



Cumberland County Multi-Hazard Mitigation Plan Update
Participating Jurisdiction Appendices

Appendix 7
Greenwich Township, New Jersey

DRAFT

May 13, 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: Greenwich Township Municipal Appendix

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

The Greenwich Township Municipal Working Group **[will recommend]** the Greenwich Township Municipal Appendix for adoption to the Greenwich Township Committee.

The Greenwich Township Committee **[will adopt]** the Municipal Appendix by resolution (see Attachment B: Adoption Resolution).

Region II of the Federal Emergency Management Agency **[will approve]** 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 7-1 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 **will review** the Preliminary Draft, Public Review Draft, and Final 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 7-1: Greenwich Township Working Group

First Name	Last Name	Department	Position	Project Kick-off Meeting ¹	Round 1 Work Session ²	Round 2 Work Session ³	Working Group Meeting ⁴	Contribution ⁵
Timothy	Hunter	Office of Emergency Management (OEM) / School Board	Emergency Management Coordinator / Member	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Organized Working Group and Work Sessions.
William	Reinhart *	Township Committee	Mayor			<input checked="" type="checkbox"/>		
Dan	Orr *	Township Committee	Committeeman					
Mark	Werley	Township Committee	Committeeman					

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

² Round 1 Work Session was held on August 26, 2021.

³ Round 2 Work Session was held on December 6, 2021.

⁴ Working Group Meeting **will be** held on **to be determined (if applicable)**.

⁵ 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	Working Group Meeting ⁴	Contribution ⁵
Steven	DeSario	Zoning Department	Construction Official					
Teresa	Warburton	Construction Office	Construction Official / Floodplain Administrator					
Penelope	Watson *	Land Use Board ⁶	Chair		<input checked="" type="checkbox"/>			
Renee	Brecht *	Land Use Board	Secretary					
Michael	Henry *	Land Use Board	Member					
Richard	Demarco *	Cumberland County Historical Society	Member / Trustee					
James	Carluzzo *	N/A	Resident					
Marvin	Hitchner, III *	Greenwich Marina, Inc.	Owner/Operator					

⁶ Land Use Board covers planning, zoning, and historic district issues.

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.⁷

- [to be completed pending Working Group participation throughout the plan update process]

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 Cumberland County)
- Engineering Department (services provided by Cumberland County or consultants on a project-by-project basis)
- Public Works Department (services provided by Hopewell Township)
- Police (services provided by New Jersey State Police)
- Community / Faith-Based Organizations
- Business Associations
- Major Employers and Businesses
- Healthcare Institutions

⁷ Plan implementation and maintenance activities are described in *Section 4: Mitigation Measures* of the CC HMPU Base Plan.

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 7-2 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 7-2: Public Participation

Date	Type of Involvement	Location
September 8, 2021	Preliminary Draft Municipal Appendix available for public comment.	Project Website ⁸
April 7, 2022	Notice posted re: Public Review Draft Municipal Appendix review period with link to Project Website.	Township Website ⁹
April 19, 2022	Public Review Draft Municipal Appendix available for public comment.	Project Website ⁸
[date to be determined]	Public hearing [will be] conducted regarding the Final Draft Municipal Appendix providing for open discussion and public comment prior to formal adoption.	[insert location]

Public comments and input received for the Preliminary Draft, Public Review Draft, and Final Draft versions of the Municipal Appendix [will be]:

- Considered by the Municipal Working Group and [will be] incorporated into the Municipal Appendix where appropriate.
- Included in Attachment A to the Municipal Appendix along with a brief explanation of if and how the comments were addressed in the Municipal Appendix.

In addition, the Municipal Appendix [will be] 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.¹⁰ In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities.¹¹

⁸ <https://cchmpu21.com>

⁹ <https://www.historicgreenwichnj.org/>

¹⁰ See Mitigation Measure M-1 in Part 4 of the Municipal Appendix.

¹¹ Public education and outreach is 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

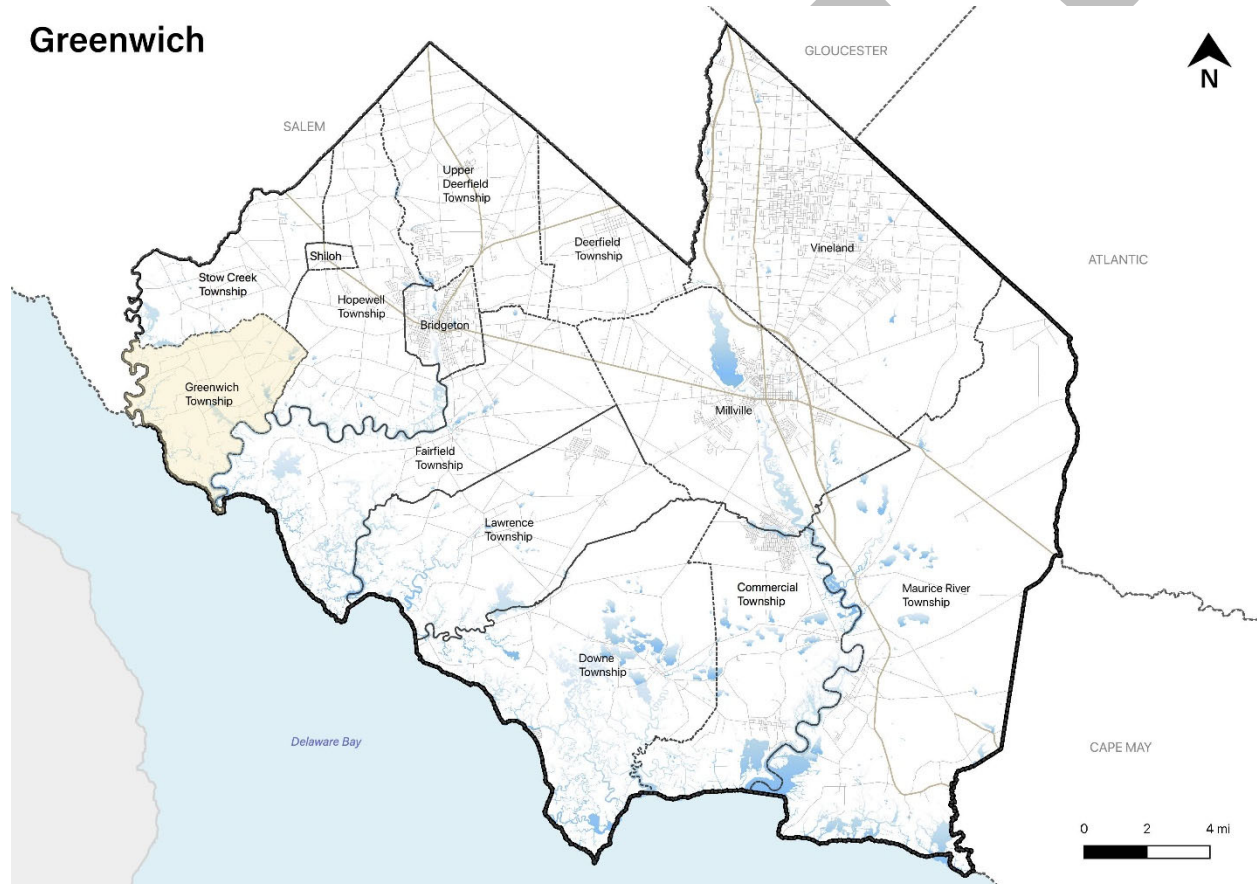
Part 3 includes seven subparts:

- *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

Greenwich Township is located in the western corner of Cumberland County (See Figure 7-1).

Figure 7-1: Greenwich Township Location Map



Part 3: Hazard Identification and Risk Assessment

Greenwich Township is a bay shore, rural residential community. A key component of the Township is the National Register of Historic Places District focused on Ye Greate Street with numerous structures dating to the 18th and 19th centuries. The Township also includes large areas of preserved farmlands and lowlands and has a relatively low population density. The Township has experienced declining population per recent census data. About half of the housing stock was built before 1940.

Per Figure 7-2, major water courses include the Delaware River, Stow Creek, the Cohansy River, Mill Creek and Pine Mount Creek. Major transportation routes include Cumberland County Routes 642 and 703. The land is predominantly flat with large areas of farmland and wetlands.

Figure 7-2: Greenwich Township Base Map



Part 3: Hazard Identification and Risk Assessment

Part 3.2: General Building Stock

As of 2015, there are 726 buildings in Greenwich Township with a total assessed value of improvements of \$63,302,700. Figure 7-3 shows the footprints of these buildings.

Figure 7-3: Greenwich Township Building Footprints¹²

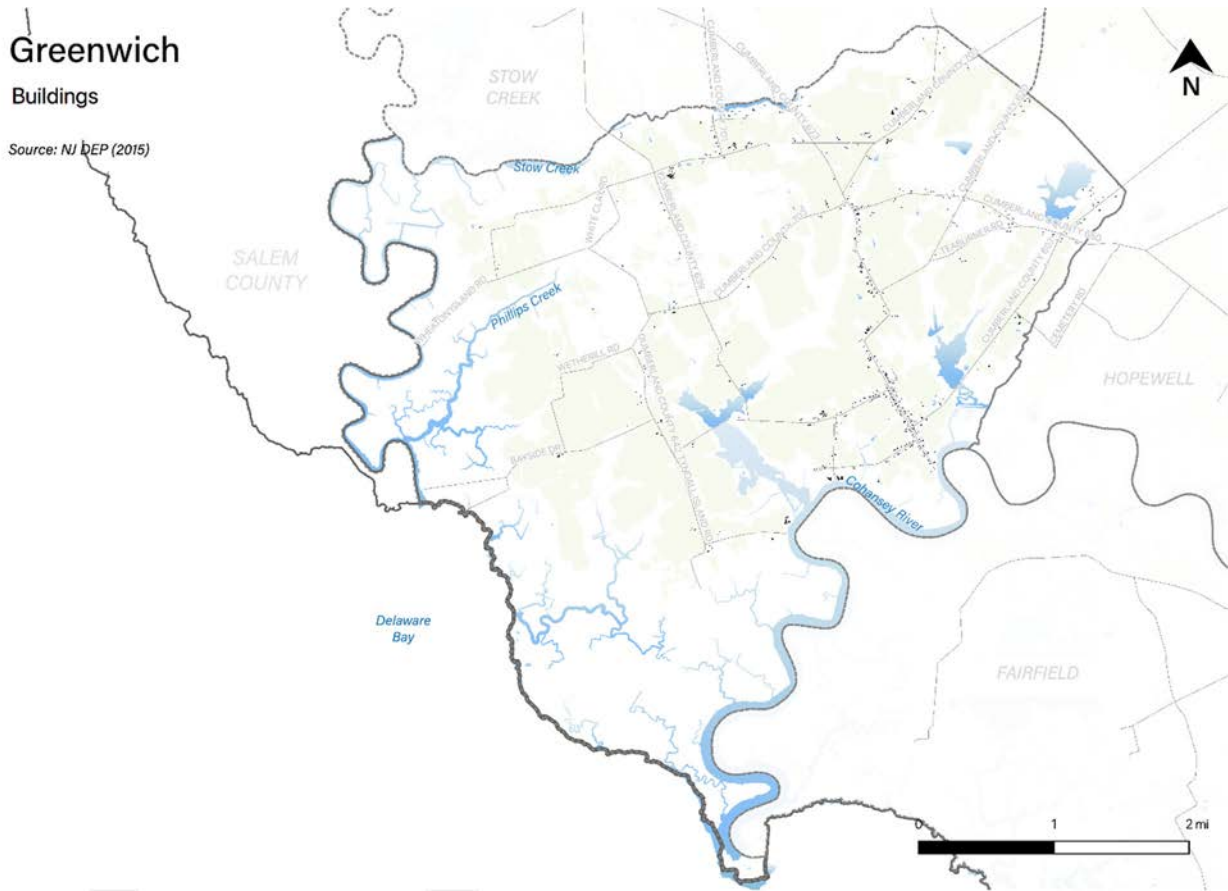


Table 7-3 shows the distribution of these structures according to land use distinctions.

