

## 9.12 TOWNSHIP OF UPPER

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

### A.) HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact	Alternate Point of Contact
John Deuter/Emergency Management Director P.O. Box 205, Tuckahoe, NJ 08250 (609) 628-2011 <a href="mailto:emergencymanagement@uppertownship.com">emergencymanagement@uppertownship.com</a>	Mike Jones/Deputy Director of Emergency Management P.O. Box 205, Tuckahoe, NJ 08650 (609) 628-2011

### B.) TOWNSHIP PROFILE

#### *Population*

10,941 (estimated 2008 Residential Population, Cape May County Planning Dept.)  
 44,431 (estimated 2008 Summer Population, Cape May County Planning Dept.)

#### *Location*

The Township of Upper is located on the northernmost portion of Cape May County, New Jersey. It is bounded on the north by Atlantic County, New Jersey, on the east by the City of Ocean City and the Atlantic Ocean, on the south-southwest by the Borough of Woodbine and Township of Dennis and the west by portions of the Township of Dennis and Cumberland County, New Jersey. It is part of the Ocean City Metropolitan Statistical Area. The Township is made up of 10 small villages or towns: Beesleys Point, Marmora, Palermo, Seaville, Tuckahoe, Greenfield, Marshallville, Steelmantown, Petersburg and Strathmere. Strathmere, which includes ~1.3 miles of Atlantic beachfront, adjoins with the city of Sea Isle City on its south end.

According to the U.S. Census Bureau, the township has a total area of 68.5 square miles (177.4 km<sup>2</sup>), with 63.2 square miles (163.6 km<sup>2</sup>) of it land and 5.3 square miles (13.8 km<sup>2</sup>) of it (7.77-percent) water.

#### *Climate*

Cape May County, with all its municipalities, lies within the Coastal Climate zone of the State of New Jersey. In autumn and early winter, when the ocean is warmer than the land surface, the Coastal Zone will experience warmer temperatures than interior regions of the state. In the spring months, ocean breezes keep temperatures along the coast cooler. Being adjacent to the Atlantic Ocean, with its high heat capacity (compared to land), seasonal temperature fluctuations tend to be more gradual and less prone to extremes. Sea breezes play a major role in the coastal climate. When the land is warmed by the sun, heated air rises, allowing cooler air at the ocean surface to spread inland. Coastal storms, often characterized as Nor'Easters, hurricanes or tropical storms, are most frequent between October and April. These storms track over the coastal plain or up to several hundred miles offshore, bringing strong winds and heavy rains (ONJSC, Date Unknown).

The average monthly temperatures of the county in winter are 42° to 47°F during December, January and February. March climbs up to about 51°F. April's average is 60°F and in May it can get as warm as 69°F.

Average water temperatures are 37 to 42°F (CapeMay.com, Date Unknown). Cape May County has been known to experience the least amount of snow accumulations in the State, reaching approximately 15 inches in snow annually.

***Brief History***

The Township of Upper was formed as a precinct on April 2, 1723, and was incorporated as one of New Jersey's initial 104 townships by an Act of the New Jersey Legislature on February 21, 1798. Portions of the township have been taken from the Township of Dennis (March 1, 1827) and the former Borough of Ocean City (March 3, 1884) (Snyder, 1969; Visit New Jersey Shore, 2009).

***Governing Body Format***

The Township of Upper is governed under the Township form of government with a five-member Township Committee. The Township Committee is elected directly by the voters in partisan elections to serve three-year terms of office on a staggered basis, with one or two seats coming up for election each year. At an annual reorganization meeting, the Township Committee selects one of its members to serve as Mayor (Rutgers University, 2005).

***Growth/Development Trends***

At this time, no new major residential/commercial development or major infrastructure development has been identified for the next five (5) years.

