Low	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.

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-3	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.
M-4	Install permanent back-up emergency power generator at Upper Pittsgrove Township Town Hall (CF-1).	Municipal OEM and Public Works Department	Low	Back-up Emergency Power Generator	<\$100K	Three to five years	Complete work-in progress.
M-5	Install permanent back-up emergency power generator at Daretown Fire Company (CF-5).	Municipal OEM and Public Works Department	Low	Back-up Emergency Power Generator	<\$100K	Three to five years	Complete work-in progress.
M-6	Install permanent back-up emergency power generator at Upper Pittsgrove Elementary School (CF-6).	Municipal OEM and School Board	Low	Back-up Emergency Power Generator	<\$100K	Three to five years	Complete work-in progress.
M-7	Upgrade and improvements to the spillway on Slabstown Lake.	Municipal OEM and Private home owner	Low	Private Property Flood Mitigation	<\$100K	Three to five years	Complete work-in progress.

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, some SDVR HMP mitigation measures as well as new areas of concern were identified where implementation required participation or leadership from other levels of government, including county, state, and federal agencies.

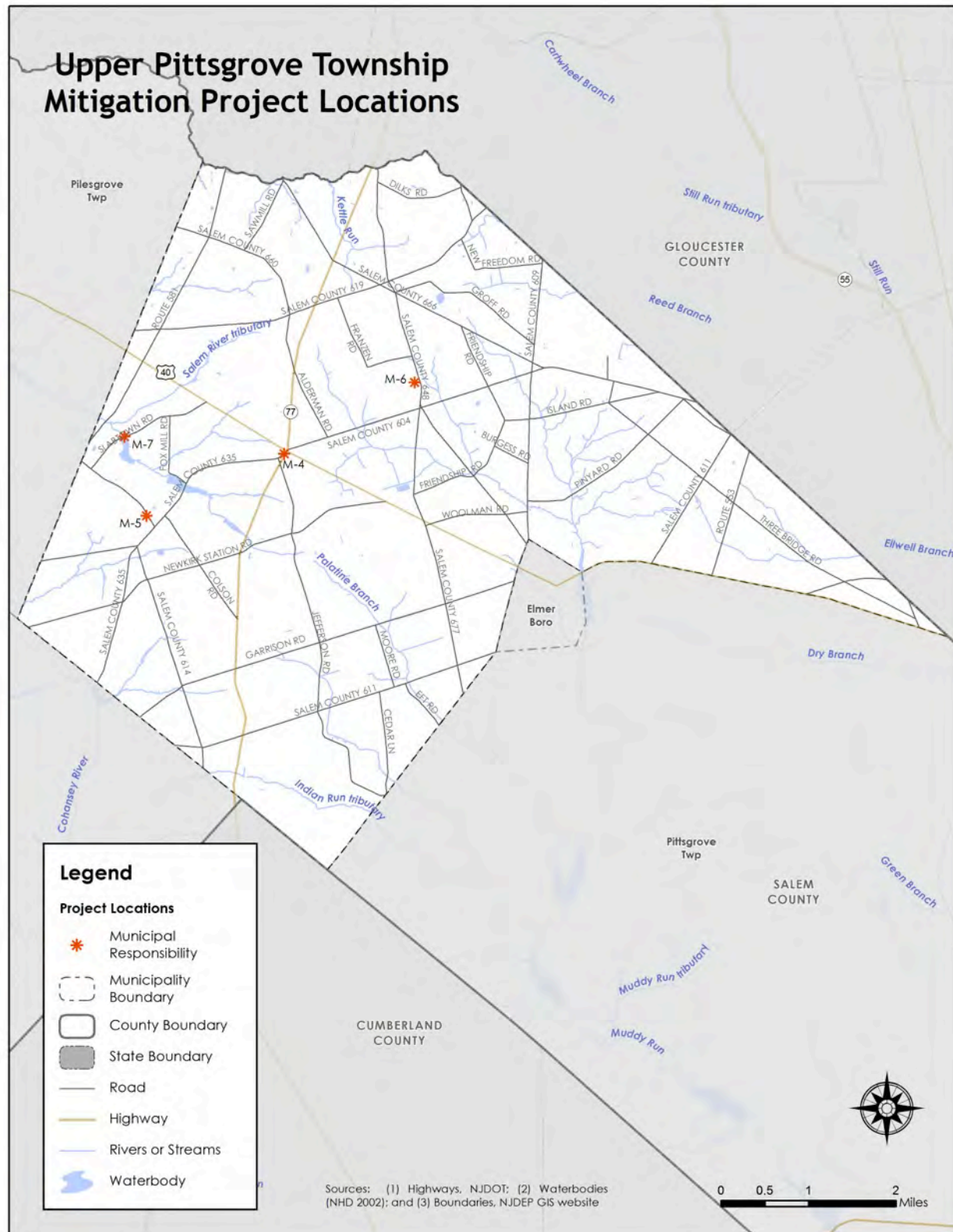
Section 4: Mitigation Measures of the NJ4 HMP Regional Hazard Mitigation Plan describes multi-jurisdictional implementation strategies in detail. Section 4 identifies multi-jurisdictional mitigation measures that Municipal Working Groups believe are partly or wholly the responsibility of County agencies. 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: Upper Pittsgrove Township did not identify any multi-jurisdictional mitigation measures.

