



Cumberland County Multi-Hazard Mitigation Plan Update
Participating Jurisdiction Appendices

Appendix 8
Hopewell 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: Hopewell Township Municipal Appendix

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

The Hopewell Township Municipal Working Group developed the Hopewell Township Municipal Appendix for adoption by the Hopewell 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 8-1 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: Three members of the Working Group also participated in the development of the 2016 NJ4 HMP.

Table 8-1: Hopewell Township Working Group

| First Name | Last Name | Department | Position | Project Kick-off Meeting ¹ | Working Group Meeting ² | Round 1 Work Session ³ | Round 2 Work Session ⁴ | Contribution ⁵ |
|------------|---------------------|----------------------------------|---|---------------------------------------|------------------------------------|-----------------------------------|-----------------------------------|--|
| Gary | Van Meter, Sr. * | Hopewell Township OEM | OEM Coordinator | ☑ | ☑ | ☑ | ☑ | Organized Working Group and Work Sessions. |
| Donna | VanMeter * | Hopewell Township OEM | OEM Staff | | ☑ | ☑ | | |
| Danny | VanMeter * | Hopewell Township OEM | Deputy Emergency Management Coordinator | | ☑ | | | |
| Paul | Ritter | Hopewell Township Committee | Mayor | | ☑ | ☑ | ☑ | |
| Leo | Selb, Jr. | Hopewell Township Administration | Township Administrator / Township Clerk (as of February 2022) | | ☑ | | ☑ | |

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

² Working Group Meeting was held on June 14, 2021, at the Hopewell Township Municipal Building.

³ Round 1 Work Session was held on July 27, 2021.

⁴ Round 2 Work Session was held on November 16, 2021.

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 | Working Group Meeting ² | Round 1 Work Session ³ | Round 2 Work Session ⁴ | Contribution ⁵ |
|------------|-----------|---|---|---------------------------------------|-------------------------------------|-------------------------------------|-----------------------------------|---------------------------|
| John | Hitchner | Administration | Township Clerk (through February 2022) | | | <input checked="" type="checkbox"/> | | |
| Charles | Haff | Hopewell Township Department of Public Works | Supervisor | | <input checked="" type="checkbox"/> | | | |
| John | Wuzzardo | Hopewell Township Department of Public Works | Sewer Plant Operator | | <input checked="" type="checkbox"/> | | | |
| Al | Caggiano | Hopewell Township Land Use and Planning Board | Chairman | | <input checked="" type="checkbox"/> | | | |
| Paul | Earnest | Hopewell Township Land Use and Planning Board | Board Member | | <input checked="" type="checkbox"/> | | | |
| Teresa | Warburton | Hopewell Township Construction / Zoning | Construction Official / Floodplain Administrator ⁶ | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | |
| Kenny | Mayhew | Hopewell-Stow Creek Fire Department | Chief | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | |
| Richard | Couch | Cumberland Manor | Maintenance | | | | | |
| Mark | Wood | Cumberland Manor | Maintenance | | | | | |

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
- Environmental Organizations
- Non-Governmental Organizations
- Healthcare Institutions

⁶ Construction Official / Floodplain Administrator is a shared position with multiple jurisdictions.

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 8-2 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 8-2: Public Participation

| Date | Type of Involvement | Location |
|-------------------|--|--------------------------------------|
| July 1, 2021 | Link to Project Website ⁷ established and maintained. | Township website ⁸ |
| July 27, 2021 | Public meeting conducted with presentation and open discussion. | 590 Shiloh Pike, Bridgeton, NJ 08302 |
| September 7, 2021 | Notice posted re: Preliminary Draft Municipal Appendix review period with link to Project Website. | Township website ⁸ |
| September 8, 2021 | Preliminary Draft Municipal Appendix available for public comment. | Project Website ⁷ |
| April 6, 2022 | Notice posted re: Public Review Draft Municipal Appendix review period with link to Project Website. | Township website ⁸ |
| April 19, 2022 | Public Review Draft Municipal Appendix available for public comment. | Project Website ⁷ |

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.⁹ In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities.¹⁰

⁷ <http://www.hopewelltp-nj.com>

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

⁹ 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

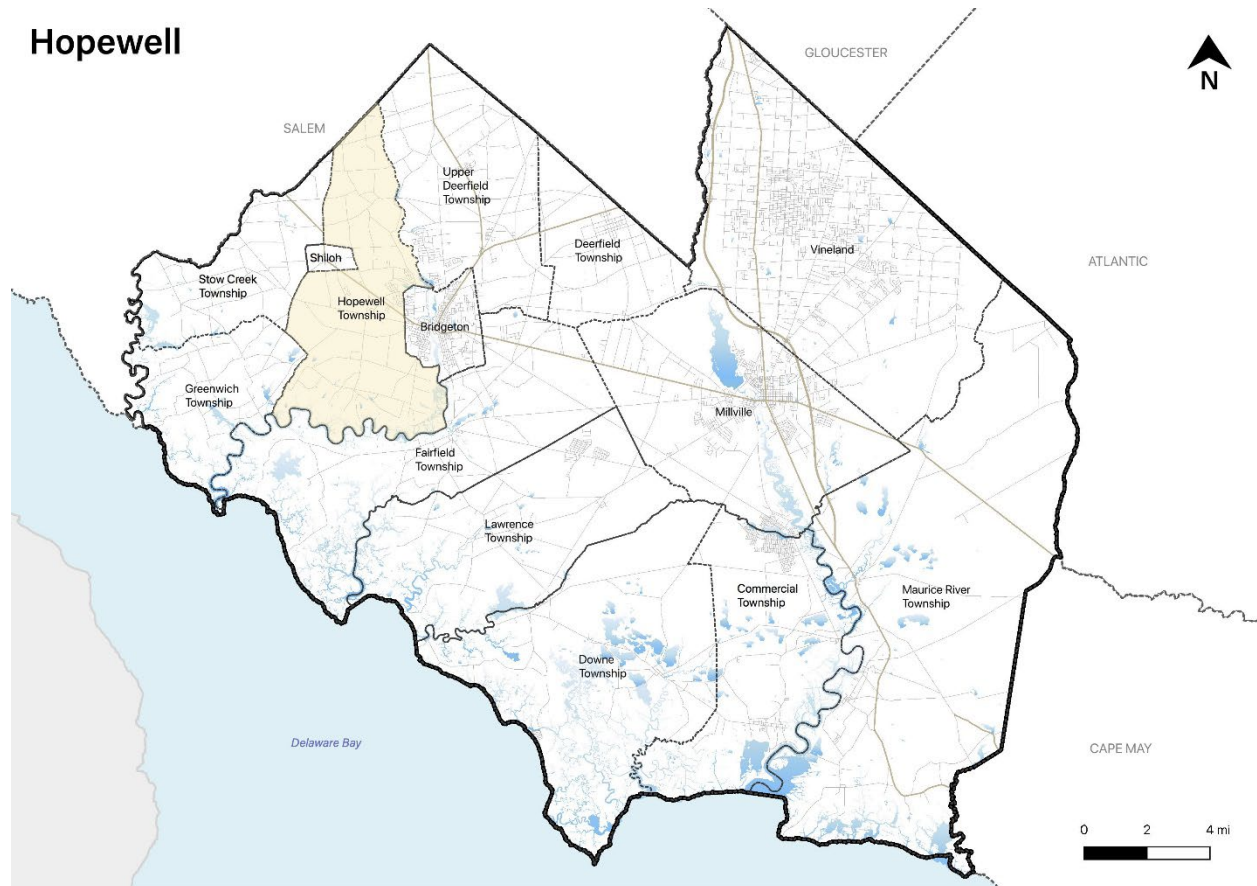
Part 3 includes seven subparts:

- *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

Hopewell Township is located in the northwestern part of Cumberland County (See Figure 8-1).

Figure 8-1: Hopewell Township Location Map

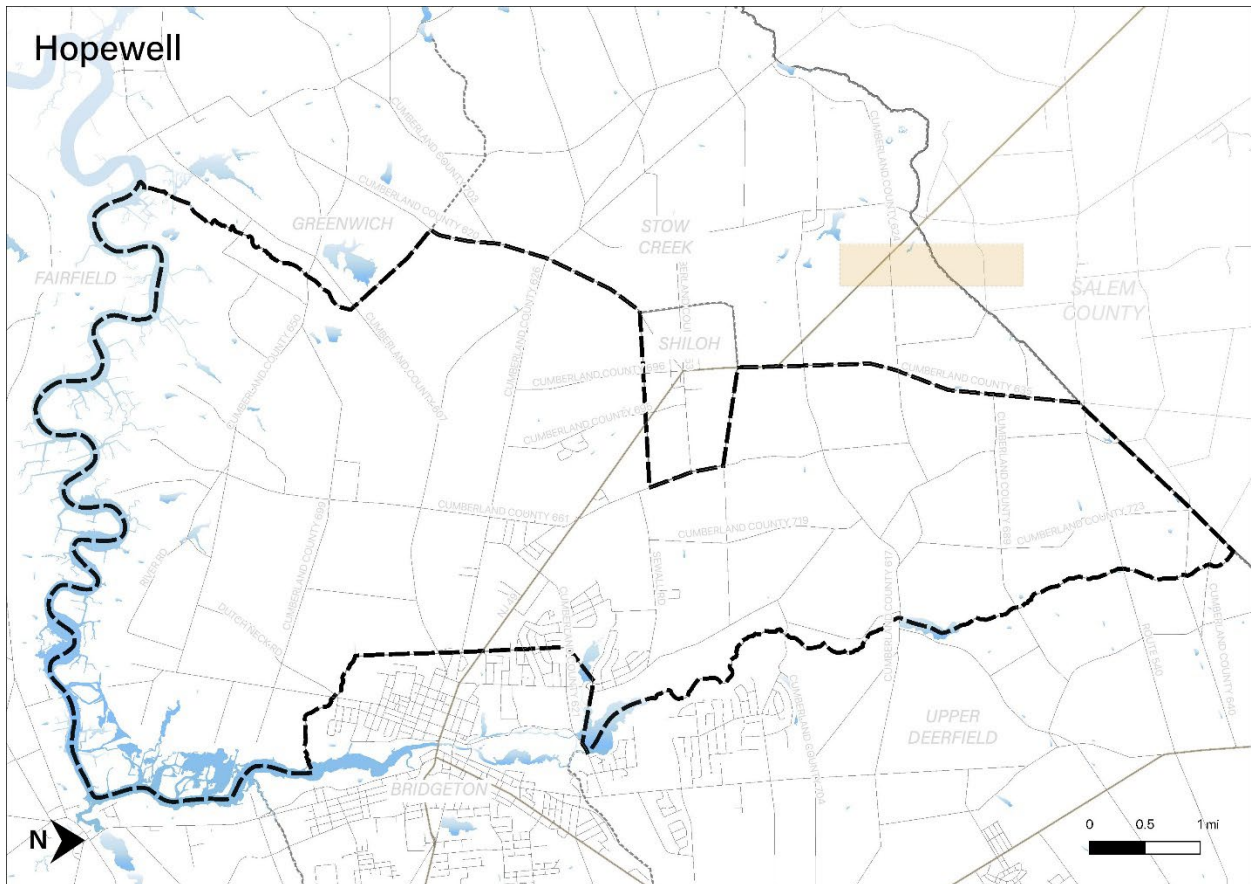


Part 3: Hazard Identification and Risk Assessment

Hopewell Township is a rural, agricultural community, with 74% of its lands enrolled in farmland assessment. Residential development is concentrated around public infrastructure in the central portions of the Township. Located in a fragile ecosystem of the Delaware Bay Estuary and the Cohansey River watershed, the Township is comprised of vast areas of tidal wetlands and relatively little development. Bowentown is an unincorporated community in the municipality.

Per Figure 8-2, and as previously mentioned, major watercourses include the Cohansey River, which forms the southern border of the municipality, and Beebe Run. The major transportation route in the municipality includes State Highway 49. The land is predominantly flat, and a high percentage of the township is utilized for farmland.

Figure 8-2: Hopewell Township Base Map



Part 3: Hazard Identification and Risk Assessment

Part 3.2: General Building Stock

As of 2015, there are 2,796 buildings in Hopewell Township with a total assessed value of improvements of \$269,506,120. Figure 8-3 shows the footprints of these buildings.