**Summary of Potentially Developable Land in the Township of Upper**

Municipality	Residential Sub-dividable		Farmland Developable		Commercial Buildable		Greyfield Sites		Brownfield Sites		Vacant		Total Per Municipality	
	Number of Lots	Number of Acres	Number of Lots	Number of Acres	Number of Lots	Number of Acres	Number of Lots	Number of Acres	Number of Lots	Number of Acres	Number of Lots	Number of Acres	Number of Lots	Number of Acres
Township of Upper	25	901.2	46	1039.2	8	135	6	19.3	14	702.8	384	3063.3	483	5860.8

Source: Maser Consulting, Transfer of Development Rights Feasibility Study, 2009



## C.) NATURAL HAZARD EVENT HISTORY SPECIFIC TO THE TOWNSHIP

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Coastal Storm, Flooding	DR-124	March, 1962	\$3,000,000 (countywide)
Snowstorm	Not applicable	December, 1973	\$24,000 (countywide)
Flood	Not applicable	November, 1977	\$2,400,000 (countywide)
Flood	Not applicable	March, 1984	\$500,000 (countywide)
Tornado (F0)	Not applicable	May, 1989	\$2,500 (Township of Upper)
Coastal Storm	Not applicable	October, 1991	\$90,000,000 (statewide) \$1,700,000-\$4,000,000 (countywide)
Tidal Flood	Not applicable	November, 1991	\$167,000 (countywide)
Severe Coastal Storm	DR-936	January, 1992	\$16,000 (countywide)
Coastal Storm, High Tides, Heavy Rain, Flooding	DR-973	December, 1992	\$16,800,000 (countywide)
Severe Winter Storm	EM-3106	March-01-1993	\$2,600,000 (statewide)
Coastal Flood	Not applicable	March, 1994	\$167,000 (countywide)
Severe Winter Storm, Coastal Storm	DR-1088	January-01-1996	\$800,000 (countywide)
Coastal Flood, Coastal Erosion	Not applicable	January, 1996	\$3,600,000 (countywide)
Coastal Flood	Not applicable	January, 1998	\$3,800,000 (countywide)
Coastal Storm	DR-1206	February, 1998	\$3,600,000-\$4,200,000 (countywide)
Hurricane Floyd	EM-3148	September-01-1999	\$492,000 (countywide)
Snowstorm	EM-3181	February-01-2003	\$1,400,000 (countywide)
Strong Winds	Not applicable	March, 2003	\$5,000 (countywide)
Thunderstorm, Wind	Not applicable	October, 2003	\$32,000 (countywide)
Severe Winter Storm, Coastal Flooding	Not applicable	February, 2006	\$225,000 (countywide)
Thunderstorm, Wind	Not applicable	March, 2008	\$10,000 (multi-jurisdictional)
Coastal Storm	Not applicable	October, 2008	Damage in Strathmere
Severe Storm, Flooding (Tropical Storm Ida and Nor'Easter)	DR-1867	November, 2009	TBD

**Number of FEMA Identified Repetitive Flood Loss Properties:** 27

**Number of FEMA Identified Severe Repetitive Flood Loss Properties:** 6

Source: FEMA Region 2 as of December 2009



**D.) NATURAL HAZARD RISK/VULNERABILITY RISK RANKING**

Rank #	Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard <sup>a, c, d</sup>	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking <sup>b</sup>
4	Coastal Erosion	Not available	Frequent	18	Low
3	Coastal Storm	Min: \$385,915,547 Max: \$447,612,209	Frequent	36	Medium
1	Flood	\$228,099,000	Frequent	54	High
2	Severe Storm	\$89,361,209	Frequent	42	High
3	Severe Winter Storm	\$11,001,000	Frequent	36	Medium
5	Tsunami	Not available	Rare	12	Low
2	Wildfire	Not available	Frequent	42	High

- a. Building damage ratio estimates based on FEMA 386-2 (August 2001)
- b. High = Total hazard priority risk ranking score of 40 and above  
Medium = Total hazard priority risk ranking of 20-39  
Low = Total hazard risk ranking below 20
- c. The valuation of general building stock and loss estimates determined in Cape May County were based on the default general building stock database provided in HAZUS-MH MR4 (RSMMeans 2006).  
The coastal storm loss estimate is a combination of the wind and storm surge minimum and maximum damages for the 500-year event. Severe storm (structure only) and flood (structure and contents) hazard loss estimates are for the 500-year MRP event. For severe winter storm, the loss estimate is 1% of total general building stock value (structure only).
- d.