Part 4: Mitigation Measures

Figure SC.15-4: Upper Pittsgrove 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
- Master Plan and Reexamination Report (2010)
- Zoning and Subdivision Ordinance
- Stormwater Management Plan
- Economic Development Plan
- Capital Improvement Program

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.

Attachment A: Public Review Comments

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

Table SC.15.A-1: Public Review Comments

Comment Date and Time	Comment	Response

Note: As of September 16, 2016, no public review comments were received for the Upper Pittsgrove Township Municipal Appendix.

Attachment B: Adoption Resolution

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

Attachment C: Approval Letter

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



Mitigation Plan for Four New Jersey Counties
Salem County Appendices

Appendix SC.16
Woodstown Borough, New Jersey

September 16, 2016

Table of Contents

Table of Contents	SC.16-i
Part 1 Overview	SC.16-1
1.1: Mitigation Plan for Four New Jersey Counties	SC.16-1
1.2: Woodstown Borough (Salem County) Municipal Appendix	SC.16-1
Part 2 Participation	SC.16-2
2.1: Municipal Working Group Participation	SC.16-2
2.2: Public Participation	SC.16-4
Part 3 Hazard Identification and Risk Assessment	SC.16-5
3.1: Municipal Profile	SC.16-5
3.2: Hazard Priorities	SC.16-9
3.3: Hazard Mapping	SC.16-10
3.4: Critical Facilities Inventory and Hazard Exposure Assessment	SC.16-11
Part 4 Mitigation Measures	SC.16-15
4.1: Mitigation Goals and Strategy	SC.16-15
4.2: SDVR HMP Mitigation Measures	SC.16-16
4.3: Municipal Mitigation Measures – Identification	SC.16-17
4.4: Municipal Mitigation Measures – Implementation	SC.16-18
4.5: Multi-Jurisdictional Mitigation Measures	SC.16-20
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	SC.16-23

Table of Contents

List of Figures

Figure SC.16-1: Woodstown Borough (Salem County) Location Map	SC.16-5
Figure SC.16-2: Woodstown Borough Base Map	SC.16-6
Figure SC.16-3: Woodstown Borough Housing Units by Year Built	SC.16-8
Figure SC.16-4: Woodstown Borough Mitigation Project Locations	SC.16-22

List of Tables

Table SC.16-1: Woodstown Borough (Salem County) Working Group	SC.16-2
Table SC.16-2: Public Participation	SC.16-4
Table SC.16-3: Woodstown Borough Demographics	SC.16-7
Table SC.16-4: Woodstown Borough Demographic Rankings	SC.16-7
Table SC.16-5: Woodstown Borough Economics and Housing	SC.16-7
Table SC.16-6: Woodstown Borough Ranking (Economics and Housing)	SC.16-8
Table SC.16-7: Supporting Mapping and Exhibits	SC.16-10
Table SC.16-8: Woodstown Borough Critical Facilities Inventory	SC.16-12
Table SC.16-9: Woodstown Borough Critical Facilities Hazard Exposure	SC.16-14
Table SC.16-10: Status of Woodstown Borough SDVR HMP Mitigation Measures	SC.16-16
Table SC.16-11: Woodstown Borough Municipal Mitigation Measures Identification	SC.16-17
Table SC.16-12: Woodstown Borough Municipal Mitigation Measures Implementation	SC.16-19
Table SC.16-13: Woodstown Borough Multi-Jurisdictional Mitigation Measures	SC.16-21

Attachments

Attachment SC.16.A: Public Review Comments	SC.16.A-1
Attachment SC.16.B: Adoption Resolution	SC.16.B-1
Attachment SC.16.C: Approval Letter	SC.16.C-1

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: Woodstown Borough (Salem County) Municipal Appendix

This Municipal Appendix is focused on Woodstown Borough in Salem County, New Jersey.

The Woodstown Borough Municipal Working Group recommended the Woodstown Borough (Salem County) Municipal Appendix for adoption to the Woodstown Borough Council.