Figure 8-3: Hopewell Township Building Footprints¹¹

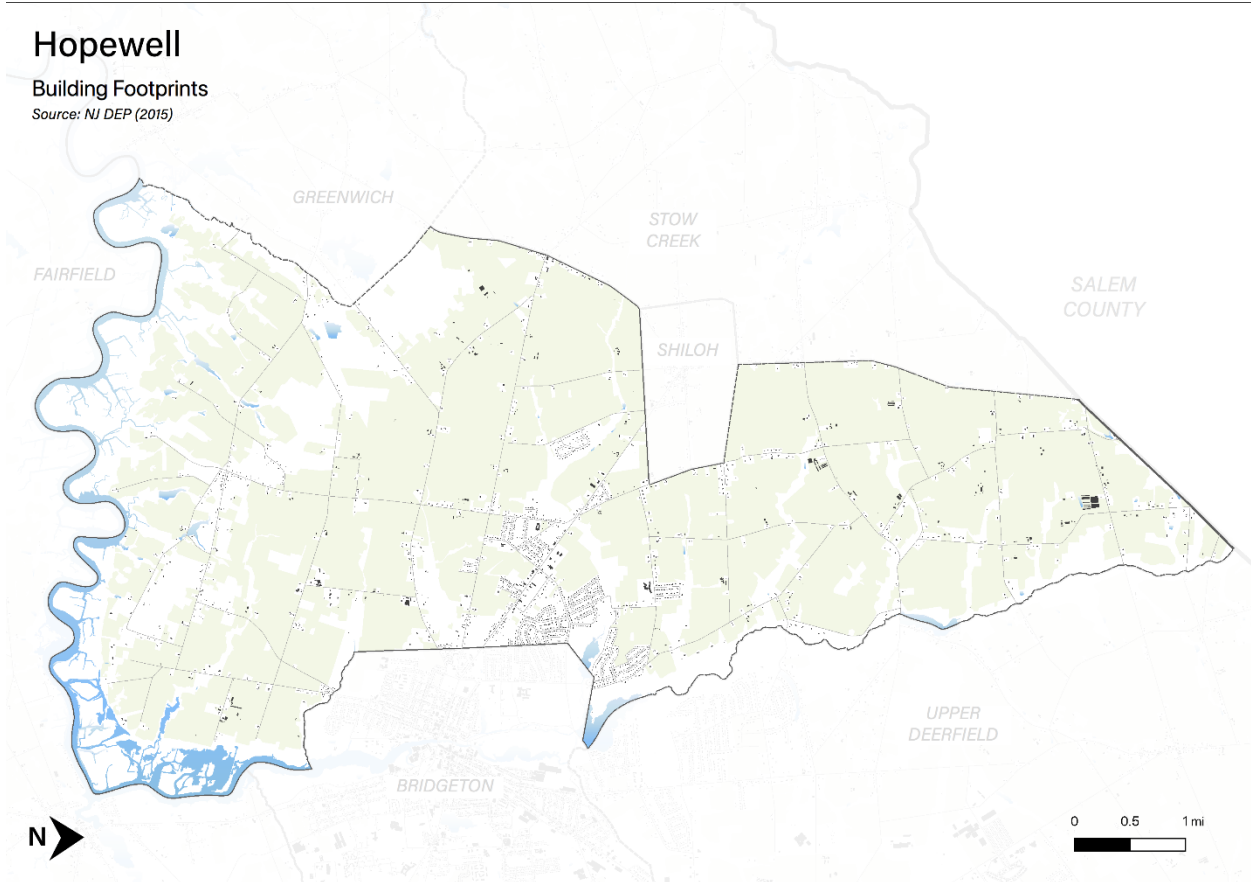


Table 8-3 shows the distribution of these structures according to land use distinctions.

Table 8-3: Hopewell Township Buildings per Land Use Type¹²

| Land Use Type | Residential | Commercial | Industrial | Other |
|---------------------|-------------|------------|------------|-------|
| Number of Buildings | 1,892 | 67 | 0 | 748 |
| % of Total | 70% | 2% | 0% | 28% |

¹¹ 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.

¹² 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 Facilities¹³

As of April 2022, there are eighteen critical facilities in Hopewell 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 8-4 includes current inventory information for municipal critical facilities and cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix. Figure 8.4 shows the location of these critical facilities.

Table 8-4: Hopewell 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 Municipal Building | Municipal | Administrative Offices | 590 Shiloh Pike, Bridgeton | | N | N | | M-3 |
| CF-2 | Emergency Operations Center | EOC | Co-located Facilities | 751 Roadstown Road, Bridgeton | CF-3 | N | Y | Also serves as EOC for Shiloh Borough | |
| CF-3 | Hopewell / Stow Creek Fire Department | FireStations | Stations | 751 Roadstown Road, Bridgeton | | N | Y | | |
| CF-4 | Public Works | Public Works | Combine Administrative Office Maintenance / Work Area, Equipment / and Material Storage | 590 Shiloh Pike, Bridgeton | CF-1 | N | N | | |
| CF-5 | Roadstown Road Pump Station | Utilities – Wastewater | Pump Stations / Lift Stations | 87 Roadstown Road, Bridgeton | | N/A | Y | | |
| CF-6 | Barretts Run Pump Station | Utilities – Wastewater | Pump Stations / Lift Stations | 687 Shiloh Pike, Bridgeton | | N/A | Y | | |
| CF-7 | Pau-Len Drive Pump Station | Utilities – Wastewater | Pump Stations / Lift Stations | 19.5 Pau-Len Drive, Bridgeton | | N/A | Y | | |
| CF-8 | Kennedy Drive Pump Station | Utilities – Wastewater | Pump Stations / Lift Stations | 9.5 Kennedy Drive, Bridgeton | | N/A | Y | | |

¹³ Critical facility definitions and considerations are described in *Section 3: Hazard Identification and Risk Assessment* of the CC HMPU Base Plan.

