



9.9 Township of Cinnaminson

This section presents the jurisdictional annex for the Township of Cinnaminson.

9.9.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan’s primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Danny Norman, Director of OEM 1621 Riverton Road, Cinnaminson, NJ 08077 609.296.6302 oem@cinnaminsonnj.org	Todd Day, Township Engineer 1621 Riverton Road, Cinnaminson, NJ 08077 609.668.0596 todd.day@rve.com

9.9.2 Municipal Profile

Cinnaminson Township covers nearly 8 square miles and is located on the north-western tip of Burlington County. The Township is bordered by the Delaware River to the northeast, and the Burlington Municipalities of Riverton and Palmyra to the northwest, Maple Shade to the southwest, Moorestown to the south Delran to the East. To the west, Cinnaminson is bordered by the Camden municipality of Pennsauken. According to the 2010 Census, the community's population was 15,569. The Township has a total area of 8.061 square miles including 7.505 square miles of land and 0.556 square miles of water.

The Township of Cinnaminson is governed by the township form of New Jersey Municipal Government. Under this form, the township committee remains the backbone of the municipality’s government. Voters elect, at-large, the township committee comprising three members. The elections are partisan and the committee members serve staggered three-year terms. The township committee elects the mayor for a one-year term. The mayor serves as chair of the township committee and has powers vested in the mayor’s office by general law.

Under the township form, all legislative powers are concentrated in the committee. The committee also has all executive powers not placed in the mayor either by general law or the revised Township act. Additionally, all municipalities under the traditional form may appoint, including the township form, may appoint a municipal administration and “delegate to him all or a portion of the executive responsibilities of the municipality.”

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2013 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality. Refer to the map in 9.9.8 of this annex which illustrates the hazard areas along with the location of potential new development.

Table 9.9-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2013 to present					
Cinnaminson Harbour	Residential	911 Units	Harbour Dr and River Road	SLOSH: Category 4	Townhomes and 405 Apartments in 14
Known or Anticipated Development in the Next Five (5) Years					
Siena Condo’s	Residential	119 Units	300 Route 130 North	None	204 Townhomes

* Only location-specific hazard zones or vulnerabilities identified.





9.9.3 Natural Hazard Event History Specific to the Municipality

Burlington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities. For the purpose of this plan update, events that have occurred in the County from 2013 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.9-2. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	Burlington County Designated?	Summary of Damages/Losses
April 30-May 1, 2014	Heavy Rain and Flooding	N/A	Heavy rain caused considerable poor drainage and creek flooding in the northern Burlington County. Rancocas Creek was hit the hardest by flooding. Many roads were flooded and closed. Approximately \$1 million in property damage in the County. While the event impacted the entire County, the Township did not experience significant losses or damages.
June 23, 2015	Severe Storm (DR-4231)	Yes	\$10 million in property damage in the County (\$8 million in Medford, \$1 million in Mt Laurel and \$1 million in Medford Lakes). While the event impacted the entire County, the Township did not experience significant losses or damages.
January 22-24, 2016	Severe Winter Storm (DR-4264)	Yes	Heavy snow fell throughout the County; snowfall totals ranged from 12 inches to 16.4 inches. While the event impacted the entire County, the Township did not experience significant losses or damages.

Notes:

- EM Emergency Declaration (FEMA)
- FEMA Federal Emergency Management Agency
- DR Major Disaster Declaration (FEMA)
- N/A Not applicable

9.9.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Township of Cinnaminson. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the hazard risk/vulnerability rankings of potential hazards for the Township of Cinnaminson. During the review of the hazard/vulnerability risk ranking, the Township indicated the following:

- Flood was changed from a low hazard to a medium hazard.





Table 9.9-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, c}	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking ^b
Coastal Erosion	RCV Exposed to CE Hazard Area: \$29,108,921	Occasional	12	Low
Drought	Damage estimate not available.	Frequent	30	Medium
Earthquake	100-Year GBS: \$0 500-Year GBS: \$3,303,408 2,500-Year GBS: \$48,658,473	Occasional	28	Medium
Flood*	1% Annual Chance: \$195,202,321	Frequent	18	Medium
Landslide	RCV Exposed to Landslide Hazard Area \$5,613,416,342	Occasional	36	High
Severe Storm	100-year MRP: \$3,490,709 500-year MRP: \$25,509,624 Annualized: \$135,322	Frequent	48	High
Severe Winter Weather	1% GBS: \$34,431,366 5% GBS: \$172,156,831	Frequent	51	High
Wildfire	Estimated Value in the Extreme, Very High, and High Hazard Areas: \$3,828,195	Occasional	12	Low

Notes:

- a. Building damage ratio estimates based on FEMA 386-2 (August 2001)
 - b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20
 - c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.
 - d. Loss estimates for the flood and earthquake hazards represent both structure and contents.
 - e. The HAZUS-MH earthquake model results are reported by Census Tract.
- * The Township of Cinnaminson changed the risk ranking from flood from low to medium.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Township of Cinnaminson.

Table 9.9-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 100-year Boundary (3)
Township of Cinnaminson	220	153	\$1,172,340.97	16	2	13

Source: FEMA Region 2 2017, 2018

- (1) Repetitive loss and severe repetitive loss statistics provided by FEMA Region 2 and are current as of 10/31/2017. Policy and claims statistics current as of 9/30/2018
Please note the total number of repetitive loss properties does not include the severe repetitive loss properties. The number of claims represents claims closed by 9/30/2018.
- (2) Total building and content losses from the claims file provided by FEMA Region 2.
- (3) The policies inside and outside of the flood zones are based on the addresses geocoded from the FEMA Region 2 policy file - 10/31/2017.





Notes: FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.
A zero percentage denotes less than 1/100th percentage and not zero damages or vulnerability as may be the case.

Critical Facilities

The table below presents Hazards United States (HAZUS) – Multi-Hazards (MH) estimates of the damage and loss of use to critical facilities in the community as a result of a 1-percent annual chance flood event.

Table 9.9-5. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Potential Loss from 1% Flood Event	
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage
B.O.C. Gases	Business/Industry	-	X	-	-
Cinnaminson	Intermodal Transit	X	X	0.8	0.8
Cinnaminson	Water Tower	-	X	-	-
Cinnaminson Light Rail Station	Light Rail	X	X	-	-
Cinnaminson Sewerage Authority	Wastewater Treatment	X	X	-	-
New Jersey - American Water	Chemical	X	X	-	-
PSE&G Substation	Substation	X	X	-	-
Riverton	Intermodal Transit	X	X	7.4	11.6
The Boc Group	Chemical	-	X	-	-
Tomken Planting	Chemical	-	X	-	-
Triune Color Lithographers	Chemical	-	X	-	-

Source: FEMA 2017, Burlington County
Note: - = Damages not calculated by HAZUS-MH v4.0

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- None identified

9.9.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability





The table below summarizes the regulatory tools that are available to the Township of Cinnaminson.