The Woodstown Borough Council 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 SC.16-1 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 SC.16-1: Woodstown Borough (Salem County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Working Group Meeting ³	Contribution ⁴
Harry	Vanaman	Woodstown Borough OEM	OEM Coordinator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Organized Working Group and Work Sessions.
Joe	Gebely	Woodstown Borough OEM	OEM Deputy Coordinator	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Don	Dietrich	Woodstown Borough Committee	Mayor		<input checked="" type="checkbox"/>		
Joe	Wille	Woodstown Borough Construction Office	Floodplain Administrator			<input checked="" type="checkbox"/>	The Floodplain Administrator reviewed the Preliminary Municipal Appendix on January 22, 2015
Cristopher	Simmermon	Woodstown Borough Police Department	Public Safety Director		<input checked="" type="checkbox"/>		
Frank	Mitchell	Woodstown Borough Public Works Department	Superintendent		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

¹ Round 1 Work Session was held on July 18, 2014.

² Round 2 Work Session was held on September 10, 2014.

³ Municipal Working Group meeting was held on January 2, 2015.

⁴ 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 SC.16-1.

Part 2: Participation

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Working Group Meeting ³	Contribution ⁴
Frank	Rizzo	Woodstown Borough Board of Education	SBA / BS			<input checked="" type="checkbox"/>	
Patrick	Myers	Friend Village of Woodstown	Support Services	<input checked="" type="checkbox"/>			

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.⁵

- Land Use / Economic Development Planner
- Building Code Official
- Engineering
- Emergency Medical Services
- Business Associations
- Community / Faith-Based Organizations

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
- Environmental Organizations
- Non-Governmental Organizations
- Critical Infrastructure and Key Resources

⁵ 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 SC.16-2 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 SC.16-2: Public Participation

Date	Type of Involvement	Location
July 23, 2014	Flyers posted	Borough Hall / Heritage Store (convenience)
August 5, 2014	Link to Project Website (http://nj4hmp.com) established	Borough of Woodstown, New Jersey ⁶
January 5, 2015	Public hearing included on Woodstown Borough Council agenda providing for open discussion, and public comment regarding the Preliminary Municipal Appendix	Woodstown Borough Hall

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.⁷ In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities.⁸

⁶ <http://www.historicwoodstown.org/>

⁷ See Mitigation Measure M-1 in Part 4 of the Municipal Appendix.

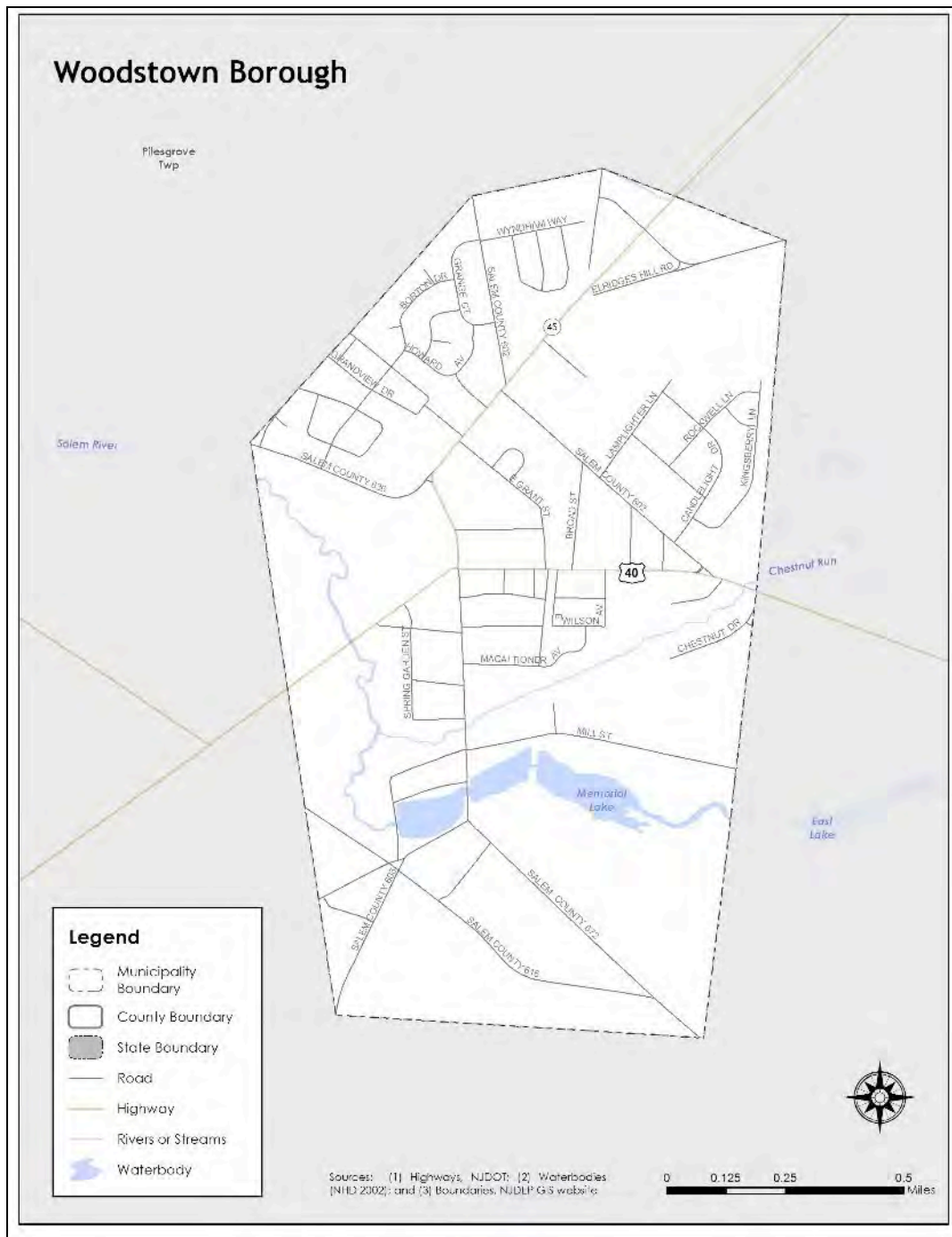
⁸ See *Section 4: Mitigation Measures* of the NJ4 HMP Regional Hazard Mitigation Plan.

