



Salem County New Jersey
Multi-Jurisdictional Multi-Hazard Mitigation Plan Update
Participating Jurisdiction Appendices

**Appendix 3
Carneys Point Township**

January 2025

This page is intentionally blank.

Table of Contents

| | |
|--|-------------|
| Table of Contents | 3-i |
| Part 1 Overview | 3-1 |
| 1.1: Salem County Multi-Jurisdictional Multi-Hazard Mitigation Plan Update | 3-1 |
| 1.2: Carneys Point Township Municipal Appendix | 3-1 |
| Part 2 Participation | 3-2 |
| 2.1: Municipal Working Group Participation | 3-2 |
| 2.2: Public Participation | 3-5 |
| Part 3 Hazard Identification and Risk Assessment | 3-6 |
| 3.1: Profile | 3-6 |
| 3.2: General Building Stock | 3-8 |
| 3.3: Critical Facilities | 3-9 |
| 3.4: Hazard Exposure Assessment | 3-13 |
| 3.5: Demographic Considerations | 3-18 |
| 3.6: Observations | 3-19 |
| 3.7: Hazard Priorities | 3-20 |
| 3.8: Climate Change Considerations | 3-21 |
| Part 4 Mitigation Measures | 3-22 |
| 4.1: Mitigation Goals and Strategy | 3-22 |
| 4.2: NJ4 HMP Mitigation Measures | 3-23 |
| 4.3: Municipal Mitigation Measures – Identification | 3-26 |
| 4.4: Municipal Mitigation Measures – Implementation | 3-28 |
| 4.5: Multi-Jurisdictional Mitigation Measures | 3-31 |
| 4.6: Authorities, Policies, Programs, Resources, and Plan Integration | 3-32 |

Table of Contents

List of Figures

| | |
|--|------|
| Figure 3-1: Carneys Point Township Location Map | 3-6 |
| Figure 3-2: Carneys Point Township Base Map | 3-7 |
| Figure 3-3: Carneys Point Township Building Footprints | 3-8 |
| Figure 3-4: Carneys Point Township Critical Facilities | 3-13 |
| Figure 3-5: Carneys Point Township Critical Facilities & 1% Annual Chance Flood Zone | 3-14 |
| Figure 3-6: Salem County Social Vulnerability Index: Overall Scores | 3-18 |

List of Tables

| | |
|---|------|
| Table 3-1: Carneys Point Township Working Group | 3-2 |
| Table 3-2: Public Participation | 3-5 |
| Table 3-3: Carneys Point Township Buildings per Land Use Type | 3-8 |
| Table 3-4: Carneys Point Township Critical Facilities Inventory | 3-9 |
| Table 3-5: Carneys Point Township General Building Stock Hazard Exposure | 3-15 |
| Table 3-6: Carneys Point Township Critical Facilities Hazard Exposure | 3-15 |
| Table 3-7: Carneys Point Township General Population Demographics | 3-18 |
| Table 3-8: Carneys Point Township Social Vulnerability Considerations | 3-19 |
| Table 3-9: Potential Climate Change Impacts | 3-21 |
| Table 3-10: Status of Carneys Point Township NJ4 HMP Mitigation Measures | 3-23 |
| Table 3-11: Carneys Point Township Municipal Mitigation Measures Identification | 3-26 |
| Table 3-12: Carneys Point Township Municipal Mitigation Measures Implementation | 3-28 |
| Table 3-13: Carneys Point Township Multi-Jurisdictional Mitigation Measures | 3-31 |
| Table 3-14: Carneys Point Township Capability Assessment Survey Results | 3-33 |

Part 1: Overview

Part 1.1: Salem County Multi-Jurisdictional Multi-Hazard Mitigation Plan Update

The *Salem County Multi-Jurisdictional Multi-Hazard Mitigation Plan Update* (SC HMPU) incorporates input from participating jurisdictions in Salem County, including Salem County and 14 separate municipalities.

The SC HMPU is an update of the *Mitigation Plan for Four New Jersey Counties* (NJ4 HMP) that was completed by all 16 jurisdictions in Salem County along with over 70 additional jurisdictions from Camden, Cumberland, and Gloucester, Counties. The Salem County portions of the NJ4 HMP were adopted by the participating jurisdictions and approved by the Federal Emergency Management Agency in January 2017.

The SC HMPU has two main parts:

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

The Base Plan includes descriptions and information common to all 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 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: Carneys Point Township Municipal Appendix

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

The Carneys Point Township Municipal Working Group developed the Carneys Point Township Municipal Appendix for adoption by the Carneys Point 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 3-1 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.

Working Group meetings were conducted as both in-person and virtual meetings. Municipal Working Group members reviewed briefing materials and contributed during meetings and reviewed the Preliminary Draft and Public Review Draft versions of the SC HMPU Base Plan and Appendices. The Working Group will also continue to stay involved during the implementation and maintenance of the SC HMPU.

Note: Seven members of the Working Group also participated in the development of the 2017 NJ4 HMP. These members are indicated with an () following their last names.*

Table 3-1: Carneys Point Township Working Group

| First Name | Last Name | Department | Position | Project Kick-off Meeting ¹ | Round 1 Work Session ² | Round 2 Work Session ³ | Contribution ⁴ |
|------------|------------|---|---|---------------------------------------|-------------------------------------|-------------------------------------|--|
| Arnold | Diteodoro* | Carneys Point Township Office of Emergency Management (OEM) | Emergency Management Coordinator | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Organized Working Group and Work Sessions. |
| Robert | LaRosa | Carneys Point Township OEM | Deputy Emergency Management Coordinator | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Wayne | Pelura* | Carneys Point Township Committee | Mayor | | | | |
| Charles | Newton* | Carneys Point Township Committee | Deputy Mayor | | | | |

¹ Project Kickoff Meeting was held on February 27, 2023.

² Round 1 Work Session was held on April 5, 2023.

³ Round 2 Work Session was held on June 12, 2023.

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

Part 2: Participation

| First Name | Last Name | Department | Position | Project Kick-off Meeting ¹ | Round 1 Work Session ² | Round 2 Work Session ³ | Contribution ⁴ |
|------------|-------------|---|---|---------------------------------------|-------------------------------------|-------------------------------------|---------------------------|
| Michelle | Shaw | Carneys Point Township Committee / Carneys Point Township OEM | Committee Member / Department Head | | | | |
| Kenneth | Brown* | Carneys Point Township Committee | Committee Member | | | | |
| Tim | Pine | Carneys Point Township Administration | Administrator | | | | |
| June | Proffitt | Carneys Point Township Administration | Clerk | | | | |
| Dale | VanNamee | Carneys Point Township Police | Chief | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Ted | Stranahan | Carneys Point Township Fire / Chemours | Chief / Safety and Security Specialist | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Joseph | Santogrossi | Carneys Point Township Public Works | Public Works Manager | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Freda | Earnest | Carneys Point Township Planning Board | Secretary | | | | |
| Jack | Palumbo | Carneys Point Construction Office / Zoning Office | Construction Code Official / Floodplain Administrator | | | | |
| Casey | English | Carneys Point Construction Office / Zoning Office | Assistant Construction Code Official | | | | |
| Kim | Minguez* | Carneys Point Construction Office / Zoning Office | Zoning Officer | | | | |
| Robert | Schmid | Carneys Point Construction Office / Zoning Office | Housing Official | | | | |
| Robert | Brayerton | Carneys Point Township Industrial Commission for Economic Development | Chairman | | | | |
| Kevin | Snowden | Engineering Consultant to the Township | Consulting Engineer, Alaimo Group | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |

Part 2: Participation

| First Name | Last Name | Department | Position | Project Kick-off Meeting ¹ | Round 1 Work Session ² | Round 2 Work Session ³ | Contribution ⁴ |
|------------|-----------|---|---|---------------------------------------|-------------------------------------|-------------------------------------|---------------------------|
| Erik | Biermann* | Engineering Consultant to the Sewer Authority | Consulting Engineer, Sickels and Associates, Inc. | | | <input checked="" type="checkbox"/> | |
| Steven | Cossaboon | Engineering Consultant to the Sewer Authority | Project Manager, Sickels and Associates, Inc. | | | <input checked="" type="checkbox"/> | |
| Arsenio | Gonzalez | Carneys Point Township School District | Safety and Security Specialist | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Kevin | Tocco | Carneys Point Township School District | Maintenance Supervisor | | | | |
| Steve | Krough | Salem Community College | OEM Coordinator | | | <input checked="" type="checkbox"/> | |
| Colleen | Ayars* | Merion Gardens Assisted Living | Director of Finance / Assistant Administrator | | | | |
| Monica | Vasquez | Carneys Point Senior Apartments | Manager | | <input checked="" type="checkbox"/> | | |
| Wayne | Cheeseman | Village Arms Apartments | Fire and Safety Specialist | | | | |
| Moshe | Lapa | Carneys Point Care | Facility Administrator | | | <input checked="" type="checkbox"/> | |
| Jacob | Feiffer | South Gate Nursing | Facility Administrator | | | | |
| Bill | Schockel* | Resident | Volunteer | | | | |

The following lists candidate positions and organizations within the community that were extended invitations to participate during the development of the Municipal Appendix. These positions and organizations will continue to be extended invitations to participate during subsequent plan implementation and maintenance activities.

