ATLANTIC COUNTY
MULTI-JURISDICTIONAL
NATURAL HAZARD MITIGATION PLAN

FINAL
SEPTEMBER 2010

Prepared by:

URS

Multi-Jurisdictional Natural Hazard Mitigation Plan Atlantic County, New Jersey

Prepared for

Atlantic County
Office of Emergency Preparedness
5033 English Creek Avenue
Egg Harbor Township, New Jersey 08234

URS
201 Willowbrook Boulevard, Third Floor
Wayne, New Jersey 07470-7005

Final Plan – September 2010

PLAN ADOPTION RESOLUTIONS

In accordance with Part 201.6 of the Disaster Mitigation Act of 2000 (DMA 2000), Atlantic County, New Jersey, has developed this Multi-Jurisdictional Hazard Mitigation Plan to identify natural hazards that threaten the County and ways to reduce future damages associated with these hazards. Following this page are the signed adoption resolutions of the County and all participating jurisdictions that have adopted this plan, authorizing municipal government staff to carry out the actions detailed herein.

Signed resolutions of adoption by all participating jurisdictions shall be inserted following this page after FEMA has reviewed and determined that the Draft plan is approvable. It is recommended that municipalities in Atlantic County consider using the Sample Adoption Resolution from the FEMA Region 2 "Hazard Mitigation Plan Development Tool Kit CD", as shown below. Failure of any participating jurisdiction to ultimately adopt the plan and provide their adoption resolution to FEMA will result in a determination from FEMA that such jurisdiction has not successfully met the requirements of DMA 2000 and that the community does not have a plan "in place".

SAMPLE
ADOPTION RESOLUTION

Note: This sample plan adoption resolution has been extracted from FEMA Region 2's "Hazard Mitigation Plan Development Tool Kit" CD (April 2009). It is recommended that municipalities in Atlantic County consider using this resolution when adopting the Final Plan.

(Name of Jurisdiction) City A

(Governing Body) City Council

(Address) 100 Main Street, City A

RESOLUTION

WHEREAS, City A, with the assistance from URS Corporation, has gathered information and prepared the Atlantic County, New Jersey, Multi-Jurisdictional Hazard Mitigation Plan ("the Plan"); and

WHEREAS, the Plan has been prepared in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, City A is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, City A has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by City Council that City A adopts the Atlantic County, New Jersey, Multi-Jurisdictional Hazard Mitigation Plan as this jurisdiction's Natural Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this (date) day of (Month), (year) at a meeting of the City Council.

_____
(Mayor)

_____
(Administrative Official)

EXECUTIVE SUMMARY

Across the United States and around the world, natural disasters occur each day, as they have for thousands of years. As the worldôs population and development have increased, so have the effects of these natural disasters. The time and money required to recover from these events often strain or exhaust local resources. The purpose of hazard mitigation planning is to identify policies, actions, and tools for implementation that will, over time, work to reduce risk and the potential for future losses. Hazard mitigation is best realized when community leaders, businesses, citizens, and other stakeholders join together an in effort to undertake a process of learning about hazards that can affect their area and use this knowledge to prioritize needs and develop a strategy for reducing damages.

Section 322, Mitigation Planning, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (ñthe Stafford Actò), enacted by Section 104 of the Disaster Mitigation Act of 2000 (ñDMA 2000ò), provides new and revitalized approaches to mitigation planning. Section 322 continues the requirement for a State mitigation plan as a condition of disaster assistance, and establishes a new requirement for local mitigation plans. In order to apply for Federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with DMA 2000 and its implementing regulations (44 CFR Part 201.6).

While Atlantic County and its municipalities have always sought ways to reduce their vulnerability to hazards, the passage of DMA 2000 helped County officials to recognize the benefits of pursuing a long-term, coordinated approach to hazard mitigation through hazard mitigation planning. The County has received grant funds from the Federal Emergency Management Agency (FEMA) for the purpose of developing this very hazard mitigation plan. Funding was received under the Pre-Disaster Mitigation Grant Program for development of a multi-jurisdictional hazard mitigation plan for the County and as many of its 23 municipalities that chose to participate. This **Atlantic County Multi-Jurisdictional Natural Hazard Mitigation Plan** represents the collective efforts of 24 participating jurisdictions, the general public, and other stakeholders. Natural disasters cannot be prevented from occurring. However, over the long-term, the continued implementations of this Plan will gradually, but steadily, lessen the impacts associated with hazard events.

The Atlantic County Multi-Jurisdictional Hazard Mitigation Plan has been developed by the Atlantic County Hazard Mitigation Planning Committee (the ñPlanning Committeeò), with support from outside consultants. The efforts of the Planning Committee were headed by the Atlantic County Office of Emergency Managementôs Hazard Mitigation Coordinator. The overall Planning Committee was divided into a Core Planning Group (CPG) and Jurisdictional Assessment Teams (JATs), with one JAT for each of the Countyôs participating jurisdictions. In addition there was a County Steering Committee which oversaw the process, headed by the Atlantic County Office of Emergency Preparedness (ACOEP).

The plan development process was initiated in earnest in the Summer of 2008 with a project initiation meeting between the consultants at URS and the ACOEP on July 7, 2008. A Kickoff Meeting of the full Core Planning Group was conducted on August 18, 2008. Thereafter, the Core Planning Group met on January 22, 2009; April 23, 2009; May 11, 2009; and July 17, 2009. Jurisdictional Assessment Teams met individually throughout the plan development process as they deemed necessary.

Community support is vital to the success of any hazard mitigation plan. The Planning Committee provided opportunities for participation and input of the public and other stakeholders throughout the plan development process, both prior to this Draft and before approval of the Final plan, providing citizens and other stakeholders with opportunities to take part in the decisions that will affect their future. On a mitigation planning section of the Atlantic County web site, the ACOEP posted information on the plan development process and where to go for additional information or comments beginning in November

2008; this web site has been and continues to be maintained and updated regularly. The County also conducted several other outreach actions including a press release issued in February 2009, and a survey that was posted on the ACOEP mitigation planning web site. They also spoke about the Mitigation Plan at a meeting of Local Emergency Planning Coordinators and CPG members on January 31, 2008. Jurisdictional Assessment Team members supplemented County efforts by reaching out to the public and other stakeholders within their respective jurisdictions to get the word out through various means and provide opportunities for feedback and participation. In addition, an open public meeting to present the Draft Plan was conducted on July 17, 2009.

The hazard mitigation planning process consisted of the following key steps:

- Researching a full range of natural hazards to identify which hazards could affect the County;
- Identifying the location and extent of hazard areas;
- Identifying assets located within these hazard areas;
- Characterizing existing and potential future assets at risk;
- Assessing vulnerabilities to the most prevalent hazards; and
- Formulation and prioritization of goals, objectives, and mitigation actions to reduce or avoid long-term vulnerabilities to the identified hazards.

Natural hazards that can affect Atlantic County that were studied in detail in the Plan are as follows:

- ***Atmospheric hazards***, including: extreme temperatures, extreme wind, hurricanes and tropical storms, lightning, norôeasters, tornadoes, and winter storms;
- ***Hydrologic hazards***, including: coastal erosion, dam failure, drought, flooding, storm surge, and wave action;
- ***Geologic hazards***, including: earthquakes; and
- ***Other hazards***, including: wildfires.

After evaluating these hazards and the assets within the County that are vulnerable to them, the Planning Committee developed a mitigation strategy to increase the disaster resistance of the County, along with procedures for monitoring, evaluating and updating the Plan to ensure that it remains a ñliving document.ò

This Draft Plan is currently under review by the Planning Committee, NJOEM, FEMA, and the public and other stakeholders. Later, comments will be incorporated, and the County and all participating jurisdictions will each formally adopt the Final Plan. The Final Plan will include copies of adoption resolutions following Page i.

If you have any questions or comments on the Multi-Jurisdictional Natural Hazard Mitigation Plan for Atlantic County, New Jersey, additional information can be obtained by contacting:

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Egg Harbor Township, NJ 08234
Phone: (609) 407 6742
E-Mail: Conover_edward@aclink.org

ACKNOWLEDGEMENTS

Throughout the plan development process, the Atlantic County Office of Emergency Preparedness (ACOEP) worked tirelessly to involve all of its 23 municipalities. These local jurisdictions were not only invited to participate but were truly guided through the process by ACOEP at every stage.