Part 3: Hazard Identification and Risk Assessment

Woodstown Borough is a rural area within Salem County, which has maintained its “All-American Town” character through protection and preservation of its many historic structures. Along with the many homes built in the 18th and 19th century that have the potential to be listed as landmarks, Woodstown Borough has several large 200 year old farmsteads in the surrounding area.

Per Figure SC.16-2, the major water bodies include Memorial Lake, Salem River, and Chestnut Run. Major transportation routes include U.S. Highway 40 and State Highway 45.

Figure SC.16-2: Woodstown Borough Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table SC.16-3 is a compilation of demographic information for the municipality and comparison with the county, the four county region, and State of New Jersey.

Table SC.16-3: Woodstown Borough Demographics
(Source: Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4)

	Woodstown Borough	Salem County	Region	New Jersey
2000 Population	3,136	64,285	974,328	8,414,350
2010 Population	3,505	66,083	1,024,926	8,791,894
Percent Change	11.77%	2.80%	5.19%	4.49%
Population Density	2,211.8 / sq. mile	199.1 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	1.59 sq. miles	331.90 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population 18 and younger	25.2	23.5	24.1	23.5
% of Population 18 - 64	60.3	61.5	62.7	63
% of Population 65 and over	14.5	15.0	13.2	13.5

Table SC.16-4 illustrates how Woodstown Borough ranks in the county, the four county region, and New Jersey.

Table SC.16-4: Woodstown Borough Demographic Rankings

	Salem County (total of 15)	Region (total of 90)	New Jersey (total of 565)
Population Rank	8	61	431
Land Area Rank	13	66	424
Population Density Rank	2	40	273
Population Change Rank	3	18	-

Table SC.16-5 includes information related to economic and housing statistics for Woodstown Borough, Salem County, the four county region, and New Jersey.

Table SC.16-5: Woodstown Borough Economics and Housing
(Source: USDA ERS, Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4; NJ LWD 2010)

	Woodstown Borough	Salem County	Region	New Jersey
Date Incorporated	July 26, 1882	1694	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$62,958	\$59,441	\$60,933	\$69,811
Total Number of Housing Units	1,529	27,417	397,990	3,529,033
Occupied Housing Units	1,444	25,290	372,472	3,176,069
Vacant Housing Units	85	2,127	25,518	352,964
Owner Occupied Housing Units	882	18,091	266,593	2,126,279
Renter Occupied Housing Units	562	7,199	105,879	1,049,790

Part 3: Hazard Identification and Risk Assessment

	Woodstown Borough	Salem County	Region	New Jersey
Building Permits	19	105	1,554	13,535
Largest Industry	Educational Services; Health Care and Social Assistance; Retail	Educational Services, and health care and social assistance	Educational services, and health care and social assistance	Educational services, and health care and social assistance