- Salem County Chamber of Commerce
- Hopewell Church
- The Wesleyan Church

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.

- Environmental Commission
- GIS/IT Specialist (Services provided by Salem County)

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 3-2 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 3-2: Public Participation

| Date | Type of Involvement | Location |
|---------------------------------------|--|---|
| April 14, 2023 | Link to Project Website ⁵ established and maintained. | Township website ⁶ |
| April 17, 2023 | Public meeting conducted with "SC HMPU" as agenda item with Township Committee. | Township Hall |
| May 1, 2023 | Notice posted re: Preliminary Draft Appendix and Round 2 Working Group Meeting with link to Project Website. | Township website ⁶ |
| June 2023 | Preliminary Draft Appendix available for public comment. | Project website ⁵ |
| July 19, 2023 | Public meeting conducted with "SC HMPU" as agenda item with Township Committee. | Township Hall |
| August 4, 2023 | Notice posted re: Public Review Draft Appendix review period with link to Project Website. | Township website ⁶ |
| August 16, 2023 | Availability of Public Review Draft announced at Township Committee Meeting | Township Hall |
| August 18 through September 15, 2023 | Public Review Draft Appendix available for public comment. | Project website ⁵ |
| July 8, 2024 | Revised Draft Municipal Appendix posted to Project Website | Project website ⁵ |
| October 9, 2024 and November 14, 2024 | Revised Draft Appendix Review Public Meetings (open to all County residents and interested parties) | PSEG Energy & Environmental Resource Center, Salem and Penn Towers South, Penns Grove |
| December 11, 2024 | Final Municipal Appendix posted to Project Website | Project website ⁵ |

Public comments and input received for all 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.

Public education and outreach is an on-going mitigation measure included in the Municipal Appendix.⁷ In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities.⁸

⁵ <https://schmpu23.com/documents>

⁶ <http://carneyspointwp.org/cpni/Departments/Emergency%20Management/>

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

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

Part 3: Hazard Identification and Risk Assessment

Part 3: Hazard Identification and Risk Assessment

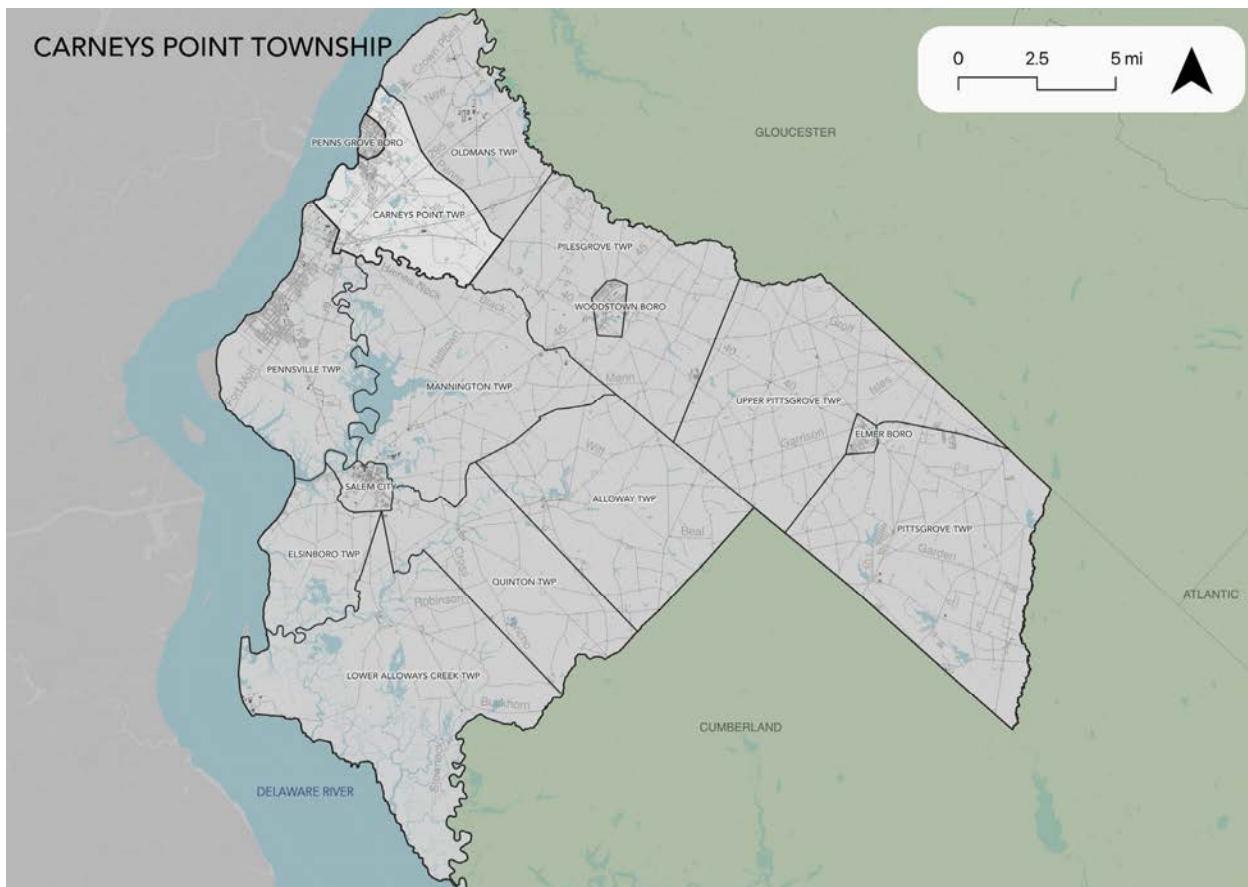
Part 3 includes seven subparts:

- *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

Carneys Point Township is located on the northeastern edge of Salem County (See Figure 3-1).

Figure 3-1: Carneys Point Township Location Map



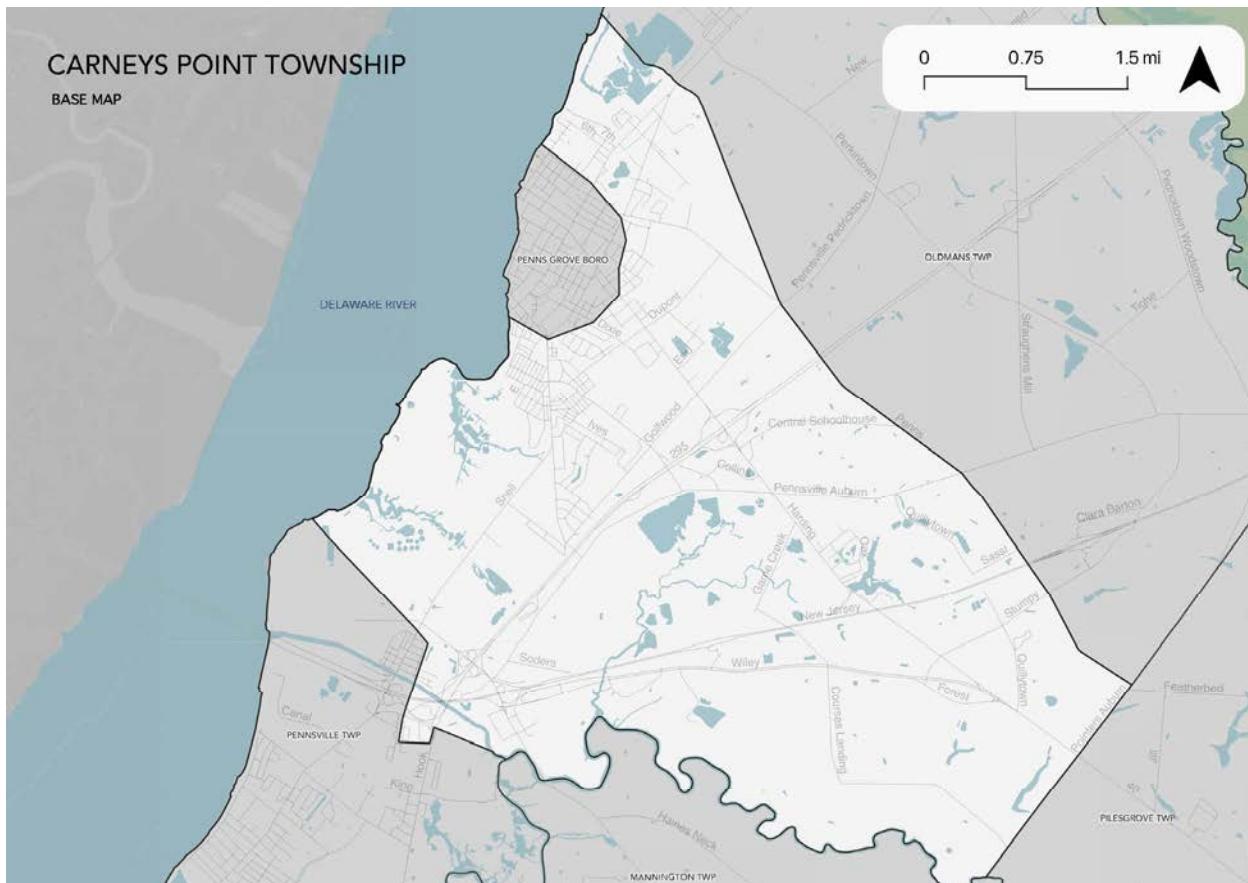
Part 3: Hazard Identification and Risk Assessment

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

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

The land is predominantly flat.

