



Cumberland County Multi-Hazard Mitigation Plan Update
Participating Jurisdiction Appendices

Appendix 4
Deerfield Township, New Jersey

August 22, 2022

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Table of Contents

Table of Contents	4-i
Part 1 Overview	4-1
1.1: Cumberland County Multi-Hazard Mitigation Plan Update	4-1
1.2: Deerfield Township Municipal Appendix	4-1
Part 2 Participation	4-2
2.1: Municipal Working Group Participation	4-2
2.2: Public Participation	4-5
Part 3 Hazard Identification and Risk Assessment	4-6
3.1: Profile	4-6
3.2: General Building Stock	4-8
3.3: Critical Facilities	4-9
3.4: Hazard Exposure Assessment	4-11
3.5: Demographic Considerations	4-15
3.6: Observations	4-16
3.7: Hazard Priorities	4-17
Part 4 Mitigation Measures	4-18
4.1: Mitigation Goals and Strategy	4-18
4.2: NJ4 HMP Mitigation Measures	4-19
4.3: Municipal Mitigation Measures – Identification	4-21
4.4: Municipal Mitigation Measures – Implementation	4-22
4.5: Multi-Jurisdictional Mitigation Measures	4-24
4.6: Authorities, Policies, Programs, Resources, and Plan Integration	4-25

Table of Contents

List of Figures

Figure 4-1: Deerfield Township Location Map	4-6
Figure 4-2: Deerfield Township Base Map	4-7
Figure 4-3: Deerfield Township Building Footprints	4-8
Figure 4-4: Deerfield Township Critical Facilities	4-11
Figure 4-5: Deerfield Township Critical Facilities and 1% Annual Chance Flood Zone	4-12
Figure 4-6: Cumberland County Social Vulnerability Index: Overall Scores	4-15

List of Tables

Table 4-1: Deerfield Township Working Group	4-2
Table 4-2: Public Participation	4-5
Table 4-3: Deerfield Township Buildings per Land Use Type	4-8
Table 4-4: Deerfield Township Critical Facilities Inventory	4-9
Table 4-5: Deerfield Township General Building Stock Hazard Exposure	4-13
Table 4-6: Deerfield Township Critical Facilities Hazard Exposure	4-13
Table 4-7: Deerfield Township General Population Demographics	4-15
Table 4-8: Deerfield Township Social Vulnerability Considerations	4-16
Table 4-9: Status of Deerfield Township NJ4 HMP Mitigation Measures	4-19
Table 4-10: Deerfield Township Municipal Mitigation Measures Identification	4-21
Table 4-11: Deerfield Township Municipal Mitigation Measures Implementation	4-22
Table 4-12: Deerfield Township Multi-Jurisdictional Mitigation Measures	4-24
Table 4-13: Deerfield Township Capability Assessment Survey Results	4-26

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: Deerfield Township Municipal Appendix

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

The Deerfield Township Municipal Working Group developed the Deerfield Township Municipal Appendix for adoption by the Deerfield Township Executive 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 4-1 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: Five members of the Working Group also participated in the development of the 2016 NJ4 HMP. These members are indicated with an () following their last names.*

Table 4-1: Deerfield Township Working Group

First Name	Last Name	Department	Position	Kickoff Meeting ¹	Work Session 1 ²	Public Meeting ³	Work Session 2 ⁴	Round 1 Meeting ⁵	Round 2 Meeting ⁶	Contribution ⁷
Andrew	Tartaglia	OEM	Emergency Management Coordinator	☑	☑	☑	☑	☑	☑	Organized Working Group and Work Sessions.
Bill	Miller	OEM	Deputy Emergency Management Coordinator						☑	Organized Working Group and Work Sessions.
Abigail	O'Brien	Executive Committee	Mayor		☑	☑				
Anthony	Brago	Executive Committee	Committeeman			☑				

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

² Work Session 1 was held on June 11, 2021.

³ Public Meeting was held on June 16, 2021.

⁴ Work Session 2 was held on June 24, 2021.

⁵ Round 1 Meeting was held on July 21, 2021.

⁶ Round 2 Meeting was held on October 27, 2021.

⁷ Additional or unusual contributions are noted in the far-right hand column.

Part 2: Participation

First Name	Last Name	Department	Position	Kickoff Meeting ¹	Work Session 1 ²	Public Meeting ³	Work Session 2 ⁴	Round 1 Meeting ⁵	Round 2 Meeting ⁶	Contribution ⁷
Dominick	Patitucci	Executive Committee	Committeeman			<input checked="" type="checkbox"/>				
Karen	Seifrit *	Administration	Clerk / Administrator		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Provided information on Township Plans.
Brenda	Closser *	Administration	Administrative Secretary / Land Use Board Secretary / Floodplain Administrator							
Ronald	Shinn, Jr. *	Public Works	Public Works Manager		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Melissa	Exten	Public Works	Public Works Secretary / Zoning & Violations Officer (since January 2022)		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Corey	Gaskill	Engineering	Township Engineer (until February 2022)							
Robert	Mulford	Engineering	Township Engineer (since February 2022)							
Mark	Cifaloglio	Fire Department	Fire Chief							
Chad	McMahon	Emergency Medical Services	Rescue Chief							
Chris	MacNeill	New Jersey State Police	Assistant Station Commander		<input checked="" type="checkbox"/>					
Matt	Callahan *	Major Employers and Businesses	EH&S Manager at National Refrigerants, Inc.		<input checked="" type="checkbox"/>					
Melanie	Allen	School Administration	Chief School Administrator							
Noah	Hetzell *	Cumberland County Health Department	Assistant Health Officer		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		

Part 2: Participation

The following lists positions and organizations that are generally recommended for consideration as members of the Municipal Working Groups by FEMA but do not currently exist within the community. An invitation to participate will be extended if positions are created or filled and as organizations are formed.