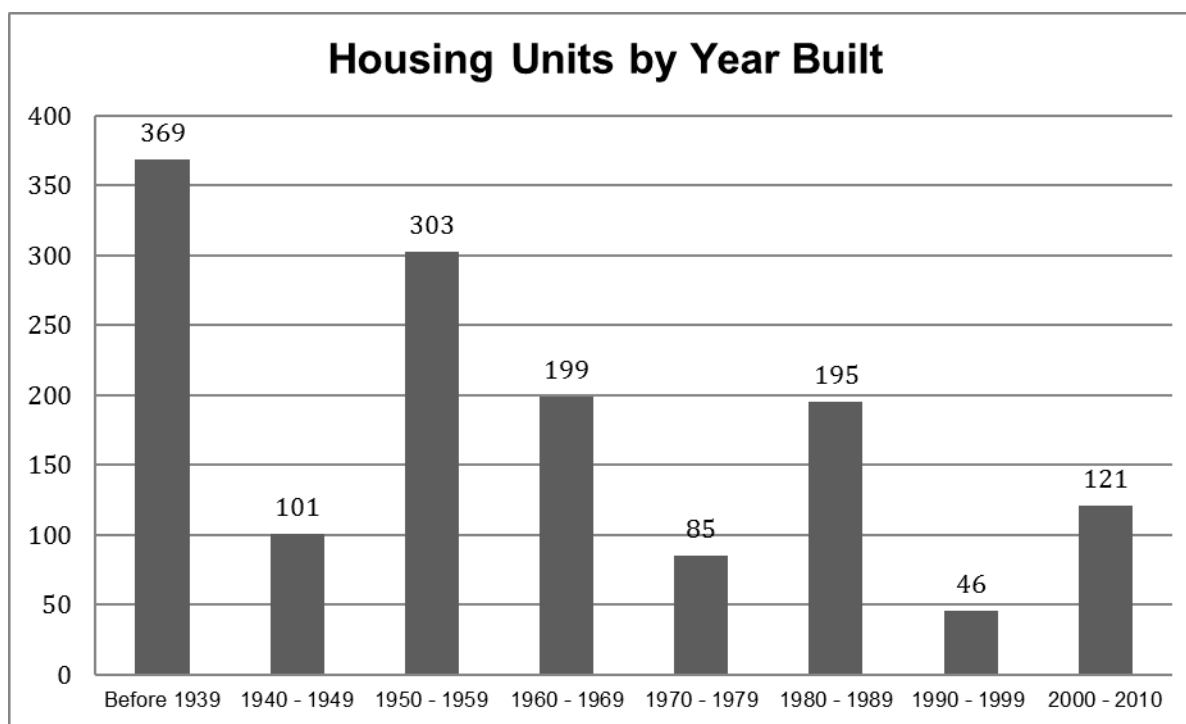
Table SC.16-6 illustrates how Woodstown Borough ranks in the county and the four county region.

Table SC.16-6: Woodstown Borough Ranking (Economics and Housing)

Median Household Income Rank	11	49
Vacant Housing Rank	7	63
Renter Occupied Housing Rank	5	40
Building Permits Rank	3	23

Figure SC.16-3 illustrates development patterns in Woodstown Borough by examining housing units by year built.

Figure SC.16-3: Woodstown Borough Housing Units by Year Built
(Source: 2010 ACS 5 Year Estimates, DP 4)



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

Moderate Priority

- High Wind

Low Priority

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

Four additional hazards were identified but were not considered applicable to the municipality:

- Coastal Erosion & Sea Level Rise
- Geologic Hazards
- Levee Failure
- Wildfire

¹ See Section 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 SC.16-7 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 was used in the Critical Facilities Hazard Exposure Assessment described in Part 3.4.

Table SC.16-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
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 increased inundation due to sea level rise may occur

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 3.4: 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 SC.16-8 contains updated inventory information for municipal critical facilities including cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix.

Table SC.16-9 contains results of overlaying critical facility locations with hazard mapping identified in Part 3.3. The results indicate critical facilities that are potentially exposed to specific hazards. 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 SC.16-8: Woodstown Borough (Salem County) Critical Facilities Inventory

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-1	Borough Hall	Municipal	Administrative Offices	25 West Avenue, Woodstown	CF-3, CF-6, CF-7	N	N		M-5 / M-12
CF-2	Emergency Operations Center	EOC	Co-located Facilities	25 Broad Street, Woodstown	CF-4	Y	Y ²		M-6
CF-3	Police Station	Law Enforcement Facilities	Stations	25 West Avenue, Woodstown	CF-1	N	N		M-5
CF-4	Reliance Fire Company	Fire Station	Stations	25 Broad Street, Woodstown	CF-2	Y	Y ²		M-6
CF-5	EMS	EMS	Municipal Stations	32 Maple Court, Woodstown		N	Y		
CF-6	Public Works	Public Works	Combined Administrative Office, Maintenance / Work Area, Equipment / Material Storage, and Fueling Station	25 West Avenue, Woodstown	CF-1	N	Y		
CF-7	Well #2	Utilities – Water	Wellheads	25 West Avenue, Woodstown	CF-1	N/A	Y		
CF-8	Well #3	Utilities – Water	Wellheads	Fowell Well Street		N/A	Y		
CF-9	Well #4, #5, #6	Utilities – Water	Wellheads	209 East Millbrooke Avenue, Woodstown		N/A	Y		
CF-10	Pump Station	Utilities – Wastewater	Pump Stations / Lift Stations	25 West Avenue, Woodstown		N/A	Y		
CF-11	Pump Station	Utilities – Wastewater	Pump Stations / Lift Stations	High Bridge Bypass Road		N/A	Y		
CF-12	Municipal Sewage Plant	Utilities – Wastewater	Treatment Plants	90 West Avenue, Woodstown		N	Y		
CF-13	Mary S. Shoemaker Elementary School	Schools	Public Schools	201 East Millbrooke Avenue, Woodstown		N	N		M-7

² Back-up generator provides partial building coverage for emergency lighting.