The following jurisdictions (Atlantic County and 19 of its municipalities) participated successfully in the development of this plan:

County of Atlantic

Absecon, City of	*Folsom, Borough of*	*Margate City, City of*
Atlantic City, City of	*Galloway, Township of*	*Mullica, Township of*
Brigantine, City of	*Hamilton, Township of*	*Northfield, City of*
Buena, Borough of	*Hammonton, Town of*	*Pleasantville, City of*
Corbin City, City of	*Linwood, City of*	*Ventnor City, City of*
Egg Harbor, Township of	*Longport, Borough of*	*Weymouth, Township of*
Estell Manor, City of		

The following three municipal jurisdictions participated in some capacity, but did not meet the final FEMA requirements related to evaluation and prioritization of mitigation projects, or development of a strategy to outline how such projects will be implemented.

Buena Vista, Township of	*Port Republic, City of*	*Somers Point, City of*

The City of Egg Harbor City did not participate in the planning process.

An invitation to participate will again be extended to the Township of Buena Vista, City of Port Republic, City of Somers Point, and the City of Egg Harbor City at the first plan update.

In addition, the records show that the following stakeholder entity participated through attending at least one planning group meeting or responding to at least one questionnaire.

The Richard Stockton College of New Jersey

URS Corporation (Wayne, NJ) acted as the plan development consultant providing hazard mitigation planning services.

SECTION 2 - IDENTIFICATION OF POTENTIAL HAZARDS

FEMA's current regulations and interim guidance require, at a minimum, an evaluation of a full range of natural hazards. An evaluation of "human-caused" hazards (i.e., technological hazards and/or terrorism) is encouraged, though not required, for plan approval under DMA 2000. Atlantic County has chosen to focus solely on natural hazards at this time. Human-caused hazards can be evaluated in future versions of the plan, as it is a "living document" which will be monitored, evaluated and updated regularly.

After consideration of a full range of natural hazards, Atlantic County has identified a number of hazards that are addressed in this Multi-Jurisdictional Hazard Mitigation Plan. These hazards were identified through an extensive process that utilized input from Planning Group members, research of past disaster declarations in the County, and review of the New Jersey State Hazard Mitigation Plan (2008). Readily available online information from reputable sources (such as Federal and state agencies) was also evaluated to supplement information from these key sources.

The following table (Table 2.1) presents the full range of natural hazards considered and provides a brief description of the hazard. Subsequently, Table 2.2 documents the evaluation process for the hazards listed in Table 2.1 to determine the hazards worthy of further consideration in the plan. For each hazard considered, Table 2.2 indicates whether or not the hazard was identified as a significant hazard to be addressed in the plan, how this determination was made (i.e. the sources of information that were consulted while researching each hazard) and why this determination was made. The table summarizes not only those hazards that *were* identified (and why) but also those that *were not* identified (and why not).

Some of these hazards are considered to be interrelated or cascading (e.g., hurricanes can cause wind damage and flooding), but for preliminary hazard identification purposes these individual hazards have been broken out separately. It should also be noted that some hazards, such as earthquakes or winter storms may impact a large area yet cause little damage, while other hazards, such as a tornado, may impact a small area yet cause extensive damage within that area.

Because this Hazard Mitigation Plan is a living document, hazard events not identified for inclusion at this time could be addressed during future evaluations and updates of the plan if deemed necessary by the Planning Group at that time.

Lastly, Table 2.3 provides a summary checklist of the hazard identification and evaluation process noting 15 of the 23 initially identified hazards are considered significant enough for further evaluation through Atlantic County's multi-jurisdictional hazard risk assessment (marked with a "☑").

Table 2.1
Descriptions of the Full Range of Initially Identified Hazards

Hazard	Description
ATMOSPHERIC	
Avalanche	A rapid fall or slide of a large mass of snow down a mountainside.
Extreme Temperatures	Extreme heat and extreme cold constitute different conditions in different parts of the country. Extreme cold can range from near freezing in the South to temperatures well below zero in the North. Similarly, extreme heat is typically recognized as the condition whereby temperatures hover ten degrees or more above the average high temperature for a region for an extended period.
Extreme Wind	Wind is air that is in constant motion relative to the surface of the earth. Extreme wind events can occur suddenly without warning. They can occur at any time of the day or night, in any part of the country. Extreme winds pose a threat to lives, property, and vital utilities primarily due to the effects of flying debris and can down trees and power lines. Extreme winds are most commonly the result of hurricanes, tropical storms, nor'easters, severe thunderstorms and tornadoes, but can also occur in their absence as mere "windstorms." One type of windstorm, the downburst, can cause damage equivalent to a strong tornado.
Hailstorm	Any storm that produces hailstones that fall to the ground; usually used when the amount or size of the hail is considered significant. Hail is formed when updrafts in thunderstorms carry raindrops in to parts of the atmosphere where the temperatures are below freezing.
Hurricane and Tropical Storm	Hurricanes and tropical storms are classified as cyclones and defined as any closed circulation developing around a low-pressure center in which the winds rotate counter-clockwise in the Northern Hemisphere (or clockwise in the Southern Hemisphere) and with a diameter averaging 10 to 30 miles across. When maximum sustained winds reach or exceed 39 miles per hour, the system is designated a tropical storm, given a name, and is closely monitored by the National Hurricane Center. When sustained winds reach or exceed 74 miles per hour the storm is deemed a hurricane. The primary damaging forces associated with these storms are high-level sustained winds, heavy precipitation and tornadoes. Coastal areas are also vulnerable to the additional forces of storm surge, wind-driven waves and tidal flooding which can be more destructive than cyclone wind. The majority of hurricanes and tropical storms form in the Atlantic Ocean, Caribbean Sea and Gulf of Mexico during the official Atlantic hurricane season, which extends from June through November.
Lightning	Lightning is a discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm, creating a "bolt" when the buildup of charges becomes strong enough. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Lightning rapidly heats the sky as it flashes, but the surrounding air cools following the bolt. This rapid heating and cooling of the surrounding air causes thunder. On average, 73 people are killed each year by lightning strikes in the United States.
Nor'easter	Similar to hurricanes, nor'easters are ocean storms capable of causing substantial damage to coastal areas in the Eastern United States due to their associated strong winds and heavy surf. Nor'easters are named for the winds that blow in from the northeast and drive the storm up the East Coast along the Gulf Stream, a band of warm water that lies off the Atlantic coast. They are caused by the interaction of the jet stream with horizontal temperature gradients and generally occur during the fall and winter months when moisture and cold air are plentiful. Nor'easters are known for dumping heavy amounts of rain and snow, producing hurricane-force winds, and creating high surf that causes severe beach erosion and coastal flooding.
Tornado	A tornado is a violently rotating column of air that has contact with the ground and is often visible as a funnel cloud. Its vortex rotates cyclonically with wind speeds ranging from as low as 40 mph to as high as 300 mph. Tornadoes are most often generated by thunderstorm activity when cool, dry air intersects and overrides a layer of warm, moist air forcing the warm air to rise rapidly. The destruction caused by tornadoes ranges from light to catastrophic depending on the intensity, size and duration of the storm.
Winter Storm	Winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Blizzards, the most dangerous of all winter storms, combine low temperatures, heavy snowfall, and winds of at least 35 miles per hour, reducing visibility to only a few yards. Ice storms occur when moisture falls and freezes immediately upon impact on trees, powerlines, communication towers, structures, roads and other hard surfaces. Winter storms and ice storms can down trees, cause widespread power outages, damage property, and cause fatalities and injuries to human life.