Table 7-3: Greenwich Township Buildings per Land Use Type¹³

Land Use Type	Residential	Commercial	Industrial	Other
Number of Buildings	430	12	0	249
% of Total	62%	2%	0%	36%

¹² 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.

¹³ 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 Facilities¹⁴

As of April 2022, there are thirty-six (36) critical facilities in Greenwich Township, of which 32 were identified as historic sites¹⁵.

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 7-4 includes current inventory information for municipal critical facilities and cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix. Figure 7.4 shows the location of these critical facilities.

Table 7-4: Greenwich 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 Offices	1000 Ye Greate Street, Greenwich	CF-2	N	Y		
CF-2	Emergency Operations Center	EOC	Co-located Facilities	1000 Ye Greate Street, Greenwich	CF-1	N	Y		
CF-3	Fire Hall	FireStations	Stations	991 Ye Greate Street, Greenwich		N	Y		
CF-4	Morris Goodwin Elementary School	Schools	Public Schools	839 Ye Greate Street, Greenwich		Y ¹⁶	Y		
CF-5	Gibbon House	Historic Site	Public Site within NRHD	960 Ye Greate Street, Greenwich	CF-5	N/A	N/A	Building and collection	
CF-6	Swedish Granary	Historic Site	Public Site within NRHD	960 Ye Greate Street, Greenwich	CF-6	N/A	N/A	Building	M-3
CF-7	Lecture Room (John DuBois Maritime Museum)	Historic Site	Public Site within NRHD	949 Ye Greate Street, Greenwich		N/A	N/A	Building and collection	
CF-8	Old Stone School	Historic Site	Public Site within NRHD	775 Ye Greate Street, Greenwich		N/A	N/A	Building	
CF-9	Prehistoric Museum	Historic Site	Public Site within NRHD	1461 Bridgeton Road, Greenwich		N/A	N/A	Collection	

¹⁴ Critical facility definitions and considerations are described in *Section 3: Hazard Identification and Risk Assessment* of the CC HMPU Base Plan.

¹⁵ As of August 2021, the Township is in the process of updating National Registry documentation for historic district, currently under review by the State. Making slight revision to boundary description (to include full tax parcels) and seeking designation as "significance at national level".

¹⁶ Not Red Cross-certified

Part 3: Hazard Identification and Risk Assessment

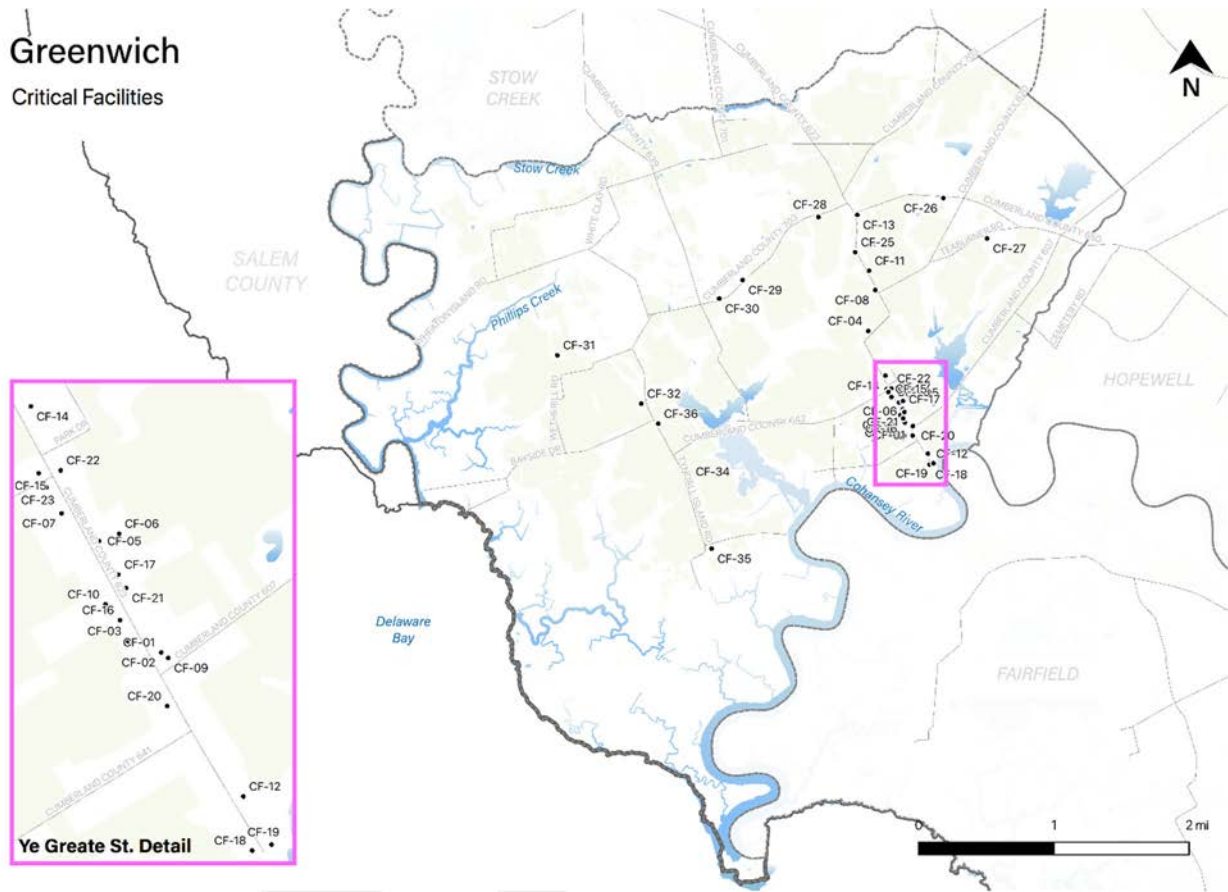
CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-10	Lummis Genealogical Library	Historic Site	Public Site within NRHD	981 Ye Greate Street, Greenwich		N/A	N/A	Collection	M-4
CF-11	Upper Friends Meeting House	Historic Site	Public Site within NRHD	720 Ye Greate Street, Greenwich		N/A	N/A		
CF-12	Lower Friends Meeting House	Historic Site	Public Site within NRHD	1062 Ye Greate Street, Greenwich		N/A	N/A		
CF-13	Presbyterian Church	Historic Site	Public Site within NRHD	630 Ye Greate Street, Greenwich		N/A	N/A		
CF-14	Baptist Church	Historic Site	Public Site within NRHD	928 Ye Greate Street, Greenwich		N/A	N/A		
CF-15	Wood Mansion	Historic Site	Private Site within NRHD	937 Ye Greate Street, Greenwich		N/A	N/A		
CF-16	Benjamin Harding House	Historic Site	Private Site within NRHD	989 Ye Greate Street, Greenwich		N/A	N/A		
CF-17	Constant and Lydia Waithman House	Historic Site	Private Site within NRHD	976 Ye Greate Street, Greenwich		N/A	N/A		
CF-18	William Watson's Tavern	Historic Site	Private Site within NRHD	1075 Ye Greate Street, Greenwich		N/A	N/A		
CF-19	Reeve Sheppard House	Historic Site	Private Site within NRHD	1080 Ye Greate Street, Greenwich		N/A	N/A	Recorded on the Historic American Buildings Survey (HABS)	
CF-20	Dr. Thomas Ewing House	Historic Site	Private Site within NRHD	1025 Ye Greate Street, Greenwich		N/A	N/A	HABS	
CF-21	Bull's Eye House	Historic Site	Private Site within NRHD	980 Ye Greate Street, Greenwich		N/A	N/A	HABS	
CF-22	Old Stone Tavern	Historic Site	Private Site within NRHD	938 Ye Greate Street, Greenwich		N/A	N/A		
CF-23	Wood's Store	Historic Site	Private Site within NRHD	941 Ye Greate Street, Greenwich		N/A	N/A	HABS	
CF-24	Maskell Store (Griffin)	Historic Site	Private Site within NRHD	Corner of Sheppards Mill Road and Ye Greate Street, Greenwich		N/A	N/A	HABS	