Table 9.9-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	Yes	Local	Twp Com	-
Capital Improvements Plan	Yes	Local	Twp Com	-
Floodplain Management / Basin Plan	Yes	Local	Zoning	-
Stormwater Management Plan	Yes	Local	DPW	Chapter 446
Open Space Plan	Yes	Local	Open Space Committee	Chapter 71
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Economic Development Plan	Yes	Local	Eco Dev Committee	-
Comprehensive Emergency Management Plan	Yes	Local	OEM	-
Emergency Operation Plan	Yes	Local	OEM	-
Post-Disaster Recovery Plan	Yes	Local	OEM	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	-	-	-	-
Regulatory Capability				
Building Code	Yes	State & Local	Construction	State Uniform Construction Code Act (N.J.S. 52:27D-119 et seq.)
Zoning Ordinance	Yes	Local	Zoning official	Chapter 525
Subdivision Ordinance	Yes	Local	Twp Engineer	Chapter 330
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Construction	Chapter 290
NFIP: Cumulative Substantial Damages	No	-	-	-
NFIP: Freeboard	Yes	Local	-	Chapter 290
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes	Local	Various Depts	Chapter 330 & 525
Stormwater Management Ordinance	Yes	Local	DPW	Chapter 446
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Stormwater Program Ordinances <ul style="list-style-type: none"> • Pet waste • Litter Control • Improper Disposal of Waste • Wildlife Feeding • Yard Waste Collection • Illicit Connection 	Yes	Local	DPW	Chapter 446 Article I: Improper Disposal of Waste, Article II: Pet Waste, Article III: Wildlife Feeding, Article IV: Yard Waste Collection Program, Article V: Illicit Connections, Article VI: Private Storm Drain Retrofitting, Article VII: Refuse Containers and Dumpsters; Article Chapter 345: Littering;



Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
<ul style="list-style-type: none"> Private Storm Drain Retrofitting Refuse Container / Dumpster (optional) 				
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	Yes	Local	EOP	EOP
Real Estate Disclosure Requirement	No	-	-	-
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of Cinnaminson.

Table 9.9-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	-
Mitigation Planning Committee	Yes	-
Environmental Board/Commission	No	-
Open Space Board/Committee	Yes	-
Economic Development Commission/Committee	Yes	-
Maintenance programs to reduce risk	Yes	-
Mutual aid agreements	Yes	-
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land development and land management practices	Yes	Township Planner
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Township Planner
Planners or engineers with an understanding of natural hazards	Yes	Township Planner and/or Engineer
NFIP Floodplain Administrator (FPA)	Yes	Construction Official
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Fire Department and/or County GIS Office
Scientist familiar with natural hazards	No	-
Emergency Manager	Yes	OEM
Grant writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-



Fiscal Capability

The table below summarizes financial resources available to the Township of Cinnaminson.

Table 9.9-8. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	Yes
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Township of Cinnaminson.

Table 9.9-9. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	NP	N/A	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	NP	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	Class 2	-
Storm Ready Certification	NP	N/A	N/A
Firewise Communities classification	NP	N/A	N/A
Natural disaster/safety programs in/for schools	Yes	-	-
Organizations with mitigation focus (advocacy group, non-government)	NP	-	-
Public education program/outreach (through website, social media)	Yes	-	-
Public-private partnership initiatives addressing disaster-related issues	NP	-	-

Note:

- N/A Not applicable
- NP Not participating
- Unavailable

The classifications listed above relate to the community’s ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community’s capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are





used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule
- The ISO Mitigation online ISO’s Public Protection website at <https://www.isomitigation.com/ppc/>
- The National Weather Service Storm Ready website at <https://www.weather.gov/stormready/>
- The National Firewise Communities website at <http://firewise.org/>

Self-Assessment of Capability

The table below provides an approximate measure of the Township of Cinnaminson’s capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.9-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)*	Moderate	High
Planning and regulatory capability		X	
Administrative and technical capability		X	
Fiscal capability		X	
Community political capability		X	
Community resiliency capability		X	
Capability to integrate mitigation into municipal processes and activities		X	

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

Brad Regn, Construction Official

Flood Vulnerability Summary

The Township of Cinnaminson does not maintain inventories of properties that have been damaged by flooding or property owners who are interested in mitigation. The Township does not make Substantial Damage estimates and none were declared for Sandy or other recent events. The FPA indicated that there are currently no residents interested in elevation or mitigation.

Resources

The FPA assumes the responsibilities of floodplain administration for the Township of Cinnaminson in conjunction with local boards. NFIP administration services and functions provided to residents of Cinnaminson include plan review, inspections, and damage assessments. The Township provides education to the community





regarding flood hazards/risk or flood risk reduction through a FEMA information pamphlet. The FPA stated there are currently no barriers to running an effective floodplain management program and feels adequately supported and trained to fulfill his responsibilities as the municipal floodplain administrator. The FPA would consider attending continuing education and certification training on floodplain management if it were offered in the future.

Compliance History

The Township is in good compliance with the NFIP. The date of the most recent Community Assistance Visit is unknown.

Regulatory

The Township of Cinnaminson's floodplain management ordinance exceeds the minimum set by FEMA and the State of New Jersey. The FPA indicated that there are other local ordinances, plans, or programs that support floodplain management. The Township has considered enrolling in the CRS program and indicated they would attend a CRS seminar if it was offered locally.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Hazard Mitigation: The Borough of Wrightstown actively participated in the 5-year update of the Burlington County Hazard Mitigation Plan. The Borough continues to support the implementation, monitoring, maintenance, and updating of the plan.

Master Plan: The Township of Cinnaminson's Master Plan incorporates natural hazard/risk mitigation.

Emergency Operations Plan: The Township's Emergency Operations Plan includes information on post-disaster recovery.

Transportation Plan: The Township plans on pursuing a Transportation Plan within the next 5 years.

Regulatory and Enforcement (Ordinances)

The Township of Cinnaminson's codebook can be found online at <https://ecode360.com/CI0302?needHash=true>.

Flood Damage Prevention: The purpose of the flood damage prevention ordinance (Chapter 290 of the municipal code) is to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- Protect human life and health;
- Minimize expenditure of public money for costly flood control projects;
- Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- Minimize prolonged business interruptions;



- Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;
- Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;
- Ensure that potential buyers are notified that property is in an area of special flood hazard; and
- Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

Land Use Procedures Ordinance: The Township's Land Use Procedures establish the Open Space Preservation Committee, uniform construction codes, and subdivision requirements.