Figure 3-2: Carneys Point Township Base Map



Part 3: Hazard Identification and Risk Assessment

Part 3.2: General Building Stock

As of 2021, there are 3,518 buildings in Carneys Point Township with a total assessed value of improvements of \$546,824,600. Figure 3-3 shows the footprints of these buildings.

Figure 3-3: Carneys Point Township Building Footprints⁹

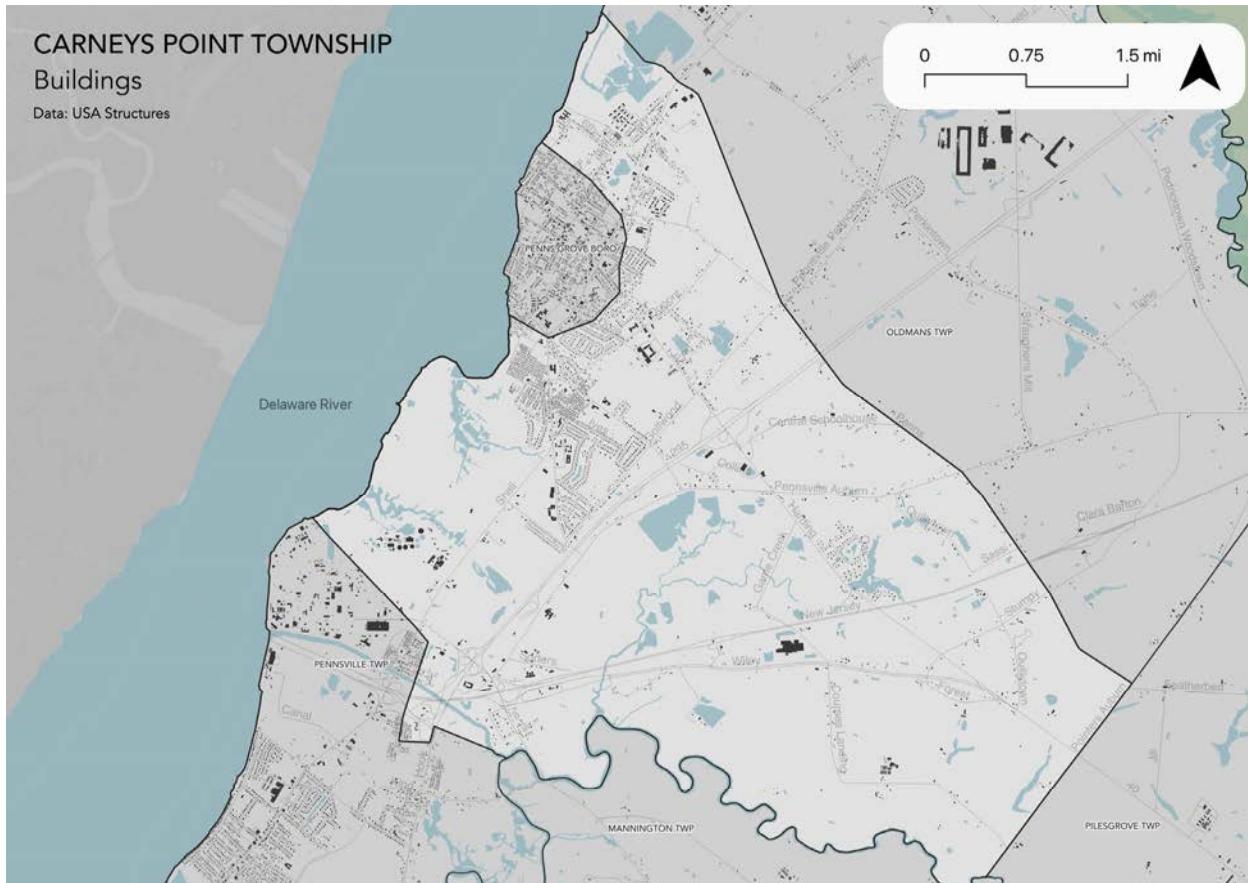


Table 3-3 shows the distribution of these structures according to land use distinctions.

Table 3-3: Carneys Point Township Buildings per Land Use Type¹⁰

| Land Use Type | Residential (<4 units) | Multi-Family | Farm | Commercial | Industrial | Other ¹¹ |
|---------------------|------------------------|--------------|------|------------|------------|---------------------|
| Number of Buildings | 2,849 | 51 | 147 | 255 | 76 | 140 |
| % of Total | 81.0% | 1.4% | 4.2% | 7.2% | 2.2% | 4.0% |

⁹ Building footprint data was isolated from FEMA's "USA Structures" data (2022) per https://disasters.geoplatform.gov/publicdata/Partners/ORNL/USA_Structures/New%20Jersey/.

¹⁰ Land use types were isolated from MOD-IV Parcels and Tax Assessor data composite (2021) per <https://www.state.nj.us/treasury/taxation/pdf/lpt/modIV/manual.pdf>.

¹¹ Other includes: Schools, Public Use, and other Exempt uses

Part 3: Hazard Identification and Risk Assessment

Part 3.3: Critical Facilities

As of September 2023, there are twenty-eight (28) critical facilities in Carneys Point 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 3-4 includes current inventory information for municipal critical facilities and includes cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix. Figure 3.4 shows the location of these critical facilities.

Table 3-4: Carneys Point Township Critical Facilities Inventory

| CF # | Name | Type ¹² | Sub-Type | Address | Co-located CF # | Shelter (Y/N) | Generator (Y/N) | Comments | Mitigation Measure # |
|------|-----------------------------|----------------------------|--|--|-----------------|---------------|-----------------|----------|----------------------|
| CF-1 | Township Hall | Municipal | Administrative Offices | 303 Harding Highway, Carneys Point | | N | N ¹³ | | M-2 |
| CF-2 | Emergency Operations Center | EOC | Co-located Facilities | 303 Harding Highway, Carneys Point | CF-1 | N | Y | | |
| CF-3 | Police Station | Law Enforcement Facilities | Stations | 303 Harding Highway, Carneys Point | CF-1 | N | Y | | |
| CF-4 | Fire Station | FireStations / EMS | Stations | 258 D Street, Carneys Point | | N | Y | | |
| CF-5 | Public Works Yard | Public Works | Combined Administrative Office, Maintenance / Work Area, Equipment / Material Storage, and Fueling Station | 344 Penns Grove-Auburn Road, Carneys Point | | N | Y ¹⁴ | | M-3 |

¹² Critical facility type and subtype definitions and considerations are described in *Section 3: Hazard Identification and Risk Assessment* of the SC HMPU Base Plan.

¹³ Existing generator only provides emergency back-up power to Police Department, Courtroom and phone system.

¹⁴ Existing generator is old and inadequate to provide back-up emergency power.

Part 3: Hazard Identification and Risk Assessment

| CF # | Name | Type ¹² | Sub-Type | Address | Co-located CF # | Shelter (Y/N) | Generator (Y/N) | Comments | Mitigation Measure # |
|-------|---------------------------------|------------------------|--------------|--|-----------------|---------------|-----------------|---|----------------------|
| CF-6 | Bouton Creek Pump Station | Utilities – Stormwater | Pump Station | Coordinates | | N/A | Y ¹⁵ | Mitigation measure(s) needed to address flooding at pump station. | M-13 |
| CF-7 | Plant Road Pump Station | Utilities – Stormwater | Pump Station | Coordinates | | N/A | Y | | |
| CF-8 | Treatment Plant | Utilities - Sewer | Pump Station | Cleveland Avenue & E Street, Carneys Point | | N/A | Y ¹⁶ | | |
| CF-9 | #1 McLane Pump Station | Utilities - Sewer | Pump Station | 758 Courses Landing Road, Carneys Point | | N/A | Y ¹⁶ | | |
| CF-10 | #2 Laytons Lake Pump Station | Utilities - Sewer | Pump Station | 13 Laytons Lake Drive, Carneys Point | | N/A | Y ¹⁶ | | |
| CF-11 | #3 Game Creek Pump Station | Utilities - Sewer | Pump Station | 12 Harding Highway, Carneys Point | | N/A | Y ¹⁶ | | |
| CF-12 | #4 East End Pump Station | Utilities - Sewer | Pump Station | 394 Harding Highway, Carneys Point | | N/A | Y ¹⁶ | | |
| CF-13 | #5 Miller Avenue Pump Station | Utilities - Sewer | Pump Station | 25 North Miller Avenue, Carneys Point | | N/A | Y ¹⁶ | | |
| CF-14 | #6 Line Street Pump Station | Utilities - Sewer | Pump Station | 99 Margaret Street, Carneys Point | | N/A | Y ¹⁶ | | |
| CF-15 | #7 Delaware Avenue Pump Station | Utilities - Sewer | Pump Station | 140 4th Avenue, Carneys Point | | N/A | Y ¹⁶ | | |

¹⁵ Hookup and transfer station in place and portable generator owned by Carneys Point Township. Constrained by available property for a permanent installation.

