



Cumberland County Multi-Hazard Mitigation Plan Update
Participating Jurisdiction Appendices

Appendix 9
Lawrence Township, New Jersey

August 22, 2022

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Part 1: Overview

Part 1.1: Cumberland County Multi-Hazard Mitigation Plan Update

The Cumberland County Multi-Hazard Mitigation Plan Update (CC HMPU) incorporates input from all 15 participating jurisdictions in Cumberland County, including Cumberland County and 14 separate municipalities.

The CC HMPU is an update of the Mitigation Plan for Four New Jersey Counties (NJ4 HMP) that was completed by all fifteen jurisdictions in Cumberland County along with over 70 additional jurisdictions from Camden, Gloucester, and Salem Counties. The Cumberland County portions of the NJ4 HMP were adopted by the participating jurisdictions and approved by the Federal Emergency Management Agency in 2016.

The CC HMPU has two main parts:

- Cumberland County Multi-Hazard Mitigation Plan Update, or the “Base Plan”.
- County and Municipal Appendices.

The Base Plan includes descriptions and information common to all 15 participating jurisdictions organized according to the following three focus areas:

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

The County and Municipal Appendices include specific information for these same three focus areas for each of the 15 participating jurisdictions. Detailed tabulations are included in these Municipal Appendices for critical facilities, the status of past mitigation activities, and proposed mitigation measures for each municipality.

Part 1.2: Lawrence Township Municipal Appendix

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

The Lawrence Township Municipal Working Group developed the Lawrence Township Municipal Appendix for adoption by the Lawrence Township Committee and subsequent approval by Region II of the Federal Emergency Management Agency.

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 9-1 identifies the Municipal Working Group members. As detailed in *Section 2: Planning Process* of the Base 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.

Municipal Working Group members reviewed briefing materials and contributed during Work Sessions and Meetings and reviewed the Preliminary Draft and Public Review Draft versions of the CC HMPU Base Plan and Appendices. The Working Group will also continue to stay involved during the implementation and maintenance of the CC HMPU.

Due to the on-going COVID-19 pandemic during the plan update process, Working Group meetings were conducted in a variety of ways including virtual meetings. However, when local conditions permitted, in-person meetings were conducted.

Note: Eight members of the Working Group also participated in the development of the 2016 NJ4 HMP. These members are indicated with an () following their last names.*

Table 9-1: Lawrence Township Working Group

First Name	Last Name	Department	Position	Project Kick-off Meeting ¹	Round 1 Work Session ²	Round 2 Work Session ³	Contribution ⁴
Maurice	Cobb, Jr. *	Office of Emergency Management (OEM)	OEM Coordinator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Organized Working Group and Work Sessions.
Linda	Cobb	OEM	Staff		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Peter	Wagner *	OEM	Deputy OEM Coordinator				
John	Marks	EMS	Chief				
George	Ripper	Public Works	Supervisor				

¹ Project Kickoff Meeting was held on May 20, 2021.

² Round 1 Work Session was held on August 5, 2021.

³ Round 2 Work Session was held on November 15, 2021.

⁴ Additional or unusual contributions are noted in the far-right hand column.

Part 2: Participation

First Name	Last Name	Department	Position	Project Kick-off Meeting ¹	Round 1 Work Session ²	Round 2 Work Session ³	Contribution ⁴
G. Erwin	Sheppard *	Township Committee	Committeeman / Mayor		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Joseph	Miletta, Jr. *	Township Committee	Committeeman / Deputy Mayor		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Elmer "Skip"	Bowman *	Township Committee	Committee Person		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Ruth	Dawson *	Clerk's Office	Township Clerk		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Kathy	Rodman *	Clerk's Office	Deputy Township Clerk				
Thomas	Seeley	Seeley Law Office	Solicitor		<input checked="" type="checkbox"/>		
Alfred	Humeny	Planning Board	Chairman				
Anthony	Lamanteer	Code Enforcement	Zoning Officer				
Wayne	Shelton	Construction	Construction Official / Floodplain Administrator		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Stephen	Nardelli	Fralinger Engineering	Township Engineer				
Kevin	Scarlato *	Cedarville Fire Department	Assistant Fire Chief				
ShelleyMarie	Magan	School Board	School Administrator				
Lisa	DiNovi	School Board	Business Administrator				

Part 2: Participation

The following lists candidate positions and organizations within the community that were extended invitations to 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.

- 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
- Police
- Transportation Department
- Business Associations
- Environmental Organizations
- Non-Governmental Organizations
- Critical Infrastructure and Key Resources
- Healthcare Institutions

Part 2: Participation

Part 2.2: Public Participation

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

Table 9-2 identifies the date, type of involvement, and location (where applicable) for all opportunities provided to the public and interested parties to participate in the development of the plan update.

Table 9-2: Public Participation

Date	Type of Involvement	Location
July 12, 2021	Link to Project Website ⁵ established and maintained.	Township website ⁶
August 5, 2021	Public meeting conducted with presentation and open discussion.	Township Municipal Hall
September 8, 2021	Preliminary Draft Municipal Appendix available for public comment.	Project Website ⁵
September 9, 2021	Notice posted re: Preliminary Draft Municipal Appendix review period with link to Project Website.	Township website ⁶
April 8, 2022	Notice posted re: Public Review Draft Municipal Appendix review period with link to Project Website.	Township website ⁶
April 19, 2022	Public Review Draft Municipal Appendix available for public comment.	Project Website ⁵

Public comments and input received for the Preliminary Draft and Public Review Draft versions of the Municipal Appendix were considered by the Municipal Working Group and incorporated into the Municipal Appendix where appropriate. 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 <https://cchmpu21.com/documents>

⁶ www.lawrencetwpcumberlandnj.com

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

⁸ Public education and outreach are described in *Section 4: Mitigation Measures* of the CC HMPU Base Plan.