- GIS / IT Specialist
- Transportation Department Directors / Supervisors
- Police
- Business Associations (typically functioning at the county level)
- Community / Faith-Based Organizations (typically functioning at the county level)
- Healthcare Institutions
- Environmental Organizations
- Non-Governmental Organizations

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 4-2 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 4-2: Public Participation

Date	Type of Involvement	Location
June 2021	Link to Project Website ⁸ established and maintained.	Township website / Town Clerk page, "Public Meeting" notices ⁹
June 16, 2021	Public meeting with presentation and open discussion.	Municipal Building
September 8, 2021	Preliminary Draft Municipal Appendix available for public comment.	Project Website ⁸
September 13, 2021	Township website entry updated to reflect availability of Preliminary Draft Municipal Appendix for review.	Township website ⁹
April 12, 2022	Notice posted re: Public Review Draft Municipal Appendix review period with link to Project Website.	Township website / Emergency Management page ¹⁰
April 19, 2022	Public Review Draft Municipal Appendix available for public comment.	Project Website ⁸
May 18, 2022	Public hearing was conducted as part of a regularly scheduled Township Executive Committee meeting regarding the Public Review Draft Municipal Appendix providing for open discussion and public comment prior to formal adoption.	Municipal Building

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.

Public education and outreach is an on-going mitigation measure included in the Municipal Appendix.¹¹ In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities.¹²

⁸ <https://sites.google.com/view/deerfieldtownship/departments/township-clerk?authuser=0>

⁹ <https://sites.google.com/view/deerfieldtownship/departments/emergency-management?authuser=0>

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

¹¹ Public education and outreach is described in *Section 4: Mitigation Measures* of the CC HMPU Base Plan.

Part 3: Hazard Identification and Risk Assessment

Part 3: Hazard Identification and Risk Assessment

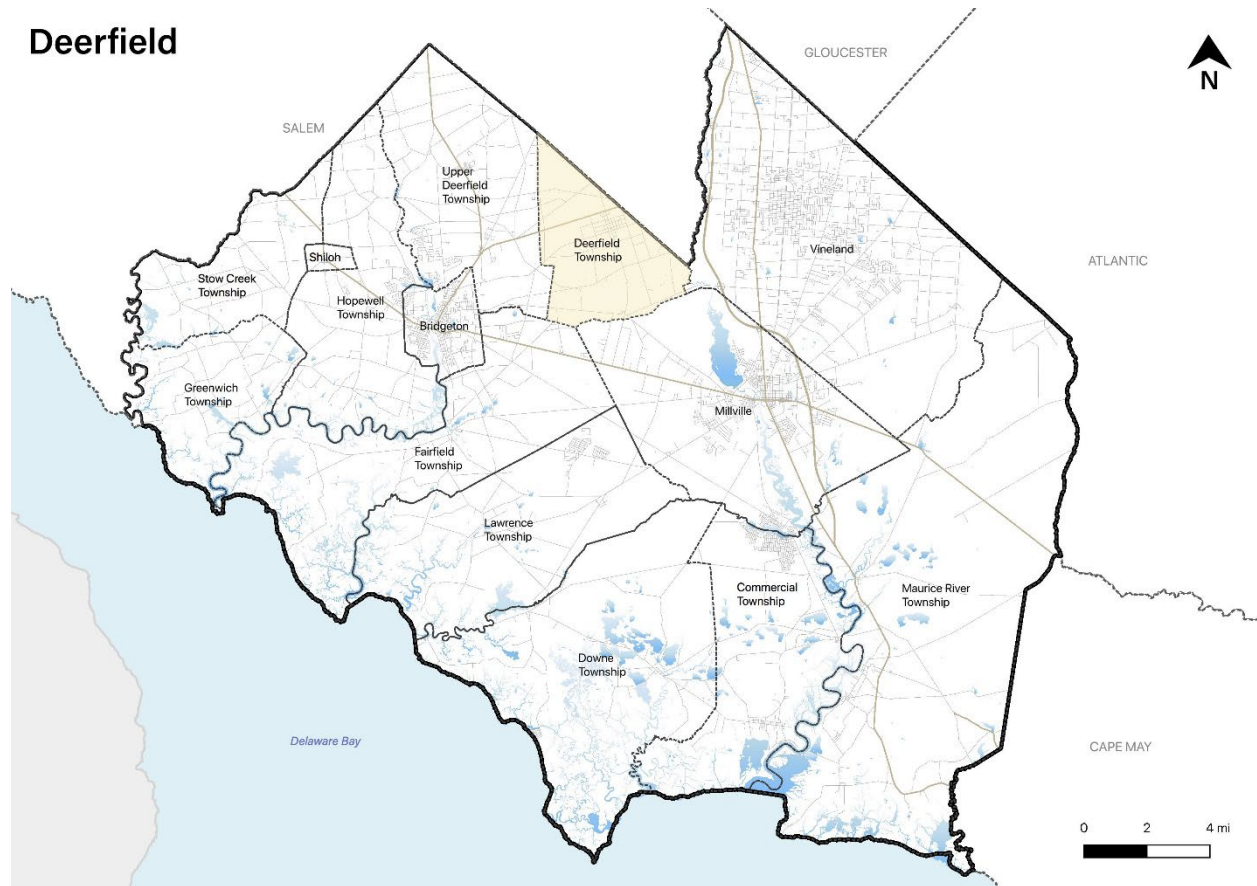
Part 3 includes seven subparts:

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

Part 3.1: Profile

Deerfield Township is in the north-central portion of Cumberland County (See Figure 4-1).