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-25	Haggerty House	Historic Site	Private Site within NRHD	681 Ye Greate Street, Greenwich		N/A	N/A	HABS	
CF-26	Bethel AME Church	Historic Site	Public Site outside NRHD	1092 Sheppards Mill Road, Greenwich		N/A	N/A	Individually listed on the National Register of Historic Buildings	
CF-27	Teaburner Farm	Historic Site	Private Site outside NRHD	112 Teaburner Road, Greenwich		N/A	N/A		
CF-28	Lewis and Mary Mulford House	Historic Site	Private Site outside NRHD	48 Old Mill Road, Greenwich		N/A	N/A		
CF-29	Gibbon Tenant House (White House Farm)	Historic Site	Private Site outside NRHD	220 Old Mill Road, Greenwich		N/A	N/A		
CF-30	Thomas and Mary Maskell House	Historic Site	Private Site outside NRHD	225 Old Mill Road, Greenwich		N/A	N/A	Individually listed on the National Register of Historic Buildings; HABS	
CF-31	Buttonwood Farm	Historic Site	Private Site outside NRHD	19 Wetherill-Goodwin Lane, Greenwich		N/A	N/A		
CF-32	Gabriel Davis House	Historic Site	Private Site outside NRHD	159 Tindall Island Road, Greenwich		N/A	N/A	HABS	
CF-33	Bacon-Sheppard-Hancock House	Historic Site	Private Site outside NRHD	Tindall Island Road, Greenwich		N/A	N/A		
CF-34	Bacon's Adventure	Historic Site	Private Site outside NRHD	384 Tindall Island Road, Greenwich		N/A	N/A		
CF-35	John and Elizabeth Bacon House	Historic Site	Private Site outside NRHD	16 Hancock's Harbor Road, Greenwich		N/A	N/A		
CF-36	William and Mary Bacon House	Historic Site	Private Site outside NRHD	348 Tindall Island Road, Greenwich		N/A	N/A		

Part 3: Hazard Identification and Risk Assessment

Figure 7-4: Greenwich Township Critical Facilities



Part 3.4: Hazard Exposure Assessment

Hazard exposure assessments were for the eleven (11) natural hazards identified in the CC HMPU Base Plan¹⁷.