¹⁶ Station has auxiliary generator on site with an automatic transfer switch activating the generator when the electric feed fails. In addition, station has capacity to receive backup power from a portable generator if the onsite generator fails.

Part 3: Hazard Identification and Risk Assessment

| CF # | Name | Type ¹² | Sub-Type | Address | Co-located CF # | Shelter (Y/N) | Generator (Y/N) | Comments | Mitigation Measure # |
|-------|--------------------------------------|-----------------------------------|--------------------------------|-------------------------------------|-----------------|-----------------|-----------------|--|----------------------|
| CF-16 | #8 Lafayette Pump Station | Utilities - Sewer | Pump Station | 310 Lafayette Road, Carneys Point | | N/A | N | Demolition planned for 2024 | |
| CF-17 | #9 Hickory Avenue Pump Station | Utilities - Sewer | Pump Station | 336 Justice Drive, Carneys Point | | N/A | Y ¹⁶ | | |
| CF-18 | #10 Springfield Pump Station | Utilities - Sewer | Pump Station | 461 Hollywood Avenue, Carneys Point | | N/A | Y ¹⁶ | | |
| CF-19 | #11 Substation/Route. 295 | Utilities - Sewer | Pump Station | 329 Interstate 295, Carneys Point | | N/A | Y ¹⁶ | | |
| CF-20 | #12 Gateway Pump Station | Utilities - Sewer | Pump Station | 10 Gateway Boulevard, Carneys Point | | N/A | Y ¹⁶ | | |
| CF-21 | Penns Grove High School | Schools | Public Schools | 334 Harding Highway, Carneys Point | | Y ¹⁷ | Y ¹⁸ | Radiological evacuation center. Mitigation measure(s) needed to address stormwater runoff / flooding issues. | M-4 and M-14 |
| CF-22 | Field Street Elementary School | Schools | Public Schools | 114 Field Street, Carneys Point | | Y ¹⁷ | N | | M-5 |
| CF-23 | Lafayette-Pershing Elementary School | Schools | Public Schools | 237 Shell Road, Carneys Point | | Y ¹⁷ | Y ¹⁸ | | M-6 |
| CF-24 | Carneys Point Senior Citizen Complex | Vulnerable Populations Facilities | Private Age Restricted Housing | 44 South DuPont Road, Carneys Point | | Y | N | | M-7 |

¹⁷ As of August 2023, a request has been made to the American Red Cross (ARC) to inspect these facilities and the review is pending ARC response and action.

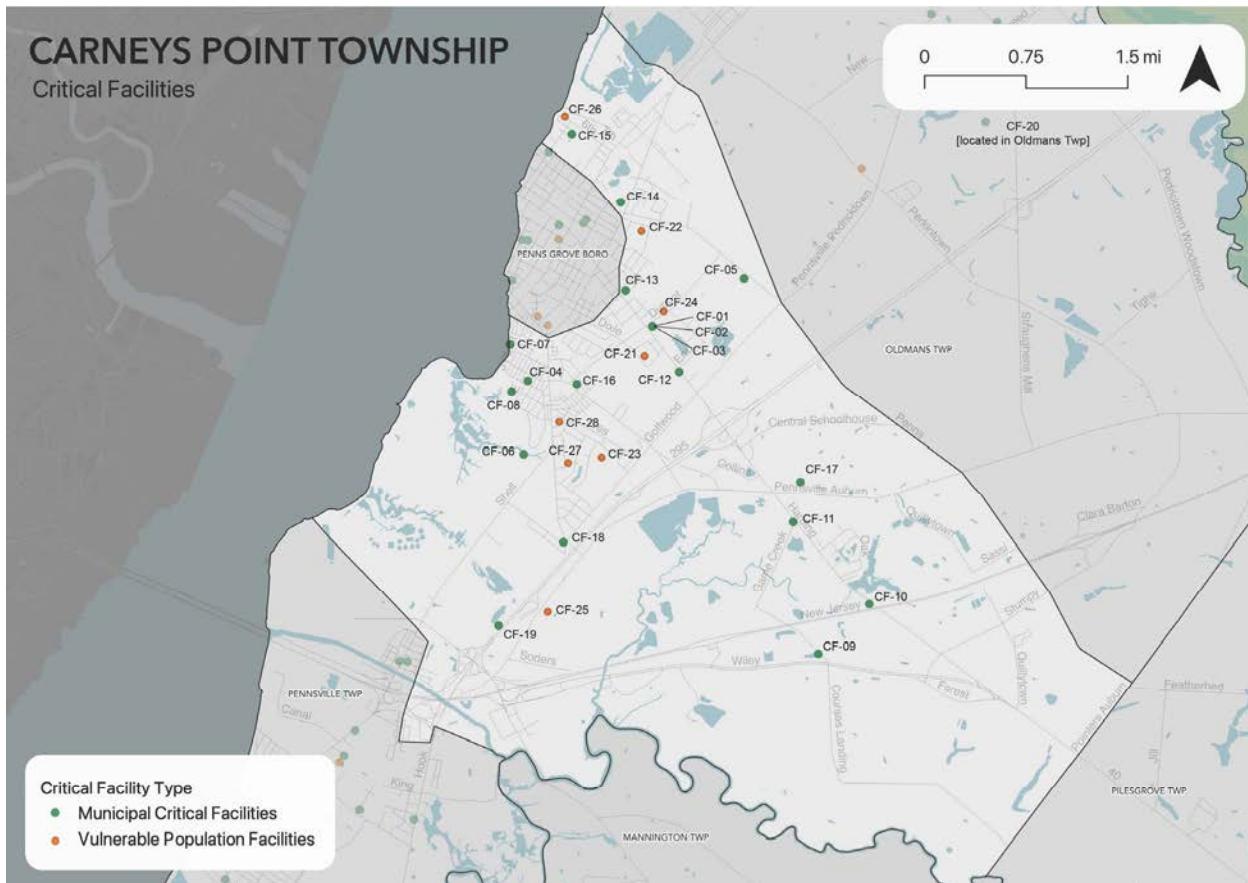
¹⁸ Existing generator only provides back-up emergency power for emergency lights

Part 3: Hazard Identification and Risk Assessment

| CF # | Name | Type ¹² | Sub-Type | Address | Co-located CF # | Shelter (Y/N) | Generator (Y/N) | Comments | Mitigation Measure # |
|-------|-----------------------------|-----------------------------------|-------------------------|---|-----------------|-----------------|-----------------|--|----------------------|
| CF-25 | Southgate Healthcare Center | Vulnerable Populations Facilities | Private Nursing Home | 449 South Pennsville Auburn Road, Carneys Point | | Y ¹⁹ | Y | | |
| CF-26 | Carneys Point Care Center | Vulnerable Populations Facilities | Private Nursing Home | 199 Fifth Avenue, Carneys Point | | Y ¹⁹ | Y ¹⁸ | Mitigation measure(s) needed to address flooding issues. | M-8 and M-15 |
| CF-27 | Merion Gardens | Vulnerable Populations Facilities | Private Assisted Living | 315 Merion Avenue, Carneys Point | | Y ¹⁹ | Y | | |
| CF-28 | Village Arms Apartments | Vulnerable Populations Facilities | Private Assisted Living | 311 Shell Road, Carneys Point | | Y ¹⁹ | Y | | |

¹⁹ Shelter-in-place.