Part 3: Hazard Identification and Risk Assessment

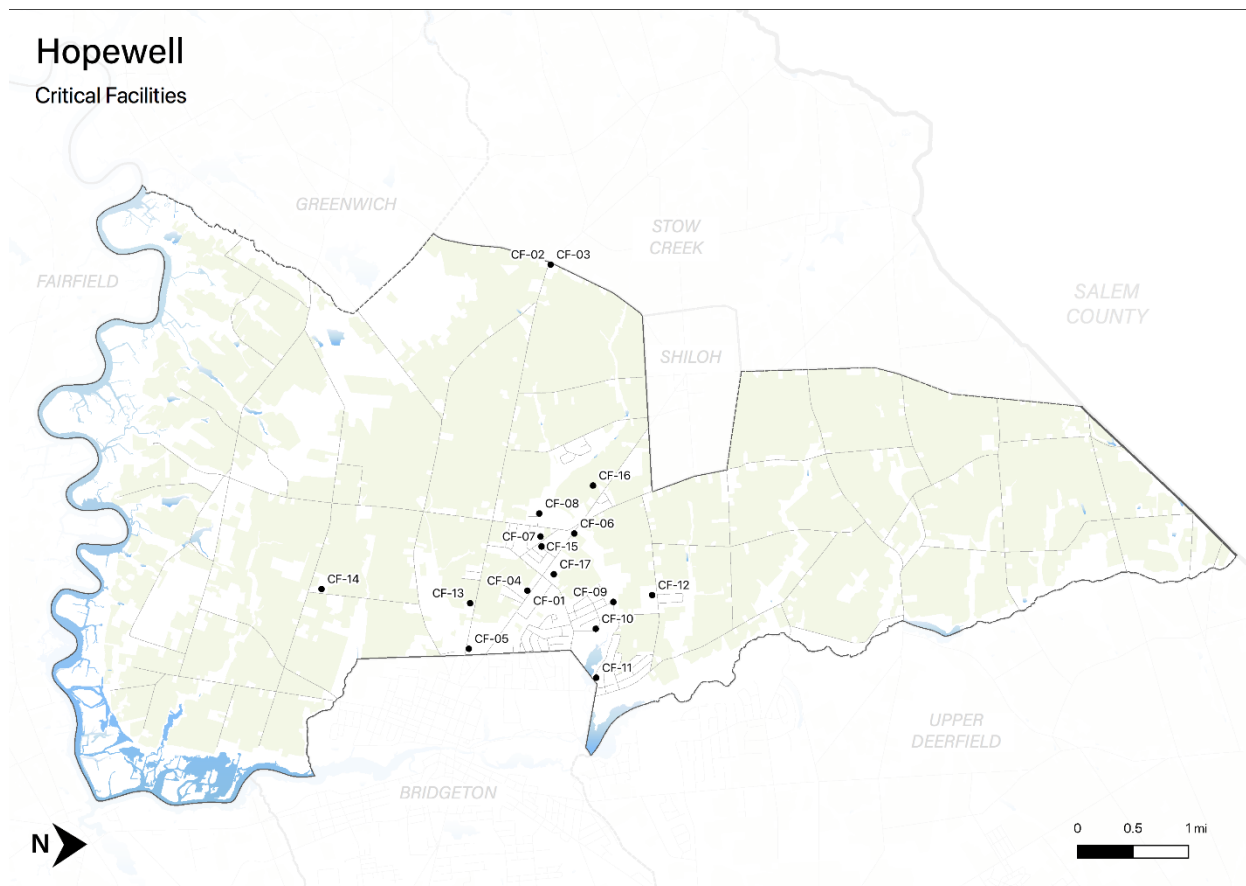
| CF # | Name | Type | Sub-Type | Address | Co-located CF # | Shelter (Y/N) | Generator (Y/N) | Comments | Mitigation Measure # |
|-------|--|-----------------------------------|--------------------------------|------------------------------------|-----------------|-----------------|-----------------|--|----------------------|
| CF-9 | Mary Elmer Drive Pump Station | Utilities – Wastewater | Pump Stations / Lift Stations | 147 Mary Elmer Drive, Bridgeton | | N/A | Y | | |
| CF-10 | Holly Terrace Pump Station | Utilities – Wastewater | Pump Stations / Lift Stations | 22.5 Holly Terrace, Bridgeton | | N/A | Y | | |
| CF-11 | Mary Elmer Lake Pump Station | Utilities – Wastewater | Pump Stations / Lift Stations | 29.5 Mary Elmer Drive, Bridgeton | | N/A | Y | | |
| CF-12 | Hopewell Crest Elementary School | Schools | Public Schools | 122 Sewall Road, Bridgeton | | Y | Y ¹⁴ | Red Cross approved shelter | M-4 & M-6 |
| CF-13 | Devereux Autism Center | Schools | Private Special Needs School | 198 Roadstown Road, Bridgeton | | N | N | | |
| CF-14 | Cumberland Manor | Vulnerable Populations Facilities | Private Nursing Home | 154 Sunny Slope Drive, Bridgeton | | N ¹⁵ | Y | | |
| CF-15 | Hopewell Place Senior Apartments | Vulnerable Populations Facilities | Private Assisted Living | 40 Old Stage Coach Road, Bridgeton | | N ¹⁵ | Y ¹⁴ | | |
| CF-16 | West Cumberland Senior Center | Vulnerable Populations Facilities | Senior Centers | 10 Cassidy Court, Bridgeton | | Y | Y | Cooling center | |
| CF-17 | West Park United Methodist Church | Emergency Staging Areas | Equipment Mobilization | 625 Shiloh Pike, Bridgeton | | Y | N | Cool / heating / feeding center | M-5 |
| CF-18 | Cumberland Mutual Insurance Corporate Headquarters | Emergency Staging Areas | Private Corporate Headquarters | 633 Shiloh Pike, Bridgeton | | N | Y | 50,000 SF facility; designed to withstand Category 3 hurricane winds | |

¹⁴ Back-up generator provides partial building coverage for emergency lighting.

¹⁵ Shelter in place.

Part 3: Hazard Identification and Risk Assessment

Figure 8-4: Hopewell 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 Plan¹⁶.