HYDROLOGIC	
Coastal Erosion	Landward displacement of a shoreline caused by the forces of waves and currents. Coastal erosion is measured as the rate of change in the position or horizontal displacement of a shoreline over a period of time. It is generally associated with episodic events such as hurricanes and tropical storms, nor'easters, storm surge and coastal flooding but may also be caused by human activities that alter sediment transport. Construction of shoreline protection structures can mitigate the hazard, but may also exacerbate it under some circumstances.
Dam Failure	Dam failure is the collapse, breach, or other failure of a dam structure resulting in downstream flooding. In the event of a dam failure, the energy of the water stored behind even a small dam is capable of causing loss of life and severe property damage if development exists downstream of the dam. Dam failure can result from natural events, human-induced events, or a combination of the two. The most common cause of dam failure is prolonged rainfall that produces flooding. Failures due to other natural events such as hurricanes, earthquakes or landslides are significant because there is generally little or no advance warning.
Drought	A prolonged period of less than normal precipitation such that the lack of water causes a serious hydrologic imbalance. Common effects of drought include crop failure, water supply shortages, and fish and wildlife mortality. High temperatures, high winds, and low humidity can worsen drought conditions and also make areas more susceptible to wildfire. Human demands and actions have the ability to hasten or mitigate drought-related impacts on local communities.
Flood	The accumulation of water within a water body which results in the overflow of excess water onto adjacent lands, usually floodplains. The floodplain is the land adjoining the channel of a river, stream ocean, lake or other watercourse or water body that is susceptible to flooding. Most floods fall into the following three categories: riverine flooding, coastal flooding, or shallow flooding (where shallow flooding refers to sheet flow, ponding and urban drainage).
Ice Jams	A formation of ice over a body of water that limits the flow of the water due to freezing. Ice jam flooding occurs when warm temperatures and heavy rain cause the snow to melt rapidly, causing frozen rivers or lakes to overflow. As the water lifts, the ice that's formed on top of the body of water breaks into small pieces of varying sizes. These pieces or large chunks of ice tend to float downstream and often pile up near narrow passages or near obstructions, such as bridges and dams. This accumulation can impact the integrity of the structures and also cause upstream flooding as water backs up behind the obstruction.
Storm Surge	A storm surge is a large dome of water often 50 to 100 miles wide and rising anywhere from four to five feet in a Category 1 hurricane up to more than 30 feet in a Category 5 storm. Storm surge heights and associated waves are also dependent upon the shape of the offshore continental shelf (narrow or wide) and the depth of the ocean bottom (bathymetry). A narrow shelf, or one that drops steeply from the shoreline and subsequently produces deep water close to the shoreline, tends to produce a lower surge but higher and more powerful storm waves. Storm surge arrives ahead of a storm's actual landfall and the more intense the hurricane is, the sooner the surge arrives. Storm surge can be devastating to coastal regions, causing severe beach erosion and property damage along the immediate coast. Further, water rise caused by storm surge can be very rapid, posing a serious threat to those who have not yet evacuated flood-prone areas.
Wave Action	The characteristics and effects of waves that move inland from an ocean, bay, or other large body of water. Large, fast moving waves can cause extreme erosion and scour and their impact on buildings can cause severe damage. During hurricanes and other high-wind events, storm surge and wind increase the destructiveness of waves and cause them to reach higher elevations and penetrate further inland.
GEOLOGIC	
Earthquake	A sudden, rapid shaking of the Earth caused by the breaking and shifting of rock beneath the surface. This movement forces the gradual building and accumulation of energy. Eventually, strain becomes so great that the energy is abruptly released, causing the shaking at the earth's surface which we know as an earthquake. Roughly 90 percent of all earthquakes occur at the boundaries where plates meet, although it is possible for earthquakes to occur entirely within plates. Earthquakes can affect hundreds of thousands of square miles; cause damage to property measured in the tens of billions of dollars; result in loss of life and injury to hundreds of thousands of persons; and disrupt the social and economic functioning of the affected area.
Expansive Soils	Soils that will exhibit some degree of volume change with variations in moisture conditions. The most important properties affecting degree of volume change in a soil are clay mineralogy and the aqueous environment. Expansive soils will exhibit expansion caused by the intake of water and, conversely, will exhibit contraction when moisture is removed by drying. Generally speaking, they often appear sticky when wet, and are characterized by surface cracks when dry. Expansive

	soils become a problem when structures are built upon them without taking proper design precautions into account with regard to soil type. Cracking in walls and floors can be minor, or can be severe enough for the home to be structurally unsafe.
Landslide	The movement of a mass of rock, debris, or earth down a slope when the force of gravity pulling down the slope exceeds the strength of the earth materials that comprise to hold it in place. Slopes greater than 10 degrees are more likely to slide, as are slopes where the height from the top of the slope to its toe is greater than 40 feet. Slopes are also more likely to fail if vegetative cover is low and/or soil water content is high.
Land Subsidence	The gradual settling or sudden sinking of the Earth's surface due to the subsurface movement of earth materials. Causes of land subsidence include groundwater pumpage, aquifer system compaction, drainage of organic soils, underground mining, hydrocompaction, natural compaction, sinkholes, and thawing permafrost.
Tsunami	A series of waves generated by an undersea disturbance such as an earthquake. The speed of a tsunami traveling away from its source can range from up to 500 miles per hour in deep water to approximately 20 to 30 miles per hour in shallower areas near coastlines. Tsunamis differ from regular ocean waves in that their currents travel from the water surface all the way down to the sea floor. Wave amplitudes in deep water are typically less than one meter; they are often barely detectable to the human eye. However, as they approach shore, they slow in shallower water, basically causing the waves from behind to effectively "pile up", and wave heights to increase dramatically. As opposed to typical waves which crash at the shoreline, tsunamis bring with them a continuously flowing 'wall of water' with the potential to cause devastating damage in coastal areas located immediately along the shore.
Volcano	A mountain that opens downward to a reservoir of molten rock below the surface of the earth. While most mountains are created by forces pushing up the earth from below, volcanoes are different in that they are built up over time by an accumulation of their own eruptive products: lava, ash flows, and airborne ash and dust. Volcanoes erupt when pressure from gases and the molten rock beneath becomes strong enough to cause an explosion.
OTHER	
Wildfire	An uncontrolled fire burning in an area of vegetative fuels such as grasslands, brush, or woodlands. Heavier fuels with high continuity, steep slopes, high temperatures, low humidity, low rainfall, and high winds all work to increase risk for people and property located within wildfire hazard areas or along the urban/wildland interface. Wildfires are part of the natural management of forest ecosystems, but most are caused by human factors. Over 80 percent of forest fires are started by negligent human behavior such as smoking in wooded areas or improperly extinguishing campfires. The second most common cause for wildfire is lightning.

Table 2.2
Documentation of the Hazard Evaluation Process

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?
ATMOSPHERIC HAZARDS			
Avalanche	NO	• Review of FEMA's Multi-Hazard Identification and Risk Assessment (MHIRA) • Review of US Forest Service National Avalanche Center web site • Input from planning group	• The topography and climate of southern New Jersey including Atlantic County do not support conditions required for the occurrence of avalanches.
Extreme Temperatures	**YES**	• Review of New Jersey State Hazard Mitigation Plan 2008 (NJSHMP) • Review of FEMA MHIRA • Data from National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center storm events database (NCDC) • Input from planning group	• The NJSHMP gives extreme temperature events a low qualitative ranking among the statewide hazards of concern, since impacts are considered limited, despite a relatively high annual probability. • NJSHMP discusses extreme cold events in the hazard profile section on winter storms, but devotes a separate section to extreme heat events, which reports that such events area not unusual, particularly in the southern portion of the state. Extreme heat and overexposure to summer temperatures in NJ result in approximately five deaths annually and 25 – 170 hospitalizations every year. • MHIRA places Atlantic County in an area with a Summer Heat Index of 115 – 120^{o}C: i.e. there is a 5% chance that temperatures in this range will be equaled or exceeded in any given year. • NCDC reports 83 extreme temperature events for Atlantic County between July 1994 and September 2007. Of these 44 featured extreme heat and 11 featured extreme cold. The remainder were unseasonal high or low temperature events which, while unusual, are not generally associated with specific impacts. The NCDC attributes a total of 48 deaths to the recorded extreme temperature events affecting Atlantic County: 43 attributed to extreme heat, 5 to extreme cold.
Extreme Wind	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • NOAA NCDC storm events database • Review of American Society of Civil Engineers (ASCE) Standard 7-02 (Minimum Design Loads for Buildings and Other Structures) • Input from planning group	• Atlantic County is located in a region that is highly susceptible to numerous types of extreme wind events including severe thunderstorms, hurricanes and tropical storms, nor'easters, and severe winter storms. MHIRA indicates that extreme wind speeds of up to 160mph are possible. • NJSHMP reports that high straight-line winds related to thunderstorms affect nearly all areas of the state equally. Atlantic County lies in an area which experiences and average of 33 thunderstorm days per year.