Zoning Ordinance: The Township's Zoning Ordinance aims to lessen congestion in the streets; to secure safety from fire, panic and other dangers; to provide adequate light and air; to prevent the overcrowding of land and buildings; to avoid undue concentration of population; to conserve the value of property; to encourage the most appropriate use of land; and generally, to promote the health, morals and welfare of the inhabitants of the Township of Cinnaminson. The Ordinance also establishes the zoning map, design standards, the Wildlife Preserve District, and open space requirements.

NJDEP Municipal Stormwater Regulation Program: New Jersey Department of Environmental Protection issued the statewide municipal stormwater permits that became effective January 1, 2018 and authorizes stormwater discharges from municipal separate storm sewer systems (MS4s) to the waters of the state. Municipalities that have been issued a Notice of Authorization (NOA) to discharge under the Tier A (urban and coastal municipalities) or Tier B (more rural municipalities) master general permit must develop and implement a stormwater program. The first New Jersey Pollutant Discharge Elimination System (NJPDES) permit authorizing discharges from MS4 municipalities became effective in 2004 (subsequently renewed in 2009 and now in 2018), so most municipalities have developed stormwater programs; however, the 2018 permit requires municipalities to maintain a stormwater management plan and enforce stormwater ordinances to address development and redevelopment consistent with the Stormwater Management rules at N.J.A.C 7:8, as well as implementation of additional requirements. For more information on the municipal stormwater regulation program, see http://www.nj.gov/dep/dwq/msrp_home.htm. Cinnaminson is a Tier A municipality.

Stormwater Management: Chapter 446 of the municipal code discusses stormwater management. The chapter is intended to regulate the feeding of wildlife, disposal of waste, including pet solid waste, yard waste collection, litter, and other waste and pollution that may find its way into stormwater runoff in order to improve, preserve and protect the water quality of waters and streams within the Township and surrounding communities that may be downstream from the Township so as to protect the health safety and welfare of the public. This chapter also regulates connections to the municipal separate storm sewer system (MS4) operated by the Township and establishes penalties for violations of the provisions of this chapter.

Operational and Administration

Mutual Aid Agreements: The Borough maintains mutual aid agreements with neighboring communities for continuity of operations.

Floodplain Administrator: The Township promotes the participation of the Floodplain Administrator within the hazard mitigation planning process and other plans and activities.

Planning Board: The Cinnaminson Planning Board meets on the second and fourth Tuesday of every month, 6:30 pm at Town Hall. All meetings will be posted on their calendar.

Zoning Board: The Zoning Board meets on the first Wednesday of every month, 6:30pm at Town Hall. All meetings will be posted on their calendar.





Township Parks and Recreation Commission: The Parks and Recreation Commission meets on the first Thursday of every month, 7:30pm at Town Hall. All meetings will be posted on their calendar.

Mayor’s Advisory Ad Hoc Senior Citizen Committee: The Senior Advisory Board meets on a periodic/as needed basis. Meetings will be posted on their calendar.

Funding

The Township of Cinnaminson plans to look at mitigation actions when allocating funding in the future. The Township has a line item for mitigation project funding in the Capital Improvement Budget and has provided funding for mitigations projects that have been identified in the hazard mitigation plan and protection for buildings and infrastructure in high hazard areas.

Education and Outreach

The Township of Cinnaminson conducts outreach on hazards through various methods.

The Township maintains a municipal website (<http://www.cinnaminsonnj.org/>) where they post information regarding upcoming community events, important municipal decisions, and information about the municipality. The Township also maintains a Facebook page and Twitter account with similar information.

Burlington County utilizes the Swift911 Emergency Notification system. Swift911 is used in order to keep residents informed during fires, outages, floods, hurricanes, evacuations, road closures and more. All notifications are delivered for the sole purpose of delivering emergency messages and public notifications that are time sensitive in order to increase the safety and security. This service is also extended to the 40 municipalities within Burlington County, including the Township of Cinnaminson.

9.9.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community’s mitigation strategy identified in the 2013 Plan. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.



Table 9.9-11. Status of Previous Mitigation Actions

Action Number	2013 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
CN-1	Flood control and dredging. Install headwall(s), sluice gates, and potential pump station to mitigate severe flooding of Riverside Drive.	Lead: Twp. Engineer Support: USACE, DPW, NJOEM, NJDEP	No progress	1. 0% complete 2. Budget constraints restricted this action 3. No funding secured	1. Include in the 2019 HMP 2. This work is needed to help elevate flooding. 3. N/A
CN -2	Establish flood control and pump station on Canal Street.	Lead: PW Support: NJDPW, NJOEM, FEMA, NJDEP	No progress	1. 0% complete 2. Budget constraints restricted this action 3. No funding secured	1. Include in the 2019 HMP 2. This work is needed to help elevate flooding. 3. N/A
CN -3	Dredging and dam restoration at Steels Pond at Lenola and Church Roads. Install fore bay structure.	Lead: DPW Support: DPW, NJOEM, NJDEP, FEMA	No progress	1. 0% work is complete 2. Budget 3. this was scheduled to be done but was pulled for funding and approvals	1. Include in the 2019 HMP 2. Just need to secure funding 3. N/A
CN -4	Removal of siltation and debris from stormwater collection system at Calhoun & Adams Streets.	Lead: DPW Support: DPW, NJDEP, NJOEM	In progress	1. 20% complete by DPW 2. Clean up of debris was done but stopped at the siltation part due to approvals and funding	1. Include in the 2019 HMP 2. N/A 3. N/A
CN -5	Establishing an emergency operation center to provide joint communication with all township departments during an incident	Lead: DPW NJOEM FEMA	In progress	1. 50% done 2. Location was done looking for funding to support hardware 3. N/A	1. Include in the 2019 HMP 2. N/A 3. N/A
CN -6	Upgrade and properly install emergency power generator at our local reception center that provide critical support the county shelters.	Lead: DPW NJOEM, FEMA, Schools, and Emergency services	Complete	1. Complete 2. N/A 3. N/A	1. Discontinue 2. N/A 3. Project has been completed; therefore, it will not be included in the 2019 HMP Update
CN-7	Evaluate benefits of participating in CRS program	Twp. Committee; Planning	In progress	1. 20% complete 2. Still working on it, personnel issues 3. N/A	1. Include in the 2019 HMP 2. Should be completed by 2019 – Township will evaluate the benefits of participating in the CRS program. 3. N/A
CN-8	Conduct and facilitate community and public education	Municipality with support	Complete	1. 100% 2. N/A	1. Discontinue 2. N/A