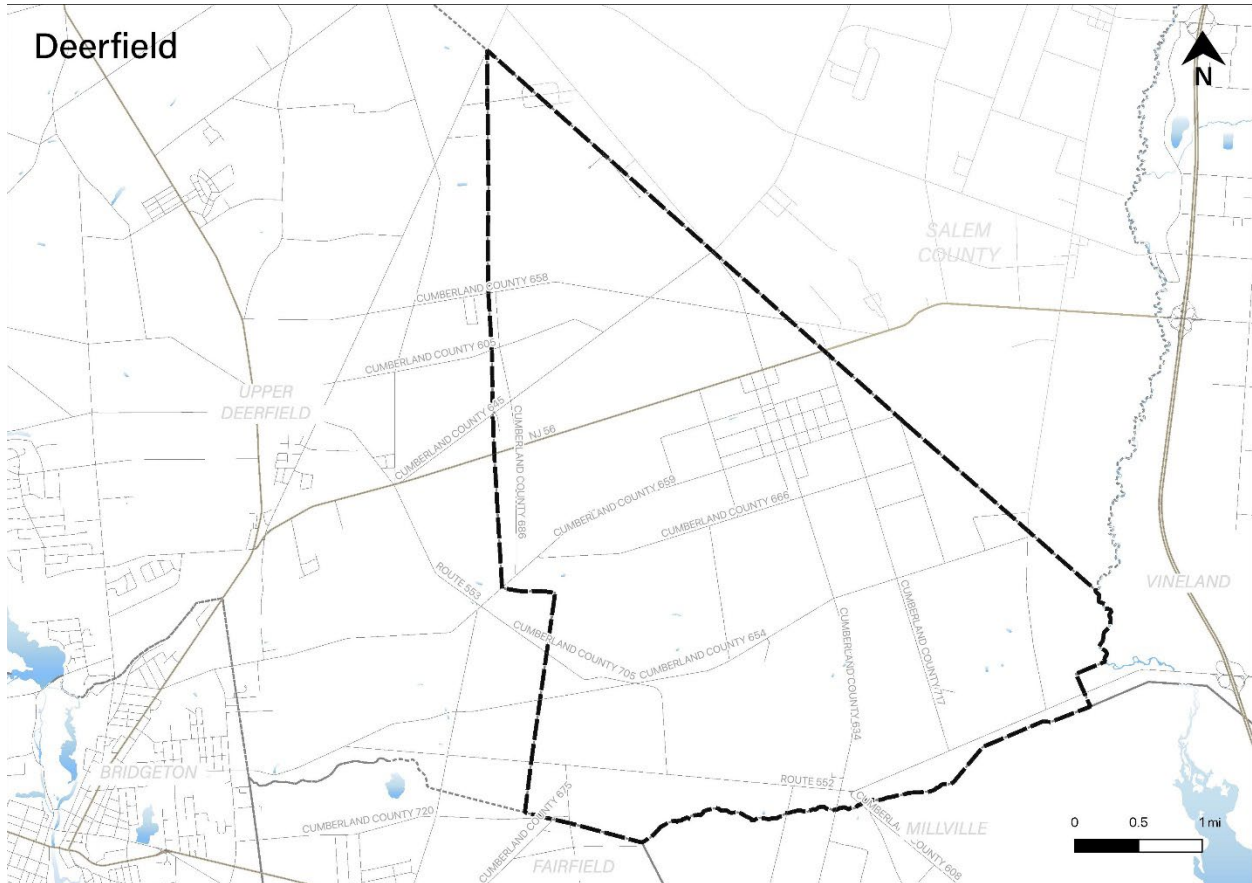
Figure 4-1: Deerfield Township Location Map



Part 3: Hazard Identification and Risk Assessment

Deerfield Township is a rural agricultural community with a growing commercial and residential area. Per Figure 4-2, major water courses include the Lummis Marsh Branch and Lebanon Creek Branch. Major transportation routes include State Highway 56 and 55, and Cumberland County Routes 654, 552, and 634. The land is gently rolling, and land cover consists primarily of agricultural and forested areas.

Figure 4-2: Deerfield Township Base Map



Part 3: Hazard Identification and Risk Assessment

Part 3.2: General Building Stock

As of 2015, there are 2,126 buildings in Deerfield Township with a total assessed value of improvements of \$149,849,700. Figure 4-3 shows the footprints of these buildings.

Figure 4-3: Deerfield Township Building Footprints¹³

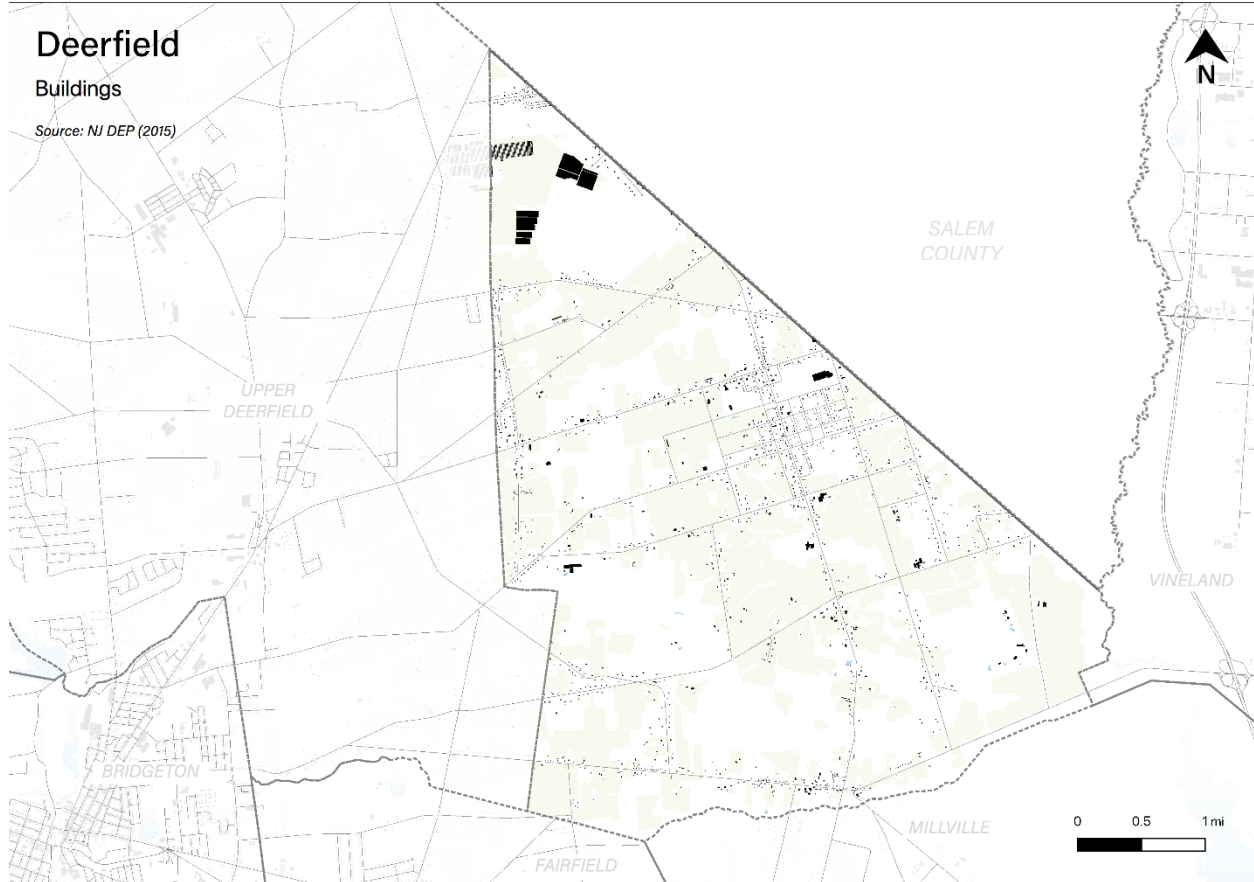


Table 4-3 shows the distribution of these structures according to land use distinctions.