Table 2.2
Documentation of the Hazard Evaluation Process

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?
(Extreme Wind, continued…)			• NCDC reports a total of 75 high wind events (wind speed at least 50 knots/58mph) affecting Atlantic County since 1950, with 1 death, 18 injuries, and almost $10 million in damage attributed to these events, including some damage outside in areas outside Atlantic County. NCDC attributes a further 2 deaths, 10 injuries and $6 million in damage to an additional 118 wind events affecting Atlantic County for which the wind speed was less than 50 knots or not recorded. • The 3-second wind gust for building design purposes in Atlantic County as per ASCE 7-02 is 110mph in the western half of the county, and 120mph in the eastern half of the county.
Hailstorm	NO	• Review of NJSHMP 2008 • Review of FEMA MHIRA • NOAA NCDC storm events database and National Severe Storms Laboratory (NSSL) web site • Input from planning group	• The NJSHMP mentions hail as a hazard but one with a very low qualitative ranking among the identified statewide hazards of concern. Hailstorms are considered to have a high annual probability but limited impact in severity and area. • According to NSSL data Atlantic County lies in an area that can expect hailstorm events on 1-2 days per year, with coastal areas likely to experience more hailstorms than inland areas. • NCDC reports a total of 25 hailstorm events (hailstones at least 0.75" in diameter) affecting Atlantic County since 1962, including two events which featured "damaging hail" (hailstones of diameter 2" or more). No recorded deaths, injuries, or dollar losses are attributed to any of these events. • There are minimal hazard mitigation techniques available to reduce hailstorm impacts outside of general emergency preparedness procedures and severe weather warning systems already in place.
Hurricane and Tropical Storm	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • NOAA NCDC storm events database • Review of NOAA National Hurricane Center (NHC) website and analysis of published historical hurricane and tropical storm tracks • Input from planning group	• NJSHMP gives hurricanes a high qualitative ranking among the identified statewide hazards of concern – second only to flooding. The Plan shows coastal areas of the state, including those in Atlantic County, to be the most affected by hurricane forces, and subject to the highest associated impacts of storm surge, wind, wave action, and rain. • FEMA mapping shows Atlantic County to be located in a hurricane-susceptible zone where winds of up to 160mph are possible.

Table 2.2
Documentation of the Hazard Evaluation Process

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?
(Hurricane and Tropical Storm, continued…)			• According to the NHC the estimated return period for a Category 1 hurricane in the Atlantic County area is 22 years, rising to 480 years for a Category 5 hurricane. • Records from the NOAA National Hurricane Center show a total of 64 storm tracks passing within 65 nautical miles (75 miles) of Atlantic County since 1856, including 12 for which the center (or eye) has passed directly over parts of the county. Of the 64 total, 3 were Category 1 hurricanes, 8 were Category 2, and 28 were tropical storms. The remainder were tropical depressions and extratropical storms. • Other sources such as the NCDC database indicate that hurricanes passing significantly further than 75 miles from New Jersey have been responsible for damage, flooding and erosion in Atlantic County.
Lightning	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • NOAA NCDC storm events database and National Severe Storms Laboratory web site • Input from planning group	• The NJSHMP mentions lightning only as a product of thunderstorms and a potential cause of wildfires. The plan does not include a separate hazard profile section for lightning. • According to NOAA, New Jersey did not rank among the top 25 US States for the most fatalities, injuries, or damage reports due to lightning strikes in the period 1959 through 1995. • According to NOAA and FEMA data, Atlantic County lies in an area that experiences a very low annual lightning flash density: generally less than one lightning flash per square kilometer per year. • NCDC reports 14 significant lightning strike events in Atlantic County since 1994, to which 3 injuries and $1.06 million in property damages were attributed.
Nor'easter	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • Input from planning group	• The NJSHMP gives nor'easters a high qualitative ranking among the identified statewide hazards of concern, behind only flooding and hurricanes. The plan considers that all areas of New Jersey are equally likely to experience nor'easters, but that coastal regions are most vulnerable to their sometimes devastating impacts, including high wind, flooding, erosion, wave damage, and heavy snow. Under some circumstances the effects (flooding, erosion) of nor'easters in coastal areas may be more severe than those of some hurricanes because the storm surge can be of longer duration.

Table 2.2
Documentation of the Hazard Evaluation Process

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?
Tornado	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • NOAA NCDC storm events database and National Severe Storms Laboratory web site • Input from planning group	• The NJSHMP gives tornadoes a medium qualitative ranking among the identified statewide hazards of concern. The plan records a total of 144 tornadoes in the state of New Jersey since 1951, and plots the location of six that have occurred in Atlantic County. The plan considers the tornado season in NJ to be March through August, but acknowledges that they can occur at any time of year. • NCDC reports seven tornado events affecting Atlantic County since 1970. Of these, three were classed F2 on the Fujita Tornado Scale (considerable damage), one was classed F1 (moderate damage) and the remainder were classed F0 (light damage). A total of three injuries and just over $1million in property damage was attributed to these events. • According to NSSL data, Atlantic County is located in an area which is likely to experience approximately one tornado in any given year.
Winter Storm	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • NOAA NCDC storm events database • Input from planning group	• The NJSHMP gives winter storms a medium to high qualitative ranking among the identified statewide hazards of concern. The plan reports that winter storms affect all areas of the state equally and are responsible for "many" deaths each year. However, the average annual snowfall for Atlantic County is shown as 15-20 inches per year, significantly less than the northern third of the state, where average annual snowfalls reach upwards of 35 inches per year. While the plan highlights the upland areas in the north of the state as particularly susceptible to extremely low temperatures, it also reports that very low temperatures are also not unusual in the Pine Barrens, which partially cover significant areas of Atlantic County. • According to FEMA/NCDC data, Atlantic County is located in an area in which there is a 5% chance that snowfall depth of 50-75" will be equaled or exceeded in any given year. This range is the third lowest of seven snowfall ranges mapped by NCDC in the conterminous United States. • NCDC mapping also shows Atlantic County to be located in an area which experiences less than eight hours of freezing rain annually.

Table 2.2
Documentation of the Hazard Evaluation Process

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?
(Winter Storm, continued….)			• NCDC reports 82 significant snow and ice-related events affecting Atlantic County since 1995, to which two deaths, two injuries, and $30million in property damages have been attributed (including some in areas outside Atlantic County). Of these 82 events, 17 were specifically identified as "Heavy Snow" events. A further three were specifically identified as "Ice Storm" or "Freezing Rain" events. Heavy snow and freezing rain were also present in many of the other events simply identified as "Winter Storm" or "Winter Weather".
HYDROLOGIC HAZARDS			
Coastal Erosion	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • New Jersey Department of Environmental Protection (NJDEP) Coastal Management Program website • Richard Stockton College of New Jersey, Coastal Research Center: New Jersey Beach Profile Network (NJBPN) website • Input from planning group	• Despite acknowledging that localized coastal erosion has a relatively high annual probability, the NJSHMP gives coastal erosion the lowest qualitative ranking among the identified statewide hazards of concern. • Mapping presented in MHIRA places Atlantic County in an area where the overall shoreline is accreting (rather than eroding) by an average of one meter (3.3 feet) per year. Displacements of +/- 1 meter per year are considered stable and represent only a moderate risk. • Inspection of NJDEP mapped shorelines from 1836 to 1977 show that apart from the areas in and around tidal inlets, the Atlantic County shoreline is historically quite stable. • The 2006 NJBPN report for Atlantic County indicates that since 1986 most of the ocean shoreline in the county has experienced alternating periods of accretion and erosion, rather than a constant long-term movement in one direction or the other, even when accounting for periods of beach renourishment in certain areas. • Shoreline areas of Atlantic County remain vulnerable to occasional severe coastal erosion from periodic storm events such as hurricanes, tropical storms, and nor'easters. • Shore protection projects are routinely initiated and funded in the county through NJDEP and the U.S. Army Corps of Engineers. These projects in addition to many other elements of NJDEP's Coastal Management Program serve to reduce damages to public and private property caused by coastal erosion.

Table 2.2
Documentation of the Hazard Evaluation Process

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?
Dam Failure	**YES**	• Review of NJSHMP 2008 • U.S. Army Corps of Engineers (USACE) National Inventory of Dams Database • Stanford University National Performance of Dams Program (NPDP) website and database • NJDEP Dam Safety Program website • Input from planning group	• The NJSHMP outlines the various roles and responsibilities for dam safety in the state but does not discuss dam failures in the hazard profiles section of the plan or rank it among the statewide hazards of concern. • The USACE database records 25 dams in Atlantic County, of which one is designated a "High Hazard" dam, and 11 are "Significant Hazard". • The NPDP database records 32 dams in the county, including one "High Hazard" dam and 10 "Significant Hazard" dams. • GIS data supplied by the county records 37 dams, some of which may no longer be in operation.
Drought	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • NOAA NCDC database • NJDEP Drought Information website • Input from planning group	• The NJSHMP discusses drought in the hazard profile section of the plan, and notes that droughts of moderate severity occur at least once every few years in the state. Drought is given a medium qualitative ranking among the statewide hazards of concern. • According to the Palmer Drought Severity Index (PDSI) Map for the USA, Atlantic County is located in an area that experienced drought conditions for less than 5% (the lowest PDSI rating) of the period 1895 to 1995. • The NCDC database records 33 drought related events affecting Atlantic County since 1995, including one in 1999 to which $80 million in crop damage was attributed across the whole state. • For the purposes of this plan the primary impacts of drought fall on agriculture, which is economically significant in the northern and western portions of Atlantic County.
Flood	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • NOAA NCDC database • Review of FEMA Q3 flood map data • Review of FEMA National Flood Insurance Program (NFIP) Community Status Book • Input from planning group	• The NJSHMP discusses flooding in detail in the hazard profile section of the plan, and gives it the highest qualitative ranking among the statewide hazards of concern, since it has widespread impacts and a long history of occurrences in the state. • The NJSHMP reports that there are on average approximately $1.8 million worth of NFIP claims made each year in Atlantic County, the 7th highest in the state (out of 22). • The NCDC database records 62 flood events in Atlantic County since 1993, with almost 80% of them categorized at least in part as coastal flooding incidents. These events