Action Number	2013 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	and outreach for residents and businesses to promote natural hazard risk reduction to include: -Disaster preparedness -Hazard mitigation	from Planning Partners, County Planning, NJOEM, FEMA		3. N/A	3. Project has been completed; therefore, it will not be included in the 2019 HMP Update
CN-9	Improve municipal communications systems to include information sharing with county and surrounding municipalities.	Municipality with support from County, NJOEM and FEMA	In progress	1. Still working on this to better 2. N/A 3. N/A	1. Include in the 2019 HMP 2. Improve municipal communications systems to include information sharing with county and surrounding municipalities. 3. N/A
CN-10	Obtain and install backup power sources at critical facilities.	Municipality with support from County, NJOEM and FEMA	No progress	1. 0% 2. N/A 3. Funding	1. Include in the 2019 HMP 2. Obtain and install backup power sources at critical facilities 3. N/A
CN-11	Create/Enhance/Maintain Mutual Aid agreements with neighboring communities for continuity of operations	Municipality with support from County, NJOEM, FEMA and surrounding communities	In progress	1. Work continues 2. N/A 3. N/A	1. Discontinue 2. N/A 3. This is an ongoing capability for the Township and part of their day-to-day operations; therefore, it will not be included in Table 9.9-13
CN-12	Continue to support the implementation, monitoring, maintenance, and updating of this Plan through participating in the 5 year Plan Update	Municipality with support from Planning Partners, County Planning, NJOEM, FEMA	In progress	1. Ongoing capability 2. N/A 3. N/A	1. Discontinue 2. N/A 3. This is an ongoing capability for the Township and part of their day-to-day operations; therefore, it will not be included in Table 9.9-13
CN-13	Promote the participation of Floodplain Administrators within the planning process and other activities.	Municipality with support from County, NJOEM and FEMA	Complete	1. 100% 2. N/A 3. N/A	1. Discontinue 2. N/A 3. Ongoing capability
CN-14	Enhance resilience to severe storms by joining the NOAA "Storm Ready" program.	Municipality with support from County, NJOEM and FEMA	In progress	1. 50% complete for the new cycle 2. N/A 3. N/A	1. Include in the 2019 HMP 2. Work in progress with updating 3. N/A



Action Number	2013 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
CN-15	Provide public education and outreach on proper installation and/or use of backup power	Municipal Clerk	Complete	<ol style="list-style-type: none"> 1. 100% 2. N/A 3. N/A 	<ol style="list-style-type: none"> 1. Discontinue 2. N/A 3. Project has been completed; therefore, it will not be included in the 2019 HMP Update
CN-16	Address dangerous trees threatening people and property through proactive tree-trimming (vegetation management) programs in conjunction with property owners and utility companies.	Municipal DPW	No progress	<ol style="list-style-type: none"> 1. 0% 2. N/A 3. Funding/staff time 	<ol style="list-style-type: none"> 1. Include in the 2019 HMP 2. N/A 3. N/A
CN-17	<p>Support the mitigation of vulnerable structures via retrofit (e.g. Elevation, flood-proofing) or relocation to protect structures from future damage with repetitive loss and severe repetitive loss properties as a priority when applicable.</p> <p>Phase 1: Identify appropriate candidates based on cost-effectiveness and repetitive loss. Phase 2: Work with the property owners to implement selected action based on available funding from the State and FEMA and local match availability.</p>	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from County Planning, NJOEM, FEMA	No progress	<ol style="list-style-type: none"> 1. 0% 2. N/A 3. Funding 	<ol style="list-style-type: none"> 1. Include in the 2019 HMP 2. N/A 3. N/A



Completed Mitigation Initiatives not Identified in the Previous Mitigation Strategy

The Township of Cinnaminson has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2013 Plan:

- None

Proposed Hazard Mitigation Initiatives for the Plan Update

The Township participated in a mitigation action workshop in March 2018 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013).

Table 9.9-12 summarizes the comprehensive-range of specific mitigation initiatives the Township of Cinnaminson would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing your actions as ‘High’, ‘Medium’, or ‘Low.’ The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.9-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.



Table 9.9-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Critical Facility (Yes/No)	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. of Cinnaminson – 1 (former CN-1)	Flood control and dredging. Install headwall(s), sluice gates, and potential pump station to mitigate severe flooding of Riverside Drive.	No	Flood	1, 2	Lead: Twp. Engineer Support: USACE, DPW, NJOEM, NJDEP	High	High (~\$600K)	FEMA HMA grants	Short Term DOF	High	SIP	SP
T. of Cinnaminson – 2 (former CN-2)	Establish flood control and pump station on Canal Street.	No	Flood	1, 2	Lead: PW Support: NJDPW, NJOEM, FEMA, NJDEP	Medium	High (>\$100K)	FEMA HMA grants	Long Term DOF	Medium	SIP	SP
T. of Cinnaminson – 3 (former CN-3)	Dredging and dam restoration at Steels Pond at Lenola and Church Roads. Install forebay structure.	No	Flood	1, 2	Lead: DPW Support: DPW, NJOEM, NJDEP, FEMA	Medium	High (~\$600K)	FEMA HMA grants	Long Term DOF	Medium	NSP	NR
T. of Cinnaminson – 4 (former CN-4)	Removal of siltation and debris from stormwater collection system at Calhoun & Adams Streets.	No	Flood	1, 2	Lead: DPW Support: DPW, NJDEP, NJOEM	Medium	Medium (\$10K-\$100K)	Municipal and State funding	Short DOF	Low	SIP	PR
T. of Cinnaminson – 5 (former CN-5)	Establishing an emergency operation center to provide joint communication with all township departments during an incident	No	Natural Hazards	1, 3, 6	Lead: DPW Support: NJOEM, FEMA	High	Medium (\$10K-\$100K)	HMGP PDM	Long DOF	High	SIP	SP
T. of Cinnaminson - 6 (former CN-7)	Evaluate benefits of participating in CRS program	No	All	1, 2, 3, 4, 5, 6	Twp. Committee; Planning	Medium	Low	Twp./Public	On-going	Medium	LPR	PR
T. of Cinnaminson – 7 (former CN-9)	Improve municipal communications systems to include information sharing with county and surrounding municipalities.	No	All Hazards	3, 6	Municipality with support from County, NJOEM and FEMA	Medium	Medium	Municipal Budget	Short	Medium	LPR	ES PR