Part 3: Hazard Identification and Risk Assessment

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-14	Woodstown Middle School	Schools	Public Schools	15 Lincoln Avenue, Woodstown		N	N		M-13
CF-15	Woodstown High School	Schools	Public Schools	140 East Avenue, Woodstown		N	N		M-14
CF-16	ABC Learning Station	Vulnerable Populations Facilities	Private Child Day Care	50 Elm Street, Woodstown		N	N		
CF-17	Annes Abbey Residential House Care Facility	Vulnerable Populations Facilities	Private Assisted Living	125 North Main Street,		N	N		
CF-18	Friends Village Nursing Home	Vulnerable Populations Facilities	Private Nursing Home	1 Friends Drive, Woodstown		Y ³	Y		
CF-19	Friends Village Residential Home	Vulnerable Populations Facilities	Private Age - Restricted Housing	1 Friends Drive, Woodstown		Y ³	Y		

³ Shelter in place.

Part 3: Hazard Identification and Risk Assessment

Table SC.16-9: Woodstown Borough (Salem County) Critical Facilities Hazard Exposure

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure ⁴	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 ⁵	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	Borough Hall	N/A	N/A	N/A	11.46	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-2	Emergency Operations Center	N/A	N/A	N/A	11.80	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-3	Police Station	N/A	N/A	N/A	11.46	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-4	Resilience Fire Company	N/A	N/A	N/A	11.80	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-5	EMS	N/A	N/A	N/A	11.46	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-6	Public Works	N/A	N/A	N/A	11.51	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-7	Well #2	N/A	N/A	N/A	11.54	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-8	Well #3	N/A	N/A	N/A	12.32	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-9	Well #4, #5, #6	N/A	N/A	N/A	11.28	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-10	Pump Station	N/A	N/A	N/A	11.49	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-11	Pump Station	N/A	N/A	N/A	12.71	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-12	Municipal Sewage Plant	N/A	N/A	N/A	11.15	N/A	-	☑	-	-	-	-	N/A	N/A	N/A
CF-13	Mary S. Shoemaker Elementary School	N/A	N/A	N/A	11.25	N/A	-	☑	-	-	-	-	N/A	N/A	N/A
CF-14	Woodstown Middle School	N/A	N/A	N/A	11.54	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-15	Woodstown High School	N/A	N/A	N/A	11.64	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-16	ABC Learning Station	N/A	N/A	N/A	12.04	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-17	Annes Abbey Residential House Care Facility	N/A	N/A	N/A	11.88	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-18	Friends Village Nursing Home	N/A	N/A	N/A	11.55	N/A	-	-	-	-	-	-	N/A	N/A	N/A
CF-19	Friends Village Residential Home	N/A	N/A	N/A	11.46	N/A	-	-	-	-	-	-	N/A	N/A	N/A

⁴ Distance in miles to nearest dam.

⁵ Distance in miles to nearest levee.

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
- 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 SC.16-10 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 SC.16-10.

Table SC.16-10: Status of Woodstown Borough (Salem County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
Woodstown 1: Eliminate flooding behind Reliance Fire Company with Storm Sewer Improvements.	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-9
Woodstown 2: Storm-water management system upgrade and improvement between School Lane and Richmond Street.	Completed	Issue was resolved through private funds by Woodstown Borough resident. Therefore, mitigation measure is not included in updated Municipal Appendix.	N/A
Woodstown 3: Install warning sirens.	Not completed, not funded	Revised mitigation measure included in updated Municipal Appendix.	M-8
Woodstown 4: Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	Not completed, not funded	Requires multi-jurisdictional mitigation measure in updated Municipal Appendix.	M-1

Table SC.16-10 Notes:

- A. See Tables SC.16-11 and SC.16-12 for municipal (M-#) mitigation measures
- B. See Table SC.16-13 for multi-jurisdictional (MJ-#) mitigation measures

Part 4: 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 SC.16-11 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

Note: Woodstown Borough does not currently have RL or SRL properties per information provided by the New Jersey Department of Environmental Protection.

Table SC.16-11 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 SC.16-4.

Table SC.16-11: Woodstown Borough (Salem 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 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

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.