Figure 3-4: Carneys Point Township Critical Facilities



Part 3.4: Hazard Exposure Assessment

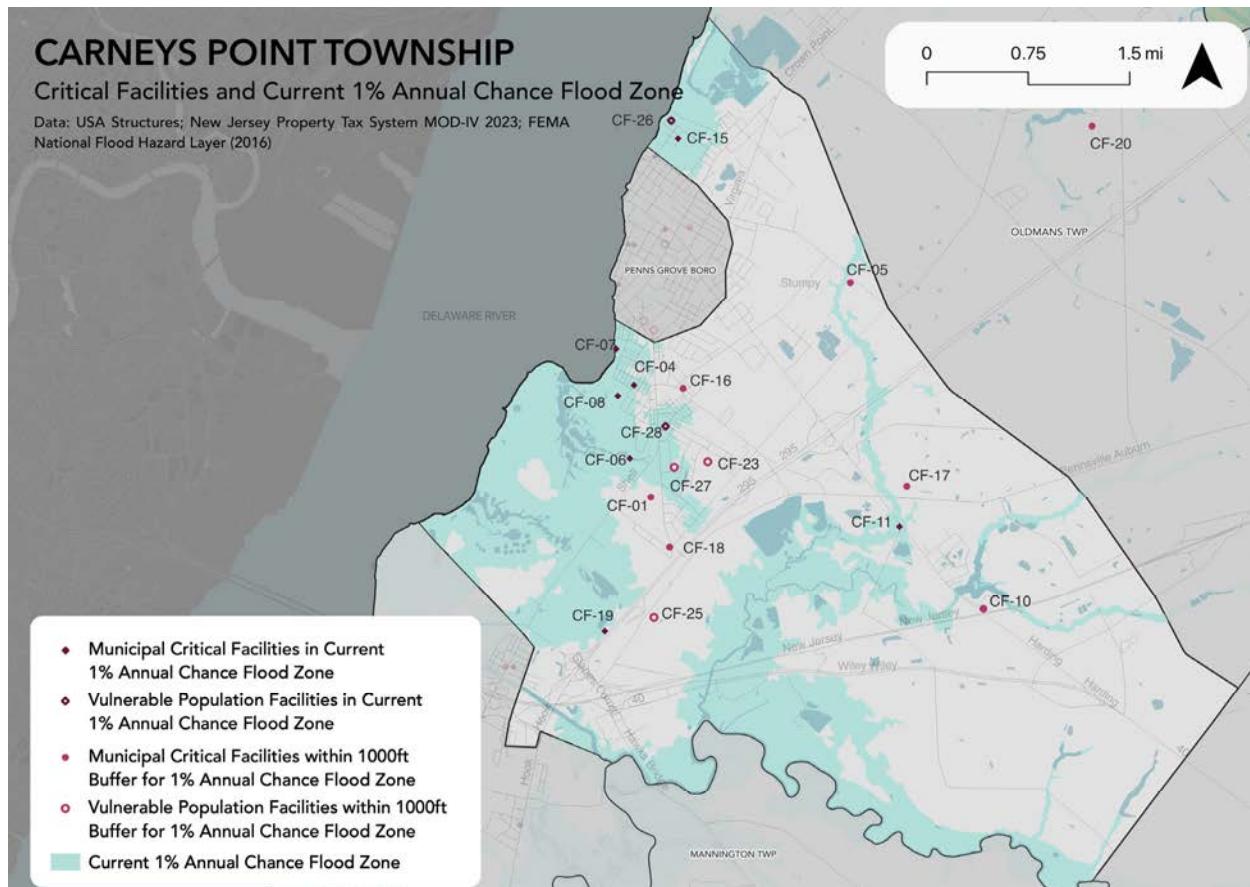
Hazard exposure assessments were completed for the eleven (11) natural hazards identified in the SC HMPU Base Plan²⁰.

Key results for Carneys Point Township are depicted in the following.

Mapping: Figure 3-5 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 1,000 feet) the 1% annual chance flood zone on FEMA's Flood Insurance Rate Maps (FIRMs).

²⁰ Hazard profiles are included for all eleven natural hazards in *Section 3: Hazard Identification and Risk Assessment* of the SC HMPU Base Plan.

Figure 3-5: Carneys Point Township Critical Facilities and 1% Annual Chance Flood Zone



Mapping results are available for general building stock and critical facilities for the following hazards:²¹

- Sea Level Rise
- Earthquake
- Flood - per FEMA flood hazard mapping
- High Wind and Severe Weather (heavy summer rains and winter snow loads)

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

- Table 3-5 indicates hazard exposure for general building stock
- Table 3-6 indicates hazard exposure for critical facilities, differentiated between municipal and vulnerable population critical facilities

In addition, available information regarding Wildfire is included.

²¹ All mapping corresponding to results described in Parts 3.3 through 3.5 are viewable in .pdf format at: <https://www.dropbox.com/sh/1om9p8vogs03jxz/AABuCWd9odbr2KsbcD9YrFyCa?dl=0>.

Part 3: Hazard Identification and Risk Assessment

Table 3-5: Carneys Point 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 |
|---|-----------------------------|--|----------------------------|--|
| Sea Level Rise - 3 feet increase ²² | 380 | 10.8% | \$ 45,683,944 | 8.35% |
| Flood - Within 1 % Annual Chance Zone | 791 | 22.5% | \$82,751,494 | 15.1% |
| Flood - Near (within 1,000 feet) of 1% Annual Chance Zone | 1,445 | 41.1% | \$234,988,672 | 43.0% |
| Earthquake – Structure built before 1927 ²³ | 598 | 19.3% | \$41,311,900 | 7.6% |
| High Winds / Severe Weather – Structure built before 1976 | 1,301 | 42.0% | \$181,115,400 | 33.1% |

Table 3-6: Carneys Point Township Critical Facilities Hazard Exposure²⁴

| Hazard | Number of Critical Facilities | Municipal CF #s | Vulnerable Populations CF #s |
|--|-------------------------------|---|------------------------------|
| Sea Level Rise | 7 | CF-04, CF-06, CF-07, CF-08, CF-15, CF-19 | CF-26 |
| Flood - Within 1 % Annual Chance Zone | 9 | CF-04, CF-06, CF-07, CF-08, CF-11, CF-15, CF-19 | CF-26, CF-28 |
| Flood – Future potential (within 1,000 feet) 1% Annual Chance Zone | 9 | CF-05, CF-10, CF-16, CF-17, CF-18, CF-20 | CF-23, CF-25, CF-27 |

Regarding Wildfire, according to the 2017 NJ4 HMP, Carneys Point Township is one of 8 municipalities in Salem County with less than one acre of land that intersects with an extreme level of potential fuel and potentially high levels of wildland urban interface. Therefore, Wildfire is not considered a significant hazard for Carneys Point Township.

In addition, all critical facilities in Salem 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)

²² All supporting data for Sea Level Rise (3-foot rise), and Flood (all) are viewable at [SALEM_Buildings_Values_SLR_Flood](#)

²³ All supporting data for Earthquake, High Winds, and Severe Weather are viewable at [SALEM_Buildings_Values_EQ_Wind_SWW](#)

²⁴ All supporting data for critical facility hazard exposure are viewable at [SALEM_CFs_HazardExposure](#)

Part 3: Hazard Identification and Risk Assessment

Information from the 2017 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) data²⁵:

- There are no (0) "High Hazard" dams located in the Township.
- There is one (1) "Significant Hazard" dam located in the Township
 - Layton's Lake Dam on Game Creek Just rebuilt within last 10 years by NJ (owned and operated by CPT)
- No (0) dam failure incidents had been recorded in the Township

Levee Failure

Per the South Jersey Levee Inventory²⁶:

- There is one (1) levee in the Township with a total of two (2) parcels within a 1,000-foot buffer of the levee:
 - Whooping John Creek (NCRS 6), length = 3,363 feet
- There are no (0) reported incidents of levee failure.

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

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

²⁶ 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)²⁷. The following depicts relevant numbers for Carneys Point Township as of September 2023 as provided by the Region II office of the Federal Emergency Management Agency (FEMA):

Active Policies

- Active Policies – 195 active NFIP flood insurance policies, which represents 12.74% of all active policies in Salem County
- Total Premiums – \$153,313 paid in total annual premiums
- Average Premium – \$786 average annual premium per policy, as compared to the overall average for all Salem County of \$985

Repetitive Loss Properties

- Repetitive Loss Properties (RL) – four (4) properties are designated as RL. These properties have a total of eleven (11) claims totaling \$220,776, which represents 4.10% of RL claims for the total Salem County claims of \$5,378,664
- Severe Repetitive Loss Properties (SRL) – no (0) properties are designated as SRL

For comparison relative to the number of active NFIP flood insurance policies, the following are the number of potentially exposed buildings (per Table 3-5), which are significantly higher than the number of active policies:

- Flood - Within 1 % Annual Chance Zone: 791 buildings ~ 22.5% of total buildings, with a value of \$82,751,494 ~ 15.1% of the total building value in the Township.
- Flood - Near (within 1,000 feet) of 1% Annual Chance Zone: 1,445 buildings ~ 41.1% of total buildings, with a value of \$234,988,672 ~ 43.0% of the total building value in the Township.