Initiative	Mitigation Initiative	Critical Facility (Yes/No)	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T of Cinnaminson – 8 (former CN-10)	Obtain and install backup power sources at critical facilities.	Yes	All Hazards	1, 3, 6	Municipality with support from County, NJOEM and FEMA	Medium	Medium	Municipal Budget, HMA grants	Short Term DOF	Medium	SIP	ES
T. of Cinnaminson – 9 (former CN-14)	Enhance resilience to severe storms by joining the NOAA “Storm Ready” program.	No	Severe Storm	1, 3,5	Municipality with support from County, NJOEM and FEMA	Medium	Low	Municipal Budget	Short Term DOF	Medium	LPR	PI
T. of Cinnaminson – 10 (former CN-16)	Address dangerous trees threatening people and property through proactive tree-trimming (vegetation management) programs in conjunction with property owners and utility companies.	No	Severe Storm, Severe Winter Storm	1, 2, 4	Municipal DPW	Medium	Low/Medium	Municipal Budget	On-going	Medium	NSP	PP
T. of Cinnaminson – 11 (former CN-17)	Support the mitigation of vulnerable structures via retrofit (e.g. Elevation, flood-proofing) or relocation to protect structures from future damage with repetitive loss and severe repetitive loss properties as a priority when applicable. Phase 1: Identify appropriate candidates based on cost-effectiveness and repetitive loss. Phase 2: Work with the property owners to implement selected action based on available funding from the State and FEMA and local match availability.	No	Flood, Severe Storm	1, 2	Municipality (via Municipal Engineer/NFI P Floodplain Administrator) with support from County Planning, NJOEM, FEMA	High	High	HMA Grants	Long Term DOF	Medium	SIP	PP
T. of Cinnaminson - 12	Coordinate with the facilities managers at the Transportation facilities in	Yes	All Hazards	1, 2, 6	Municipality with support from	High	Low	Municipal Budget	Short Term DOF	High	LRP	PR





Initiative	Mitigation Initiative	Critical Facility (Yes/No)	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	<p>Cinnaminson to support the mitigation of the facilities via retrofit (e.g. elevation, flood-proofing) or relocation to protect structures from future damage.</p> <p>Phase 1: Identify most cost-effective mitigation option</p> <p>Phase 2: Work with facility manager to implement selected action based on available funding and local match ability.</p>				Transportation facilities							
T. of Cinnaminson - 13	<p>Coordinate with the facilities managers at Cinnaminson Water and Wastewater facilities to support the mitigation of the facilities via retrofit (e.g. elevation, flood-proofing) or relocation to protect structures from future damage.</p> <p>Phase 1: Identify most cost-effective mitigation option</p> <p>Phase 2: Work with facility manager to implement selected action based on available funding and local match ability.</p>	Yes	All Hazards	1, 2, 6	Municipality with support from Water and Wastewater facilities	High	High	HMA Grants, Municipal Budget	Short Term DOF	High	SIP	SP, PP
T. of Cinnaminson - 14	<p>Coordinate with the facilities managers at the chemical facilities in Cinnaminson to support the mitigation of the facilities via retrofit (e.g. elevation, flood-proofing) or relocation to protect structures from future damage.</p>	Yes	All Hazards	1, 2, 3	Municipality with support from chemical facilities	High	High	HMA Grants, Municipal Budget	Short Term DOF	High	SIP	SP, PP





Initiative	Mitigation Initiative	Critical Facility (Yes/No)	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	<p>Phase 1: Identify most cost-effective mitigation option</p> <p>Phase 2: Work with facility manager to implement selected action based on available funding and local match ability.</p>											
T. of Cinnaminson - 15	<p>Coordinate with the facilities manager at the PSEG Sub-Station to support the mitigation of the Station via retrofit (e.g. elevation, flood-proofing) or relocation to protect structures from future damage.</p> <p>Phase 1: Identify most cost-effective mitigation option</p> <p>Phase 2: Work with facility manager to implement selected action based on available funding and local match ability.</p>	Yes	All Hazards	1, 2, 3, 6	Municipality with support from PSEG Sub-Station	High	High	HMA Grants, Municipal Budget	Short Term DOF	High	SIP	SP, PP
T. of Cinnaminson - 16	<p>Coordinate with the facilities manager at B.O.C. Gases to support the mitigation of the facility via retrofit (e.g. elevation, flood-proofing) or relocation to protect structures from future damage.</p> <p>Phase 1: Identify most cost-effective mitigation option</p> <p>Phase 2: Work with facility manager to implement selected action based on available funding and local match ability.</p>	No	All Hazards	1, 2, 3	Municipality with support from B.O.C. Gases	High	High	HMA Grants, Municipal Budget	Short Term DOF	High	SIP	SP, PP





Initiative	Mitigation Initiative	Critical Facility (Yes/No)	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. of Cinnaminson - 17	During the update of the municipal master plan, hazard mitigation principles will be integrated into the different elements of the master plan. This ensures that hazard assessment information is incorporated into future land use for the Township and the other elements of the plan.	No	All Hazards	1, 2, 3, 4, 5, 6	Municipality	High	High	HMA Grants, Municipal Budget	Short Term DOF	High	SIP	SP, PP

Notes:

Not all acronyms and abbreviations defined below are included in the table.

*Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable
- NFIP National Flood Insurance Program
- OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- PDM Pre-Disaster Mitigation Grant Program
- RFC Repetitive Flood Claims Grant Program (discontinued in 2015)
- SRL Severe Repetitive Loss Grant Program (discontinued in 2015)

Timeline:

- Short 1 to 5 years
- Long Term 5 years or greater
- OG On-going program
- DOF Depending on funding

Costs:

Where actual project costs have been reasonably estimated:

- Low < \$10,000
- Medium \$10,000 to \$100,000
- High > \$100,000

Where actual project costs cannot reasonably be established at this time:

- Low Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

- Low= < \$10,000
- Medium \$10,000 to \$100,000
- High > \$100,000

Where numerical project benefits cannot reasonably be established at this time:

- Low Long-term benefits of the project are difficult to quantify in the short term.





Costs:

- Medium** Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
- High** Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:

- Medium** Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
- High** Project will have an immediate impact on the reduction of risk exposure to life and property.

Mitigation Category:

- **Local Plans and Regulations (LPR)** – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- **Structure and Infrastructure Project (SIP)** - These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- **Natural Systems Protection (NSP)** – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- **Education and Awareness Programs (EAP)** – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities

CRS Category:

- **Preventative Measures (PR)** - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- **Property Protection (PP)** - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- **Public Information (PI)** - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- **Natural Resource Protection (NR)** - Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- **Structural Flood Control Projects (SP)** - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- **Emergency Services (ES)** - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities



Table 9.9-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community	Total	High / Medium / Low
T. of Cinnaminson – 1 (former CN-1)	Flood control and dredging. Install headwall(s), sluice gates, and potential pump station to mitigate severe flooding of Riverside Drive.	1	1	0	1	1	1	1	1	1	1	-1	0	1	1	10	High
T. of Cinnaminson – 2 (former CN-2)	Establish flood control and pump station on Canal Street.	1	1	0	1	1	1	1	1	1	1	-1	0	1	0	9	Medium
T. of Cinnaminson – 3 (former CN-3)	Dredging and dam restoration at Steels Pond at Lenola and Church Roads. Install fore bay structure.	1	1	0	1	1	1	1	0	1	1	-1	0	1	1	9	Medium
T. of Cinnaminson – 4 (former CN-4)	Removal of siltation and debris from stormwater collection system at Calhoun & Adams Streets.	0	1	0	0	0	1	0	1	0	1	0	0	1	0	5	Low
T. of Cinnaminson – 5 (former CN-5)	Establishing an emergency operation center to provide joint communication with all township departments during an incident	1	1	0	0	1	1	0	0	1	1	1	1	1	1	10	High
T. of Cinnaminson 6 (former CN-7)	Evaluate benefits of participating in CRS program	1	1	0	0	1	1	0	0	1	1	1	0	1	1	9	Medium
T. of Cinnaminson – 7 (former CN-9)	Improve municipal communications systems to include information sharing with county and surrounding municipalities.	1	0	1	0	1	1	-1	0	1	0	1	1	1	0	7	Medium
T of Cinnaminson – 8 (former CN-10)	Obtain and install backup power sources at critical facilities.	1	0	1	1	1	1	-1	0	1	0	1	1	1	0	8	Medium
T. of Cinnaminson – 9 (former CN-14)	Enhance resilience to severe storms by joining the NOAA “Storm Ready” program.	1	1	1	1	1	1	-1	1	1	-1	1	1	0	1	9	Medium
T. of Cinnaminson – 10 (former CN-16)	Address dangerous trees threatening people and property through proactive tree-trimming (vegetation management) programs in conjunction	1	1	1	0	1	1	-1	0	1	0	1	0	1	0	6	Medium





Table 9.9-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community	Total	High / Medium / Low
	with property owners and utility companies.																
T. of Cinnaminson - 11 (former CN-17)	Support the mitigation of vulnerable structures via retrofit (e.g. Elevation, flood-proofing) or relocation to protect structures from future damage with repetitive loss and severe repetitive loss properties as a priority when applicable. Phase 1: Identify appropriate candidates based on cost-effectiveness and repetitive loss. Phase 2: Work with the property owners to implement selected action based on available funding from the State and FEMA and local match availability.	1	1	0	1	1	1	-1	0	1	1	1	0	1	0	7	Medium
T. of Cinnaminson - 12	Coordinate with the facilities managers at the Transportation facilities in Cinnaminson to support the mitigation of the facilities via retrofit (e.g. elevation, flood-proofing) or relocation to protect structures from future damage. Phase 1: Identify most cost-effective mitigation option Phase 2: Work with facility manager to implement selected action based on available funding and local match ability.	0	1	0	1	1	1	-1	0	1	1	1	0	1	0	6	High
T. of Cinnaminson - 13	Coordinate with the facilities managers at Cinnaminson Water and Wastewater facilities to support the mitigation of the facilities via retrofit (e.g. elevation, flood-proofing) or relocation to protect structures from future damage. Phase 1: Identify most cost-effective mitigation option	0	1	0	1	1	1	-1	0	1	1	1	0	1	0	6	Medium





Table 9.9-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community	Total	High / Medium / Low
	Phase 2: Work with facility manager to implement selected action based on available funding and local match ability.																
T. of Cinnaminson - 14	Coordinate with the facilities managers at the chemical facilities in Cinnaminson to support the mitigation of the facilities via retrofit (e.g. elevation, flood-proofing) or relocation to protect structures from future damage. Phase 1: Identify most cost-effective mitigation option Phase 2: Work with facility manager to implement selected action based on available funding and local match ability.	0	1	0	1	1	1	-1	0	1	1	1	0	1	0	6	Medium
T. of Cinnaminson - 15	Coordinate with the facilities manager at the PSEG Sub-Station to support the mitigation of the Station via retrofit (e.g. elevation, flood-proofing) or relocation to protect structures from future damage. Phase 1: Identify most cost-effective mitigation option Phase 2: Work with facility manager to implement selected action based on available funding and local match ability.	0	1	0	1	1	1	-1	0	1	1	1	0	1	0	6	Medium
T. of Cinnaminson - 16	Coordinate with the facilities manager at B.O.C. Gases to support the mitigation of the facility via retrofit (e.g. elevation, flood-proofing) or relocation to protect structures from future damage. Phase 1: Identify most cost-effective mitigation option Phase 2: Work with facility manager to implement selected action based on	0	1	0	1	1	1	-1	0	1	1	1	0	1	0	6	Medium



Table 9.9-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community	Total	High / Medium / Low
	available funding and local match ability.																
T. of Cinnaminson - 17	During the update of the municipal master plan, hazard mitigation principles will be integrated into the different elements of the master plan. This ensures that hazard assessment information is incorporated into future land use for the Township and the other elements of the plan.	0	1	0	1	1	1	-1	0	1	1	1	0	1	0	6	Medium

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.



9.9.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

9.9.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Township of Cinnaminson that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Township of Cinnaminson has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.9.9 Additional Comments

None at this time.