Table 2.2
Documentation of the Hazard Evaluation Process

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?
			have caused almost $88 million in property damage, including damage in areas outside Atlantic County. • FEMA Q3 flood mapping shows that a Special Flood Hazard Area (SFHA: areas with a 1% probability of flooding in any given year) is present to some degree in every municipality in the County, with a few municipalities located entirely within the SFHA: 32% of the county land area and nearly $9 billion worth of property are located in SFHAs. • All Atlantic County municipalities are currently active in the NFIP, and six participate in the Community Rating System.
Ice Jams	NO	• Review of NJSHMP 2008 • Review of FEMA MHIRA • USACE Cold Regions Research and Engineering Laboratory (CRREL) Database • Input from planning group	• The NJSHMP mentions ice jams as a potential cause of flooding, but does not discuss them in any detail in the hazard profiles section. • CRREL records 98 ice jams occurring in New Jersey since 1867, ranking the state 25th in the USA for recorded ice jams. • The CRREL database lists one ice jam event occurring in Atlantic County since 1904. No specific impacts are recorded for this event, which occurred in Folsom in 1959.
Storm Surge	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • Review of USACE Sea, Lake and Overland Surges from Hurricanes (SLOSH) model • NOAA NCDC database • Input from planning group	• The NJSHMP mentions storm surge as a significant cause of flooding in the hazard profile section of the plan, particularly in association with hurricanes. • Atlantic County has more than 20 miles of shoreline directly fronting the Atlantic Ocean, and many more miles of shoreline in areas between the barrier islands and the mainland. The topography of the county is also generally flat and low-lying. • MHIRA places Atlantic County in an area where storm surge elevations of 5-7 feet (which could occur during a category 1 hurricane) have an estimated recurrence interval of 10 years. • The SLOSH model results show that even the storm surge from a category 1 hurricane associated with worst-case combinations of direction, forward speed, landfall point and tides would be likely to cause damage to property in all Atlantic County municipalities except for four located along the western border of the county.

Table 2.2
Documentation of the Hazard Evaluation Process

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?
Wave Action	**YES**	• Review of NJSHMP 2008 • NOAA NCDC database • Review of FEMA Q3 flood map data • Input from planning group	• The NJSHMP mentions waves as a component of hurricanes and similar storms, but does not discuss wave action or damage in detail in the hazard profiles section of the plan. • The NCDC database records 62 coastal flooding/heavy ocean surf events affecting Atlantic County since 1995. These events are estimated to have caused 3 deaths, six injuries, and almost $22 million in property damage (including damage in areas outside Atlantic County). • FEMA Q3 mapping shows that wave heights of three feet or more are expected for the base flood along the shoreline of all coastal municipalities in Atlantic County, and also in several backbay areas.
GEOLOGIC HAZARDS			
Earthquake	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • US Geological Service (USGS) Earthquake Hazards Program website • National Atlas earthquake risk mapping • New Jersey Geological (NJGS) Survey website • Input from planning group	• The NJSHMP discusses earthquakes in the hazard profile section of the plan, and gives them a medium qualitative ranking among the statewide hazards of concern. The plan highlights four historic earthquakes that caused significant damage in the state. • NJGS records 153 earthquakes epicentered in New Jersey, but only one in Atlantic County: an earthquake epicentered near Pleasantville in 1910 for which no magnitude was recorded. • USGS and National Atlas mapping place Atlantic County in an area with a 10% chance that a seismic event of Peak Ground Acceleration (PGA) 2-3% of gravity could be exceeded in 50 years. • FEMA currently recommends that earthquakes be comprehensively evaluated for mitigation purposes for all areas where events of PGA 3%g or more have a 10% chance of exceedance.
Expansive Soils	NO	• Review of NJSHMP 2008 • Review of FEMA MHIRA • New Jersey Geological (NJGS) Survey website • US Department of Transport, Federal Highway Administration Report FHWA-RD-76-82 • US Department of Agriculture, Natural Resources Conservation Service website	• The NJSHMP does not specifically mention expansive soils as a hazard of concern. • MHIRA places Atlantic County in an area with little or no potential for swelling of clay soils. • Report FHWA-76-82 places Atlantic County in an area designated Nonexpansive: where high volume change soils do not occur or are extremely limited. • New Jersey has adopted the International Building Code of 2000, of which Chapter 18 includes mitigation measures for building on

Table 2.2
Documentation of the Hazard Evaluation Process

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?
(Expansive Soils, continued…)		• Input from planning group	expansive soils through design, removal, or stabilization.
Landslide	NO	• Review of NJSHMP 2008 • Review of FEMA MHIRA • Review of USGS Landslide Incidence and Susceptibility Mapping • Review of New Jersey Geological Survey mapping • Input from planning group	• The NJSHMP discusses landslides in the hazard profiles section of the plan, and collectively gives geological hazards a low qualitative ranking among the statewide hazards of concern. The plan reports that landslides are not particularly common in New Jersey, and tend to occur in the northern portion of the state. The plan has no record of any significant landslides in Atlantic County. • MHIRA places Atlantic County in an area of low potential for landslides and debris flows. • USGS mapping shows Atlantic County in an area of low incidence and low susceptibility to landslides. • The general topography of Atlantic County does not feature hilly terrain to any significant degree – the highest natural elevation in the county is approximately 150 feet above sea level.
Land Subsidence	NO	• Review of NJSHMP 2008 • Review of FEMA MHIRA • Review of New Jersey Geological Survey mapping • US Geological Survey Office of Ground Water • Input of planning group	• The NJSHMP discusses land subsidence in the hazard profiles section of the plan, and collectively gives geological hazards a low qualitative ranking among the statewide hazards of concern. Recorded sinkholes in New Jersey have been primarily located in the northern and northeastern part of the state, and there is essentially no history of underground mining in Atlantic County. • MHIRA mapping shows New Jersey as having a historical record of very little or zero cumulative damages from subsidence caused by mining, sinkholes. • NJGS mapping does not indicate the presence in Atlantic County of any rock types which have the potential for the formation of sinkholes. • The USGS has identified the City of Atlantic City as a location where land subsidence has been attributed to the compaction of aquifer systems following groundwater extraction. However, the observed rates of subsidence are very small (0.035 to 0.15 inches per year) and exhibit no wild variations across the studied area. Also, USGS records no significant engineering or structural issues due to subsidence in the Atlantic Coastal Plain (which includes Atlantic County).

Table 2.2
Documentation of the Hazard Evaluation Process

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?
(Land Subsidence, continued…)			Therefore, while this phenomenon is expected to continue, its magnitude is sufficiently small for the likelihood of any future damages to be considered extremely low.
Tsunami	NO	• Review of NJSHMP 2008 • Review of FEMA MHIRA • Review of FEMA "How-to" mitigation planning guidance volume 2 (FEMA publication 386-2) • Input from planning group	• The NJSHMP briefly discusses tsunami events in the plan section profiling flood hazards. The plan concludes that while the mid-Atlantic region has been subject to minor tsunami action in the last 250 years, the probability of a large tsunami impacting the coast of New Jersey is very small, due to the position of the state on the trailing edge of the North Atlantic Plate. • FEMA 386-2 indicates that locations on the Atlantic coast to the north of Virginia have a relatively low tsunami risk (compared to areas on the Pacific coast) and do not currently need to include tsunamis in the detailed risk assessment.
Volcano	NO	• Review of USGS Volcano Hazards Website • Review of FEMA MHIRA • Input from planning group	• There are no known volcanoes located within approximately 2,000 miles of Atlantic County
OTHER HAZARDS			
Wildfire	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • Review of New Jersey Forest Fire Service (NJFFS) website • Input from planning group	• The NJSHMP profiles wildfires and gives them a medium to low qualitative ranking among the statewide hazards of concern. • The New Jersey Pine Barrens area, which lies partially within Atlantic County, is widely recognized as highly prone to forest fires, and the whole ecosystem is in some ways dependent on fire for its continued existence. Within these areas are a large number of homes and small communities, which were developed before the current regulations restricting development within the Pine Barrens. • NJFFS reports that there were 2,713 wildfire incidents in Atlantic County from 1993 to 2006, with a peak of 251 incidents in 2006. NJFFS also reports 4,148 acres burned in the same period, with 2,150 acres burned in 1997 alone. Only one other county in the state had more incidents per year, and two had more acres burned per year. NJFFS mapping shows that there are significant areas in Atlantic County considered by NJFFS to be High and Extreme hazard areas for fire risk.