²⁷ Information on the NFIP is described in *Section 3: Hazard Identification and Risk Assessment* of the SC HMPU Base Plan.

Part 3.5: Demographic Considerations

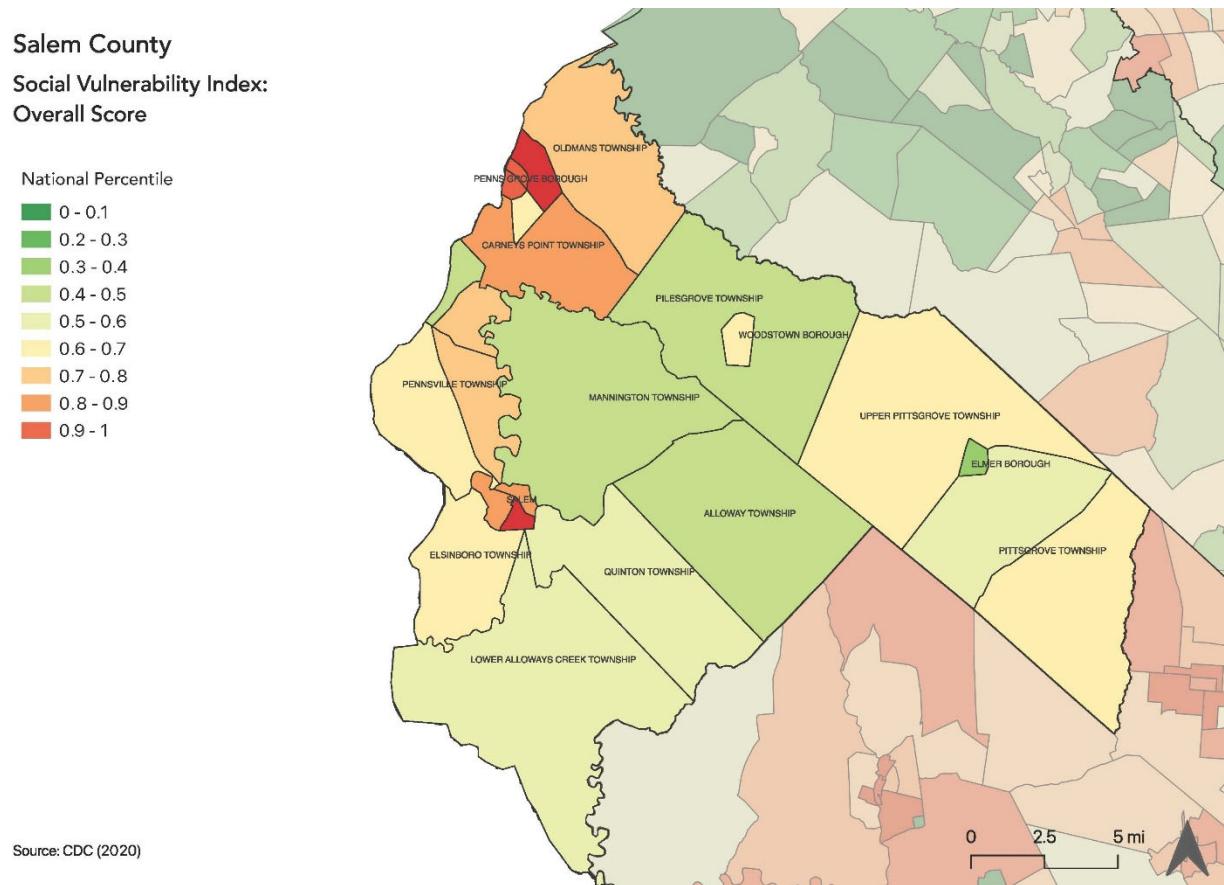
Demographic considerations include general population and land use factors. Table 3-7 includes current population estimates and changes since the previous US Census²⁸:

Table 3-7: Carneys Point Township General Population Demographics

| Metric | Current Estimates |
|---------------------------------------|-------------------|
| 2020 Population | 8,637 |
| Percent Population Change (2010-2020) | + 7.17% |
| Land Area | 16.86 sq. miles |
| Population Density | 512.3 / sq. mile |

Demographic considerations also include differences in social vulnerability²⁹. Figure 3-6 shows the overall Social Vulnerability Index (SVI) Index overall scores for Salem County.

Figure 3-6: Salem County Social Vulnerability Index: Overall Scores



²⁸ 2020 US Census

²⁹ Social vulnerability considerations are described in *Section 3: Hazard Identification and Risk Assessment* of the SC HMPU Base Plan.

Part 3: Hazard Identification and Risk Assessment

For Carneys Point Township, Table 3-8 includes selected metrics where social vulnerability considerations are noteworthy when compared with all national census tracts:

Table 3-8: Carneys Point Township Social Vulnerability Considerations³⁰

| Metric | Comparison with all National Census Tracts |
|-----------------------------------|--|
| Socioeconomic Status | 63 rd percentile |
| Household Characteristics | 75 th percentile |
| Racial and Ethnic Minority Status | 47 th percentile |
| Housing Type and Transportation | 82 nd percentile |

Carneys Point Township includes three census tracts so values above are averages across all themes and tracts. However, the following are notable issues where one or more census tracts is above the 90th percentile:

- Household Characteristics - Percentage of civilian noninstitutionalized population with a disability
- (2 census tracts)
- Housing Type and Transportation - Percentage mobile homes (2 census tracts)
- Housing Type and Transportation - Percentage of persons in group quarters (2 census tracts)

In addition, the percentage of residents earning below poverty level = 11.0% (compared with the average in Salem County of 12.6 % and New Jersey of 10.4%).

Finally, as detailed in Section 1.2.2 of the Base Plan, Carneys Point Township is one of four municipalities in Salem County designated by the NJDEP as an “overburdened” community based on environmental justice criteria. As noted in Section 3.6 of the Base Plan, the Working Group shall make a concerted effort during plan implementation and future updates of the plan to determine the extent to which natural hazard events and future climate change impacts may disproportionately affect disadvantaged members of the community.

Part 3.6: Observations

- Outreach and guidance should be provided for residents, business owners, and property owners for:
 - Properties in or near flood, sea level rise, dam failure, and/or levee failure 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, sea level rise, dam failure, and/or levee failure hazards 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).

³⁰ All supporting data for SVI is viewable at [SVI Data](#) .

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 SC 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

- Dam Failure
- Flood
- High Wind
- Levee Failure
- Sea Level Rise

Moderate Priority

- Drought

Low Priority

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

Part 3: Hazard Identification and Risk Assessment

Part 3.8: Climate Change Considerations

The following is based on results and assumptions from Sections 3.2 and 3.6 of the Base Plan regarding potential consequences of climate change. Table 3-9 is an excerpt from Table BP.3-44 that shows the potential impacts of climate change on a hazard-by-hazard basis for Carneys Point Township.

Table 3-9: Potential Climate Change Impacts

| Municipality | Dam Failure | Drought | Earthquake | Extreme Temperature | Flood | High Wind | Levee Failure | Sea Level Rise | Wildfire | Composite Score |
|------------------------|-------------|---------|------------|---------------------|-------|-----------|---------------|----------------|----------|-----------------|
| Carneys Point Township | M | L | L | L | H | H | L | M | N/A | H |

Based on these results and assumptions, when compared to the other 13 participating municipalities, the overall potential for climate change impacts on Carneys Point Township is high.

The hazards where climate change may create the most impact for Carneys Point Township are:

- Dam Failure
- Flood
- High Wind
- Sea Level Rise

See the discussion in Section 3.2 and summary points in Section 3.6 of the Base Plan regarding how these potential impacts can be reflected in the implementation of the SC HMPU and mitigation measures in the community's Appendix.

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 SC 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 SC HMPU, the related NJ4 HMP mitigation measures were candidates for inclusion in the Municipal Appendix.

Table 3-10 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 3-10.

Table 3-10: Status of Carneys Point Township NJ4 HMP Mitigation Measures

| Mitigation Action, Program, or Project | Status | Comments | Mitigation Measure # 3132 |
|--|---------------------------------|--|------------------------------|
| M-1: Identify and pursue outreach and education opportunities to inform municipal residents, businesses, and property owners. | | Work-in-progress included: <ul style="list-style-type: none">▪ Use of municipal website for emergency or hazard information dissemination▪ Follow-up with critical facilities regarding projects▪ Formal Working Group Meetings and email correspondence▪ Informal discussions and email correspondence among municipal officials, etc. | |
| M-2: Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures. | Work-in-progress | | Carried over as part of M-1 |
| 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: Upgrade backup emergency power capability to Township Hall (CF-1). | Work-in-progress | Back-up generator connection to phone system was added in 2019 but generator is not adequate to provide back-up power to whole facility. | Carried over as M-2 |
| M-6: Install backup emergency power generator at Fire and EMS Station (CF-4). | Completed (to extent practical) | A portable generator was donated by Wistar and Township purchased / installed transfer switch. Flood prone site limits permanent generator installation, generator would have to be elevated more than 9 feet. | N/A |

³¹ Detailed information for identification and implementation of municipal (designated with “M”) mitigation measures are included in Tables 3-11 and 3-12.