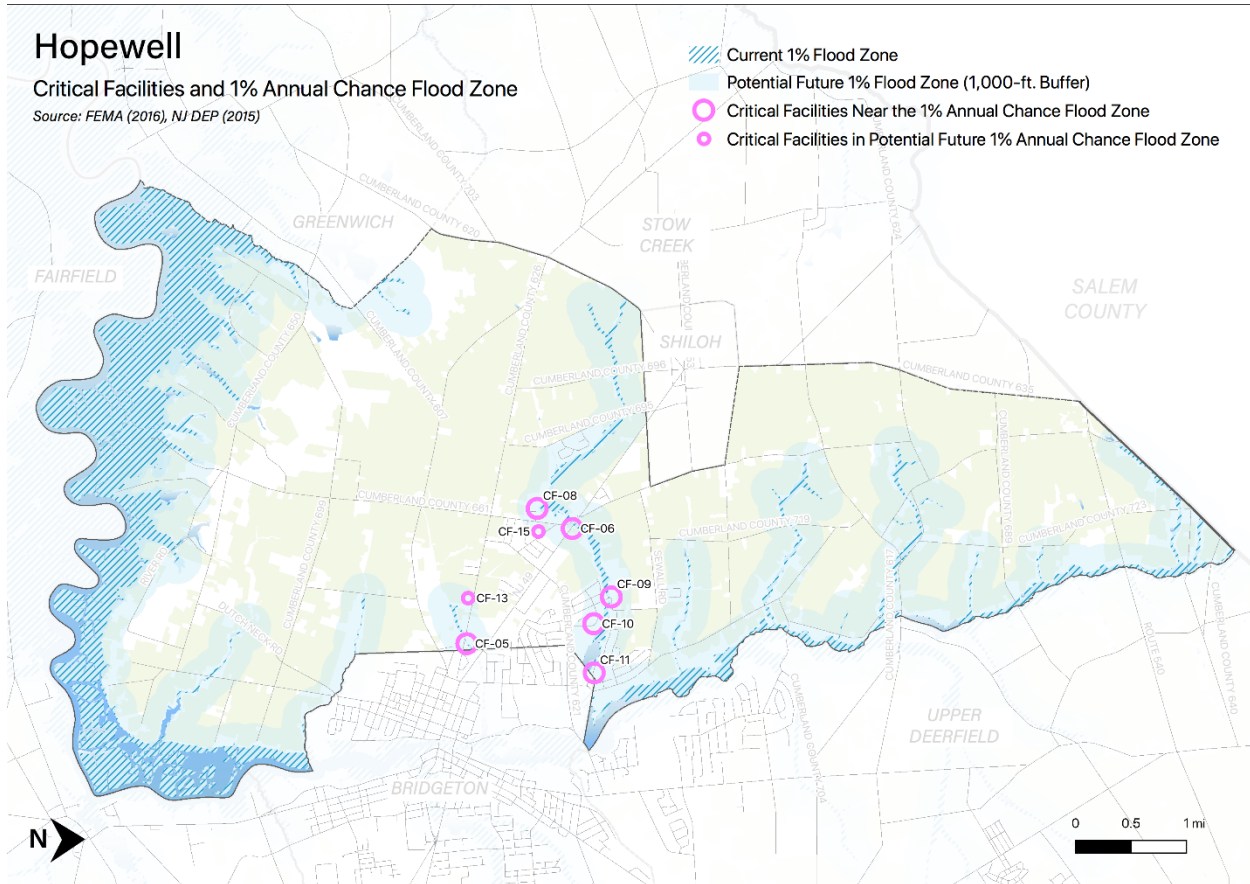
Key results for Hopewell Township are depicted in the following.

Mapping: Figure 8-5 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).

¹⁶ 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 8-5: Hopewell Township Critical Facilities and 1% Annual Chance Flood Zone



Mapping results are available for general building stock and critical facilities for the following hazards:¹⁷

- 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 8-5 indicates hazard exposure for general building stock
- Table 8-6 indicates hazard exposure for critical facilities

¹⁷ 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/pxcav97y6oubi3m/AAB4AXR8Rz5QX3lyQITHL6qqa?dl=0>.

Part 3: Hazard Identification and Risk Assessment

Table 8-5: Hopewell 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 ¹⁸ | 1 | - | no data | - |
| Sea Level Rise - 3 feet increase | 9 | 0.32% | \$508,967 | 0.19% |
| Flood - Within 1 % Annual Chance Zone | 27 | 1% | \$759,400 | - |
| Flood - Near (within 500 feet) of 1% Annual Chance Zone | 577 | 21% | \$53,264,550 | 20% |
| Earthquake – Structure built before 1927 ¹⁹ | 266 | 14% | \$30,458,000 | 13% |
| High Winds / Severe Weather – Structure built before 1975 | 1,441 | 74% | \$155,438,900 | 67% |
| Wildfire – Composite score > 2.5 ²⁰ | 0 | - | \$0 | - |

Table 8-6: Hopewell Township Critical Facilities Hazard Exposure²¹

| 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 | 6 | CF-05, CF-06, CF-08, CF-09, CF-10, CF-11 |
| Flood – Future potential (within 1,000 feet) 1% Annual Chance Zone | 2 | CF-13, CF-15 |
| Wildfire | 2 | CF-05, CF-08, CF-10, CF-17 |

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)

¹⁸ All supporting data for Coastal Erosion, Sea Level Rise (3-foot rise), Flood (all) can be viewed at https://docs.google.com/spreadsheets/d/1fcN5hL3Jz4X7mldFyKs6wol6J6lAR9bSsvJPIqE_A0Q/edit?usp=sharing

¹⁹ All supporting data for Earthquake, High Winds, and Severe Weather can be viewed at <https://docs.google.com/spreadsheets/d/1Zx1LZwKQ8esqdv4c9hbbSZurtMjH4UITQWJY1LrZezc/edit?usp=sharing>

²⁰ All supporting data for Wildfire can be viewed at https://docs.google.com/spreadsheets/d/1JAbfd3A-eCHI93pZFaPVuM_H2yvuUzeHCmoijv-oxsw/edit?usp=sharing

²¹ All supporting data for critical facility hazard exposure can be viewed at <https://docs.google.com/spreadsheets/d/1MPLiOANm7fHoyKuxyWqyang26LTSPayTxJvLmK5lGPg/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) data²²:

- There are no “High Hazard” or Significant Hazard” dams located in the Township. However, the Township is potentially exposed to the following dams:
 - One (1) “High Hazard” dams located in Bridgeton City, the Sunset Lake Raceway Dam with potential exposure for 39 housing units and 84 residents
 - Three “Significant Hazard” dams located in Upper Deerfield Township
- Two (2) dam failure incidents have been recorded in Upper Deerfield Township that may have included damages in Hopewell Township:
 - Bostwicks Pond Dam in 1999
 - Seeley’s Mill Pond Dam in 2011

Figure 8-6 depicts results from the 2016 NJ4 HMP HIRA showing land use within Census Blocks intersecting the Flood Breach Inundation Zone for the High Hazard dam.