Part 3: Hazard Identification and Risk Assessment

Part 3: Hazard Identification and Risk Assessment

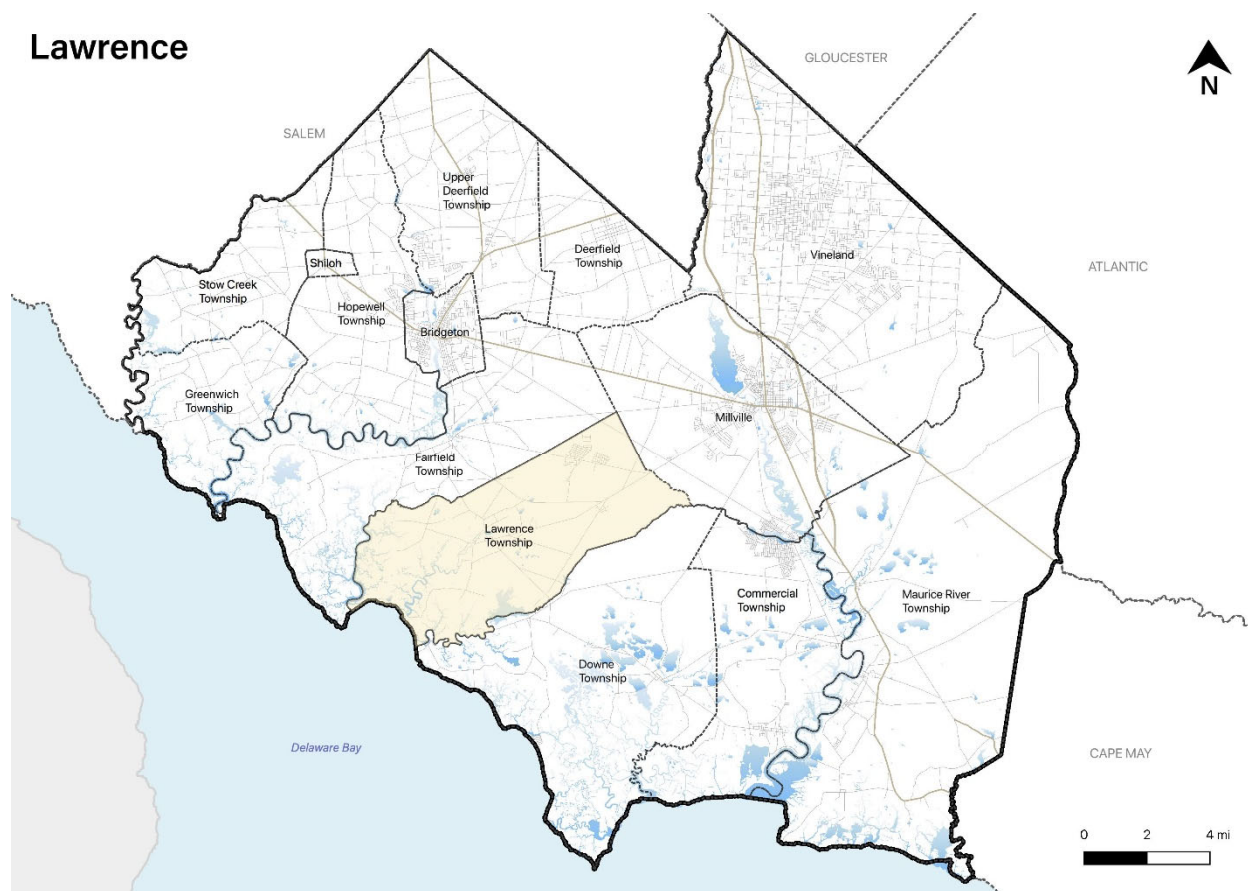
Part 3 includes seven subparts:

- *Part 3.1: Profile*
- *Part 3.2: General Building Stock*
- *Part 3.3: Critical Facilities*
- *Part 3.4: Hazard Exposure Assessment*
- *Part 3.5: Demographic Considerations*
- *Part 3.6: Observations*
- *Part 3.7: Hazard Priorities*

Part 3.1: Profile

Lawrence Township is located in the southwestern part of Cumberland County (See Figure 9-1).

Figure 9-1: Lawrence Township Location Map

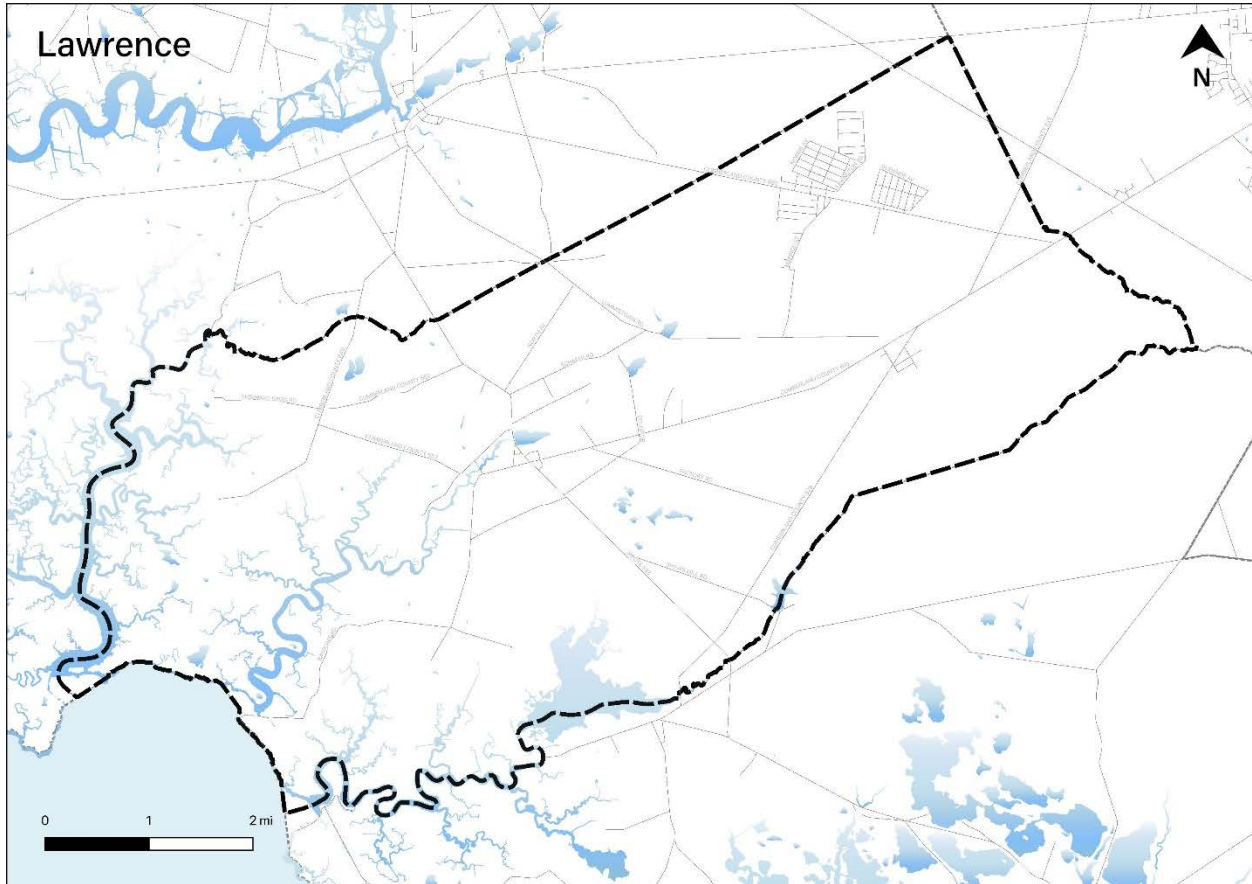


Part 3: Hazard Identification and Risk Assessment

Lawrence Township is comprised largely of farmlands and natural areas, with residential and commercial centers throughout the villages. Villages in the municipality include Bay Point and Cedarville.

Per Figure 9-2, major water bodies include Nantuxent Cove and Pages Run. Major transportation routes include Cumberland County Routes 610 and 629. The land is predominantly flat and existing land consists of farmland, forests, and marshes.

Figure 9-2: Lawrence Township Base Map



Part 3: Hazard Identification and Risk Assessment

Part 3.2: General Building Stock

As of 2015, there are 2,170 buildings in Lawrence Township with a total assessed value of improvements of \$269,654,100. Figure 9-3 shows the footprints of these buildings.