Table 4-3: Deerfield Township Buildings per Land Use Type¹⁴

Land Use Type	Residential	Commercial	Industrial	Other
Number of Buildings	1,409	96	6	552
% of Total	68%	5%	0%	36%

¹³ 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.

¹⁴ 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 Facilities¹⁵

As of April 2022, there are thirteen critical facilities in Deerfield 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 4-4 includes current inventory information for municipal critical facilities and cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix. Figure 4.4 shows the location of these critical facilities.

Table 4-4: Deerfield Township Critical Facilities Inventory

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-1	Deerfield Township Municipal Building	Municipal	Administrative Offices	736 Landis Avenue, Rosenhayn	CF-2, CF-6, & CF-7	N	Y ¹⁶		
CF-2	Emergency Operations Center	EOC	Co-located Facilities	736 Landis Avenue, Rosenhayn	CF-1, CF-6, & CF-7	N	Y ¹⁶		M-2
CF-3	Rosenhayn Fire & Rescue	FireStation/EMS	Stations	678 Morton Avenue, Bridgeton	CF-4	N	N		M-3
CF-4	Lobiondo Park Fire Well	FireStation/EMS	Wells	678 Morton Avenue, Bridgeton	CF-3	N/A	N		M-3
CF-5	Deerfield Township Elementary School	Schools	Public Schools	375 Morton Avenue, Rosenhayn		Y ¹⁷	N		M-4

¹⁵ Critical facility definitions and considerations are described in *Section 3: Hazard Identification and Risk Assessment* of the CC HMPU Base Plan.

¹⁶ Access to portable generator.

¹⁷ As of January 22, 2019, a MOU was agreed upon by the American Red Cross, Deerfield Township Elementary School and Deerfield Township to use the school as a shelter if needed. The Red Cross committed to staff and operate the shelter. The MOU is in effect until January 22, 2023.

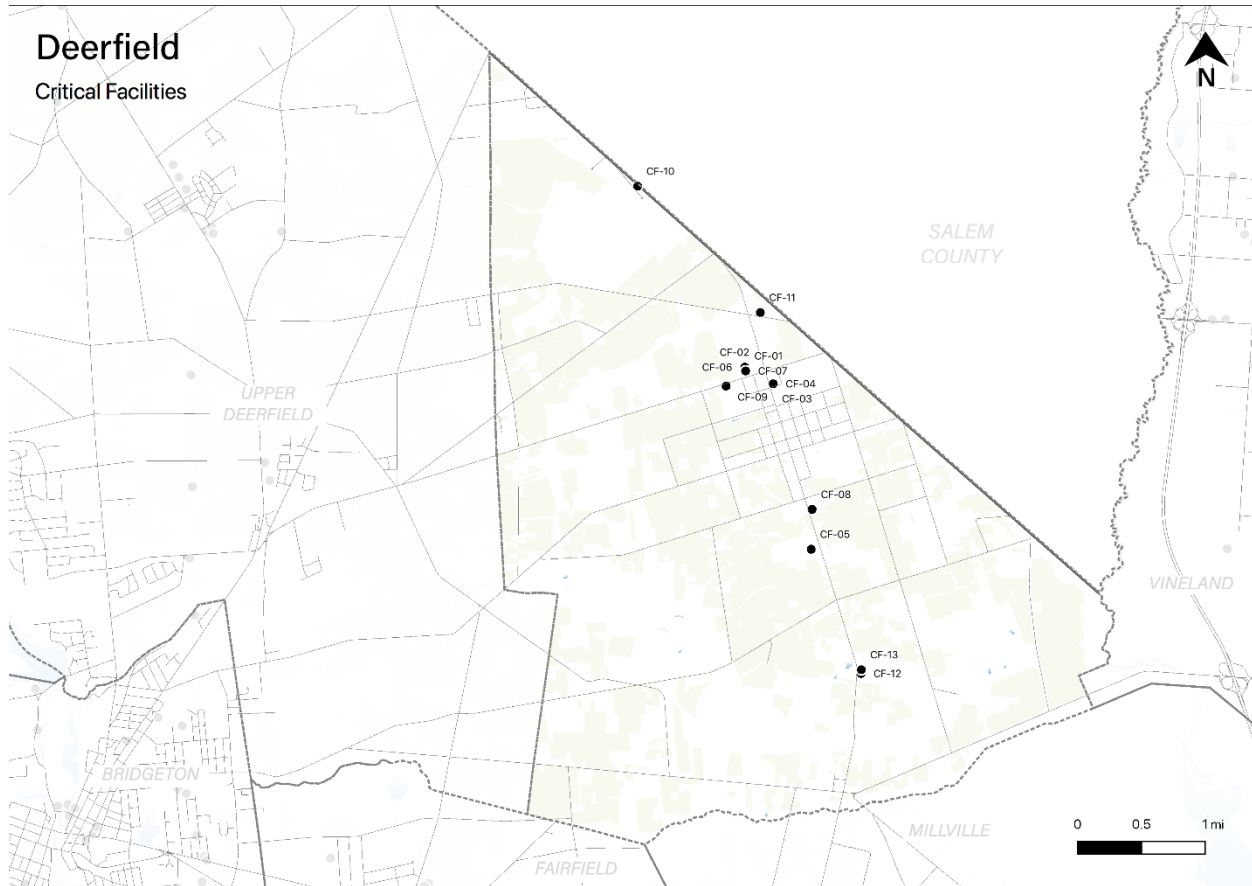
Part 3: Hazard Identification and Risk Assessment