**E.) CAPABILITY ASSESSMENT**

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- The probability of occurrence for these events is weighted at “0” due to no exposure

## E.1) Legal and Regulatory Capability

Regulatory Tools (Codes, Ordinances., Plans)	Local Authority (Y or N)	Prohibitions (State or Federal) (Y or N)	Higher Jurisdictional Authority (Y or N)	State Mandated (Y or N)	Code Citation (Section, Paragraph, Page Number, date of adoption)
1) Building Code	Y	Y	Y	Y	Ordinance Section 10
2) Zoning Ordinance	Y	Y	Y	Y	Ordinance Section 20
3) Subdivision Ordinance	Y	Y	N	N	Ordinance Section 19
4) NFIP Flood Damage Prevention Ordinance	Y	Y	Y	N	Ordinance Section 18
5) Growth Management	Y	Y	N	Y	November 16, 2006
6) Floodplain Management / Basin Plan	N	Y	Y	Y	
7) Stormwater Management Plan/Ordinance	Y	Y	Y	Y	January 12, 2005
8) Comprehensive Plan / Master Plan/ General Plan	Y	N	N	Y	November 16, 2006
9) Capital Improvements Plan	N	N	N	N	
10) Site Plan Review Requirements	Y	N	Y	N	Ordinance Section 19
11) Open Space Plan	N	N	Y	N	
12) Shoreline Management or Protection Plan	N	Y	N	N	
13) Economic Development Plan	N	N	Y	Y	
14) Emergency Response Plan	Y	Y	Y	N	July 22, 2008
15) Post Disaster Recovery Plan	Y	N	N	N	
16) Post Disaster Recovery Ordinance	N	Y	Y	N	
17) Real Estate Disclosure req.	N	Y	Y	Y	
18) Resolution and Plan for an Engineered Beach – whole 1.3 miles of beach in Strathmere	Y	N	Y	Y	

## E.2) Administrative and Technical Capability

Staff/ Personnel Resources	Available (Y or N)	Department/ Agency/Position
1) Planner(s) or Engineer(s) with knowledge of land development and land management practices	Y	Municipal Engineer
2) Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Municipal Engineer/Construction Code Official
3) Planners or engineers with an understanding of natural hazards	Y	Municipal Engineer
4) NFIP Floodplain Administrator	Y	Edward Kenney, Construction Code Official
5) Surveyor(s)	N	
6) Personnel skilled or trained in "GIS" applications	Y	Municipal Engineer
7) Scientist familiar with natural hazards in the Township of Upper.	N	
8) Emergency Manager	Y	Director OEM
9) Grant Writer(s)	N	
10) Staff with expertise or training in benefit/cost analysis	N	

## E.3) Fiscal Capability

Financial Resources	Accessible or Eligible to use (Yes/No/Don't know)
1) Community development Block Grants (CDBG)	No
2) Capital Improvements Project Funding	Yes
3) Authority to Levy Taxes for specific purposes	Yes
4) User fees for water, sewer, gas or electric service	No
5) Impact Fees for homebuyers or developers of new development/homes	No
6) Incur debt through general obligation bonds	Yes
7) Incur debt through special tax bonds	Yes
8) Incur debt through private activity bonds	Don't Know
9) Withhold public expenditures in hazard-prone areas	Don't Know
10) Other	Don't Know

## E.4) Community Classifications

Program	Classification	Date Classified
Community Rating System (CRS)	NP	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	---	---
Public Protection	---	---
Storm Ready	NP	N/A
Firewise	NP	N/A

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

The classifications listed above relate to the community's effectiveness in providing services that may impact its vulnerability to the natural 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 one (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 <http://www.isomitigation.com/ppc/0000/ppc0001.html>
- The National Weather Service Storm Ready website at <http://www.weather.gov/stormready/howto.htm>
- The National Firewise Communities website at <http://firewise.org/>

## F.) PROPOSED HAZARD MITIGATION INITIATIVES

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
TU-1a	Where appropriate, support retrofitting of structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Identify facilities that are viable candidates for retrofitting based on cost-effectiveness versus relocation. Where retrofitting is determined to be a viable option, consider implementation of that action based on available funding.	Existing	Coastal Storm, Flood, Severe Storm	1, 2, 4, 6	1-1, 1-2, 1-9, 1-11, 2-4, 4-1, 6-2, 6-3	Borough (likely through NFIP Floodplain Administrator)	High	FEMA Mitigation Grant Programs and local budget (or property owner) for cost share	Long-term DOF
TU-1b	Where appropriate, support purchase, or relocation of structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Identify facilities that are viable candidates for relocation based on cost-effectiveness versus retrofitting. Where relocation is determined to be a viable option, consider implementation of that action based on available funding.	Existing	Coastal Storm, Flood, Severe Storm	1, 2, 4, 6	1-1, 1-2, 1-9, 1-11, 2-4, 4-1, 6-2, 6-3	Borough	High	FEMA Mitigation Grant Programs and local budget (or property owner) for cost share	Long-term DOF
TU-2 (CMC-2)	Consider participation in incentive-based program CRS.	New & Existing	Flood	1, 2, 4, 5, 6	1-1, 1-2, 1-3, 1-7, 1-9, 2-3, 2-4, 4-1, 4-2, 4-9, 5-	Township	Low - Medium	Local Budget	Short