Figure 9-3: Lawrence Township Building Footprints⁹

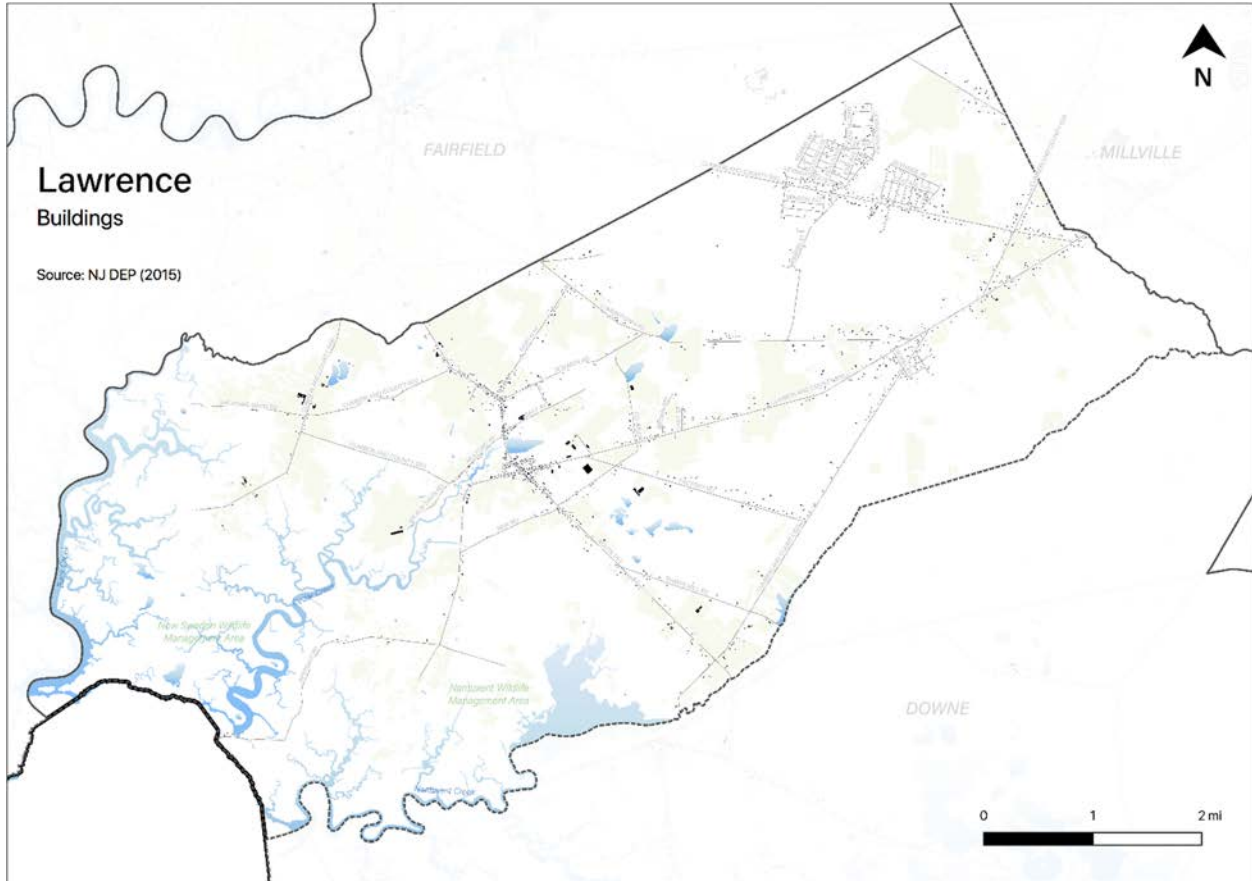


Table 9-3 shows the distribution of these structures according to land use distinctions.

Table 9-3: Lawrence Township Buildings per Land Use Type¹⁰

Land Use Type	Residential	Commercial	Industrial	Other
Number of Buildings	1,663	45	3	389
% of Total	79%	2%	0%	19%

⁹ Building footprint data was isolated from “Impervious Surfaces” data (2015) per <https://gisdata-njdep.opendata.arcgis.com/>. Note: This (map/publication/report) was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

¹⁰ Land use types were isolated from MOD-IV Parcels and Tax Assessor data composite (2021) per <https://njogis-newjersey.opendata.arcgis.com/documents/parcels-and-mod-iv-of-cumberland-county-nj-shp-download/about> from the New Jersey Office of GIS

Part 3: Hazard Identification and Risk Assessment

Part 3.3: Critical Facilities¹¹

As of April 2022, there are twelve critical facilities in Lawrence Township.

Critical facilities are prime candidates for mitigation measures due to important functions staged from these facilities prior to, during, and after natural hazards including emergency services and housing vulnerable populations.

Table 9-4 includes current inventory information for municipal critical facilities and cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix. Figure 9.4 shows the location of these critical facilities.

Table 9-4: Lawrence Township 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	357 Main Street, Cedarville	CF-8	N	N		M-2
CF-2	Emergency Operations Center	EOC	Co-located Facilities	30 Maple Avenue, Cedarville	CF-3 and CF-5	N	N		M-4
CF-3	Cedarville Fire Department – Station 17	FireStation	Stations	30 Maple Avenue, Cedarville	CF-2 and CF-5	N ¹²	N	OEM location	M-4
CF-4	Fire Well #1	FireStation	Wells	In between 327 & 335 Factory Road, Cedarville		N/A	N	3,100 gallon holding tank	
CF-5	Fire Well #2	FireStation	Wells	30 Maple Avenue, Cedarville	CF-2 and CF-3	N/A	N		
CF-6	Fire Well #3	FireStation	Wells	288 Co-Op Drive, Cedarville		N/A	N	Private owner	
CF-7	Fire Well #4	FireStation	Wells	Between 784 & 796 Ramah Road, Cedarville		N/A	N		M-3
CF-8	Lawrence Township EMS	EMS	Municipal Stations	357 Main Street, Cedarville	CF-1	N	N		M-2

¹¹ Critical facility definitions and considerations are described in *Section 3: Hazard Identification and Risk Assessment* of the CC HMPU Base Plan.

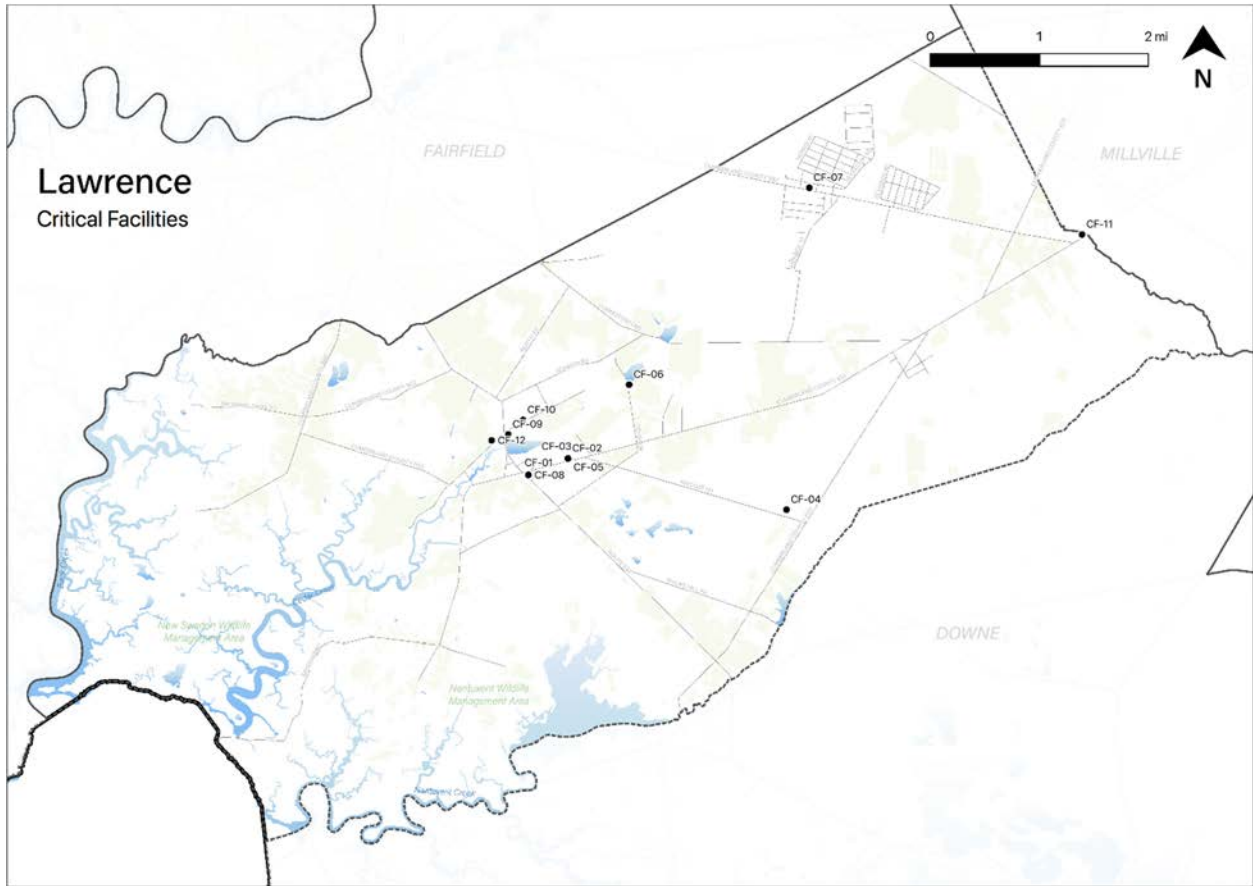
¹² Shelter of last resort.