³² Detailed information for identification and implementation of multi-jurisdictional (designated with “MJ”) mitigation measures are included in Table 3-13.

Part 4: Mitigation Measures

| Mitigation Action, Program, or Project | Status | Comments | Mitigation Measure # 3132 |
|---|--------------------------------|---|------------------------------|
| M-7: Upgrade backup emergency power generator at Public Works Yard (CF-5). | Work-in-Progress | Quote received, waiting funding approval. Anticipated completion in 2023. | Carried over as M-3 |
| M-8: Install backup emergency power generator at Bouton Creek Pump Station (CF-6). | No longer considered relevant. | Hookup and transfer station in place and portable generator owned by CPT. Constrained by available property for a permanent installation. | N/A |
| M-9: Upgrade backup emergency power generator at Penns Grove High School (CF-21). | Work-in-progress | New generator was installed using School Board funds but only adequate to run emergency lights, not adequate for shelter functions. | Carried over as M-4 |
| M-10: Install backup emergency power generator at Field Street Elementary School (CF-22). | No progress, lack of funding | | Carried over as M-5 |
| M-11: Upgrade backup emergency power generator at Lafayette-Pershing Elementary School (CF-23). | Work-in-progress | Same as M-9 | Carried over as M-6 |
| M-12: Install backup emergency power generator at Carneys Point Senior Citizen Complex (CF-24). | No progress, lack of funding | | Carried over as M-7 |
| M-13: Support installation of backup emergency power generator by Southgate Healthcare Center (CF-25). | Completed | Installed in 2019 by Township using general funds. | N/A |
| M-14: Support installation of backup emergency power generator by Carneys Point Care Center (CF-26). | Work-in-progress | A generator was installed in 2019 by Township using general funds. However, the generator only powers essential parts of the facility and would not allow facility to remain in operation during a prolonged power outage | Carried over as M-8 |
| M-15: Back-up portable stormwater pumps to supplement the existing pumping stations. | No progress, lack of funding | | Carried over as M-9 |
| M-16: New stormwater pumping station to serve the northern section of the Township ³³ . | No progress | May not be considered relevant (pending bulkhead replacements under M-19 below) | Carried over as M-10 |

³³ Area potentially served by proposed pump station includes Carneys Point Care Center (CF-26).

Part 4: Mitigation Measures

| Mitigation Action, Program, or Project | Status | Comments | Mitigation Measure # 3132 |
|---|------------------|--|------------------------------|
| M-17: New storm sewer mains to convey stormwater more efficiently away from flood prone areas | Problem resolved | Jet cleaning of mainlines and improved maintenance program by Township alleviated problems. | N/A |
| M-18: Construct detention pond near Grandview Court area. | Problem resolved | Problems avoided by and improved maintenance program by Township of drainage ditches. | N/A |
| M-19: Design and installation of approximately 2,000 linear feet of new bulkhead/sheet piling along the Delaware River in the northern section of Carneys Point Township northward from existing bulkhead at 4 th Avenue. | No progress | | Carried over as M-11 |
| M-20: Address identified Repetitive Flood Loss Properties. | Work-in-progress | Township OEM Coordinator has reached out to identified property owners and will continue discussions and correspondence to update RL status and identify potential mitigation where appropriate. | Carried over as M-12 |
| MJ-1: Coordinate timing of releases from upstream dams. ³⁴ | Work-in-progress | Better oversight and communications between owner/operators has occurred in recent years. Dupont / Chemours has taken lead coordination role. | Carried over as MJ-1 |
| MJ-2: Delaware River Levee at boundary with Penns Grove Borough. ³⁵ | No progress | | Carried over as MJ-2 |
| MJ-3: Alleviate flooding along Delaware River near Plant Road south of Pumping Station. | No progress | | Carried over as MJ-3 |
| MJ-4: Alleviate flooding at Game Creek on Sportsman Road. | No progress | | Carried over as MJ-4 |

³⁴ Related to multi-jurisdictional mitigation measure included in Penns Grove Borough Municipal Appendix.

³⁵ Related to multi-jurisdictional mitigation measure included in Penns Grove Borough Municipal Appendix.

Part 4: Mitigation Measures

Part 4.3: Municipal Mitigation Measures – Identification

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

- Reflect the goals and strategy identified in Part 4.1
- Include projects carried over from 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)³⁶ if applicable

Table 3-11 includes:

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

Table 3-11: Carneys Point Township Municipal Mitigation Measures Identification

| # | Mitigation Action, Program, or Project | Hazard(s) | Goal (s) | Existing or New Structures |
|-----|---|-----------|----------|----------------------------|
| M-1 | <u>Municipal Mitigation Program</u> – including sustained efforts in cooperation with Salem County Office of Emergency Management (SC OEM) to: <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 Municipal Working Group▪ Seek integration of hazard mitigation with other parallel planning initiatives | All | All | All |
| M-2 | Upgrade backup emergency power capability to Township Hall (CF-1). | All | Goal #4 | Both |
| M-3 | Upgrade backup emergency power generator at Public Works Yard (CF-5). | All | Goal #4 | Both |
| M-4 | Upgrade backup emergency power generator at Penns Grove High School (CF-21). | All | Goal #4 | Both |

³⁶ Section 3: Hazard Identification and Risk Assessment of the SC HMPU Base Plan includes a description of RL and SRL properties.

Part 4: Mitigation Measures

| # | Mitigation Action, Program, or Project | Hazard(s) | Goal (s) | Existing or New Structures |
|--------------------|--|--------------------------|----------|----------------------------|
| M-5 | Install backup emergency power generator at Field Street Elementary School (CF-22). | All | Goal #4 | Both |
| M-6 | Upgrade backup emergency power generator at Lafayette-Pershing Elementary School (CF-23). | All | Goal #4 | Both |
| M-7 | Install backup emergency power generator at Carneys Point Senior Citizen Complex (CF-24). | All | Goal #4 | Both |
| M-8 | Support installation of backup emergency power generator by Carneys Point Care Center (CF-26). | All | Goal #4 | Both |
| M-9 | Back-up portable stormwater pumps to supplement the existing pumping stations. | Flood / Sea Level Rise / | Goal #4 | Existing |
| M-10 | New stormwater pumping station to serve the northern section of the Township. | Flood / Sea Level Rise / | Goal #4 | Existing |
| M-11 | Design and installation of approximately 2,000 linear feet of new bulkhead/sheet piling along the Delaware River in the northern section of Carneys Point Township northward from existing bulkhead at 4 th Avenue. | Flood / Sea Level Rise / | Goal #4 | Existing |
| M-12 | Address identified Repetitive Flood Loss Properties. | Flood | Goal #4 | Existing |
| M-13 ³⁷ | Hydraulic and hydrologic improvements at Bouton Creek including stormwater management, stream cleaning, and tide gate improvements (CF-6). | Flood | Goal #4 | Existing |
| M-14 | Mitigation measure(s) needed to address stormwater runoff / flooding issues at Penns Grove High School (CF-21). | Flood | Goal #4 | Existing |
| M-15 | Mitigation measure(s) needed to address flooding issues at Carneys Point Care Center (CF-26). | Flood | Goal #4 | Existing |
| M-16 | Explore relocation of Fire/EMS Station located at 258 D Street | Flood / Sea Level Rise / | Goal #4 | Existing |

³⁷ M-13 through M-16 are new mitigation measures identified by the SC HMPU Working Group.

Part 4: Mitigation Measures

Part 4.4: Municipal Mitigation Measures – Implementation

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

- Part(ies) responsible for following up with implementation of the measure
- Priority for implementation considering a range of criteria³⁸
- Project Type to help determine funding options and implementation mechanisms at the municipal level³⁹
- 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 3-12: Carneys Point 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 | Municipal Mitigation Program | Township Office of Emergency Management (OEM) | High | Program | Staff Time | On-going, sustained effort | <ul style="list-style-type: none"> ▪ Identify outreach and education objectives and methods (working with SC OEM) ▪ Set priorities (if necessary) and initiate critical facility field assessments ▪ Identify schedule for plan updates (including sustained public participation and plan integration efforts) |
| M-2 | Upgrade backup emergency power capability to Township Hall (CF-1). | Township OEM | High | Back-up Emergency Power Generator | \$890,000 ⁴⁰ | One to three years. | Secure funding. |
| M-3 | Upgrade backup emergency power generator at Public Works Yard (CF-5). | Department of Public Works (DPW) | Moderate | Back-up Emergency Power Generator | ⁴² | One to three years. | Secure funding. |
| M-4 | Upgrade backup emergency power generator at Penns Grove Carneys Point Regional School District (CF-21). | Penns Grove Carneys Point Regional School District | High | Back-up Emergency Power Generator | < \$100K | One to three years | Conduct project scoping. |

³⁸ Section 4: Mitigation Measures of the SC HMPU Base Plan includes a description of evaluation criteria considered by the Municipal Working Group.