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Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
					1, 5-2, 6-2, 6-3				
TU-3	Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Section 7.0	New & Existing	All Hazards	1, 3, 4, 6	1-7, 1-8, 3-1, 3-2, 3-3, 4-1, 4-4, 4-5, 4-7, 4-8, 4-11, 6-1, 6-2	Township (through mitigation planning point of contacts)	Low – High (for 5-year update)	Local Budget, possibly FEMA Mitigation Grant Funding for 5-year update	Ongoing
TU-4	Strive to maintain compliance with, and good-standing in the National Flood Insurance program.	New & Existing	Flood	1, 3, 4, 6	1-7, 1-8, 3-1, 3-2, 3-3, 4-1, 4-4, 4-5, 4-7, 4-8, 6-1, 6-2, 6-3	Municipality (likely through NFIP Floodplain Administrator)	Low - Medium	Local Budget	Ongoing
TU-5	Continue to develop, enhance, and implement existing emergency plans.	New & Existing	All Hazards	1 through 6	All	Municipal Emergency Manager with support from County OEM and NJ OEM	Low - Medium	Local Budget	Ongoing
TU-6	Create/enhance/ maintain mutual aid agreements with neighboring communities.	New & Existing	All Hazards	1, 2, 6	1-1, 1-2, 1-5, 1-7, 2-1, 2-2, 2-3, 6-2, 6-3	Township	Low - Medium	Local Budget	Ongoing
TU-7	Support County-wide initiatives identified in Section 9.1 of the County Annex.	New & Existing	All Hazards	1 through 6	All	Local departments (as applicable for specific initiative)	Low - High	Existing programs and grant funding where applicable	Ongoing – Long-term depending on initiative
TU-8	Continue to conduct beach replenishment to maintain minimum beach profile for storm protection (maintain their Engineered Beach)	Existing	Coastal Storms, Coastal Erosion, Flooding, Severe Storm, Tsunami	1, 3, 5	1-1, 3-4, 5-1, 5-2, 5-3, 5-4	Town, with support from NJDEP	High	NJDEP – 75% City – 25%	Ongoing
TU-9	Reconstruct Bayview Drive in Strathmere for drainage improvements	Existing	Coastal Storms, Coastal Flooding	1, 3, 4	1-1, 3-4, 4-2	Township	High	Local and NJDOT grants	Long-term
TU-10	Develop a local bulkhead ordinance as used in other Cape May communities	N/A	Coastal Storm, Severe Storm, Flood	1, 3, 4	1-3, 1-7, 1-10, 3-2, 4-9	Township	Low	Local	Short