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-6	Deerfield Township Department of Public Works	Public Works	Combined Administrative Office, Maintenance / Work Area, Equipment / Material Storage, and Fueling Station	736 Landis Avenue, Rosenhayn	CF-1, CF-2, & CF-7	N	Y ¹⁶		
CF-7	Deerfield Township Senior Center	Vulnerable Populations Facilities	Senior Centers	736 Landis Avenue, Rosenhayn	CF-1, CF-2, & CF-6	N	Y ¹⁶		M-2
CF-8	Elwynn Group Home	Vulnerable Populations Facilities	Private / Non-Profit Group Holmes	468 Morton Avenue, Millville		N ¹⁸	N		
CF-9	Elwynn Group Home	Vulnerable Populations Facilities	Private / Non-Profit Group Holmes	721 Landis Avenue, Bridgeton		N ¹⁸	N		
CF-10	Caring Group Home	Vulnerable Populations Facilities	Private / Non-Profit Group Holmes	1040 Laurel Lane, Bridgeton		N ¹⁸	N		
CF-11	REM Group Home	Vulnerable Populations Facilities	Private / Non-Profit Group Holmes	724 Big Oaks Road, Bridgeton		N ¹⁸	N		
CF-12	Oaks Integrated Care Group Home	Vulnerable Populations Facilities	Private / Non-Profit Group Holmes	262 Morton Avenue, Bridgeton		N ¹⁸	N		
CF-13	Oaks Integrated Care Group Home	Vulnerable Populations Facilities	Private / Non-Profit Group Holmes	268 Morton Avenue, Bridgeton		N ¹⁸	N		

¹⁸ Shelter in place.

Part 3: Hazard Identification and Risk Assessment

Figure 4-4: Deerfield 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 Plan¹⁹.

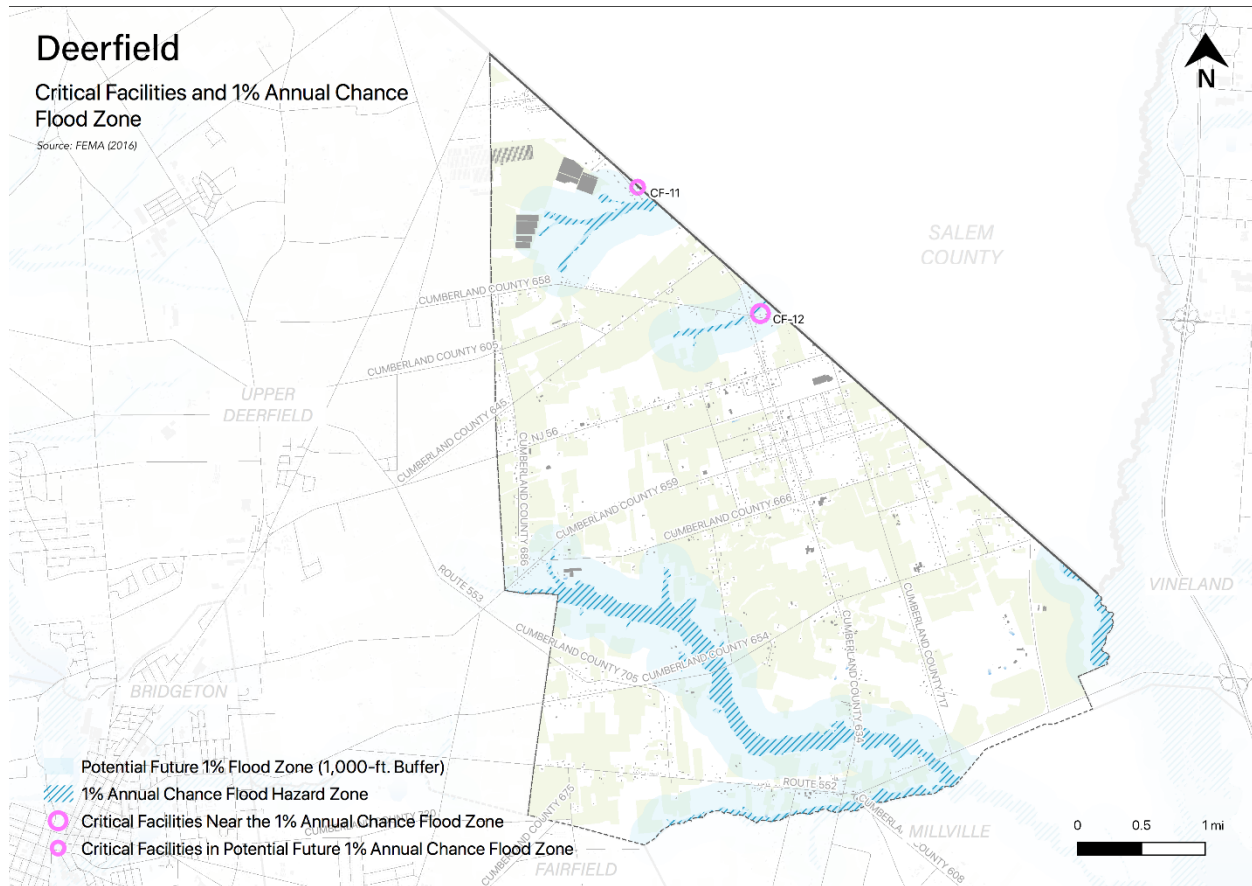
Key results for Deerfield Township are depicted in the following.

Mapping: Figure 4-5 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).

¹⁹ 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 4-5: Deerfield Township Critical Facilities and 1% Annual Chance Flood Zone



Mapping results are available for general building stock and critical facilities for the following hazards:²⁰

- 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 4-5 indicates hazard exposure for general building stock
- Table 4-6 indicates hazard exposure for critical facilities

²⁰ 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/d9pc9j4y0539u45/AACeOFuPHxYVtu_nCRVulHsCa?dl=0.