Table 2.3
Summary Results of the Hazard Identification and Evaluation Process

ATMOSPHERIC

- ☐ Avalanche
- ☑ Extreme Temperatures
- ☑ Extreme Wind
- ☐ Hailstorm
- ☑ Hurricane and Tropical Storm
- ☑ Lightning
- ☑ Nor'easter
- ☑ Tornado
- ☑ Winter Storm

HYDROLOGIC

- ☑ Coastal Erosion
- ☑ Dam Failure
- ☑ Drought
- ☑ Flood
- ☐ Ice Jams
- ☑ Storm Surge
- ☑ Wave Action

GEOLOGIC

- ☑ Earthquakes
- ☐ Expansive Soils
- ☐ Landslide
- ☐ Land Subsidence
- ☐ Tsunami
- ☐ Volcano

OTHER

- ☑ Wildfire

☑ = Hazard considered significant enough for further evaluation through the Atlantic County multi-jurisdictional hazard risk assessment.

SECTION 3a- RISK ASSESSMENT: HAZARD PROFILES

Overview

Detailed profiles of hazards identified in the previous section as worthy of further evaluation in the overall risk assessment are provided in this section. Each hazard profile includes a description of the hazard and its causes and impacts, the location and extent of areas subject to the hazard, known historical occurrences, and the probability of future occurrences. The profiles also include specific information noted by members of the planning committee and other stakeholders, including unique observations or relevant anecdotal information regarding individual historical hazard occurrences and individual jurisdictions.

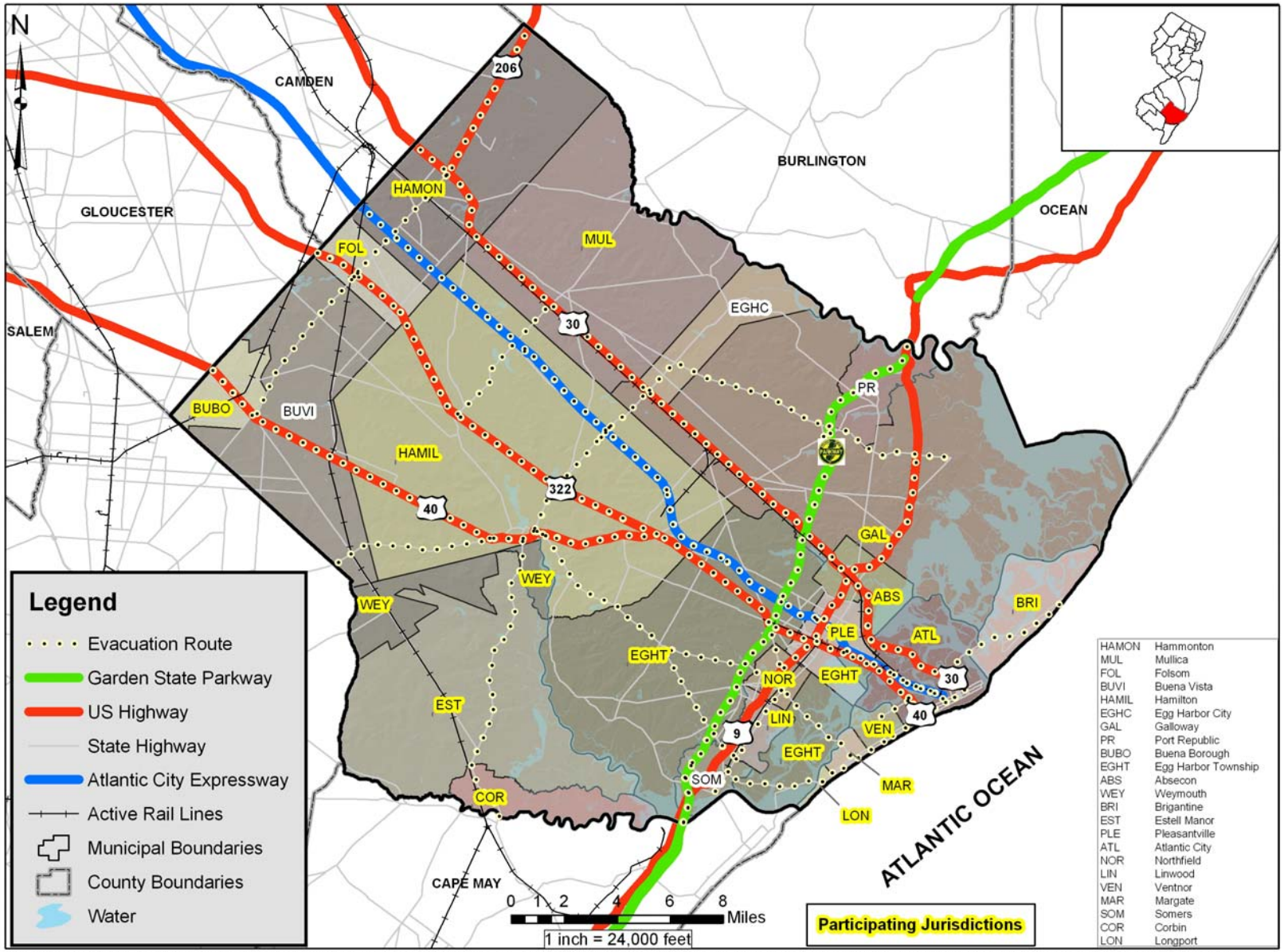
The following table summarizes each hazard, and whether or not it has been identified as a hazard worthy of further evaluation for each of the 23 jurisdictions in the County. Following Table 3a.1, Figure 3a.1 presents a map of Atlantic County for reference, including the most significant transport links and the location and boundaries of each participating jurisdiction.

Table 3a.1
Summary of Profiled Hazards by Jurisdiction

Jurisdiction	Extreme Temperatures	Extreme Wind	Hurricane / Tropical Storm	Lightning	Nor'easter	Tornado	Winter Storm	Dam Failure[1]	Drought	Flood	Storm Surge[2]	Erosion[3]	Wave Action[4]	Earthquake	Wildfire[5]
Atlantic County	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Absecon, City of	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Atlantic City, City of	■	■	■	■	■	■	■		■	■	■	■	■	■	■
Brigantine, City of	■	■	■	■	■	■	■		■	■	■		■	■	
Buena Vista, Township of	■	■	■	■	■	■	■	■	■	■				■	■
Buena, Borough of	■	■	■	■	■	■	■		■	■				■	■
Corbin City, City of	■	■	■	■	■	■	■		■	■	■			■	■
Egg Harbor City, City of	■	■	■	■	■	■	■	■	■	■	■			■	■
Egg Harbor, Township of	■	■	■	■	■	■	■	■	■	■	■			■	■
Estell Manor, City of	■	■	■	■	■	■	■	■	■	■	■			■	■
Folsom, Borough of	■	■	■	■	■	■	■	■	■	■				■	■
Galloway, Township of	■	■	■	■	■	■	■	■	■	■	■			■	■
Hamilton, Township of	■	■	■	■	■	■	■	■	■	■	■			■	■
Hammonton, Town of	■	■	■	■	■	■	■	■	■	■				■	■
Linwood, City of	■	■	■	■	■	■	■	■	■	■	■			■	■
Longport, Borough of	■	■	■	■	■	■	■		■	■	■		■	■	
Margate City, City of	■	■	■	■	■	■	■		■	■	■	■	■	■	
Mullica, Township of	■	■	■	■	■	■	■	■	■	■	■			■	■
Northfield, City of	■	■	■	■	■	■	■		■	■	■			■	■
Pleasantville, City of	■	■	■	■	■	■	■		■	■	■			■	■
Port Republic, City of	■	■	■	■	■	■	■	■	■	■	■			■	■
Somers Point, City of	■	■	■	■	■	■	■		■	■	■			■	■
Ventnor City, City of	■	■	■	■	■	■	■		■	■	■	■	■	■	
Weymouth, Township of	■	■	■	■	■	■	■	■	■	■	■			■	■

1 Based on the presence of or proximity to (downstream of) dams for which hazard potential has been classified
2 Based on the presence of improved property in SLOSH Zones 1-4
3 Based on the presence of improved property in potential erosion hazard areas
4 Based on the presence of improved property in FIRM V/VE Zones
5 Based on the presence of improved property in extreme/high risk wildfire zones

Figure 3a.1: Atlantic County Base Map



SOURCE: NJDEP: County Boundaries, NJ 2003; Municipal Boundary Atlantic County, NJ 2003; 10-meter DEMs, 2002; Waters of New Jersey (Lakes and Ponds) 2008; US Census Borough: TIGER data, 2000; NJDOT GIS, Active Rail Lines, 2005.