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-9	Lawrence Township Public Works	Public Works	Combined Administrative Office, Maintenance / Work Area, Equipment / Material Storage, and Fueling Station	32 Maple Avenue, Cedarville	CF-1	N	Y	Back-up emergency power provided by generator located at Station 17 (CF-3)	
CF-10	Myron L. Powell Elementary School	Schools	Public Schools	225 Main Street, Cedarville		N	Y		
CF-11	No More Tears Childcare	Vulnerable Populations Facilities	Private Child Day Care	3006 Cedarville Road, Millville		N	N		
CF-12	Lawrence Township Senior Center	Vulnerable Populations Facilities	Senior Centers	14 Mulford Avenue, Cedarville		N ¹²	Y		M-5

Part 3: Hazard Identification and Risk Assessment

Figure 9-4: Lawrence Township Critical Facilities



Part 3.4: Hazard Exposure Assessment

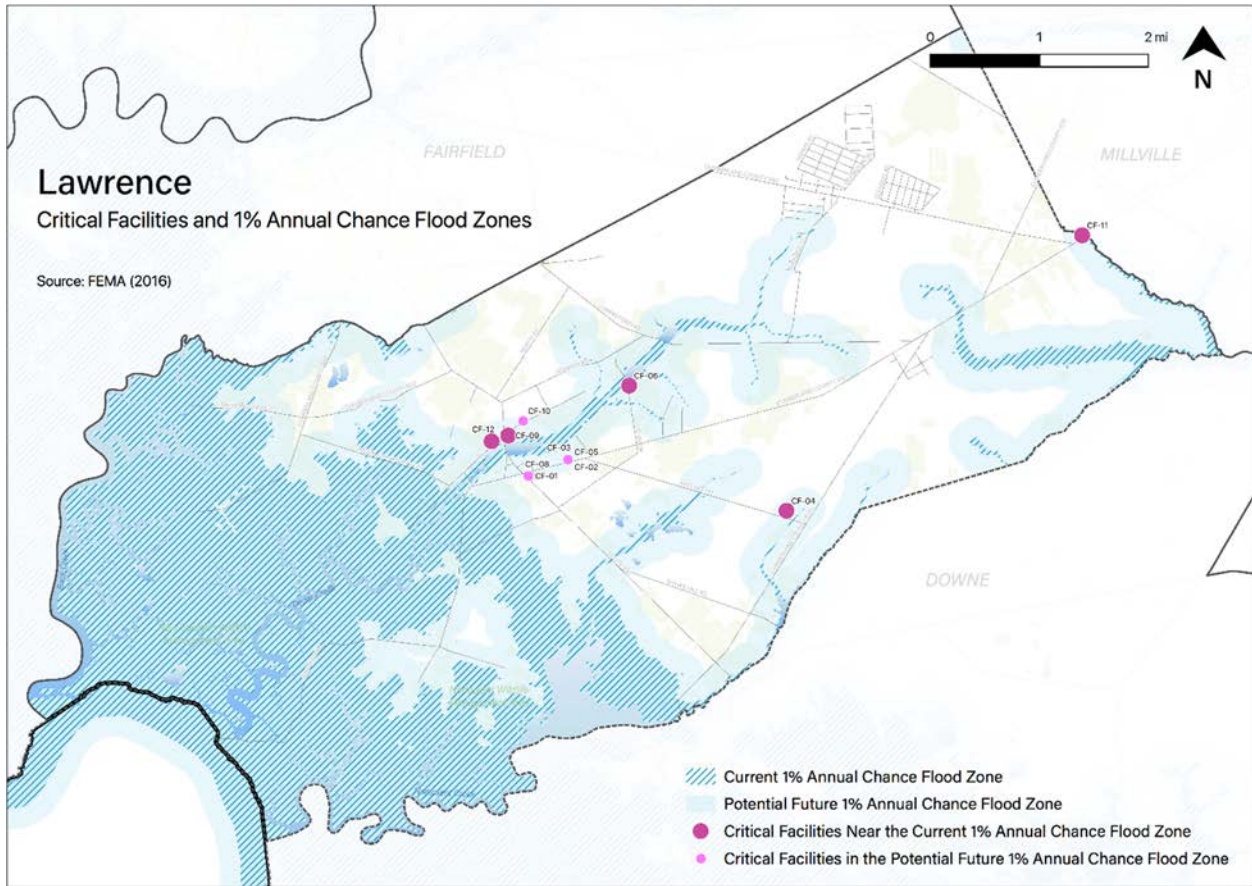
Hazard exposure assessments were completed for the eleven (11) natural hazards identified in the CC HMPU Base Plan¹³.

Key results for Lawrence Township are depicted in the following.

Mapping: Figure 9-5 is illustrative of the type of mapping available as a result of the hazard exposure assessment. This figure shows critical facilities that are located in or near (i.e., within 500 feet) the 1% annual flood zone on FEMA's Flood Insurance Rate Maps (FIRMs) or within a potential future 1% annual chance flood zone (i.e., within 1,000 feet).

¹³ Hazard profiles are included for all eleven natural hazards in *Section 3: Hazard Identification and Risk Assessment* of the CC HMPU Base Plan.

Figure 9-5: Lawrence Township Critical Facilities and 1% Annual Chance Flood Zone



Mapping results are available for general building stock and critical facilities for the following hazards:¹⁴

- Coastal Erosion & Sea Level Rise
- Earthquake
- Extreme High Temperature
- Flood - per FEMA FIRM mapping
- High Wind and Severe Weather (heavy summer rains and winter snow loads)
- Wildfire

Tabulations: Selected data culled from the hazard exposure assessment process is displayed in the following tables:

- Table 9-5 indicates hazard exposure for general building stock
- Table 9-6 indicates hazard exposure for critical facilities

¹⁴ All mapping corresponding to results described in Parts 3.3 through 3.5 can be viewed in .pdf format at: https://www.dropbox.com/sh/oxbppirgeu1airu/AABdDU_uGCyPAIJ_4WSsOxL0a?dl=0.