Part 3: Hazard Identification and Risk Assessment

Table 4-5: Deerfield 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 ²¹	0	N/A	0	N/A
Sea Level Rise - 3 feet increase	0	N/A	0	N/A
Flood - Within 1 % Annual Chance Zone	3	-	\$ 200,400	-
Flood - Near (within 500 feet) of 1% Annual Chance Zone	143	7%	\$ 13,571,400	7%
Earthquake – Structure built before 1927 ²²	152	10%	\$12,009,800	8%
High Winds / Severe Weather – Structure built before 1975	860	58%	\$65,634,100	44%
Wildfire – Composite score > 2.5 ²³	2	-	\$213,700	-

Table 4-6: Deerfield Township Critical Facilities Hazard Exposure²⁴

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	None	N/A
Flood – Future potential (within 1,000 feet) 1% Annual Chance Zone	1	CF-10
Wildfire	5	CF-5, CF-10, CF-11, CF-12. CF-13

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)

²¹ All supporting data for Coastal Erosion, Sea Level Rise (3-foot rise), Flood (all) can be viewed at https://docs.google.com/spreadsheets/d/1fcN5hL3Jz4X7mldFyKs6wol6J6lAR9bSsvJPIgE_A0Q/edit?usp=sharing

²² All supporting data for Earthquake, High Winds, and Severe Weather can be viewed at <https://docs.google.com/spreadsheets/d/1Zx1LZwKQ8esgqv4c9hbbSZurtMjH4UITQWJY1LrZeZc/edit?usp=sharing>

²³ All supporting data for Wildfire can be viewed at https://docs.google.com/spreadsheets/d/1JAbfd3A-eCHI93pZFaPVuM_H2yvuUzeHCmoijv-oxsw/edit?usp=sharing

²⁴ 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

National Flood Insurance Program Information

One additional metric discussed with the Working Group was statistical information from the National Flood Insurance Program (NFIP)²⁵. The following are relevant numbers for Deerfield Township as provided by the New Jersey Office of Emergency Management (NJOEM)²⁶:

- Active Policies – three (3) active NFIP flood insurance policies
- Claims History – eight (8) claims made against the NFIP between 2006 and 2018
- Repetitive Loss Properties (RL) – one (1) 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 4-5):

- Flood - Within 1 % Annual Chance Zone: 3 buildings ~ <1% of total buildings, with a value of \$200,400 ~ <1% of the total building value in the Township.
- Flood - Near (within 500 feet) of 1% Annual Chance Zone: 143 buildings ~ 7% of total buildings, with a value of \$13,571,400~ 7% of the total building value in the Township.

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

²⁶ Spreadsheets provided by NJOEM in October 2021.

Part 3: Hazard Identification and Risk Assessment

Part 3.5: Demographic Considerations

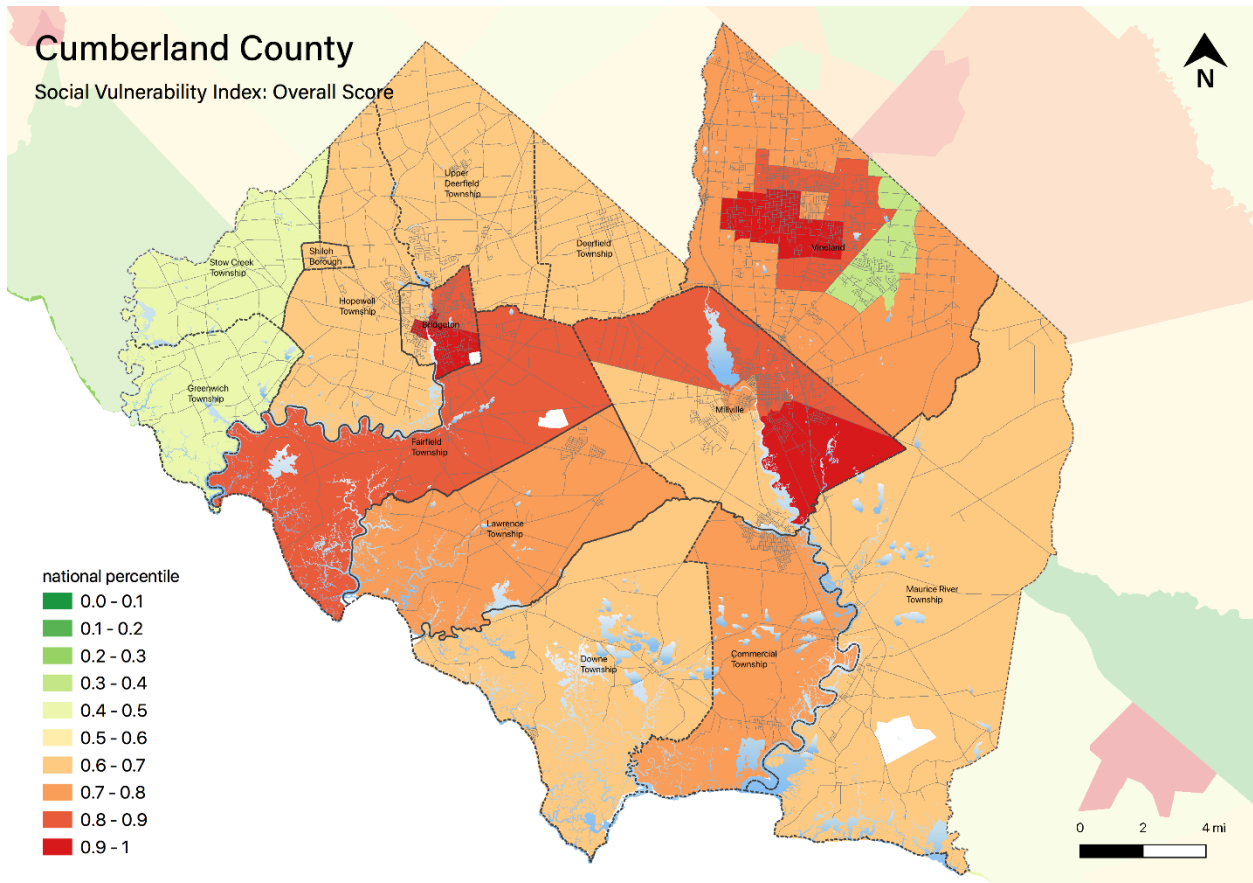
Demographic considerations include general population and land use factors. Table 4-7 includes current population estimates and changes since the previous US Census²⁷:

Table 4-7: Deerfield Township General Population Demographics

Metric	Current Estimates
2010 Population	3,119
2019 Population	3,053
Percent Population Change (2010-2019)	- 2.12%
Land Area	16.76 sq. miles
Population Density	182.2 / sq. mile

Demographic considerations also include differences in social vulnerability²⁸. Figure 4-6 shows the overall Social Vulnerability (SVI) Index overall scores for Cumberland County.