³⁹ Section 4: Mitigation Measures of the SC HMPU Base Plan includes a description of project types and related information regarding funding options and implementation mechanisms.

⁴⁰ Included in the total cost estimate of \$890,000 in M-2.

Part 4: Mitigation Measures

| # | Mitigation Action, Program, or Project | Responsible Part(ies) | Priority | Project Type | Estimated Cost (\$) | Target Date | Next Step(s) |
|------|--|--|----------|--|---------------------------|---------------------|---|
| M-5 | Install backup emergency power generator at Field Street Elementary School (CF-22). | Penns Grove Carneys Point Regional School District | Moderate | Back-up Emergency Power Generator | < \$100K | One to three years | Conduct project scoping ⁴¹ . |
| M-6 | Upgrade backup emergency power generator at Lafayette-Pershing Elementary School (CF-23). | Penns Grove Carneys Point Regional School District | Moderate | Back-up Emergency Power Generator | < \$100K | One to three years | Conduct project scoping ⁴¹ . |
| M-7 | Install backup emergency power generator at Carneys Point Senior Citizen Complex (CF-24). | Carneys Point Senior Citizen Complex | Moderate | Back-up Emergency Power Generator | < \$100K | One to three years | Conduct project scoping ⁴¹ . |
| M-8 | Support installation of backup emergency power generator by Carneys Point Care Center (CF-26). | Carneys Point Care Center | Moderate | Back-up Emergency Power Generator | < \$100K | One to three years | Conduct project scoping ⁴¹ . |
| M-9 | Back-up portable stormwater pumps to supplement the existing pumping stations. | DPW | High | Infrastructure Improvement | \$104,000 ⁴² | One to three years. | Secure funding. |
| M-10 | New stormwater pumping station to serve the northern section of the Township. | DPW | High | Infrastructure Improvement | \$2,179,000 ⁴⁴ | One to three years. | Secure funding. |
| M-11 | Design and installation of approximately 2,000 linear feet of new bulkhead/sheet piling along the Delaware River in the northern section of Carneys Point Township northward from existing bulkhead at 4 th Avenue. | DPW | High | Flood Mitigation – Private Property | \$3,010,000 | One to three years. | Secure funding. |
| M-12 | Address identified Repetitive Flood Loss Properties. | Township OEM and Floodplain Administrator | Moderate | Flood Mitigation – Private Property | Staff time commitment | Six months | Prior to continuing landowner contacts, identify flood insurance implications and mitigation options including eligible activities per FEMA HMA programs. |
| M-13 | Hydraulic and hydrologic improvements at Bouton Creek including stormwater management, stream cleaning, and tide gate improvements (CF-6). | Township OEM | Moderate | Flood Mitigation – Public and Private Property | \$7,000,000 ⁴⁴ | One to three years | Drainage study and project planning |

⁴¹ Project scoping for M-5 through M-8 to include determining feasibility to install hookup and transfer switch for using portable generator(s) to accommodate need, at least as a temporary measure

⁴² Cost estimate provided by Township Engineering Consultant.

Part 4: Mitigation Measures

| # | Mitigation Action, Program, or Project | Responsible Part(ies) | Priority | Project Type | Estimated Cost (\$) | Target Date | Next Step(s) |
|------|---|--|----------|-------------------------------------|--|--|-----------------|
| M-14 | Mitigation measure(s) needed to address stormwater runoff / flooding issues at Penns Grove High School (CF-21). | Penns Grove Carneys Point Regional School District | Low | Flood Mitigation – Public Property | To be determined pending project scoping | To be determined pending project scoping | Project scoping |
| M-15 | Mitigation measure(s) needed to address flooding issues at Carneys Point Care Center (CF-26). | Carneys Point Care Center | High | Flood Mitigation – Private Property | >\$1,000,000 ⁴³ | To be determined pending project scoping | Project scoping |
| M-16 | Explore relocation of Fire/EMS Station located at 258 D Street | Fire/EMS Department | High | Flood Mitigation – Public Property | To be determined pending project scoping | To be determined pending project scoping | Project scoping |

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 Sea Level Rise, Dam Failure, and/or Levee Failure.
 - Buildings in or near the 1% annual chance 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 were reviewed as part of the Round 2 Working Group Meeting and 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, Sea Level Rise, Dam Failure, and/or Levee Failure 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

⁴³ Cost estimate provided by Carneys Point Township OEM.

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 were compiled in Table 3-13.

These measures have been referred to the County Working Group for consideration. As part of the implementation of the SC 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 3-13: Carneys Point Township Multi-Jurisdictional Mitigation Measures

| # | Problem Description | Hazard(s) Addressed | Goal Addressed | Applies to Existing or New Structures | Potential Partners | Priority |
|------|---|--|----------------|---------------------------------------|---|----------|
| MJ-1 | Coordinate timing of releases from upstream dams. ⁴⁴ | Dam Failure | Goal #3 | Both | Upstream municipalities, Salem County DPW, Salem County OEM | High |
| MJ-2 | Delaware River Levee at boundary with Penns Grove Borough. ⁴⁵ | Sea Level Rise / Flood / Levee Failure | Goal #4 | Both | Penns Grove Borough, NJ DEP | High |
| MJ-3 | Alleviate flooding along Delaware River near Plant Road south of Pumping Station. | Sea Level Rise / Flood / Levee Failure | Goal #4 | Both | DuPont (property land owner), NJ DEP | High |
| MJ-4 | Alleviate flooding at Game Creek on Sportsman Road. | Dam Failure | Goal #4 | Both | NJDOT | High |

⁴⁴ Related to multi-jurisdictional mitigation measure included in Penns Grove Borough Municipal Appendix.

⁴⁵ Related to multi-jurisdictional mitigation measure included in Penns Grove Borough Municipal Appendix.

Part 4: Mitigation Measures

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

Part 4.6 includes three (3) subparts:

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

4.6.1: Authorities, Policies, and Programs

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

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

- Involvement of Floodplain Administrator during the SC 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 SC 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 SC 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 SC HMPU Base Plan also includes summary statements regarding county and municipal resources and the impact of resource limitations on the overall approach to the SC HMPU mitigation strategies.

Table 3-14 compares the results of the Capability Assessment Survey for the County as a whole and Carneys Point Township.

Part 4: Mitigation Measures

Table 3-14: Carneys Point Township Capability Assessment Survey Results

| Metric | Carneys Point Township Results (n=5) | Salem County "as a whole" Results (n=52) |
|---|--------------------------------------|--|
| Position Type: Full-time | 40% | 29% |
| Position Type: Part-time | 60% | 71% |
| Position Type: Volunteer | 0% | 0% |
| Time in Position: Less than 1 year | 0% | 23% |
| Time in Position: 1 to 2 years | 0% | 12% |
| Time in Position: 2 to 5 years | 40% | 19% |
| Time in Position: More than 5 years | 60% | 46% |
| Prior Experience: None | 40% | 50% |
| Prior Experience: with hazard mitigation planning | 40% | 37% |
| Prior Experience: with HMA grant administration | 0% | 12% |
| Prior Experience: with floodplain management | 20% | 12% |
| Training / Certifications: None | 80% | 71% |
| Training / Certifications: for hazard mitigation planning and implementation | 0% | 19% |
| Training / Certifications: for floodplain management | 20% | 10% |

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

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

4.6.3: Plan Review and Integration

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

- Table BP.4-2 that identifies primary plans and documents collected from each of the participating municipalities.
- Results of reviewing primary plans and documents to determine the extent to which these documents reflect up-to-date hazard risk and mitigation.
- Recommendations for integrating the results of the SC 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 Carneys Point Township Working Group include:

- Carneys Point Township Emergency Operations Plan – *Note: As of August 2023, Township EOP has been updated and awaiting signatures and approval*
- Carneys Point Township Master Plan (1997) and Reexamination Reports (2014) – *Note: Township Master Plan is slated for update in 2024.*
- Carneys Point Township Land Use and Development Ordinance⁴⁶
- Carneys Point Township Zoning Map (2012)⁴⁷

In addition, the following is the status of the Flood Damage Prevention Ordinance (FDPO), Chapter 106 of the Carneys Point Township Code under Part II, General Legislation:

- Current version was adopted in June 2016 and is consistent with the most recent FDPO per NJDEP available at that time.
- 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 internet.⁴⁸

⁴⁶ <http://ecode360.com/CA0753?needHash=true>

⁴⁷ <https://www.carneystowntwp.org/cpni/Departments/Zoning/Digital%20Zoning%20Map.pdf>

⁴⁸ <https://ecode360.com/9995412>