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Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
TU-11	Conduct a study of bulkhead to determine substandard (lower than 7.5') or non-existent bulkheads	Existing	Coastal Storms, Coastal Flooding	1, 3, 4	1-1, 1-5, 1-6, 1-10, 3-4, 4-1	Township	Low-Medium	Local	Short
TU-12	Develop and implement projects to install and/or upgrade bulkheads, based on the results of the TU-11 study	Existing	Coastal Storms, Coastal Flooding	1, 4	1-1, 1-10, 3-4, 4-1	Township	High	HMA grants with local or property owner match	Long-term DOF
TU-13 (CMC-28, SIC-8)	Install permanent protection to CR-619, from the Whale Beach area in Sea Isle City to the Strathmere section of Upper Township, to replace the existing GeoTube installed in the late 1990s. The GeoTube is beyond its design life.	Existing	Coastal Storms, Coastal Erosion, Flooding, Severe Storms	1, 3, 4, 5, 6	1-1, 1-4, 3-3, 4-2, 4-7, 4-10, 5-4, 6-2	County and ACOE, with municipal support	High	Federal grants with local match	Longterm DOF
TU-14 (CMC-29, OC-13)	Upgrade existing revetment wall (needs to be extended to the south and existing sections upgraded) and provide additional road protection to CR-619 in Strathmere to Ocean City, and elevate sections of road as needed.	Existing	Coastal Storms, Coastal Erosion, Flooding, Severe storms	1, 3, 4	1-1, 1-4, 3-3, 4-2, 4-7, 4-10	County Engineering	High	Federal grants with local match	Longterm DOF
TU-15 (CMC-30)	Intersection of Roosevelt Boulevard (CR-623) and the Garden State Parkway (Upper Township) – Roosevelt Boulevard Elevate roadway and ramps, which will first require elevation of the Parkway bridge overpass.	Existing	Coastal Storms, Flooding, Severe Storms	1, 3, 4	1-1, 1-4, 3-3, 4-2, 4-10	NJTPA, County Engineering	High	HMA grants with local match	Longterm DOF
TU-16 (CMC-31)	Elevate Roosevelt Boulevard (CR-623) from the Parkway into Ocean City proper.	Existing	Coastal Storms, Flooding, Severe Storms	1, 3, 4	1-1, 1-4, 3-3, 4-2, 4-10	County Engineering	High	HMA grants with local match	Longterm DOF



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Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
TU-17 (CMC-33)	Elevate Tuckahoe Road (CR-636) from Butter Road to CR-610. A conceptual design for this project is available.	Existing	Coastal Storms, Flooding, Severe Storms	1, 3, 4	1-1, 1-4, 3-3, 4-2, 4-10	County Engineering with municipal support	High	HMA grants with local match	Longterm DOF
TU-18 (CMC-34)	Work with the State DOT to address vulnerabilities on SR-50 along Cedar Swamp Creek.	Existing	Coastal Storms, Flooding, Severe Storms	1, 3, 4, 6	1-1, 1-4, 3-3, 4-2, 4-10, 6-3	State DOT with County and municipal support	High	TBD	Longterm DOF
TU-19 (CMC-35)	Develop an engineering solution for severe flooding problems along CR-650 and Hope Corson Road (CR-671). County has design work on this project, except for drainage issues at western end of Route 50.	Existing	Coastal Storms, Flooding, Severe Storms	1, 3, 4, 6	1-1, 1-4, 3-3, 4-2, 4-10, 6-3	County Engineering with municipal support	\$1.5 MM (High)	HMA grants with local match	Short
TU-20	Address localized flooding on Evergreen Drive and Stagecoach Road. Part of the problem here is sand/silt infiltration into the drainage system exacerbated by the local sand plant.	Existing	Coastal Storms, Severe Storms, Flooding	1, 3, 4	1-1, 1-4, 3-3, 3-4, 4-2, 4-7	Township	Medium	Local	Short
TU-21 (CMC-41)	Identify proper locations for and install water draw (siphon) stations to increase fire-fighting capabilities.	N/A	Wildfire	1, 3, 4, 6	1-1, 1-11, 3-3, 4-6, 4-7, 4-8, 6-1, 6-3	County Fire and OEM with support from local fire and OEM	M-H	DHS grants; County and Local funding	Longterm
TU-22 (CMC-61, OC-31)	Install shore protection along Ocean Drive (CR619) at Corsons Inlet in Upper Township and Ocean City	Existing	Coastal Storms, Severe Storms, Coastal Erosion	1, 3, 4, 5	1-1, 3-4, 4-1, 4-6, 5-4	County Engineering with municipal support	High	HMA Grants, County and Local Funding	Short-term
TU-23	Construction of storm sewer system to alleviate flooding on Dennisville – Petersburg Road (CR610) from White Pine Lane to Old Tuckahoe Road in Upper Township	New & Existing	Flooding, Severe Storms	1, 3, 4, 6	1-1, 1-5, 3-4, 4-1, 4-6, 6-2	County Engineering with municipal support	Low	HMA Grants, County and Local Funding	In Progress, Short-term