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

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
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 Borough Hall / Police Department (CF-1 / CF-3).	All	Goal #4	Both
M-6	Upgrade permanent backup emergency power generator at Reliance Fire Station Company / EOC (CF-2 / CF-4).	All	Goal #4	Both
M-7	Install permanent backup emergency power generator at Mary S. Shoemaker Elementary School (CF-13).	All	Goal #4	Both
M-8	Conduct study to determine optimal evacuation routes for the Borough, to include identifying potential locations of warning sirens.	All	Goal #4	Existing
M-9	Update and improve storm sewer system behind Reliance Fire Company at 25 Broad Street in order to eliminate flooding.	Flood	Goal #4	Both
M-10	Dredge Woodstown Memorial Lake in order to reduce flooding in surrounding areas.	Flood	Goal #4	Existing
M-11	Engineering study to determine mitigation measures of Chestnut Run Creek in order to reduce flooding in surrounding areas.	Flood	Goal #4	Existing
M-12	Retrofit / harden Borough Hall to include new roof (CF-1).	High Wind	Goal #4	Both
M-13	Retrofit / harden Woodstown Middle School to include new windows / roof (CF-14).	High Wind	Goal #4	Both
M-14	Retrofit / harden Woodstown High School to include new windows / roof (CF-15).	High Wind	Goal #4	Both

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 SC.16-12 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

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

Table SC.16-12: Woodstown Borough (Salem 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	High	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.
M-5	Install permanent backup emergency power generator at Borough Hall / Police Department (CF-1 & CF-3).	Municipal OEM and Public Works Department	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-6	Upgrade permanent backup emergency power generator at Reliance Fire Station Company / EOC (CF-2 & CF-4).	Municipal OEM and Fire Department	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-7	Install permanent backup emergency power generator at Mary S. Shoemaker Elementary School (CF-13).	Municipal OEM and Fire Department	High	Back-up Emergency Power Generator	< \$100K	One to three years	Conduct project scoping.
M-8	Conduct study to determine optimal evacuation routes for the Borough, to include identifying potential locations of warning sirens.	Municipal OEM, Public Works Department, and Engineering	Low	Public Mitigation Measure	< \$50K	Three to five years	Develop scope of work for engineering study and procure professional consulting services.
M-9	Update and improve storm sewer system behind Reliance Fire Company at 25 Broad Street in order to eliminate flooding.	Municipal OEM and Public Works Department	High	Private Property Flood Mitigation	\$100K - \$500K	One to three years	Conduct project scoping.

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-10	Dredge Woodstown Memorial Lake in order to reduce flooding in surrounding areas.	Municipal OEM and Public Works Department	Moderate	Private Property Flood Mitigation	\$100K - \$500K	Three to five years	Conduct project scoping.
M-11	Engineering study to determine mitigation measures of Chestnut Run Creek in order to reduce flooding in surrounding areas.	Municipal OEM, Public Works Department, and Engineering	Moderate	Private Property Flood Mitigation	< \$50K	Three to five years	Develop scope of work for engineering study and procure professional consulting services.
M-12	Retrofit / harden Borough Hall to include new roof (CF-1).	Municipal OEM and Public Works Department	Moderate	Building Retrofit	\$100K - \$500K	Three to five years	Conduct project scoping.
M-13	Retrofit / harden Woodstown Middle School to include new windows / roof (CF-14).	Municipal OEM and School Board	Low	Building Retrofit	\$100K - \$500K	Three to five years	Conduct project scoping.
M-14	Retrofit / harden Woodstown High School to include new windows / roof (CF-15).	Municipal OEM and School Board	Low	Building Retrofit	\$100K - \$500K	Three to five years	Conduct project scoping.

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 SC.16-13.

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 SC.16-4.