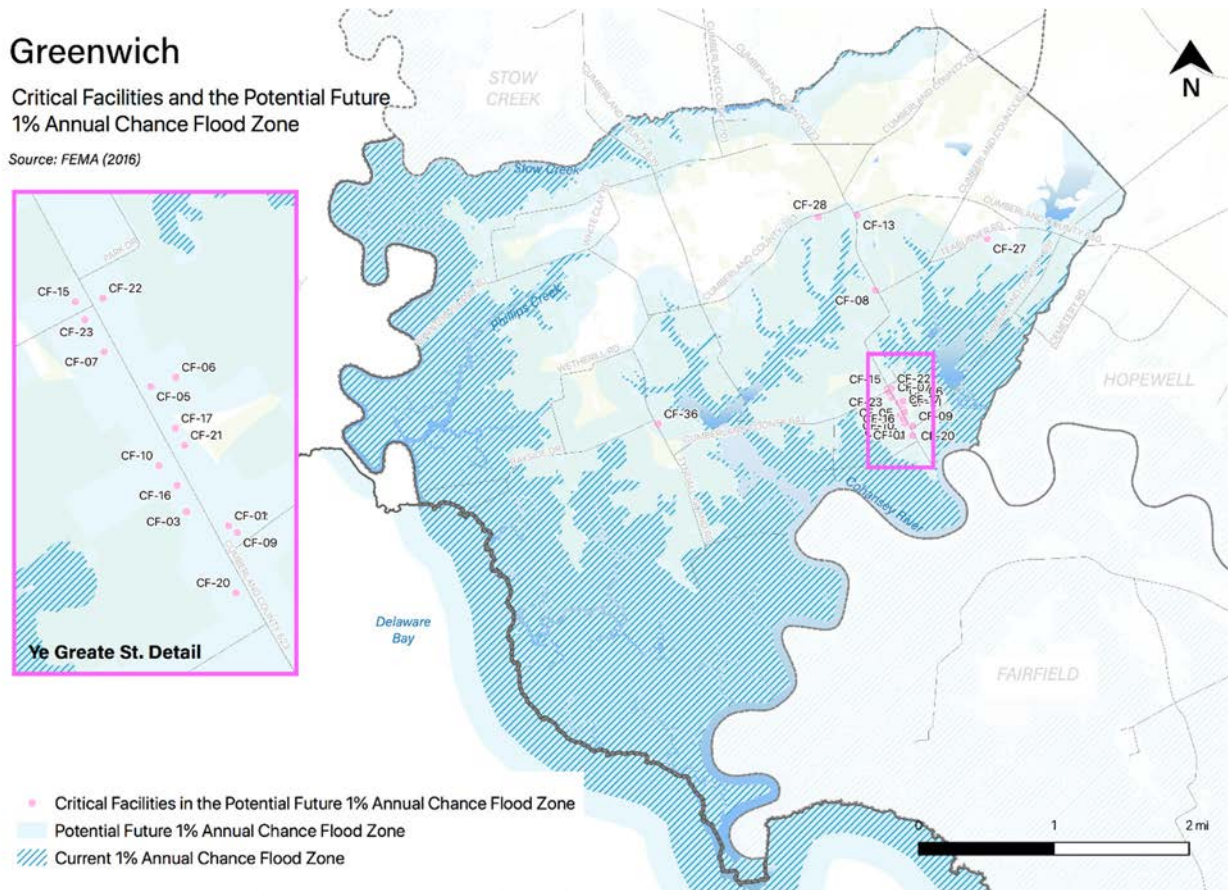
Key results for Greenwich Township are depicted in the following.

Mapping: Figure 7-5 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).

¹⁷ Hazard profiles are included for all eleven natural hazards in *Section 3: Hazard Identification and Risk Assessment* of the CC HMPU Base Plan.

Part 3: Hazard Identification and Risk Assessment

Figure 7-5: Greenwich Township Critical Facilities and 1% Annual Chance Flood Zone



Mapping results are available for general building stock and critical facilities for the following hazards:¹⁸

- 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 7-5 indicates hazard exposure for general building stock
- Table 7-6 indicates hazard exposure for critical facilities

¹⁸ 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/mymxbax34mgemt0/AAC0UEoQtmygriWDZBebEirFa?dl=0>.

Part 3: Hazard Identification and Risk Assessment

Table 7-5: Greenwich 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 ¹⁹	0	N/A	0	N/A
Sea Level Rise - 3 feet increase	36	4.96%	\$2,091,800	3.30%
Flood - Within 1 % Annual Chance Zone	56	8%	\$3,547,500	6%
Flood - Near (within 500 feet) of 1% Annual Chance Zone	248	34%	\$24,857,150	39%
Earthquake – Structure built before 1927 ²⁰	257	54%	\$36,047,200	61%
High Winds / Severe Weather – Structure built before 1975	412	87%	\$50,305,100	84%
Wildfire – Composite score > 2.5 ²¹	3	-	\$145,550	0.23%

Table 7-6: Greenwich Township Critical Facilities Hazard Exposure²²

Hazard	Number of Critical Facilities	CF #s
Coastal Erosion	None	N/A
Sea Level Rise	None	N/A
Flood - Within 1 % Annual Chance Zone	1	CF-35
Flood - Near (within 500 feet) of 1% Annual Chance Zone	10	CF-04, CF-11, CF-12, CF-14, CF-18, CF-19, CF-25, CF-29, CF-32, CF-34
Flood – Future potential (within 1,000 feet) 1% Annual Chance Zone	20	CF-01, CF-02, CF-03, CF-05, CF-06, CF-07, CF-08, CF-09, CF-10, CF-13, CF-15, CF-16, CF-17, CF-20, CF-21, CF-22, CF-23, CF-27, CF-28, CF-36
Wildfire	17	CF-01, CF-02, CF-03, CF-05, CF-06, CF-07, CF-10, CF-16, CF-17, CF-21, CF-22, CF-23, CF-27, CF-30, CF-31, CF-32, CF-35

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)

¹⁹ 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

²⁰ All supporting data for Earthquake, High Winds, and Severe Weather can be viewed at <https://docs.google.com/spreadsheets/d/1Zx1LZwKQ8esqdv4c9hbbSZurtMjH4UITQWJY1LrZezc/edit?usp=sharing>

²¹ All supporting data for Wildfire can be viewed at https://docs.google.com/spreadsheets/d/1JAbfd3A-eCHI93pZFaPVuM_H2yvuUzeHCmoijv-oxsw/edit?usp=sharing

²² 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 and Levee Failure.

Dam Failure

Per the New Jersey Department of Environmental Protection (NJDEP) data²³:

- There is one (1) Significant Hazard” dam located in the Township:
 - Davis Mill Dam on Raccoon Creek
- No (0) dam failure incidents had been recorded in the Township as of 2014

Levee Failure

Per the South Jersey Levee Inventory²⁴:

- There are four (4) levees in the Township with a total of forty-three parcels within a 1,000-foot buffer of the levees:
 - Pine Mount King (NCRS #47)
 - Pine Mount Bacons Neck Road (NCRS # 48)
 - Market Street (NCRS # 50)
 - Mill Creek (Union Bank) (NCRS # 51)
- There are two (2) reported incidents of levee failure on the Pine Mount King levee in 1986 and 1991

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 Greenwich Township Working Group, there were no changes to the NJ4 HMP HIRA Dam and Levee Failure hazard exposure results.