Extreme Temperatures

Extreme temperatures principally affect the health and safety of the human population, although they can also impact livestock, agricultural crops, and may also cause damage to infrastructure and property. This section provides detailed profiles of both extreme high and extreme low temperatures.

Description – Extreme Temperatures

Extreme Cold

According to National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS), the term "extreme cold" constitutes different conditions in different parts of the country, ranging from near freezing in the South to temperatures well below zero in the North.

In the South, temperatures near or just below freezing can cause pipes to burst in homes that are poorly insulated or without heat. In the North, where most buildings are insulated to a degree that can protect against most common winter temperatures for the area, long spells of below zero temperatures can result in increased numbers of people using space heaters and fireplaces to stay warm, thus increasing the risk of household fires and carbon monoxide poisoning. In addition, extreme cold can cause rivers to freeze, and ice jams to form, leading to flooding. Regardless of location, freezing temperatures can cause severe damage to crops and other vegetation; increased strain on community shelter facilities providing refuge from the cold to homeless populations and others in need; and an increased likelihood that automobiles/buses will fail to start. Local sources also report that fire departments are called to a noticeably higher number of chimney fires during periods of extreme cold.

Extreme cold can have severe negative impacts on human beings, including frostbite (an injury to the body that is caused by freezing) and hypothermia (the unintentional lowering of the body's core temperature to below 95 degrees Fahrenheit, which typically causes uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness, and apparent exhaustion). The NWS reports that extreme cold causes the death of roughly 26 people per year nationwide (based on a 10-year average). High winds during a period of extreme cold can exacerbate these affects, as the winds work to carry heat away from the body.

Extreme Heat

FEMA defines the term "extreme heat" as the condition whereby temperatures hover ten degrees or more above the average high temperature for a region, and last for several weeks. Extreme heat can also contribute to increased demand on energy supplies resulting from increased air conditioning usage, and an associated increased potential for power shortages or outages; and increased demand on medical offices, hospitals, etc. as individuals suffering from various heat related health effects seek medical attention or shelter in air conditioned facilities.

The National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) has reported that heat waves occur during most summers in at least some part(s) of North America. East of the Rocky Mountains, high temperatures are often combined with high humidity. Highest temperatures of record and average relative humidity would be sufficient to cause heat-related health effects in all states. Health effects associated with extreme heat can begin with air temperatures as low as 80 degrees Fahrenheit and concurrent relative humidity of at least 40 percent.

Extreme heat can have severe negative impacts on human beings, including heat-related illnesses such as sunburn, fatigue, and heat cramps, heat exhaustion, and heat strokes. The NWS reports that heat waves

cause the death of roughly 175 people per year nationwide. High humidity levels during a period of extreme heat can exacerbate these affects. Similarly, periods of extreme heat in urban areas can also result in magnified impacts on human health. This is primarily due to the combined affects of pollutant concentrations, high temperatures/humidity, and poor air circulation.

Location and Extent – Extreme Temperatures

Atlantic County is located in a region of the country that is susceptible to both extreme heat and extreme cold. During periods of extreme temperature conditions the effects will be felt over widespread geographic areas, and it is generally assumed that Atlantic County and all of its municipalities are uniformly exposed to extreme heat and extreme cold. Areas along the immediate coast might experience minor differences in apparent temperatures due to the combined effects of air temperature, relative humidity and wind speed (i.e., extreme heat conditions are typically moderated along the coast). The effects of extreme temperatures will be primarily limited to the elderly and homeless populations, with occasionally minor, sporadic property damages (i.e., bursting pipes) and damages to crops and other vegetation.

Historical Occurrence – Extreme Temperatures

Extreme Cold

NOAA's National Climatic Data Center (NCDC) records details for extreme temperature events in Atlantic County from July 1994 onwards. According to the NCDC database, there were a total of 11 extreme cold events affecting Atlantic County between July 1994 and November 2008 (or an average of about 0.8 extreme cold events per year). To these events were attributed 5 deaths and 7 injuries, including casualties in areas outside Atlantic County. No crop or property damages attributable to these events were reported to the National Weather Service.

Among the significant extreme cold events to have been recorded by NCDC as having affected Atlantic County in recent years were the following:

4-6 February, 1996
The coldest air mass of the winter season moved in after the snow storm of the 2nd and 3rd. Except for the immediate coast and along parts of the Delaware River and Bay, most locations had low temperatures below zero on the 5th and 6th. A record low temperature of -8F was set at Atlantic City International Airport on the 5th. In central New Jersey alone, the Automobile Association of America responded to over 900 calls of dead batteries the morning of the 5th. About 100 residents of the Southern Ocean Nursing and Rehabilitation Center in Manahawkin were evacuated on the 6th after a frozen pipe burst within the center's sprinkler system. They returned that evening. Low temperatures the morning of the 5th included -10F in Estell Manor and 4F within Atlantic City. Low temperatures the morning of the 6th included -3F at Atlantic City International Airport.

14-19 January, 2003
A cold frontal passage on the 13th initiated about a two week run of unseasonably cold weather, even by January standards across New Jersey. There was one cold related death and a few others that were indirectly caused by the cold weather. There were several cases of either frostbite or hypothermia throughout the state. The coldest mornings were on the 18th and 28th as low temperatures dipped into the single digits or below zero. For many locales, they were the coldest days in three years. Minimum temperatures on most days were no higher than the teens. The extreme cold filled homeless shelters to capacity. In addition the number of vehicle batteries

dying and parking brakes freezing increased. Calls to heating oil firms and utilities rose dramatically. On January 18th, Public Service Electric and Gas logged 13,000 calls, twice their normal number. Several water mains broke because of the extreme cold. Along coastal New Jersey (Ocean, Cumberland, Cape May and Atlantic Counties), pipes were bursting in both owner occupied homes and in vacant summer homes which were not properly winterized. In Cumberland County, a 49-year-old woman was found dead on the street in Bridgeton. She suffered from asthma and it was believed the cold weather triggered an attack. Lowest temperatures included 2 degrees below zero in Newton Estell Manor and 3 degrees at the Atlantic City International Airport

28 January, 2005
The combination of light winds courtesy of being located under a large high pressure system and snow cover produced for many locations one of the coldest mornings of the winter season in New Jersey. Low temperatures were mainly around zero, but some lows in the northwest part of the state were colder than 10 degrees below zero. An 88-year-old husband and his 80-year-old wife died of hypothermia within their Dover Township (Morris County) home. The furnace was off and the house temperature was in the 40s when the authorities arrived. On the 31st, an 82-year-old man and his 71-year-old sister were found dead within their Wantage (Sussex County) home. They died from hypothermia after the fire in an old wood stove extinguished. The unseasonably cold weather continued code blue declarations to help the homeless, elderly, homebound and poor. It continued the high demand for heating oil, natural gas and electricity. Specific low temperatures included 3 degrees at the Atlantic City International Airport,

Extreme Heat

According to NOAA's National Climatic Data Center (NCDC), there were a total of 48 extreme heat affecting Atlantic County between July 1994 and November 2008 (or an average of about 3.1 extreme heat events per year). To these events were attributed 43 deaths and 260 injuries, including casualties in areas outside Atlantic County. No crop or property damages attributable to these events were reported to the National Weather Service.

Among the significant extreme heat events to have been recorded by NCDC as having affected Atlantic County in recent years were the following:

14-15 July, 1995
An oppressive heat wave gripped most of New Jersey. It climaxed on the 15th as almost every location reported record breaking heat. The dew point temperatures, reached into the 80s across southern New Jersey, an almost unheard of phenomena. This, combing with sweltering temperatures produced an apparent temperature (Heat Index) of 115 degrees in Pomona (Atlantic County). The Heat Index peaked at 129 in Philadelphia. The heat wave was broken for the northern half of the state the night of the 15th as a backdoor cold front helped trigger a complex of severe thunderstorms. Relief for the southern half of the state had to wait for a second cold front to move through the evening of the 18th. Nine people died because of the heat. Heat related deaths were reported in Gloucester (2), Mercer (2), Middlesex (1), Ocean (3) and Sussex (1) Counties. Often the people who died were in poor health and had inadequate ventilation. Nevertheless, one person died in Gloucester County while working on a barge, while another died while hiking in Wawayanda State Park in Sussex County. Hospitals treated more than 100 persons for heat exhaustion. Record breaking high temperatures on the 15th included 100 F in Pomona, in Galloway Township. The heat also took its toll on poultry farming, as a 20 percent drop in chicken egg production was caused by the excessive heat.