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TU-24	Construction of additional storm sewer infiltration system to minimize flooding on Hope Corson Road (CR671) from Route NJ 50 to Stagecoach Road in Upper Township	New & Existing	Flooding, Severe Storms	1, 3, 4, 6	1-1, 1-5, 3-4, 4-1, 4-6, 6-2	County Engineering with municipal support	Low	HMA Grants, County and Local Funding	In Progress, Short-term
TU-25 (CMC-69)	Become a National Fire Protection Association (NFPA) "Firewise" community. Participation in the NFPA "Firewise" program shall be supported by countywide and regional resources including the Cape May County Fire Chiefs Association and the New Jersey State Forest Fire Service (Firewise Community Liaison) by providing information on the "Firewise" program, facilitating public outreach and awareness programs, and supporting community fire risk reduction activities as appropriate (see County Initiative CMC-69).	N/A	Wildfire	1, 2, 4, 6	1-1, 1-3, 1-7; 2 (all objectives); 4-1, 4-4, 4-5, 4-9; 6-2, 6-3	Local Fire Chiefs working with County Fire Coordinator	L-M	Existing Budgets	Short-term
TU-26	Through attendance at the regular meetings of the Cape May County Fire Chiefs Association, and in partnership with the New Jersey Division of Fire Safety and the New Jersey State Forest Fire Service, expand and enhance public awareness and education programs that support wildfire mitigation at the property owner level; and	N/A	Wildfire	1, 2, 4, 6	1-1, 1-3, 1-7; 2 (all objectives); 4-1, 4-4, 4-5, 4-9; 6-2, 6-3	Local Fire Chiefs	LM	Existing Budgets	Short-term



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	expand local wildfire preparedness and response capabilities through participation in seminars and training, and the implementation of recommendations and initiatives offered by these agencies, as resources permit.								

Note(s): CMC = Cape May County; Short term = 1 to 5 years; Long Term = 5 years or greater; OG = On-going program; DOF = Depending on funding; M = Million; TBD = To be determined.

\* Does this mitigation initiative reduce the effects of hazards on new and/or existing building and/or infrastructure?



## G.) ANALYSIS OF MITIGATION ACTIONS

This table summarizes the participant's mitigation actions by hazard of concern and the six mitigation types to illustrate that the Township has selected a comprehensive range of actions/projects.

Hazard of Concern	Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Coastal Erosion	TU-3, TU-5, TU-6, TU-7	TU-7, TU-13, TU-22	TU-3, TU-7	TU-7, TU-8, TU-13	TU-5, TU-7	TU-7, TU-13, TU-22
Coastal Storm	TU-3, TU-5, TU-6, TU-7, TU-10, TU-11, TU-18, TU-19	TU-1a and 1b, TU-7, TU-9, TU-12, TU-13, TU-14 TO 17, TU-20, TU-22	TU-3, TU-7	TU-7, TU-8, TU-13	TU-5, TU-7	TU-7, TU-9, TU-12 to TU-16, TU-22
Flood	TU-2, TU-3, TU-5, TU-6, TU-7, TU-10, TU-11, TU-18, TU-19	TU-1a and 1b, TU-2, TU-4, TU-7, TU-9, TU-12, TU-13, TU-14 TO 17, TU-20, TU-23, TU-24	TU-2, TU-3, TU-4, TU-7	TU-2, TU-4, TU-7, TU-8, TU-13	TU-5, TU-7	TU-7, TU-9, TU-12 to TU-16, TU-23, TU-24
Severe Storm	TU-3, TU-5, TU-6, TU-7, TU-10, TU-11, TU-18, TU-19	TU-1a and 1b, TU-7, TU-9, TU-12, TU-13, TU-14 TO 17, TU-20, TU-22 to TU-24	TU-3, TU-7	TU-7, TU-8, TU-13	TU-5, TU-7	TU-7, TU-9, TU-12 to TU-16, TU-22 to -24
Severe Winter Storm	TU-3, TU-5, TU-6, TU-7	TU-7	TU-3, TU-7	TU-7	TU-5, TU-7	TU-7
Tsunami	TU-3, TU-5, TU-6, TU-7	TU-7, TU-13	TU-3, TU-7	TU-7, TU-13	TU-5, TU-7	TU-7, TU-13
Wildfire	TU-3, TU-5, TU-6, TU-7, TU-25, TU-26	TU-7, TU-25, TU-26	TU-3, TU-7, TU-25, TU-26	TU-7, TU-25, TU-26	TU-5, TU-7, TU-21, TU-26	TU-7, TU-21

Notes:

- 1. Prevention:** Government, administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- 2. Property Protection:** 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.
- 3. Public Education and Awareness:** 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 school-age and adult education programs.
- 4. Natural Resource Protection:** 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.