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

²⁴ 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)²⁵. The following are relevant numbers for Greenwich Township as provided by the New Jersey Office of Emergency Management (NJOEM)²⁶:

- Active Policies – eight (8) active NFIP flood insurance policies
- Claims History – three (3) claims made against the NFIP between 1998 and 2012
- Repetitive Loss Properties (RL) – no (0) 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 7-5), which are significantly higher than the number of active policies:

- Flood - Within 1 % Annual Chance Zone: 56 buildings ~ 8% of total buildings, with a value of \$3,547,500 ~ 6% of the total building value in the Township.
- Flood - Near (within 500 feet) of 1% Annual Chance Zone: 248 buildings ~ 34% of total buildings, with a value of \$24,857,150 ~ 39% of the total building value in the Township.

²⁵ Information on the NFIP is described in *Section 3: Hazard Identification and Risk Assessment* of the CC HMPU Base Plan.

²⁶ Spreadsheets provided by NJOEM in October 2021.

Part 3: Hazard Identification and Risk Assessment

Part 3.5: Demographic Considerations

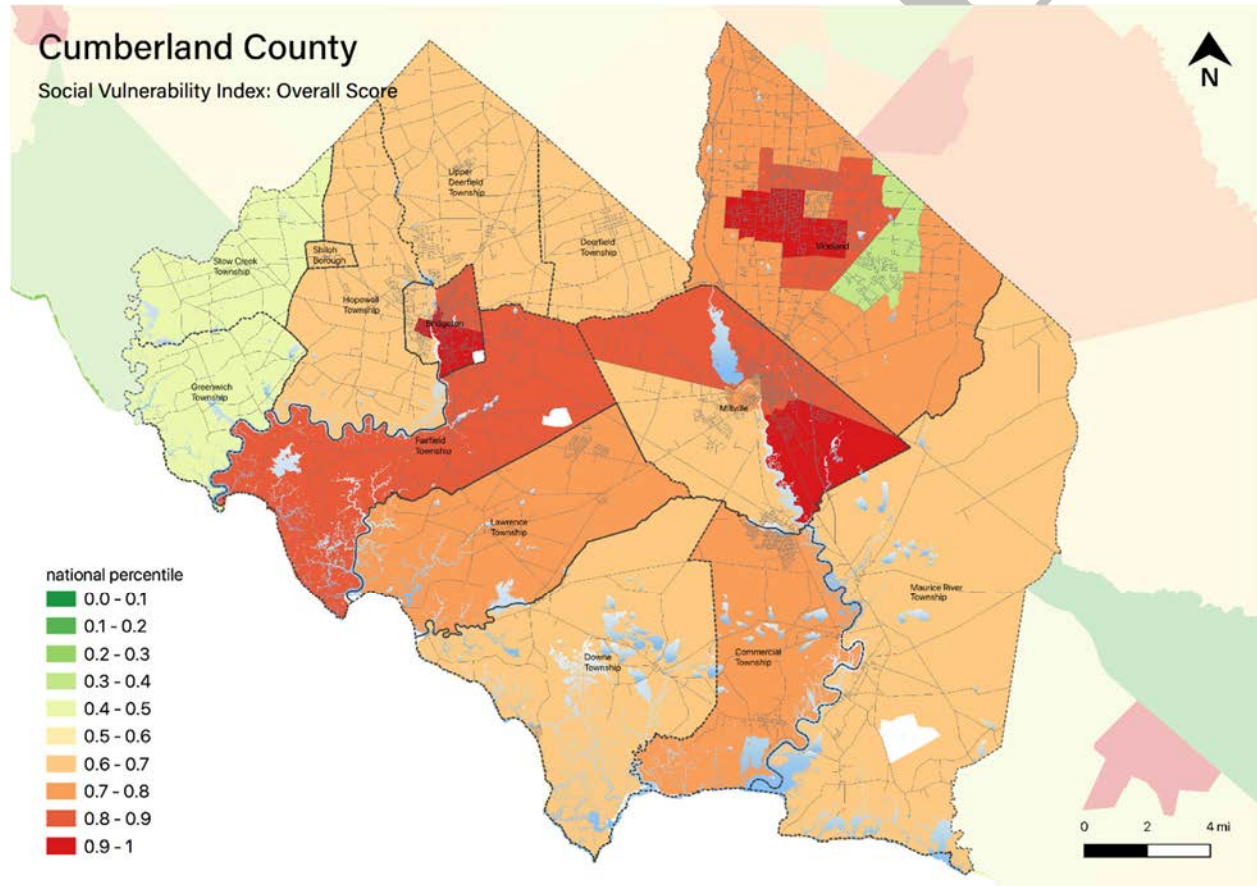
Demographic considerations include general population and land use factors. Table 7-7 includes current population estimates and changes since the previous US Census²⁷:

Table 7-7: Greenwich Township General Population Demographics

Metric	Current Estimates
2010 Population	804
2019 Population	599
Percent Population Change (2010-2019)	- 25.50%
Land Area	17.84 sq. miles
Population Density	33.6 / sq. mile

Demographic considerations also include differences in social vulnerability²⁸. Figure 7-6 shows the overall Social Vulnerability (SVI) Index overall scores for Cumberland County.

Figure 7-6: Cumberland County Social Vulnerability Index: Overall Scores



²⁷ US Census, 2019 ACS 5 Year Estimates, Table ID DP5

²⁸ 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 Greenwich Township, Table 7-8 includes selected metrics where social vulnerability considerations are noteworthy when compared with all national census tracts:

Table 7-8: Greenwich Township Social Vulnerability Considerations²⁹

Metric	Comparison with all National Census Tracts
Percentage of persons: Older than 65 years of age	Higher than 88%
Percentage of persons: With a disability	Higher than 81%

In addition, the percentage of residents earning below poverty level = 8.5% (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 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).
- Several 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 identifying and addressing 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).

²⁹ 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 (including saltwater intrusions into drinking and irrigation wells)
- Dam Failure (due to Shepherd Mills Pond potential impact on evacuation route)
- Flood
- High Wind
- Levee Failure

Moderate Priority

- None

Low Priority

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

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
- 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 7-9 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 7-9.