Figure 9.9-1. Township of Cinnaminson Hazard Area Extent and Location Map 1

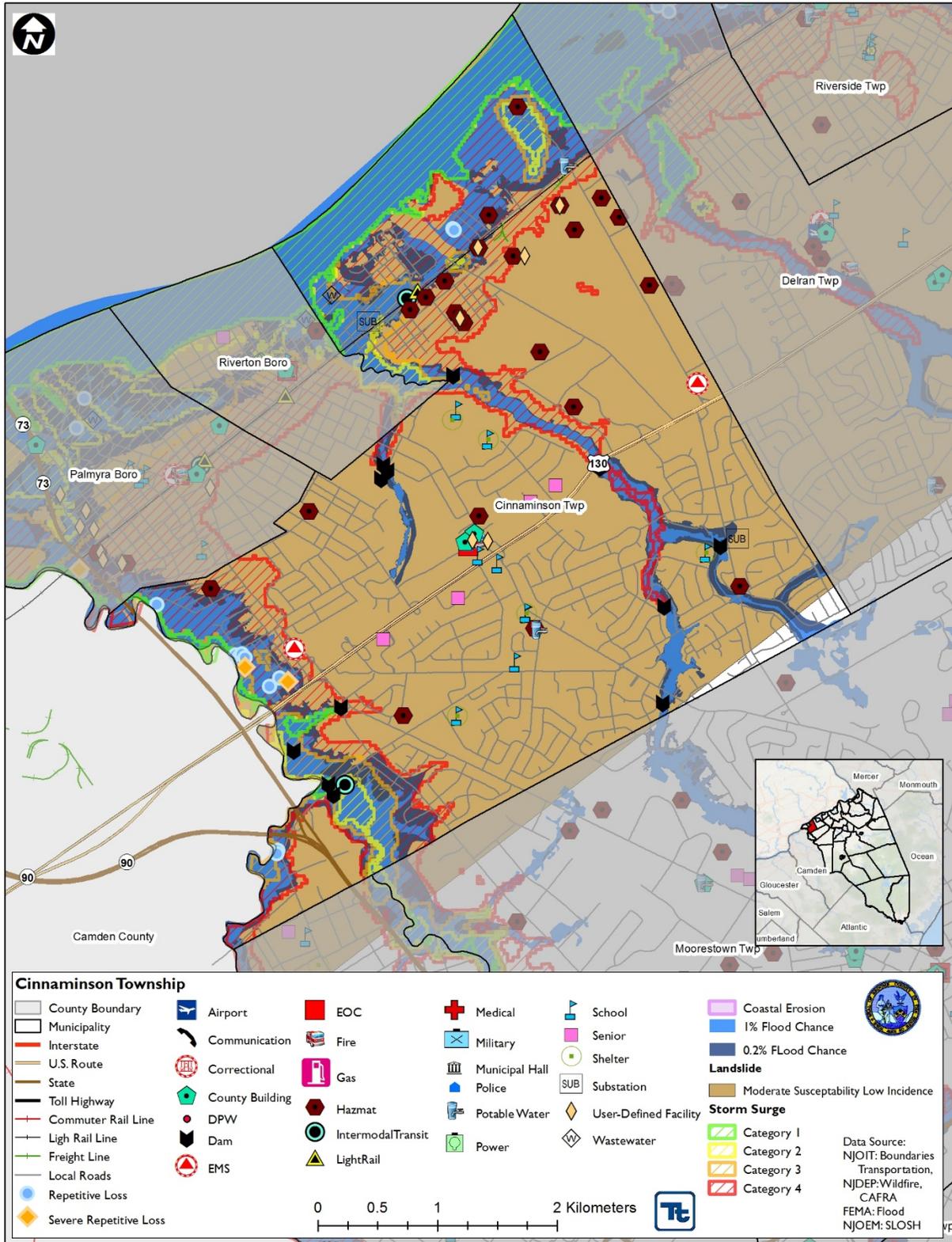
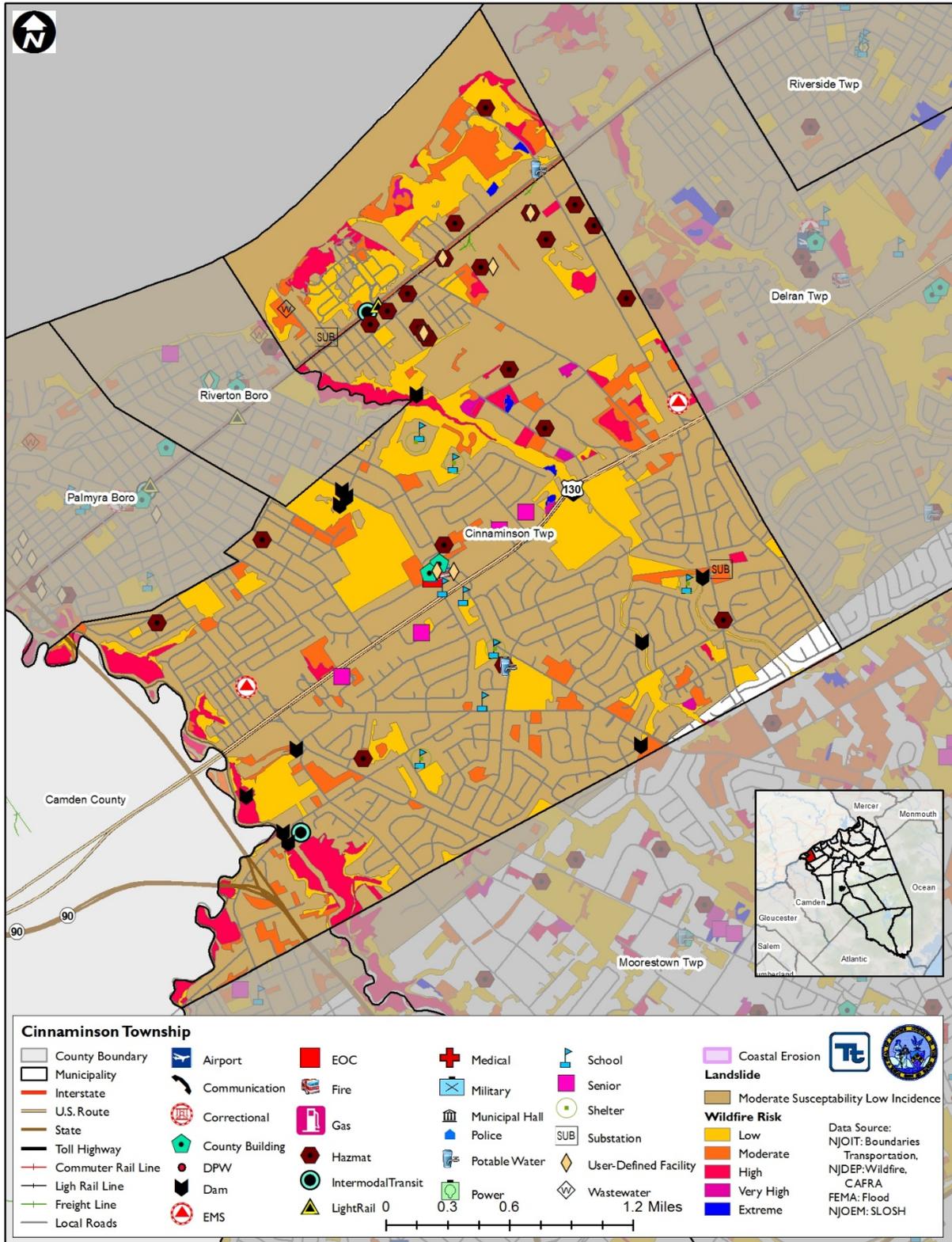




Figure 9.9-2. Township of Cinnaminson Hazard Area Extent and Location Map 2





Action Number: T. Cinnaminson - 1 (Former CN-1)

Mitigation Action/Initiative: Flood control and dredging. Install headwall(s), sluice gates, and potential pump station to mitigate severe flooding of Riverside Drive.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Severe flooding of Riverside Drive
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	<ol style="list-style-type: none"> 1. No action: Current - problem continues 2. Relocate Riverside Drive - Not feasible 3. Install floodwalls alongside Riverside Drive to prevent flooding – may not be technically feasible
Action/Project Intended for Implementation	
Description of Selected Action/Project	Sluice gates and a headwall or multiple headwalls will be installed at Riverside Drive. Depending on funding, a pump station will be installed as well. Dredging will be completed to further reduce flooding.
Action/Project Category	SIP
Goals Met	1, 2
Critical Facility (Y/N)	No
Benefits (losses avoided)	High
Estimated Cost	High (\$600K)
Priority*	High
Plan for Implementation	
Responsible Organization	Lead: Twp. Engineer Support: USACE, DPW, NJOEM, NJDEP
Local Planning Mechanism	Hazard mitigation planning
Potential Funding Sources	FEMA HMA Grants
Timeline for Completion	Short Term DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	