5. **Emergency Services:** 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.
6. **Structural Projects:** 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.



## H.) PRIORITIZATION OF MITIGATION INITIATIVES

Initiative #	# of Objectives met	Benefits	Costs	Do Benefits equal or exceed Costs? (Yes or No)	Is project Grant eligible? (Yes or No)	Can Project be funded under existing programs/budgets? (Yes or No)	Priority (High, Med., Low)
TU-1a	8	H	H	Y	Y	N	M-H*
TU-1a	8	H	H	Y	Y	N	M-H*
TU-2	9	M	L	Y	N	Y	H
TU-3	All	M	M	Y	N (Yes for 5 year update)	N	M
TU-4	14	H	L	Y	N	Y	H
TU-5	13	M	L	Y	N	Y	M
TU-6	13	M	L	Y	N	Y	M
TU-7	All	M-H	L-M	Y	Dependant on specific initiative	Dependant on specific initiative	M-H (dependant)
TU-8	6	H	H	Y	Y	Y (local match only)	H
TU-9	3	H	H	Y	Y	Y (local match only)	M
TU-10	5	L	L	Y	Y	Y	H
TU-11	6	M-L	M-L	Y	Y	Y	H
TU-12	4	H	H	Y	Y	Y (local match only)	M
TU-13	8	H	H	Y	Y	Y (local match only)	M
TU-14	4	H	H	Y	Y	Y (local match only)	M
TU-15	5	H	H	Y	Y	Y (local match only)	M
TU-16	5	H	H	Y	Y	Y (local match only)	M
TU-17	5	H	H	Y	Y	Y (local match only)	M
TU-18	6	H	H	Y	Y	Y (local match only)	M-H
TU-19	6	H	M	Y	Y	Y (local match only)	M

TU-20	6	H	M	Y	Y	Y	H
TU-21	8	M	M-H	N	Y (DHS, not mitigation)	N	L-M
TU-22	5	H	H	Y	Y	N	H
TU-23	6	H	L	Y	Y	Y	H
TU-24	6	H	L	Y	Y	Y	H
<b>TU-25</b>	<b>14</b>	<b>M</b>	<b>L</b>	<b>Y</b>	<b>N</b>	<b>Y</b>	<b>H</b>
<b>TU-26</b>	<b>14</b>	<b>M</b>	<b>L</b>	<b>Y</b>	<b>N</b>	<b>Y</b>	<b>H</b>

Notes: H = High. L = Low. M = Medium. N = No. N/A = Not applicable. Y = Yes.

\* This initiative has a “Medium” priority based on the prioritization scheme used in this planning process (implementation dependent on grant funding), however it is recognized that addressing repetitive and severe repetitive loss properties is considered a high priority by FEMA and OEM (as expressed in the State HMP), and thus shall be considered a “High” priority for all participants in this planning process.

**Explanation of Priorities**

- **High Priority** - A project that meets multiple objectives (i.e., multiple hazards), benefits exceeds cost, has funding secured or is an on-going project and project meets eligibility requirements for the Hazard Mitigation Grant Program (HMGP) or Pre-Disaster Mitigation Grant Program (PDM) programs. High priority projects can be completed in the short term (1 to 5 years).
- **Medium Priority** - A project that meets goals and objectives, benefits exceeds costs, funding has not been secured but project is grant eligible under, HMGP, PDM or other grant programs. Project can be completed in the short term, once funding is completed. Medium priority projects will become high priority projects once funding is secured.
- **Low Priority** - Any project that will mitigate the risk of a hazard, benefits do not exceed the costs or are difficult to quantify, funding has not been secured and project is not eligible for HMGP or PDM grant funding, and time line for completion is considered long term (1 to 10 years). Low priority projects may be eligible other sources of grant funding from other programs. A low priority project could become a high priority project once funding is secured as long as it could be completed in the short term.

Prioritization of initiatives was based on above definitions: Yes

Prioritization of initiatives was based on parameters other than stated above: Not applicable.

**I.) FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY**

None at this time.