Part 3: Hazard Identification and Risk Assessment

Table 9-5: Lawrence Township General Building Stock Hazard Exposure

Hazard	Number of Exposed Buildings	Percent of Total Buildings in the Jurisdiction	Value of Exposed Buildings	Percent of Total Value in the Jurisdiction
Coastal Erosion ¹⁵	1	-	no data	-
Sea Level Rise - 3 feet increase	88	4%	\$4,175,800	1.55%
Flood - Within 1 % Annual Chance Zone	111	5%	\$5,830,500	2%
Flood - Near (within 500 feet) of 1% Annual Chance Zone	325	15%	\$34,944,600	13%
Earthquake – Structure built before 1927 ¹⁶	411	23%	\$46,357,400	19%
High Winds / Severe Weather – Structure built before 1975	828	47%	\$92,800,300	38%
Wildfire – Composite score > 2.5 ¹⁷	79	3.6%	\$10,312,400	3.8%

Table 9-6: Lawrence Township Critical Facilities Hazard Exposure¹⁸

Hazard	Number of Critical Facilities	CF #s
Coastal Erosion	None	N/A
Sea Level Rise	None	N/A
Flood - Within 1 % Annual Chance Zone	None	N/A
Flood - Near (within 500 feet) of 1% Annual Chance Zone	5	CF-04, CF-06, CF-09, CF-11, CF-12
Flood – Future potential (within 1,000 feet) 1% Annual Chance Zone	6	CF-01, CF-02, CF-03, CF-05, CF-08, CF-10
Wildfire	10	CF-01, CF-02, CF-03, CF-04, CF-05, CF-07, CF-08, CF-09, CF-11, CF-12

In addition, all critical facilities in Cumberland County are exposed to the following hazards and potentially subject to power outages, and structural and/or contents damage:

- Earthquake
- Extreme Temperatures
- High Winds
- Severe Weather – Summer (including heavy rains)
- Severe Weather – Winter (including heavy snow loads)

¹⁵ All supporting data for Coastal Erosion, Sea Level Rise (3-foot rise), Flood (all) can be viewed at https://docs.google.com/spreadsheets/d/1fcN5hL3Jz4X7mldFyKs6wol6J6IAR9bSsvJPiQE_A0Q/edit?usp=sharing

¹⁶ All supporting data for Earthquake, High Winds, and Severe Weather can be viewed at <https://docs.google.com/spreadsheets/d/1Zx1LZwKQ8esqdv4c9hbbSZurtMjH4UITQWJY1LrZezc/edit?usp=sharing>

¹⁷ All supporting data for Wildfire can be viewed at https://docs.google.com/spreadsheets/d/1JAbfd3A-eCHI93pZFaPVuM_H2yvuUzeHCmoijv-oxsw/edit?usp=sharing

¹⁸ All supporting data for critical facility hazard exposure can be viewed at <https://docs.google.com/spreadsheets/d/1MPLiOANm7fHoyKuxyWqyang26LTSPayTxJvLmK5IGPg/edit?usp=sharing>

Part 3: Hazard Identification and Risk Assessment

Information from the 2016 NJ4 HMP HIRA was also reviewed with the Working Group to determine the need for updates to hazard exposure results for Dam Failure and Levee Failure.

Dam Failure

Per the New Jersey Department of Environmental Protection (NJDEP) data¹⁹:

- There are two (2) “Significant Hazard” dams located in the Township:
 - Cedar Lake Dam on Cedar Creek
 - Shaws Mill Pond Dam on Pages Run
- No (0) dam failure incidents had been recorded in the Township as of 2014

Levee Failure

Per the South Jersey Levee Inventory²⁰:

- There are eleven (11) levees in the Township, with a total of ninety-eight (98) parcels within a 1,000-foot buffer, including:
 - Private landowners (NCRS #s 67, 68, & 68A)
 - Sayres Neck 1 (NCRS #s 69, 70, & 71)
 - Jones Island Road (NCRS #73)
 - Bay Point Road (NCRS #s 74 and 75A)
 - Blizzard Neck Gut (NCRS #75)
 - Nancy Gut (NCRS #76)
- No (0) levee failure incidents had been recorded in the Township as of 2014

Working Group members were asked the following questions for Dam and Levee Failure:

- ✓ *Are these facilities still in operation?*
- ✓ *Are there updated Emergency Action Plans or inundation maps for these facilities?*
- ✓ *Have there been any other incidents of failure since the reported records?*

Per the Lawrence Township Working Group:

- Responsibility for Cedar Lake Dam is shared with Cumberland County
- Shaw’s Mill Pond Dam is a State-owned dam located in a hunting preserve that was updated and relocated to Downe Township in 2016.
- All levees were raised three feet following Superstorm Sandy using private funding.

Otherwise, there were no changes to the NJ4 HMP HIRA Dam Failure and Levee Failure hazard exposure results.

¹⁹ (1) NJDEP Dam Safety and Flood Control (Dam Locations); (2) NJDEP Land Use / Land Cover; (3) US Census Bureau 2010 Census

²⁰ US Department of Agriculture, National Resources Conservation Services (NRCS) South Jersey Levee Inventory, 2010.

Part 3: Hazard Identification and Risk Assessment

National Flood Insurance Program Information

One additional metric discussed with the Working Group was statistical information from the National Flood Insurance Program (NFIP)²¹. The following are relevant numbers for Lawrence Township as provided by the New Jersey Office of Emergency Management (NJOEM)²²:

- Active Policies – sixteen (16) active NFIP flood insurance policies
- Claims History – forty (40) claims made against the NFIP between 1979 and 2012
- Repetitive Loss Properties (RL) – two (2) properties designated as RL

For comparison relative to the number of active NFIP flood insurance policies, the following are the number of potentially exposed buildings (per Table 9-5), which are higher than the number of active policies:

- Flood - Within 1 % Annual Chance Zone: 111 buildings ~ 5% of total buildings, with a value of \$5,830,500 ~ 2% of the total building value in the Township.
- Flood - Near (within 500 feet) of 1% Annual Chance Zone: 325 buildings ~ 15% of total buildings, with a value of \$34,944,600 ~ 13% of the total building value in the Township.

²¹ Information on the NFIP is described in *Section 3: Hazard Identification and Risk Assessment* of the CC HMPU Base Plan.

²² Spreadsheets provided by NJOEM in October 2021.

Part 3: Hazard Identification and Risk Assessment

Part 3.5: Demographic Considerations

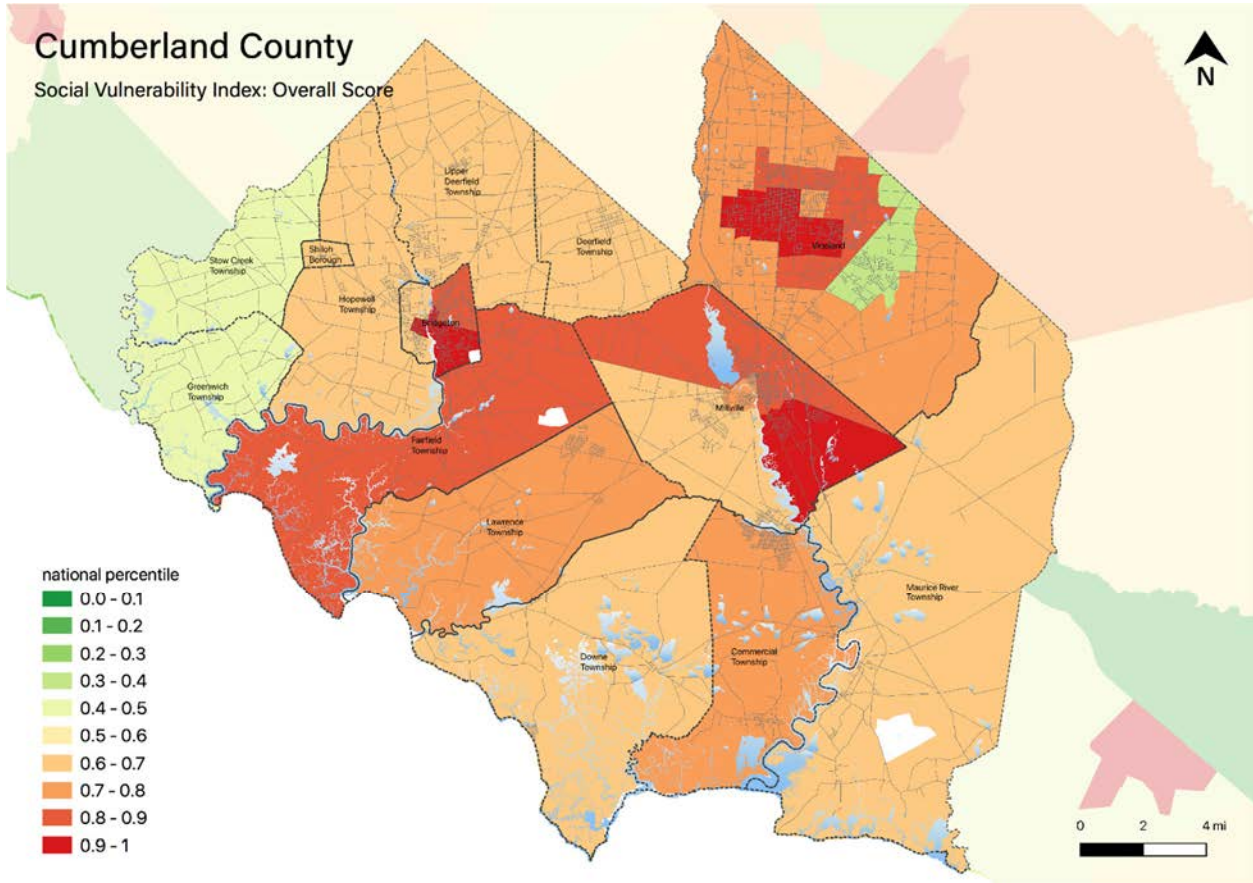
Demographic considerations include general population and land use factors. Table 9-7 includes current population estimates and changes since the previous US Census²³:

Table 9-7: Lawrence Township General Population Demographics

Metric	Current Estimates
2010 Population	3,290
2019 Population	3,123
Percent Population Change (2010-2019)	- 5.08%
Land Area	36.92 sq. miles
Population Density	84.6 / sq. mile

Demographic considerations also include differences in social vulnerability²⁴. Figure 9-6 shows the overall Social Vulnerability (SVI) Index overall scores for Cumberland County.

Figure 9-6: Cumberland County Social Vulnerability Index: Overall Scores



²³ US Census, 2019 ACS 5 Year Estimates, Table ID DP5

²⁴ Social vulnerability considerations are described in *Section 3: Hazard Identification and Risk Assessment* of the CC HMPU Base Plan.

Part 3: Hazard Identification and Risk Assessment

For Lawrence Township, Table 9-8 includes selected metrics where social vulnerability considerations are noteworthy when compared with all national census tracts:

Table 9-8: Lawrence Township Social Vulnerability Considerations²⁵

Metric	Comparison with all National Census Tracts
Percentage of persons: With a disability	Higher than 80%
Percentage of persons: Living in mobile homes	Higher than 87%
Percentage of persons: Living in group quarters	Higher than 82%

In addition, the percentage of residents earning below poverty level = 14.4% (compared with the average in New Jersey of 10.4%).

Part 3.6: Observations

- Outreach and guidance should be provided for residents, business owners, and property owners for:
 - Properties in or near coastal erosion, sea level rise, flood zones or wildfire hazard areas.
 - Older buildings to help evaluate potential risk of damage due to hazards such as Earthquake, High Winds, and Severe Winter Weather (i.e., heavy snow loads).
- All critical facilities are potentially vulnerable to Earthquake, High Winds, and Severe Weather (heavy rains in summer and snow loads in winter).
- A few critical facilities are potentially vulnerable to Flood and Wildfire and will be identified as priorities for follow-up critical facility field evaluations.
- Priority for follow-up should also be focused on critical facilities housing vulnerable populations related to Extreme Temperature and Severe Weather hazards. For example, determining and documenting (cross referencing EOP) how residents will be moved to facilities providing shelter including cooling and warming centers (all of which would need adequate back-up power and hardening).

²⁵ All supporting data for SVI can be viewed at https://docs.google.com/spreadsheets/d/10zb_Qlg2CqGxb45_fcKiP46swaC16-fORxYTIOiAkP0/edit#gid=1481479799

Part 3: Hazard Identification and Risk Assessment

Part 3.7: Hazard Priorities

As a key step in the Hazard Identification and Risk Assessment (HIRA) process, the eleven (11) natural hazards identified in the CC HMPU Base Plan were discussed during the Municipal Working Group Work Sessions and the relative priority of these hazards was identified.

Based on their personal experience as well as the results of the HIRA, the Municipal Working Group rated the hazards as follows:

High Priority

- Coastal Erosion and Sea Level Rise
- Wildfire

Moderate Priority

- Dam Failure
- Flood
- High Wind
- Levee Failure
- Severe Weather – Summer

Low Priority

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

Part 4: Mitigation Measures

Part 4: Mitigation Measures

Part 4 includes six subparts:

- *Part 4.1: Mitigation Goals and Strategy*
- *Part 4.2: NJ4 HMP Mitigation Measures*
- *Part 4.3: Municipal Mitigation Measures – Identification*
- *Part 4.4: Municipal Mitigation Measures – Implementation*
- *Part 4.5: Multi-Jurisdictional Mitigation Measures*
- *Part 4.6: Authorities, Policies, Programs, Resources, and Plan Integration*

Part 4.1: Mitigation Goals and Strategy

Goals were originally established by the SDVR 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 NJ4 HMP plan update process, these goals were reviewed and edited by the Municipal Working Groups for use in the Municipal Appendices. In addition, the Municipal Working Groups for the CC HMPU reviewed and reaffirmed these goals for continued use in the Appendices.

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 HIRA, and experience of participants in the plan update process, the Municipal Working Group identified an overarching strategy for mitigation:

- Identify and address known problems or areas of concern for critical facilities and vulnerable populations
- Provide opportunities for residents and property owners to access available information about risk reduction and mitigation measures, e.g., useful links added to municipal websites, in particular for Repetitive Flood Loss properties
- Institutionalize hazard mitigation into municipal activities and programs through regular interactions of the Municipal Working Group and 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: NJ4 HMP Mitigation Measures

Known problems and areas of concern were the basis for mitigation measures identified in the NJ4 HMP. In cases where these problems and concerns still exist at the time of the CC HMPU, the related NJ4 HMP mitigation measures were candidates for inclusion in the Municipal Appendix.

Table 9-9 identifies the status of mitigation measures included in the NJ4 HMP. These entries were based on information provided by the Municipal Working Group. In some cases, the NJ4 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 9-9.

Table 9-9: Status of Lawrence Township NJ4 HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # ²⁶²⁷
M-1: Identify and pursue outreach and education opportunities to inform municipal residents, businesses, and property owners.	Work-in-progress	Work-in-progress included: <ul style="list-style-type: none"> • The Township website is used for emergency notifications. In addition, the Township newsletter is used for information regarding flood hazards. • Township staff have regular discussions regarding pending and on-going projects. • On-site surveys were conducted, including: <ul style="list-style-type: none"> ▫ CF #s 1 & 2 (Cedarville Fire Department and Road Department,) Identified need to harden exterior of building (Windows) by installing storm shutters. Lawrence Township is hoping to do this within 3 years. ▫ CF #s 3 & 4 (LT EMS & LT municipal building) These 2 buildings are attached to form 1 large building. Identified the need for a back-up emergency power generator to energize both buildings. This is planned to be installed in the year 2022. ▪ Similar walk thru inspections are scheduled once a year to look for vulnerabilities. 	Carried over as part of M-1
M-2: Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.			
M-3: Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.			
M-4: Conduct regular Municipal Working Group meetings.			
M-5: Install permanent backup emergency power generator at Lawrence Township Municipal Building / EMS at 357 Main Street (CF-1 / CF-8).	Work-in-progress	Purchase and installation are scheduled for 2022 as part of CIP.	Carried over as M-2

²⁶ Detailed information for identification and implementation of municipal (M-#) mitigation measures is included in Tables 9-10 and 9-11.