Figure 4-6: Cumberland County Social Vulnerability Index: Overall Scores



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

²⁸ Social vulnerability considerations are described in *Section 3: Hazard Identification and Risk Assessment* of the CC HMPU Base Plan.

Part 3: Hazard Identification and Risk Assessment

For Deerfield Township, Table 4-8 includes selected metrics where social vulnerability considerations are noteworthy when compared with all national census tracts:

Table 4-8: Deerfield Township Social Vulnerability Considerations²⁹

Metric	Comparison with all National Census Tracts
Percentage of persons: Older than 65 years of age	Higher than 80%
Percentage of persons: With a disability	Higher than 90%
Percentage of persons: Living in group quarters	Higher than 88%

In addition, the percentage of residents earning below poverty level = 12.1% (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).

²⁹ 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

- Extreme Temperature: Hot & Cold
- Flood
- High Wind
- Severe Weather – Summer
- Severe Weather – Winter

Low Priority

- Drought
- Earthquake
- Wildfire

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

- Coastal Erosion & Sea Level Rise
- Dam Failure
- Levee Failure

Part 4: Mitigation Measures

Part 4: Mitigation Measures

Part 4 includes six subparts:

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

Part 4.1: Mitigation Goals and Strategy

Goals were originally established by the SDVR Hazard Mitigation Steering Committee and validated by the four County Hazard Mitigation Working Groups in response to risk and capability assessment results.

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

All mitigation measures in the Municipal Appendix are related to at least one of these four goal statements.

- **Goal 1: Improve education and outreach efforts** regarding potential risk of natural hazards and appropriate mitigation measures that can be used to reduce risk (including programs, activities, and projects)
- **Goal 2: Improve data collection, use, and sharing** to reduce the risk of natural hazards
- **Goal 3: Improve capabilities and coordination** at municipal, county, and state levels to plan and implement hazard mitigation measures
- **Goal 4: Plan and implement projects** to mitigate identified natural hazards, known problems, and areas of concern

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

- Identify and address known problems or areas of concern for critical facilities and vulnerable populations
- Provide opportunities for residents and property owners to access available information about risk reduction and mitigation measures, e.g., useful links added to municipal websites, in particular for Repetitive Flood Loss properties
- Institutionalize hazard mitigation into municipal activities and programs through regular interactions of the Municipal Working Group and integration of related regulatory programs and planning initiatives
- Stay informed regarding changing conditions and related improvements in hazard and risk data due to future natural hazard events and increasing understanding of the effects of climate change and use the information as part of periodic evaluations of and refinements or additions to the municipality's mitigation program

The mitigation measures described in Parts 4.3 through 4.5 of the Municipal Appendix reflect this strategy.

Part 4: Mitigation Measures

Part 4.2: NJ4 HMP Mitigation Measures

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

Table 4-9 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 4-9.

Table 4-9: Status of Deerfield Township NJ4 HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # ^{30 31}
M-1: Identify and pursue outreach and education opportunities to inform municipal residents, businesses, and property owners.	Work-in-progress	Work-in-progress included OEM Coordinator meetings with National Refrigerant, one of Deerfield’s largest employers to discuss updating EOP plans for the facility.	Carried over as part of M-1
M-2: Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.			
M-3: Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.			
M-4: Conduct regular Municipal Working Group meetings.			
M-5: Install permanent backup emergency power generator for Township Municipal Building / Emergency Operating Center (EOC) / Senior Center and Services Facility (CF-1 / CF-2 / CF-7).	Work-in-progress	A \$400,000 “Small Cities Grant” was awarded in June 2021 from the New Jersey Department of Community Affairs to, in part, install a backup emergency power generator that will service both the EOC and the Senior Center (but not the Municipal Building)	Carried over as M-2
M-6: Install permanent backup emergency power generator for Rosenhayn Fire & Rescue facility and well (CF-3 / CF-4).	Not completed, not funded		Carried over as M-3
M-7: Install permanent backup emergency power generator at Deerfield Township Elementary School (CF-5).	Not completed, not funded		Carried over as M-4

³⁰ Detailed information for identification and implementation of municipal (M-#) mitigation measures is included in Tables 4-10 and 4-11.

³¹ Detailed information for identification and implementation of multi-jurisdictional (MJ-#) mitigation measures is included in Table 4-12.

Part 4: Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # ³⁰³¹
M-8: Cedar Street drainage improvement.	Work-in-progress	Vineland Avenue (CR 659) and Greenman Avenue intersection was reconstructed with improved drainage in 2017 by Cumberland County as part of repaving Vineland Avenue using general funding. However, the problem is not completely eliminated and may require participation by adjacent landowner regarding land management practices.	Carried over as multi-jurisdictional mitigation measure MJ-1
M-9: Address identified repetitive flooding on Morton Avenue.	Work-in-progress	Flooding on Morton Avenue as well as Kenyon Avenue between Bridgeton Avenue and Lebanon Avenue, were partially alleviated by Cumberland County work on drainage culvert. However, the problem is not completely eliminated.	Carried over as multi-jurisdictional mitigation measure MJ-2
M-9: Address FEMA designated Repetitive Flood Loss Properties (RF).	Work-in-progress	OEM Coordinator has recently been in contact with three of the four property owners.	Carried over as M-5
M-10: Harden / retrofit Public Works facility, to include upgrade to roof (CF-6).	Completed	Installation of steel roof resistant to high winds and wildfire was completed in November 2016 using Township Funds.	N/A
MJ-1: Communications / coordination plan regarding dam releases during natural events.	Resolved	The dam, located in Salem County, was replaced in 2007 as part of a New Jersey Department of Transportation project with a spillway that is self-regulating.	N/A
MJ-2: Alleviate flooding at County Route 686 (Garton Road) / County Route 645 (Parvin's Mill).	Resolved	Per Cumberland County Engineer, road work was completed on Garton Road west of Parvin's Mill Road in 2020 and it is believed the situation is resolved. No further road work is scheduled.	N/A
MJ-3: Alleviate flooding on County Route 552 (Sherman Avenue).	No longer considered an issue for Deerfield Township.	Area that is flood prone is in Vineland City.	N/A