Levee Failure

Per the South Jersey Levee Inventory²³:

- There is one (1) levee in the Township:
 - Pease Road (NCRS #58) with fifteen (15) parcels within a 1,000-foot buffer of the levee
- 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?*
- ✓ *Do the dams in Upper Deerfield Township and Bridgeton City pose a threat to structures in Hopewell Township?*
- ✓ *Are there updated Emergency Action Plans or inundation maps for these facilities?*
- ✓ *Have there been any other incidents of failure since the reported records?*

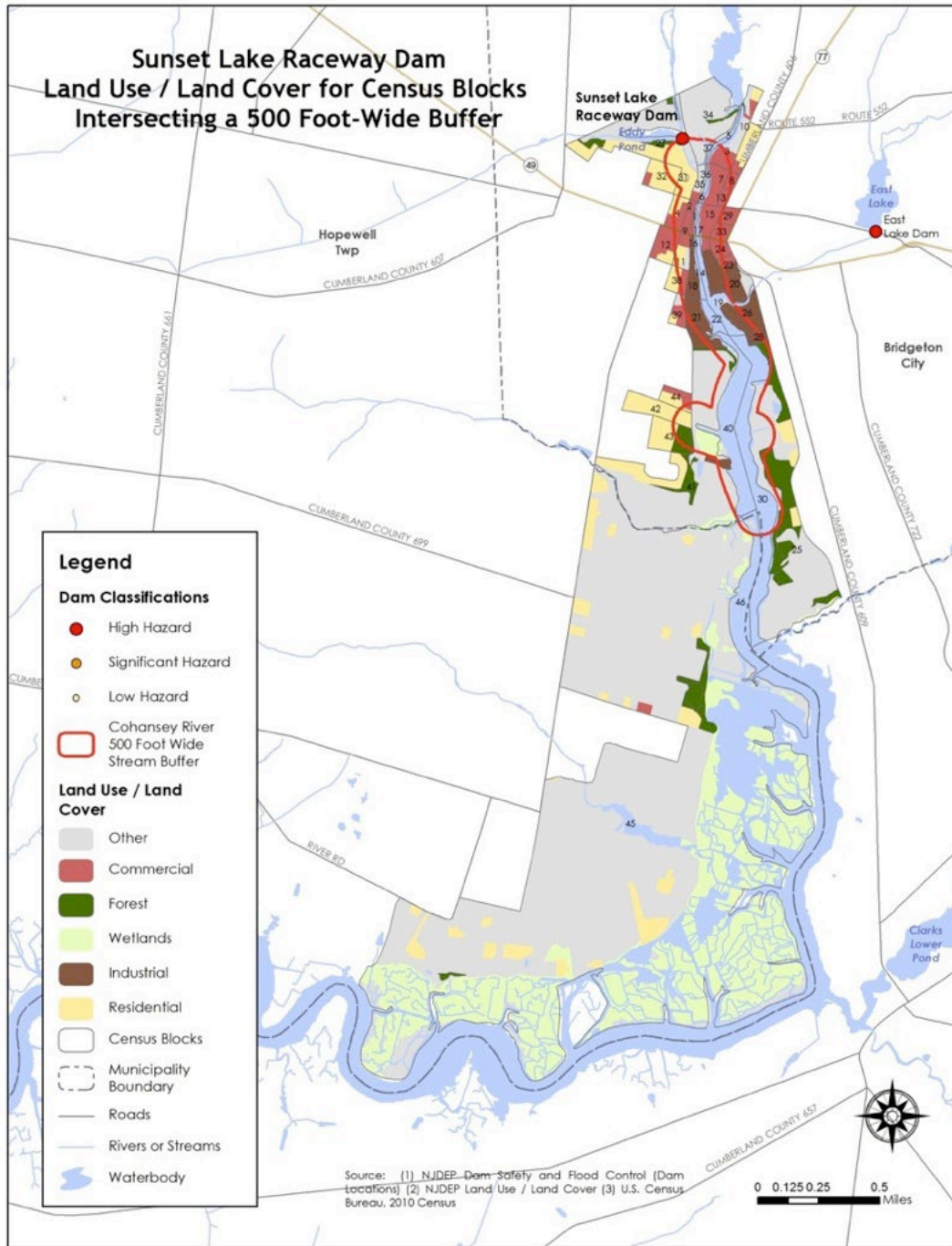
Per the Hopewell Township Working Group, there were no changes to the NJ4 HMP HIRA Dam Failure and Levee Failure hazard exposure results.

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

²³ US Department of Agriculture, National Resources Conservation Services (NRCS) South Jersey Levee Inventory, 2010.

Part 3: Hazard Identification and Risk Assessment

Figure 8 -6: Sunset Lake Raceway Dam Land Use/Land Cover for Census Blocks Intersecting Flood (With Breach) Inundation Zone



An estimated 39 housing units and 84 residents are potentially located downstream of the Sunset Raceway Lake Dam within Hopewell Township.

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

- Active Policies – three (3) active NFIP flood insurance policies
- Claims History – one (1) claim made against the NFIP in 2021
- Repetitive Loss Properties (RL) – no (0) property 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 8-5), which are higher than the number of active policies:

- Flood - Within 1 % Annual Chance Zone: 27 buildings ~ 1% of total buildings, with a value of \$759,400 ~ 1% of the total building value in the Township.
- Flood - Near (within 500 feet) of 1% Annual Chance Zone: 577 buildings ~ 21% of total buildings, with a value of \$53,264,550 ~ 20% of the total building value in the Township.