Table 7-9: Status of Greenwich Township NJ4 HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # ³⁰³¹
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"> ▪ Township increasing use of website including making FEMA FIRMs available to residents ▪ On-going renovation of historic structure includes elevating structure 	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 backup emergency power generator at Morris Goodwin Elementary School (shelter) located at 839 Ye Greate Street (CF-4).	Completed	Completed in 2018 using HMGP from Superstorm Sandy ³² .	N/A
M-6: Address communications problems due to lack of adequate cellular and land line connections.	Work-in-progress	Cell phone tower installed at school but may not have significantly improved service.	Carried over as M-2
M-7: Elevate Swedish Granary (CF-6) to reduce flood risk.	No progress, lack of funding		Carried over as M-3
M-8: Prepare and implement Disaster Preparedness Plan for Lummis Genealogical Library (CF-10) to reduce flood risk.	Work-in-progress	Information located here is of great value to the local community and County.	Carried over as M-4

³⁰ Detailed information for identification and implementation of municipal (M-#) mitigation measures is included in Tables 7-10 and 7-11.

³¹ Detailed information for identification and implementation of multi-jurisdictional (MJ-#) mitigation measures is included in Table 7-12.

³² Cumberland County Round 1 Generator Program.

Part 4: Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # ³⁰³¹
M-9: Repair and/or construct a new levee at Delaware Avenue to eliminate acute flooding to residences and businesses.	Work-in-progress	Township Committee and OEM to follow-up with Delaware Avenue residents regarding current situation / continued need for mitigation measure.	Carried over as M-5
M-10: Comprehensive technical analysis of the Township's flood (storm surge) protection needs and options for response. <i>Note: This study would be precedent to several of the multi-jurisdictional measures.</i>	No progress, lack of funding		Carried over as M-6
MJ-1: Potential impacts to evacuation route at Sheppard's Mill Pond.	No progress, lack of funding	Main evacuation route for the community	Carried over as multi-jurisdictional mitigation measure MJ-1
MJ-2: Construct a new levee parallel to and between Mounce Creek and County Route 607 (Bridgeton-Greenwich Road).	No progress, lack of funding		Carried over as multi-jurisdictional mitigation measure MJ-2
MJ-3: Short-term repairs and renovations to Mill Creek Levee.	Work-in-progress	All three projects are now considered related. In 2014, gates were repaired at County dike parallel to Bridgeton – Greenwich Road.	Carried over as multi-jurisdictional mitigation measure MJ-3
MJ-5: Greenwich Township Levees Project proposal to elevate and armor Mill Creek Levee and install new flood gates.			
MJ-8: Alleviate flooding at Greenwich Road (County Route 607) at Mill Creek.			
MJ-4: Short-term repairs and renovations to Market Lane Levee.	Work-in-progress	All three projects are now considered related. In 2014, County made some modifications. However, problems persist at high tide events.	Carried over as multi-jurisdictional mitigation measure MJ-4
MJ-7: Greenwich Township Levees Project proposal to improve Market Lane Levee.			
MJ-12: Alleviate flooding at Market Lane (County Route 641) at levee.			
MJ-6: Greenwich Township Levees Project proposal to construct the new Pine Mount Creek Levee and flood gates.	No progress, lack of funding		Carried over as multi-jurisdictional mitigation measure MJ-5
MJ-9: Alleviate flooding at Ye Greate Street (County Route 623) just north of Township Fire Hall.	Resolved	County has been maintaining drains (before every major storm) and no recent issues.	N/A

Part 4: Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # ³⁰³¹
MJ-10: Alleviate flooding at Ye Greate Street (County Route 623) at Pine Mount Run.	Resolved	County has been maintaining drains (before every major storm) and no recent issues.	N/A
MJ-11: Alleviate flooding at Gum Tree Corner Road (County Route 639) at Pine Mount Run.	Work-in-progress	Both projects are now considered related.	Carried over as multi-jurisdictional mitigation measure MJ-6
MJ-13: Alleviate flooding at Bacon Neck Road (County Route 642) at Pine Mount Run.		Repairs were completed in 2014 but at extreme high tides, problem still occurs and in the past six years, the problem seems to have gotten worse. Bacon Neck Road leads to only major business (restaurant) in Township.	
MJ-14: Conduct tree survey and develop tree trimming and removal program ³³ .	Work-in-progress	Tree trimming was completed in the Township. Additional tree trimming was accomplished by Atlantic Electric as part of their periodic clearing operations.	Carried over as multi-jurisdictional mitigation measure MJ-7

Part 4.3: Municipal Mitigation Measures – Identification

Table 7-10 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)³⁴ if applicable

Table 7-10 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

³³ Per funding available under the New Jersey Shade Tree and Community Forestry Act administered by the New Jersey Department of Environmental Protection – Division of State Forestry Services.

³⁴ 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

Table 7-10: Greenwich 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
M-2	Address communications problems due to lack of adequate cellular and land line connections.	All	Goal #4	Existing
M-3	Elevate Swedish Granary (CF-6) to reduce flood risk.	Coastal Erosion and Sea Level Rise, Flood.	Goal #4	Existing
M-4	Prepare and implement Disaster Preparedness Plan for Lummis Genealogical Library (CF-10) to reduce flood risk.	Coastal Erosion and Sea Level Rise, Flood.	Goal #4	Existing
M-5	Repair and/or construct a new levee at Delaware Avenue to eliminate acute flooding to residences and businesses.	Coastal Erosion and Sea Level Rise, Flood, Levee Failure.	Goal #4	Existing
M-6	Comprehensive technical analysis of the Township's flood (storm surge) protection needs and options for response.	Coastal Erosion and Sea Level Rise, Flood, Levee Failure.	Goal #4	Existing

Part 4: Mitigation Measures

Part 4.4: Municipal Mitigation Measures – Implementation

Table 7-11 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 criteria³⁵
- Project Type to help determine funding options and implementation mechanisms at the municipal level³⁶
- 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 7-11: Greenwich 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	Address communications problems due to lack of adequate cellular and land line connections.	Greenwich Township Committee	High	Emergency Communications	N/A	One year	Follow-up regarding status of permit approvals at state and/or federal levels.
M-3	Elevate Swedish Granary (CF-6) to reduce flood risk.	Cumberland County Historical Society	Low	Building Retrofits	< \$100K	Three to Five years	Secure funding and permits as required by Township Land Use and Zoning Board.
M-4	Prepare and implement Disaster Preparedness Plan for Lummis Genealogical Library (CF-10) to reduce flood risk.	Cumberland County Historical Society	Low	Building Retrofits	Staff time commitment	One year	Organize resources for planning effort.