**J.) HAZARD AREA EXTENT AND LOCATION**

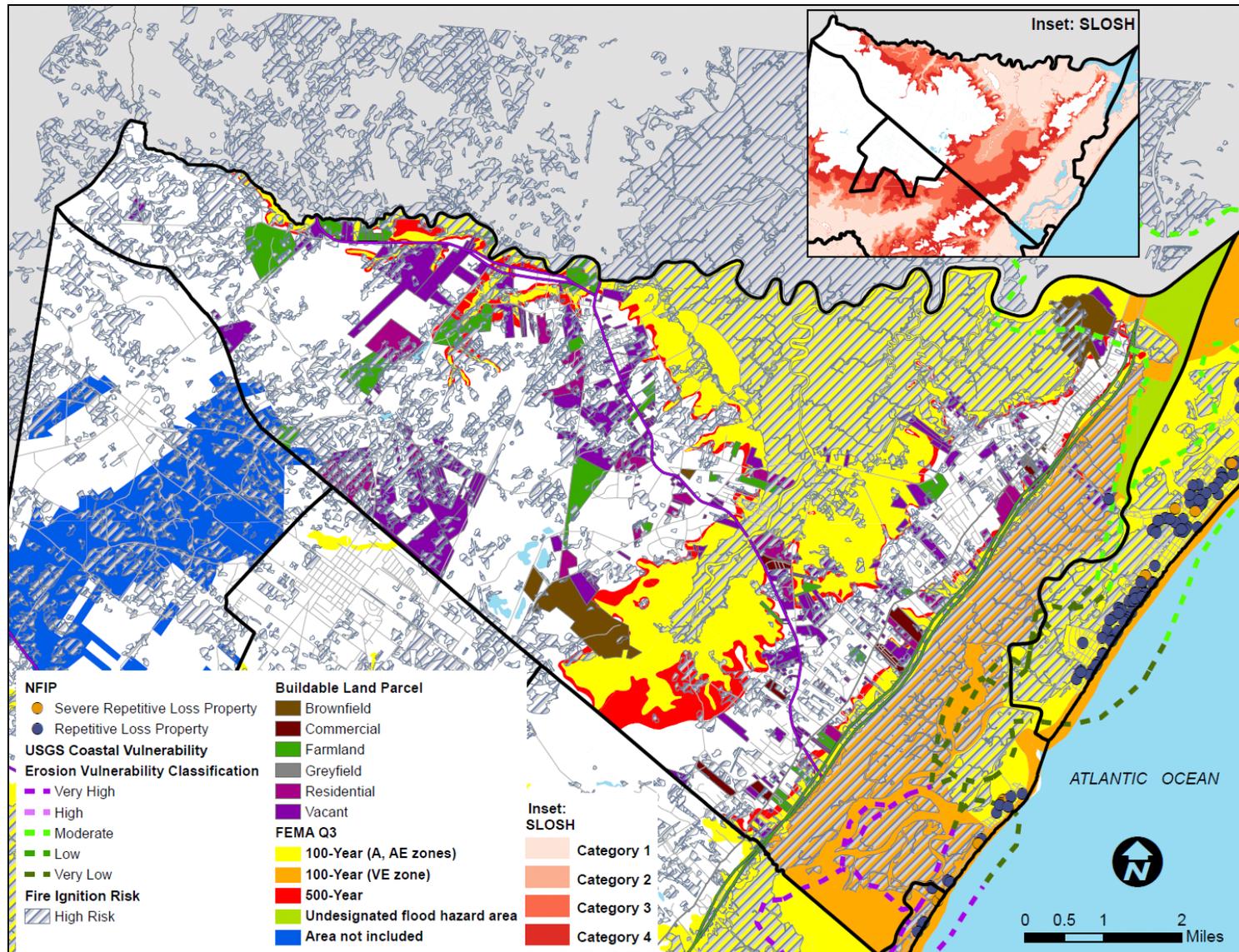
A hazard area extent and location map has been generated and is provided below for the Township of Upper to illustrate the probable areas impacted within the Township. This map is based on the best available data at the time of the preparation of this Plan, and is considered to be adequate for planning 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 Upper has significant exposure. The county maps are provided in the hazard profiles within Section 5.4, Volume I of this Plan.

**K.) ADDITIONAL COMMENTS**

No additional comments at this time.



Sources: USGS, 2001; FEMA Q3, Cape May County Planning Department

Notes: The entire municipality is vulnerable to the following hazards: coastal storm, severe storm and severe winter storm. Only the high risk wildfire areas are illustrated on this map; please refer to Section 5.4.6 for all wildfire hazard risk areas. At this time, there is no defined tsunami hazard area for Cape May County.