²⁴ Information on the NFIP is described in *Section 3: Hazard Identification and Risk Assessment* of the CC HMPU Base Plan.

²⁵ Spreadsheets provided by NJOEM in October 2021.

Part 3: Hazard Identification and Risk Assessment

Part 3.5: Demographic Considerations

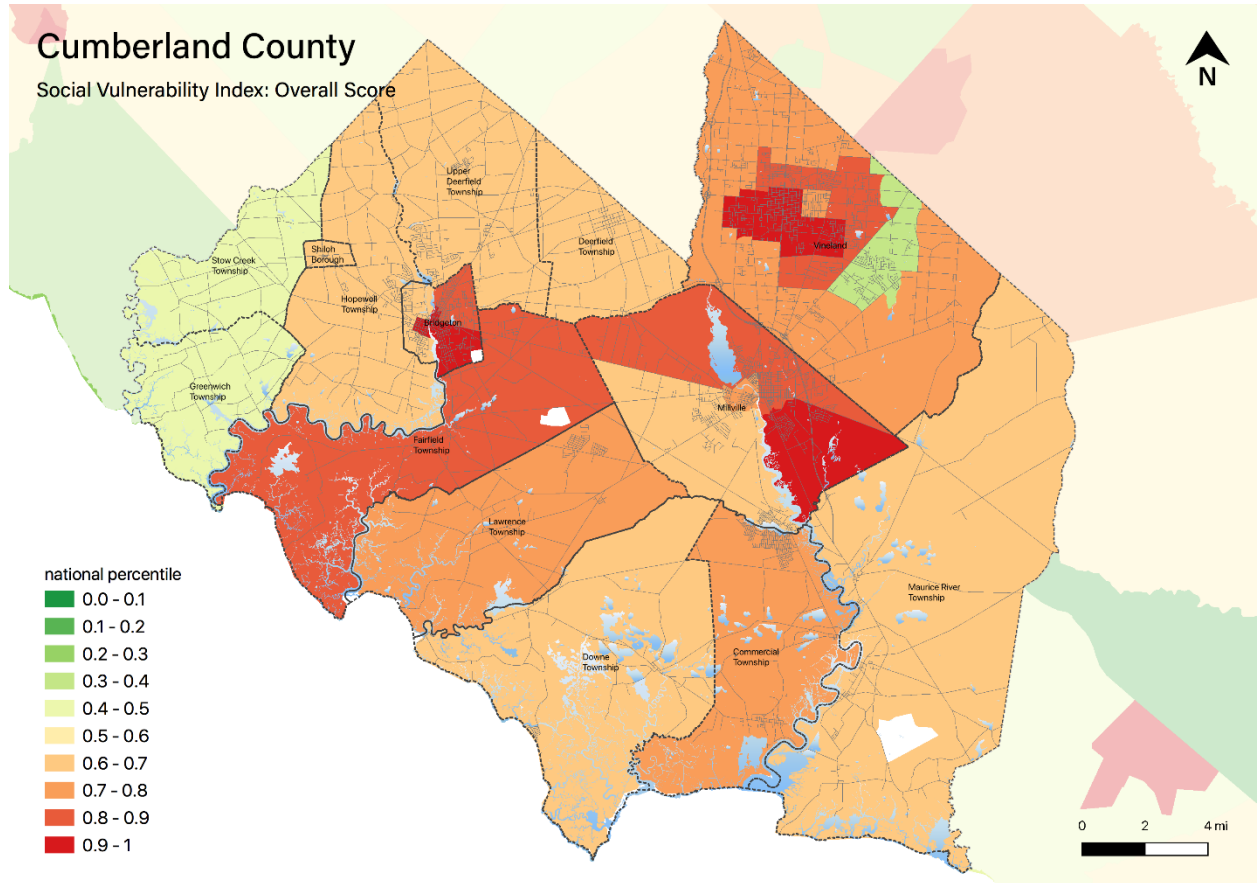
Demographic considerations include general population and land use factors. Table 8-7 includes current population estimates and changes since the previous US Census²⁶:

Table 8-7: Hopewell Township General Population Demographics

| Metric | Current Estimates |
|---------------------------------------|-------------------|
| 2010 Population | 4,571 |
| 2019 Population | 4,386 |
| Percent Population Change (2010-2019) | -4.05% |
| Land Area | 29.87 sq. miles |
| Population Density | 146.8 / sq. mile |

Demographic considerations also include differences in social vulnerability²⁷. Figure 8-7 shows the overall Social Vulnerability (SVI) Index overall scores for Cumberland County.

Figure 8-7: Cumberland County Social Vulnerability Index: Overall Scores



²⁶ US Census, 2019 ACS 5 Year Estimates, Table ID DP5

²⁷ 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 Hopewell Township, Table 8-8 includes selected metrics where social vulnerability considerations are noteworthy when compared with all national census tracts:

Table 8-8: Hopewell Township Social Vulnerability Considerations²⁸

| Metric | Comparison with all National Census Tracts |
|---|--|
| Percentage of persons: Older than 65 years of age | Higher than 89% |
| Percentage of persons: With a disability | Higher than 80% |
| Percentage of persons: Living in mobile homes | Higher than 90% |
| Percentage of persons: Living in group quarters | Higher than 93% |

In addition, the percentage of residents earning below poverty level = 7.3% (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 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).

²⁸ All supporting data for SVI can be viewed at https://docs.google.com/spreadsheets/d/10zb_Qlg2CgGxb45_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

- None

Moderate Priority

- Flood
- High Wind
- Severe Weather – Summer

Low Priority

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

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

- Coastal Erosion and Sea Level Rise

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 8-9 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 8-9.