³⁵ Section 4: Mitigation Measures of the CC HMPU Base Plan includes a description of evaluation criteria considered by the Municipal Working Group.

³⁶ 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

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-5	Repair and/or construct a new levee at Delaware Avenue to eliminate acute flooding to residences and businesses.	Greenwich Township Committee	High	Private Property Flood Mitigation	\$600,000	One to three years	Determine status of grant funding and if still available, conduct project scoping.
M-6	Comprehensive technical analysis of the Township's flood (storm surge) protection needs and options for response.	Greenwich Township Committee	High	Private Property Flood Mitigation	> \$100K	One year	Identify and secure funding.

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 7-12.

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 7-12: Greenwich Township Multi-Jurisdictional Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-1	Potential impacts to evacuation route at Sheppard's Mill Pond.	Dam Failure	Goal #4	Both	Greenwich Township Committee, Cumberland County Road Department	High
MJ-2	Construct a new levee parallel to and between Mounce Creek and County Route 607 (Bridgeton-Greenwich Road).	Coastal Erosion and Sea Level Rise, Flood, Levee Failure	Goal #4	Both	Greenwich Township Committee, Cumberland County Road Department	High
MJ-3	Mill Creek Levee	Coastal Erosion and Sea Level Rise, Flood, Levee Failure.	Goal #4	Existing	Greenwich Township Committee, Cumberland County, NJDEP, USACE	High
MJ-4	Market Lane Levee	Coastal Erosion and Sea Level Rise, Flood, Levee Failure.	Goal #4	Existing	Greenwich Township Committee, Cumberland County, NJDEP, USACE	High
MJ-5	Construct the new Pine Mount Creek Levee and flood gates.	Coastal Erosion and Sea Level Rise, Flood, Levee Failure.	Goal #4	Existing	Greenwich Township Committee, Cumberland County, NJDEP, USACE	High

Part 4: Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-6	Alleviate flooding at Pine Mount Run at Gum Tree Corner Road (County Route 639) and Bacon Neck Road (County Route 642).	Coastal Erosion and Sea Level Rise, Flood	Goal #4	Existing	Greenwich Township Committee, Cumberland County Road Department	High
MJ-7	Conduct tree survey and develop tree trimming and removal program	High Wind	Goal #4	Existing	Greenwich Township Committee, Cumberland County DPW	Moderate

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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 Greenwich 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 Greenwich 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 7-13 compares the results of the Capability Assessment Survey for the County as a whole and Greenwich Township.

Part 4: Mitigation Measures

Table 7-13: Greenwich Township Capability Assessment Survey Results

Metric	Greenwich Township Results (n=4)	Cumberland County "as a whole" Results (n=85)
Position Type: Full-time	50.00%	51.76%
Position Type: Part-time	50.00%	36.47%
Position Type: Volunteer	0.00%	11.76%
Time in Position:		
Less than 1 year	0.00%	12.94%
1 to 2 years	0.00%	8.24%
2 to 5 years	25.00%	23.53%
More than 5 years	75.00%	55.29%
Prior Experience:		
None	75.00%	57.65%
with hazard mitigation planning	25.00%	31.76%
with HMA grant administration	0.00%	12.94%
with floodplain management	0.00%	7.06%
Training / Certifications:		
None	75.00%	75.29%
for hazard mitigation planning and implementation	0.00%	9.41%
for floodplain management	25.00%	15.29%

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

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

- Flood Damage Prevention Ordinance
- Greenwich Township Emergency Operations Plan (2021)
- Greenwich Township Master Plan (1995)³⁷
- Greenwich Township Master Plan Reexamination Report (2010)³⁸
- Greenwich Township Zoning Ordinance including Floodplain Management³⁹
- Greenwich Township Zoning Map⁴⁰
- Greenwich Township Environmental Resource Inventory (2010)⁴¹
- Coastal Community Vulnerability & Resilience Assessment (2011)⁴²
- Greenwich Township 2014 Capital Improvement Budget and Capital Improvement Program⁴³

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 Township Flood Map Official is the responsible party for enforcement. The Township Construction Official was designated by the Working Group to serve as the Floodplain Administrator / Flood Map Official. 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 internet⁴⁴.

³⁷ http://www.historicgreenwichnj.org/uploads/5/8/6/5/5865733/greenwich_1995_master_plan.pdf

³⁸ http://www.historicgreenwichnj.org/uploads/5/8/6/5/5865733/greenwich_master_plan_re-exam_2010.pdf

³⁹ http://www.historicgreenwichnj.org/uploads/5/8/6/5/5865733/greenwich_zoning_ordinance.pdf

⁴⁰ http://www.historicgreenwichnj.org/uploads/5/8/6/5/5865733/greenwich_zoning_map.pdf

⁴¹ <http://www.co.cumberland.nj.us/content/173/211/8970.aspx>

⁴² <http://www.nj.gov/dep/cmp/docs/ccvap-greenwich.pdf>

⁴³ http://www.historicgreenwichnj.org/uploads/5/8/6/5/5865733/m-gr_budget_2014.pdf

⁴⁴ <https://ecode360.com/31929180>

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Attachment A: Public Review Comments

Public review comments [will be] recorded during the public review of the Greenwich Township Preliminary Draft, Public Review Draft, and Final Draft versions of the Municipal Appendix on [dates to be determined]:

Table 7.A-1: Public Review Comments

Comment Date and Time	Comment	Response

Note: As of May 13, 2022, no public comments have been received.

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Attachment B: Adoption Resolution

Following this page [will be] the Adoption Resolution for the Greenwich Township Municipal Appendix as approved by the Greenwich Township Committee.

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Attachment C: Approval Letter

Following this page [will be] the Approval Letter for the Greenwich Township Municipal Appendix.

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