²⁷ Detailed information for identification and implementation of multi-jurisdictional (MJ-#) mitigation measures is included in Table 9-12.

Part 4: Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # ²⁶²⁷
M-6: Install permanent backup emergency power generator at Cedarville Fire Department / Lawrence Township EOC / Fire Well #2 (CF-2 / CF-3 / CF-5).	Completed	Generator was installed in 2016 by contractor for Township using HMGP funds from Superstorm Sandy ²⁸ .	N/A
M-7: Install permanent backup emergency power generator at Fire Well #4 (CF-7).	Not completed, not funded	Potential candidate for installing hook-up and transfer switch for use of portable generators pending availability.	Carried over as M-3
M-8: Install permanent backup emergency power generator at Public Works facility (CF-9).	Completed	Generator was installed in 2018 by contractor for Township using HMGP funds from Superstorm Sandy ²⁸ .	N/A
M-9: Upgrade permanent backup emergency power generator at Myron L. Powell Elementary School (CF-10).	Completed	Generator was installed in 2016 using School Board funds.	N/A
M-10: Risk assessment of Cedarville Lake Dam.	Work-in-progress	In November 2021, Cumberland County Engineering Department was conducting initial site surveys. Should be considered as multi-jurisdictional mitigation measure.	Carried over as multi-jurisdictional mitigation measure MJ-2
M-11: Elevate New Road where it crosses Fresh Creek.	Completed	Road elevated and repaved and sluice and dikes repaired in 2019 by Township Road Department using NJ DOT Trust Funds.	N/A
M-12: Address identified Repetitive Loss Properties to include homes with flood issues in the Bay Point Community area.	Resolved	Acquisition of most properties (exception of two homes) completed in 2014 through NJ Blue Acres. Per OEM Coordinator, as of February 2021, none of the listed properties have structures.	N/A
M-13: Harden / retrofit Fire Station / EOC to include upgrades to windows, storm shutters, and doors (CF-2 / CF-3).	Not completed, not funded		Carried over as M-4
M-14: Harden / retrofit Lawrence Township Senior Center to include upgrades to windows (CF-12).	Not completed, not funded		Carried over as M-5
M-15: Risk assessment study to determine retaining solution for levee Bay Point Road (road lower than the dikes).	No progress	Project may not be justifiable. Only a problem with bay intrusion on one historic occasion, therefore small risk due to limited numbers of properties (n=3) with only one permanent resident versus high cost of available solutions.	Carried over as M-6
M-16: Widen DeCarlo Trac fire lanes / roadway to allow for emergency vehicle access in wooded areas.	Completed	Roadways widened, brush removed and continually maintained by Township Road Department.	N/A

²⁸ Cumberland County Round 1 Generator Program.

Part 4: Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # ²⁶²⁷
MJ-1: Alleviate flooding at County Route 653 (Bowers Creek Road), east side of White Bridge.	No progress	Management issue in terms of monitoring flood potential and blocking road to prevent drive through.	Carried over as multi-jurisdictional mitigation measure MJ-1

Part 4.3: Municipal Mitigation Measures – Identification

Table 9-10 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 NJ4 HMP 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)²⁹ if applicable

Table 9-10 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 9-10: Lawrence Township Municipal Mitigation Measures Identification

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
M-1	<p><u>Township Mitigation Program</u> – including sustained efforts in cooperation with Cumberland County Office of Emergency Management (CC OEM) to:</p> <ul style="list-style-type: none"> ▪ Conduct outreach and education for residents, businesses, and property owners ▪ Complete critical facility field evaluations to identify potential vulnerabilities and mitigation measures ▪ Compile relevant data regarding hazard impacts ▪ Support regular interactions of the Township Working Group ▪ Seek integration of hazard mitigation with other parallel planning initiatives 	All	Goal #s 1, 2, and 3	All

²⁹ Section 3: Hazard Identification and Risk Assessment of the CC HMPU Base Plan includes 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-2	Install permanent backup emergency power generator at Lawrence Township Municipal Building / EMS at 357 Main Street (CF-1 / CF-8).	Power outage due to multiple hazard types.	Goal #4	Existing
M-3	Install permanent backup emergency power generator at Fire Well #4 (CF-7).	Power outage due to multiple hazard types.	Goal #4	Existing
M-4	Harden / retrofit Fire Station / EOC to include upgrades to windows, storm shutters, and doors (CF-2 / CF-3).	High Wind, Severe Winter Weather	Goal #4	Existing
M-5	Harden / retrofit Lawrence Township Senior Center to include upgrades to windows (CF-12).	High Wind, Severe Winter Weather	Goal #4	Existing
M-6	Risk assessment study to determine retaining solution for levee Bay Point Road (road lower than the dikes).	Levee Failure	Goal #4	Existing

Part 4.4: Municipal Mitigation Measures – Implementation

Table 9-11 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 criteria³⁰
- Project Type to help determine funding options and implementation mechanisms at the municipal level³¹
- 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

³⁰ Section 4: Mitigation Measures of the CC HMPU Base Plan includes a description of evaluation criteria considered by the Municipal Working Group.

³¹ Section 4: Mitigation Measures of the CC HMPU Base Plan includes a description of project types and related information regarding funding options and implementation mechanisms.

Part 4: Mitigation Measures

Table 9-11: Lawrence Township Municipal Mitigation Measures Implementation

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-1	Township Mitigation Program	Township OEM and Township Working Group	High	Program	Staff Time	On-going, sustained effort	<ul style="list-style-type: none"> ▪ Identify outreach and education objectives and methods (working with CC OEM) ▪ Set priorities (if necessary) and conduct critical facility field evaluations ▪ Identify schedule for plan updates (including sustained public participation and plan integration efforts)
M-2	Install permanent backup emergency power generator at Lawrence Township Municipal Building / EMS at 357 Main Street (CF-1 / CF-8).	Township Administration and Township OEM	High	Back-up Emergency Power Generator	< \$100K	One to two years	<ul style="list-style-type: none"> ▪ Proceed with installation with selected contractor
M-3	Install hookup and transfer switch for using portable backup emergency power generator at Fire Well #4 (CF-7).	Township Administration, Township OEM, and Fire Department	Low	Back-up Emergency Power Generator	\$2,000 +/-	One to three years	<ul style="list-style-type: none"> ▪ Conduct project scoping.³² ▪ Secure portable generators (with Township funding)
M-4	Harden / retrofit Fire Station / EOC to include upgrades to windows, storm shutters, and doors (CF-2 / CF-3).	Township OEM, Public Works Department, and Fire Department	Moderate	Building Retrofit	<\$50K	One to two years	<ul style="list-style-type: none"> ▪ Conduct project scoping. ▪ Implementation by Township.
M-5	Harden / retrofit Lawrence Township Senior Center to include upgrades to long bank of west facing windows (CF-12).	Township OEM and Public Works Department	Low	Building Retrofit	\$100K +/-	Three to five years	<ul style="list-style-type: none"> ▪ Conduct project scoping. ▪ Secure funding.
M-6	Risk assessment study to determine retaining solution for levee Bay Point Road (road lower than the dikes).	Township Administration, Township OEM and Public Works Department	Low	Private Property Mitigation	< \$50K	Three to five years	<ul style="list-style-type: none"> ▪ Develop scope of work for engineering study ▪ Secure funding. ▪ Procure professional consulting services.