Table 8-9: Status of Hopewell Township NJ4 HMP Mitigation Measures

| Mitigation Action, Program, or Project | Status | Comments | Mitigation Measure # 2930 |
|--|---------------------------|---|------------------------------|
| 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 has flood mitigation measures and contact information (including cell phone numbers) to various Township employees. It was also utilized during COVID to disseminate critical information. The website also has a link for the virtual meeting room should an emergency meeting need to occur. ▪ The Township also has a Facebook page with 1,500 followers which can swiftly disseminate information in live time to all residents. The link to the Facebook page is also on the website. | 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: Develop Hopewell Township Continuity of Operations / Continuity of Government Plan. | No progress | | Carried over as M-2 |
| M-6: Install permanent backup emergency power for Hopewell Township Municipal Building (CF-1). | Not completed, not funded | The Township anticipates American Rescue Plan funds for this project. The Township has also completed all requirements to meet criteria for FEMA funding and is active and registered with SAM for Federal grant distribution. The Township is also in a position to be able to bond as necessary and has little debt at the current time. | Carried over as M-3 |

²⁹ Detailed information for identification and implementation of municipal (M-#) mitigation measures is included in Tables 8-10 and 8-11.

³⁰ Detailed information for identification and implementation of multi-jurisdictional (MJ-#) mitigation measures is included in Table 8-12.

Part 4: Mitigation Measures

| Mitigation Action, Program, or Project | Status | Comments | Mitigation Measure # 2930 |
|---|---------------------------|--|--|
| M-7: Install permanent backup emergency power for Hopewell Crest Elementary School (CF-12). | Work-in-progress | School replaced generator in 2020 using General Funds. However, generator function is still limited. Funding to be identified. | Carried over as M-4 |
| M-8: Install permanent backup emergency power for West Park United Methodist Church (CF-17). | Not completed, not funded | | Carried over as M-5 |
| M-9: Harden / retrofit Hopewell Crest Elementary School to include roof. (CF-12). | Not completed, not funded | | Carried over as M-6 |
| MJ-1: Alleviate flooding at Columbia Highway between County Route 661 (Barrett's Run Road) and County Route 635 (Old Cohansey Road). | Not completed, not funded | | Carried over as multi-jurisdictional mitigation measure MJ-1 |

Part 4.3: Municipal Mitigation Measures – Identification

Table 8-10 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)³¹ if applicable

Table 8-10 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

³¹ 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 8-10: Hopewell 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 | Develop Hopewell Township Continuity of Operations / Continuity of Government Plan. | All | Goal #3 | Existing |
| M-3 | Install permanent backup emergency power for Hopewell Township Municipal Building (CF-1). | Power outage due to multiple hazard types. | Goal #4 | Existing |
| M-4 | Install permanent backup emergency power for Hopewell Crest Elementary School (CF- 12). | Power outage due to multiple hazard types. | Goal #4 | Existing |
| M-5 | Install permanent backup emergency power for West Park United Methodist Church (CF-17). | Power outage due to multiple hazard types. | Goal #4 | Existing |
| M-6 | Harden / retrofit Hopewell Crest Elementary School to include roof. (CF-12). | High Wind, Severe Winter Weather | Goal #4 | Existing |

Part 4.4: Municipal Mitigation Measures – Implementation

Table 8-11 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 criteria³²
- Project Type to help determine funding options and implementation mechanisms at the municipal level³³
- 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

³² Section 4: *Mitigation Measures* of the CC HMPU Base Plan includes a description of evaluation criteria considered by the Municipal Working Group.

³³ 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 8-11: Hopewell 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 | Develop Hopewell Township Continuity of Operations / Continuity of Government Plan. | Township OEM and Township Working Group | High | Capabilities and Coordination | Staff time commitment | On-going | <ul style="list-style-type: none"> ▪ Develop outline for proposed Hopewell Township Continuity of Operations Plan and identify potential partners for this initiative. |
| M-3 | Install permanent backup emergency power for Hopewell Township Municipal Building (CF-1). | Township OEM and Public Works Department | High | Back-up Emergency Power Generator | < \$100K | One to three years | <ul style="list-style-type: none"> ▪ Conduct project scoping.³⁴ ▪ Identify/confirm funding source(s). |
| M-4 | Install permanent backup emergency power for Hopewell Crest Elementary School (CF- 12). | Township OEM and School Board | High | Back-up Emergency Power Generator | < \$100K | One to three years | Same as M-3 |
| M-5 | Install permanent backup emergency power for West Park United Methodist Church (CF-17). | Township OEM and West Park United Methodist Church | High | Back-up Emergency Power Generator | < \$100K | One to three years | Same as M-3 |
| M-6 | Harden / retrofit Hopewell Crest Elementary School to include roof. (CF-12). | Township OEM and School Board | Low | Building Retrofit | \$100K - \$500K | Three to five years | Conduct project scoping. |

³⁴ Project scoping for M-3 through M-5 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 8-12.

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 8-12: Hopewell 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 Columbia Highway between County Route 661 (Barrett's Run Road) and County Route 635 (Old Cohansey Road). | Flood | 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 Hopewell 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 Hopewell 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 8-13 compares the results of the Capability Assessment Survey for the County as a whole and Hopewell Township.

Part 4: Mitigation Measures

Table 8-13: Hopewell Township Capability Assessment Survey Results

| Metric | Hopewell Township Results (n=7) | Cumberland County "as a whole" Results (n=85) |
|---|------------------------------------|--|
| Position Type: Full-time | 42.86% | 51.76% |
| Position Type: Part-time | 14.29% | 36.47% |
| Position Type: Volunteer | 42.86% | 11.76% |
| | | |
| 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 | 42.86% | 23.53% |
| Time in Position: More than 5 years | 57.14% | 55.29% |
| | | |
| Prior Experience: None | 42.86% | 57.65% |
| Prior Experience: with hazard mitigation planning | 57.14% | 31.76% |
| Prior Experience: with HMA grant administration | 0.00% | 12.94% |
| Prior Experience: with floodplain management | 0.00% | 7.06% |
| | | |
| Training / Certifications: None | 85.71% | 75.29% |
| Training / Certifications: for hazard mitigation planning and implementation | 0.00% | 9.41% |
| Training / Certifications: for floodplain management | 14.29% | 15.29% |

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

- Similar percentage of full-time staff
- Higher percentage of volunteer staff
- Similar average time in current positions
- Higher 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
- Similar 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 Hopewell Township Working Group include:

- Flood Damage Prevention Ordinance (2016)
- Emergency Operations Plan (2019)
- Master Plan (2007)
- Annual Stormwater Report (2021)
- Development Ordinance
- Environmental Resources Inventory (2007)
- Zoning Map (2012)

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.