Action Number: T. Cinnaminson - 1 (Former CN-1)

Mitigation Action/Initiative: Flood control and dredging. Install headwall(s), sluice gates, and potential pump station to mitigate severe flooding of Riverside Drive.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Reduce flooding and protect infrastructure from damage
Cost-Effectiveness	0	
Technical	1	Project is technically feasible
Political	1	Project has political support from the Township
Legal	1	Township has legal authority to complete project
Fiscal	1	
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	-1	
Timeline	0	Timeline depends on funds
Agency Champion	1	
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	



Action Number:

T. Cinnaminson – 2 (Former CN-2)

Mitigation Action/Initiative:

Establish flood control and pump station on Canal Street.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Township is in need of additional pump station
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	<ol style="list-style-type: none"> 1. No action: current problem continues 2. Establish pump station: Need requires permanent pump station on Canal Street 3. Acquire mobile pumps to supplement pumping needs – Most likely insufficient capacity to pump water required.
Action/Project Intended for Implementation	
Description of Selected Action/Project	A pump station and flood control station will be established on Canal Street to reduce flooding risk.
Action/Project Category	SIP
Goals Met	1, 2
Critical Facility (Y/N)	No
Benefits (losses avoided)	Medium
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	Lead: DPW Support: NJDOT, NJOEM, FEMA, NJDEP
Local Planning Mechanism	Hazard mitigation planning, stormwater planning
Potential Funding Sources	FEMA HMA grants
Timeline for Completion	Long Term DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	



Action Number: T. Cinnaminson – 2 (Former CN-2)

Mitigation Action/Initiative: Establish flood control and pump station on Canal Street.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	0	
Technical	1	Project is technically feasible
Political	1	Project has political support from the Township
Legal	1	Township has legal authority to complete project
Fiscal	1	
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	-1	
Timeline	0	Timeline depends on funds
Agency Champion	1	
Other Community Objectives	1	
Total	9	
Priority (High/Med/Low)	Medium	



Action Number: T. Cinnaminson – 3 (Former CN-3)
Mitigation Action/Initiative: Dredging and dam restoration at Steels Pond at Lenola and Church Roads. Install forebay structure.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Steels Pond is silted in and dam is in need of restoration
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	<ol style="list-style-type: none"> 1. No action - Current problem continues 2. Dredge without dam restoration - Risk of dam degradation and potential failure in the future increases 3. Install forebay without dredging – Risk of dam degradation and dam failure still exist.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Steels Pond will be dredged to increase storage capacity. The dam at Lenola and Church Road will be restored along with the installation of a fore bay structure to increase protection.
Action/Project Category	NSP
Goals Met	1, 2
Critical Facility (Y/N)	Yes
Benefits (losses avoided)	Medium
Estimated Cost	High (\$600K)
Priority*	Medium
Plan for Implementation	
Responsible Organization	Lead: DPW Support: DPW, NJOEM, NJDEP, FEMA
Local Planning Mechanism	Hazard mitigation planning
Potential Funding Sources	FEMA HMA grants
Timeline for Completion	Long Term DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	



Action Number: T. Cinnaminson – 3 (Former CN-3)

Mitigation Action/Initiative: Dredging and dam restoration at Steels Pond at Lenola and Church Roads.
Install fore bay structure.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	0	
Technical	1	Project is technically feasible
Political	1	Project has political support from the Township
Legal	1	Township has legal authority to complete project
Fiscal	1	
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	-1	
Timeline	0	Timeline depends on funds
Agency Champion	1	
Other Community Objectives	1	
Total	9	
Priority (High/Med/Low)	Medium	



Action Number: T. Cinnaminson – 4 (Former CN-4)
Mitigation Action/Initiative: Removal of siltation and debris from stormwater collection system at Calhoun & Adams Streets.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Stormwater system is clogged with silt and debris
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. No action - Current problem continues and worsens 2. Rebuilt stormwater system - Cost prohibitive 3. Construct additional stormwater infrastructure – Cost prohibitive
Action/Project Intended for Implementation	
Description of Selected Action/Project	The stormwater collection system at Calhoun and Adams Streets will be cleaned. Silt and debris will be removed to ensure no clogs exist and system is functioning at design capabilities.
Action/Project Category	SIP
Goals Met	1, 2
Critical Facility (Y/N)	No
Benefits (losses avoided)	Medium
Estimated Cost	Medium (\$10K-100K)
Priority*	Low
Plan for Implementation	
Responsible Organization	Lead: DPW Support: DPW, NJDEP, NJOEM
Local Planning Mechanism	Hazard mitigation planning, stormwater management planning
Potential Funding Sources	Municipal and state funding.
Timeline for Completion	Short Term DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	



Action Number: T. Cinnaminson – 4 (Former CN-4)

Mitigation Action/Initiative: Removal of siltation and debris from stormwater collection system at Calhoun & Adams Streets.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Increase capacity of stormwater system; reduce or eliminate damage to system
Cost-Effectiveness	0	
Technical	0	
Political	0	
Legal	1	Township has legal authority to complete project
Fiscal	0	Need funding to complete
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	0	
Timeline	0	
Agency Champion	1	
Other Community Objectives	0	
Total	5	
Priority (High/Med/Low)	Low	



Action Number:

T. Cinnaminson – 8 (former CN-10)

Mitigation Action/Initiative:

Obtain and install backup power sources at critical facilities.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	Critical facilities lack back up power source
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	<ol style="list-style-type: none"> 1. No action - Current problem continues 2. Solar panels - Weather dependent and cost prohibitive 3. Purchase a few mobile generators to share between facilities – Backup power is limited to the number of generators purchased.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Backup power sources (generators) will be installed at critical facilities to ensure continuation of critical functions during power outages.
Action/Project Category	SIP
Goals Met	1, 3, 6
Critical Facility (Y/N)	Yes
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Municipality with support from County, NJOEM and FEMA
Local Planning Mechanism	Hazard mitigation planning, emergency management planning
Potential Funding Sources	Municipal budget, HMA grants
Timeline for Completion	Short Term DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	



Action Number: T. Cinnaminson – 8 (former CN-10)

Mitigation Action/Initiative: Obtain and install backup power sources at critical facilities.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	0	
Cost-Effectiveness	1	
Technical	1	Project is technically feasible
Political	1	Project has political support
Legal	1	Township has the legal authority to complete project
Fiscal	-1	
Environmental	1	
Social	1	
Administrative	-1	
Multi-Hazard	1	All hazards
Timeline	1	
Agency Champion	0	
Other Community Objectives	1	
Total	8	
Priority (High/Med/Low)	Medium	