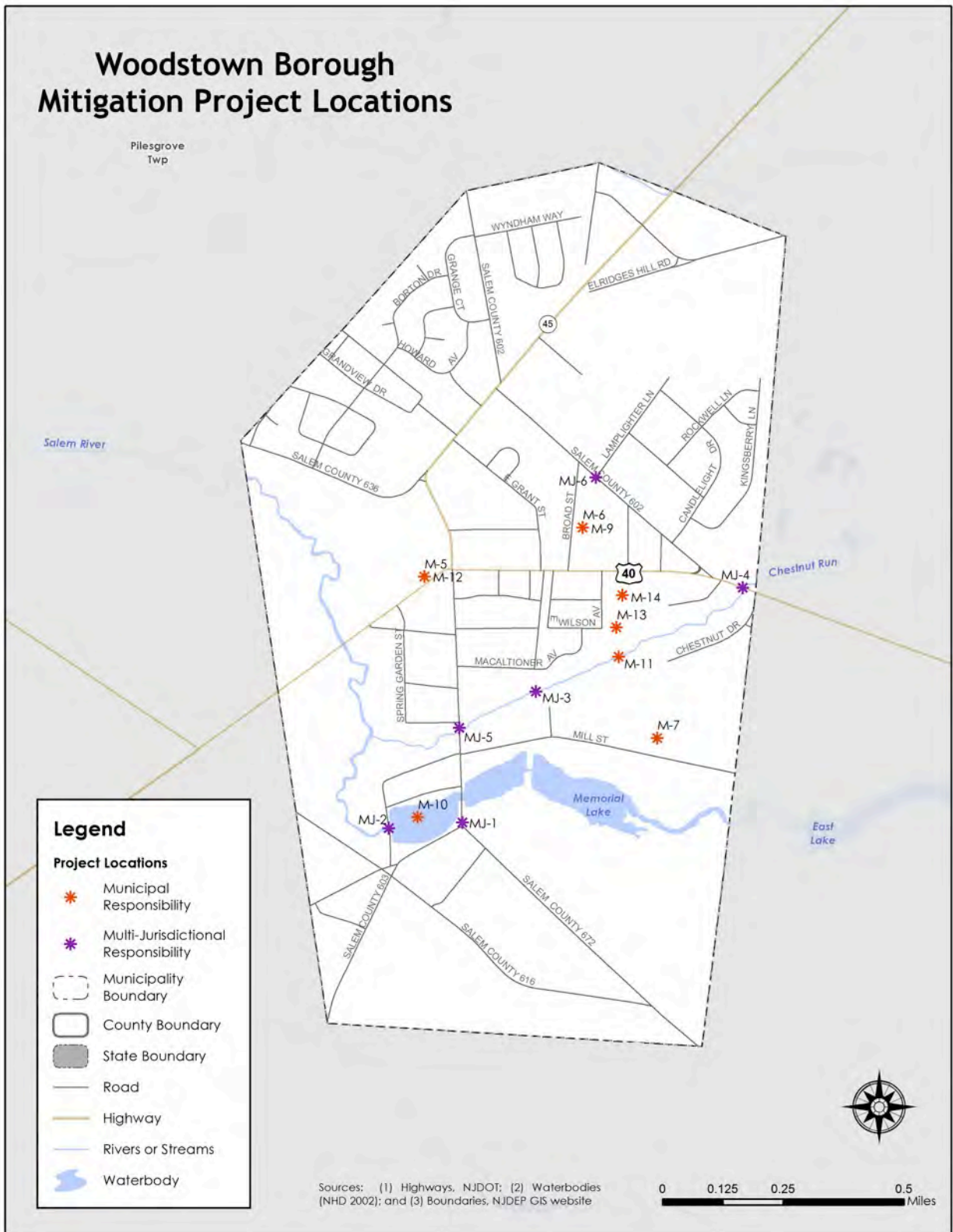
Part 4: Mitigation Measures

Table SC.16-13: Woodstown Borough (Salem County) Multi-Jurisdictional Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-1	Alleviate erosion under County Route 672 (South Main Street).	Flood (Storm Surge & Tidal)	Goal #4	Both	Municipal OEM, Salem County DPW	High
MJ-2	Alleviate erosion under Mill Street.	Flood (Storm Surge & Tidal)	Goal #4	Both	Municipal OEM, Salem County DPW	High
MJ-3	Alleviate flooding at Chestnut Run Creek at railroad tracks on NJ Route 48.	Flood	Goal #4	Both	Municipal OEM, Salem County DPW, and NJ DOT	High
MJ-4	Alleviate flooding at Chestnut Run Creek culvert located under NJ Route 40.	Flood	Goal #4	Both	Municipal OEM and NJ DOT	High
MJ-5	Alleviate flooding at Chestnut Run Creek culvert under South Main Street (NJ Route 45).	Flood	Goal #4	Both	Municipal OEM, Salem County DPW, and NJ DOT	High
MJ-6	Alleviate flooding at pipe along Elm Street (in between NJ Route 45 and NJ Route 40).	Flood	Goal #4	Both	Municipal OEM, Salem County DPW, and NJ DOT	High

Part 4: Mitigation Measures

Figure SC.16-4: Woodstown Borough 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
- Floodplain Ordinance
- Master Plan and Reexamination Report
- Stormwater Management Plan
- Zoning Map⁵
- Capital Improvement Budget (2014)⁶

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.

⁵ <http://www.historicwoodstown.org/Zoning%20Map.pdf>

⁶ <http://www.historicwoodstown.org/2014%20Budget.pdf>

Attachment A: Public Review Comments

The following comments were received during the public review of the Woodstown Borough Municipal Appendix:

Table SC.16.A-1: Public Review Comments

Comment Date and Time	Comment	Response

Note: As of September 16, 2016, no public review comments were received for the Woodstown Borough Municipal Appendix.

Attachment B: Adoption Resolution

Following this page is the Adoption Resolution for the Woodstown Borough Municipal Appendix as approved by the Woodstown Borough Council.

Attachment C: Approval Letter

Following this page is the Approval Letter for the Woodstown Borough Municipal Appendix.