³² Project scoping for M-3 to include determining feasibility to install hookups and transfer switch for using portable generator(s) to accommodate need, at least as a temporary measure

Part 4: Mitigation Measures

The following are additional notes regarding the implementation of Mitigation Measure M-1 (consistent with *Part 3.6: Observations*):

- Outreach and guidance should be provided for owners of :
 - Buildings potentially exposed to Coastal Erosion, Sea Level Rise, Dam Failure, Levee Failure, and/or Wildfire.
 - Buildings in or near the 1% annual flood zone regarding potential risk and availability of NFIP flood insurance.
 - Older buildings to help evaluate potential risk of damage due to hazards such as Earthquake, High Winds, and Severe Weather (heavy rains in summer and heavy snow loads in winter).
- Considerations for prioritizing and conducting critical facility field evaluations should include:
 - All CFs are potentially vulnerable to Earthquake, High Winds, and Severe Weather (heavy rains in summer and heavy snow loads in winter).
 - In addition, some CFs are potentially vulnerable to Flood and/or Wildfire and should also be considered as candidates for follow-up facility-level evaluations.
 - Priority for follow-up should also be focused on critical facilities housing vulnerable populations, e.g., group homes, related to Extreme Temperature and Severe Weather hazards. For example, determining and documenting (cross referencing the jurisdiction's Emergency Operations Plan) how residents will be moved to facilities providing shelter including cooling and warming centers (all of which would need adequate back-up power and hardening).
- Provisions for Plan Maintenance include :
 - Sustain public outreach and participation (including but not limited to targeted outreach and guidance efforts)
 - Conduct regular interactions of the Working Group to keep the plan current (e.g., an annual plan review and amendment process at a minimum)
 - Track and take advantage of plan integration opportunities including noting all upcoming plan updates as part of regular Working Group interactions

Part 4: Mitigation Measures

Part 4.5: Multi-Jurisdictional Mitigation Measures

During the Municipal Working Group Work Sessions, the Working Group identified some NJ4 HMP mitigation measures to be carried over, as well as adding new areas of concern, all of which were designated as multi-jurisdictional mitigation measures. Implementation of these measures, in the opinion of the Municipal Working Groups, requires participation or leadership from other levels of government, including county, state, and federal agencies. These multi-jurisdictional mitigation measures have been compiled in Table 9-12.

These measures have been referred to the County Working Group for consideration. As part of the implementation of the CC HMPU, the County Working Group will be working with the municipalities to:

- Confirm identified issues are valid multi-jurisdictional measures
- Identify specific responsibilities amongst different level(s) of government to address these problem areas
- Identify 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
- Identify which, if any, additional mitigation measures the member agencies of the County Working Group will assume responsibility to implement

Table 9-12: Lawrence Township 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 653 (Bowers Creek Road), east side of White Bridge.	Flood	Goal #4	Both	Township OEM, Cumberland County DPW	Low
MJ-2	Risk assessment of Cedarville Lake Dam and related drainage systems.	Dam Failure	Goal #4	Both	Township OEM, Cumberland County DPW	Moderate

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 CC HMPU Base Plan regarding existing authorities, policies, and programs in the County and specific information about the Lawrence Township's participation and continued compliance in the National Flood Insurance Program (NFIP)
- Resources - Cross referencing relevant information and recommendations in the CC HMPU Base Plan regarding improving capabilities and coordination at the County and municipal level and specific information about Lawrence Township's available resources
- Plan Review and Integration – Identifying plans and programs included in the development of Plan Integration recommendations in the CC HMPU Base Plan

4.6.1: Authorities, Policies, and Programs

Section 4.6: Authorities, Policies, Programs, Resources, and Plan Integration of the CC HMPU Base Plan summarizes relevant authorities, policies, and programs related to hazard mitigation in Cumberland County including the NFIP.

Continuing participation in the NFIP as part of the implementation of the CC HMPU includes:

- Involvement of Floodplain Manager / Administrator during the CC HMPU implementation process
- Commitment to adopt updated FIRMs (if appropriate) and evaluate / update the municipality's Flood Damage Prevention Ordinance as appropriate per recommendations included in Section 4.6 of the CC HMPU Base Plan and under Part 4.6.3: Plan Review and Integration of this Appendix.

4.6.2: Resources

The update of the NJ4 HMP included reexamining participating jurisdictions' hazard mitigation and floodplain management capabilities; potential for improving capabilities and coordination within and between jurisdictions; and plan integration considerations, including:

- *Section 4: Mitigation Measures* of the CC HMPU Base Plan includes summary observations and recommendations concerning:
 - Capabilities for hazard mitigation planning and mitigation measure implementation and floodplain management for the participating jurisdictions
 - Coordination within municipal governments, between municipal governments and their communities, and between municipal, county, and state agencies responsible for hazard mitigation
- *Section 4.6: Authorities, Policies, Programs, Resources, and Plan Integration* of the CC HMPU Base Plan also includes summary statements regarding county and municipal resources and the impact of resource limitations on the overall approach to the CC HMPU mitigation strategies.

Table 9-13 compares the results of the Capability Assessment Survey for the County as a whole and Lawrence Township.

Part 4: Mitigation Measures

Table 9-13: Lawrence Township Capability Assessment Survey Results

Metric	Lawrence Township Results (n=6)	Cumberland County "as a whole" Results (n=85)
Position Type: Full-time	33.33%	51.76%
Position Type: Part-time	50.00%	36.47%
Position Type: Volunteer	16.67%	11.76%
Time in Position:		
Time in Position: Less than 1 year	0.00%	12.94%
Time in Position: 1 to 2 years	0.00%	8.24%
Time in Position: 2 to 5 years	0.00%	23.53%
Time in Position: More than 5 years	100.00%	55.29%
Prior Experience:		
Prior Experience: None	66.67%	57.65%
Prior Experience: with hazard mitigation planning	16.67%	31.76%
Prior Experience: with HMA grant administration	0.00%	12.94%
Prior Experience: with floodplain management	16.67%	7.06%
Training / Certifications:		
Training / Certifications: None	66.67%	75.29%
Training / Certifications: for hazard mitigation planning and implementation	16.67%	9.41%
Training / Certifications: for floodplain management	16.67%	15.29%

In general terms, when compared to the sampled individuals from across all the Working Groups, Lawrence Township has:

- Lower percentage of full-time staff
- Higher average time in current positions
- Lower percentage of staff with experience in hazard mitigation planning and HMA grant administration
- Higher percentage of staff with experience in floodplain management
- Similar percentage of staff with training for hazard mitigation planning and implementation and floodplain management

Part 4: Mitigation Measures

4.6.3: Plan Review and Integration

Section 4.6: *Authorities, Policies, Programs, Resources, and Plan Integration* of the CC HMPU Base Plan includes:

- Table BP.4-2 that identifies primary plans and documents collected from each of the participating municipalities.
- Includes results of reviewing primary plans and documents to determine the extent to which these documents reflect up-to-date hazard risk and mitigation.
- Includes recommendations for integrating the results of the CC HMPU, 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

The plan maintenance process articulates and specifies 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.

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

- Floodplain Damage Prevention Ordinance
- Emergency Operations Plan – Base Plan (2017) – due to be updated in October 2021
- Master Plan (2021)
- Development Regulations Ordinance (2021)
- Municipal Stormwater Management Ordinance (2021)
- Cumberland County Delaware Bayshore Recovery Plan (2013)

In addition, the following is status regarding the status of the Flood Damage Prevention Ordinance::

- Current version was adopted in 2016 and is consistent with the most recent FDPO per NJDEP]
- The Construction Code Official is the responsible party for enforcement. The individual who currently holds that position is included on the Working Group and has completed the capability assessment survey.
- The document is accessible to the public via the Township and is not available online.

Part 4: Mitigation Measures

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