Part 4: Mitigation Measures

Part 4.3: Municipal Mitigation Measures – Identification

Table 4-10 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)³² if applicable

Table 4-10 includes:

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

Table 4-10: Deerfield 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	Install permanent backup emergency power generator for Emergency Operation Center (EOC) / Senior Center and Services Facility (CF-2 / CF-7).	Power outage due to multiple hazard types.	Goal #4	Existing
M-3	Install permanent backup emergency power generator for Rosenhayn Fire & Rescue facility and well (CF-3 / CF-4).	Power outage due to multiple hazard types.	Goal #4	Existing

³² Section 3: Hazard Identification and Risk Assessment of the CC HMPU Base Plan includes a description of RL and SRL properties.

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
M-4	Install permanent backup emergency power generator at Deerfield Township Elementary School (CF-5).	Power outage due to multiple hazard types.	Goal #4	Existing
M-5	Address FEMA designated Repetitive Loss (RL) Property.	Flood	Goal #4	Existing

Part 4.4: Municipal Mitigation Measures – Implementation

Table 4-11 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 criteria³³
- Project Type to help determine funding options and implementation mechanisms at the municipal level³⁴
- 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 4-11: Deerfield Township Municipal Mitigation Measures Implementation

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-1	Township Mitigation Program	Township OEM and Township Working Group	High	Program	Staff Time	On-going, sustained effort	<ul style="list-style-type: none"> ▪ Identify outreach and education objectives and methods (working with CC OEM) ▪ Set priorities (if necessary) and conduct critical facility field evaluations ▪ Identify schedule for plan updates (including sustained public participation and plan integration efforts)
M-2	Install permanent backup emergency power generator for Emergency Operation Center (EOC) / Senior Center and Services Facility (CF-2 / CF-7).	Township OEM and Public Works Department	High	Back-up Emergency Power Generator	< \$100K	One year	<ul style="list-style-type: none"> ▪ Finish securing grant funding ▪ Prepare Request for Proposal (RFP) for purchase and installation

³³ Section 4: Mitigation Measures of the CC HMPU Base Plan includes a description of evaluation criteria considered by the Municipal Working Group.

³⁴ Section 4: Mitigation Measures of the CC HMPU Base Plan includes a description of project types and related information regarding funding options and implementation mechanisms.

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-3	Install permanent backup emergency power generator for Rosenhayn Fire & Rescue facility and well (CF-3 / CF-4).	Township OEM and Fire Department	Low	Back-up Emergency Power Generator	< \$100K	One to five years	<ul style="list-style-type: none"> ▪ Conduct project scoping.³⁵ ▪ Identify funding source(s).
M-4	Install permanent backup emergency power generator at Deerfield Township Elementary School (CF-5).	Township OEM and School Board	Low	Back-up Emergency Power Generator	< \$100K	One to five years	Same as M-3.
M-5	Address FEMA designated Repetitive Loss (RL) Property.	Township OEM and Floodplain Administrator	High	Private Property Flood Mitigation	Staff Time	One year	<ul style="list-style-type: none"> ▪ Confirm current status of property. ▪ If flooding is still relevant issue, prior to initiating landowner contacts, identify flood insurance implications and mitigation options including eligible activities per FEMA HMA programs.

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 :
 - Properties with valid Repetitive Loss designations
 - Buildings potentially exposed to 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)

³⁵ Project scoping for M-3 and M-4 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

- Track and take advantage of plan integration opportunities including noting all upcoming plan updates as part of regular Working Group interactions

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 4-12.

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 4-12: Deerfield Township Multi-Jurisdictional Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Potential Partners	Priority
MJ-1	Replace drainage culvert on Shiloh Avenue.	Flood	Goal #4	Existing	Township OEM, Adjacent Landowner, Cumberland County DPW	High
MJ-2	Address identified repetitive flooding on Morton Avenue.	Flood	Goal #4	Existing	Township OEM, Adjacent Landowners, Cumberland County DPW	Low

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 Deerfield 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 Deerfield 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 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 4-13 compares the results of the Capability Assessment Survey for the County as a whole and Deerfield Township

Part 4: Mitigation Measures

Table 4-13: Deerfield Township Capability Assessment Survey Results

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

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

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

Part 4: Mitigation Measures

4.6.3: Plan Review and Integration

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

- Table BP.4-2 that identifies primary plans and documents collected from each of the participating municipalities.
- Includes results of reviewing primary plans and documents to determine the extent to which these documents reflect up-to-date hazard risk and mitigation.
- Includes recommendations for integrating the results of the CC HMPU, including hazard mitigation data, goals, measures, and/or recommendations with existing plans and programs at the municipal level that are relevant to all participating municipalities and incorporated by reference in each of the jurisdiction-specific Appendices

The plan maintenance process articulates and specifies a commitment to review and follow these recommendations during future scheduled updates of these various documents as considered appropriate by the Working Group and the governing body of the municipality.

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

- Flood Damage Prevention Ordinance
- Emergency Operations Plan (2021)
- Master Plan (2018)
- Land Development Ordinance (2002) ³⁶
- Stormwater Management Plan (2005)
- Cumberland County Delaware Bayshore Recovery Plan (2013)

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

- Current version was adopted in 2016 and is consistent with the most recent FDPO per NJDEP]
- The Zoning Officer is the responsible party for enforcement. However, the Working Group identified the Land Use Board Secretary as the Floodplain Administrator. Both individuals who currently hold these positions are included on the Working Group and have completed the capability assessment survey.
- The document is accessible to the public via internet³⁷.

³⁶ <http://www.deerfieldtownship.org/>

³⁷ <https://ecode360.com/5054607>

Part 4: Mitigation Measures

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