25-26 June 1997
The first hot spell of 1997 brought the hottest weather in two years to New Jersey. The highest temperatures reached near 100 degrees on the 25th. Four persons were hospitalized in Trenton because of the excessive heat, one suffered a heat stroke and the others suffered heat exhaustion. All four were found sitting in hot apartments. The hot weather started on the 21st. A weak cold front briefly brought cooler and drier air into the region on the 23rd. But that was short-lived as humidity levels increased on the 24th and both the heat and humidity became oppressive again on the 25th and 26th. The highest temperatures included 98 degrees in Hammonton, 97 degrees in Estell Manor, and 96 degrees in Atlantic City.

4-6 July, 1999
A very strong and oppressive high pressure system that extended from the surface to aloft gave New Jersey a brutal heat wave that included the entire Independence Day weekend. There were seventeen heat related deaths and around 100 reported heat related injuries. High temperatures reached the 90s for the first time on the 3rd, but sweltering humidity and record breaking maximum temperatures of around 100 degrees occurred from Independence Day through the 6th. Even shore areas baked as a strong west to southwest wind prevented cooler air from coming in from the ocean. The combination of the temperature and humidity produced heat indices of around 110 degrees during the afternoon of each day. Heat related deaths occurred in Camden (2), Mercer (3), Middlesex (4), Monmouth (4), Ocean (3) and Somerset (1) Counties. Most of the deaths occurred to elderly persons in poor health, with no air-conditioning and inadequate ventilation. A 61-year-old man was found dead in his Mercer County fan-less apartment on the 6th after he worked all day on a landscaping job. Two persons on Long Beach Island (Ocean County) also died of heat related problems. Most of the heat related injuries were reported in Monmouth and Ocean Counties as the shore offered no relief during this hot spell. Paramedics reported a doubling of responses in those two counties. Eight very serious cases of heat exhaustion were reported in Ocean County. Parades scheduled to commemorate Independence Day were cancelled. The record heat led to record demand for electricity and the strain overwhelmed the utilities. Starting on Sunday July 4th Conectiv Energy reported serious outages because of extraordinary demand for electricity during the holiday weekend. Conectiv service personnel needed police escorts as people were getting upset as sporadic blackouts lasted into the 6th. Red Cross shelters were opened in Ocean County in Dover, Long Beach and Stafford Townships. Utilities issued power alerts requested customers reduce consumption. Conectiv Energy instituted rolling blackouts to 40 percent of its 1.1 million customers in Maryland, Delaware and New Jersey at 1040 a.m. EDT on the 6th. GPU energy also implemented rolling blackouts. The blackouts affected 20,000 customers for 20 minutes at a time. Over 110,000 homes and businesses lost power in the state by either intentional or unintentional blackouts. High temperatures included 102 degrees in Margate City.

1-3 August, 2006
A strong area of high pressure anchored over the East Coast and the western Atlantic, resulted in a stretch of excessive heat for the entire region to start off August 2006. The very hot air mass was accompanied by humid conditions as the dew points surged into the upper 60s and lower 70s for a time. Temperatures during August 1st through the 3rd soared well into the 90s with some areas topping the century mark. Atlantic City topped out at 98 degrees on both August 2nd and 3rd. In addition to sporadic power outages that affected pockets of people for up to two hours at a time, Water Utility New Jersey American Water asked customers to immediately begin conserving water on August 2nd in seven Atlantic County towns as the excessive heat and dry weather led to a record high water usage. The conservation request affected 115,096 residents in the cities of Pleasantville, Northfield, Linwood, Somers Point and Absecon as well as Galloway

Township and Egg Harbor Township. A total of 35 people suffered from heat-related injuries in the Borough of Belmar (in Monmouth County) on August 2nd, however none were reported to be serious.

The State of New Jersey has not been the subject of any Federal Disaster or Emergency Declarations due solely to extreme temperatures.

Probability of Occurrence – Extreme Temperatures

Extreme temperature events will remain a very frequent occurrence in Atlantic County, and the probability of future occurrences in Atlantic County is certain (somewhat higher for extreme heat than extreme cold).

Based on historical records over the last 14 years, extreme temperature events can be expected to occur approximately 4 times per year, with extreme heat events three times more likely to occur than extreme heat events.

While the impact of such occurrences on people and property is typically minimal, it is anticipated that the threat to human lives and safety is increasing due to relatively high percentages of elderly populations in many of Atlantic County's municipal jurisdictions, in particular the cities of Longport, Margate City, and Ventnor City, which have the highest percentages of elderly residents in the County (see Section 3b: Asset Identification and Characterization).

Extreme Wind

Description – Extreme Wind

Wind, as defined by the American Meteorological Society, is air that is in constant motion relative to the surface of the earth. Since vertical components of atmospheric motion are relatively small, especially near the surface of the earth, meteorologists use the term "wind" to denote almost exclusively the horizontal component. Extreme winds are most commonly the result of tornadoes, hurricanes, tropical cyclones, extratropical cyclones (northeasters), destructive wind, and thunderstorms, but can also occur in their absence as mere "windstorms".

Extreme wind events might occur over large, widespread areas or in a very limited, localized area. They can occur suddenly without warning. They can occur at any time of the day or night, at any location within Atlantic County. Extreme winds pose a significant threat to lives, property, and vital utilities due to flying debris, such as rocks, lumber, fuel drums, sheet metal and loose gear of any type that can be picked up by the wind and hurled with great force. Extreme winds also down trees and power lines, often resulting in power outages across an affected area."

(1) Tornadoes: Tornadoes are the most commonly known type of windstorm causing the most damage to property and life and all is due to severe winds. As researched by FEMA, there are, on average, 10 severe windstorms, classified as tornadoes, in the United States defined as F4 or F5 on the Fujita scale. (The Fujita scale reflects how much wind damage results from a tornado expressed in wind speeds. For example, wind speeds can vary between 50 and 250 mph in a typical F5 tornado.)

(2) Hurricanes: A hurricane is a tropical storm with winds that have reached a constant speed of 74 mph or more. Hurricane winds blow in a large spiral around a relative calm center known as the "eye." The "eye" is generally 20 to 30 miles wide.

(3) Coastal Storms: Coastal storms include both tropical cyclones and extratropical cyclones. The National Weather Service defines these terms as follows:

- Cyclone: An area of low pressure around which winds blow counterclockwise in the Northern Hemisphere. Also the term used for a hurricane in the Indian Ocean and in the Western Pacific Ocean.

- Tropical Cyclone: A cyclone that forms over tropical or sub-tropical waters around centers of low barometric pressure. Tropical cyclones derive their energy from the ocean. Tropical cyclones can be further broken down according to maximum sustained winds, as follows:

Tropical Depression:	Winds < 39mph
Tropical Storm:	39 mph ≤ Winds < 74 mph
Hurricane: *	Winds ≥ 74 mph

** Note that "hurricanes" are tropical cyclones that develop over the Atlantic Ocean, northeast Pacific Ocean, or south Pacific Ocean. Similar storms that develop over the western North Pacific Basin are referred to as "typhoons" (or, if maximum sustained winds are at least 150 mph, "super typhoons").*

- Extratropical Cyclone: A non-tropical cyclone that forms around a center of low barometric pressure and derives its energy from the atmosphere. Extratropical cyclones are more commonly referred to as "winter storms." Extratropical storms can be experienced on both the East and West Coasts of the United States. On the East Coast, extratropical cyclones are often called "Nor'easters" due to the direction of the storm winds.

(4) Destructive Wind: Destructive wind is a windstorm that poses a significant threat to life and property and destroying everything in its path. Destructive wind can also cause damage by flying debris, such as rocks, lumber, fuel drums, sheet metal and loose gear of any type which can be picked up by the wind and hurled with great force.

(5) Thunderstorms: A thunderstorm is a combination of moisture, rapidly rising warm air and forceful winds capable of lifting air that's either warm or cold. They also contain lightning and thunder.

Location – Extreme Winds

Extreme wind events are experienced in every region of the United States. A useful tool for determining the location of the extreme wind hazard area in a jurisdiction is depicted in Figure 3a.2 - Wind Zones in the United States. This map of design wind speeds was developed by the American Society of Civil Engineers. It divides the United States into four wind zones, geographically representing frequency and magnitude of potential extreme wind events. The figure shows that a single wind zone covers Atlantic County and its jurisdictions; Zone II – Hurricane Susceptible, with a design wind speed for shelters of 160 miles per hour.

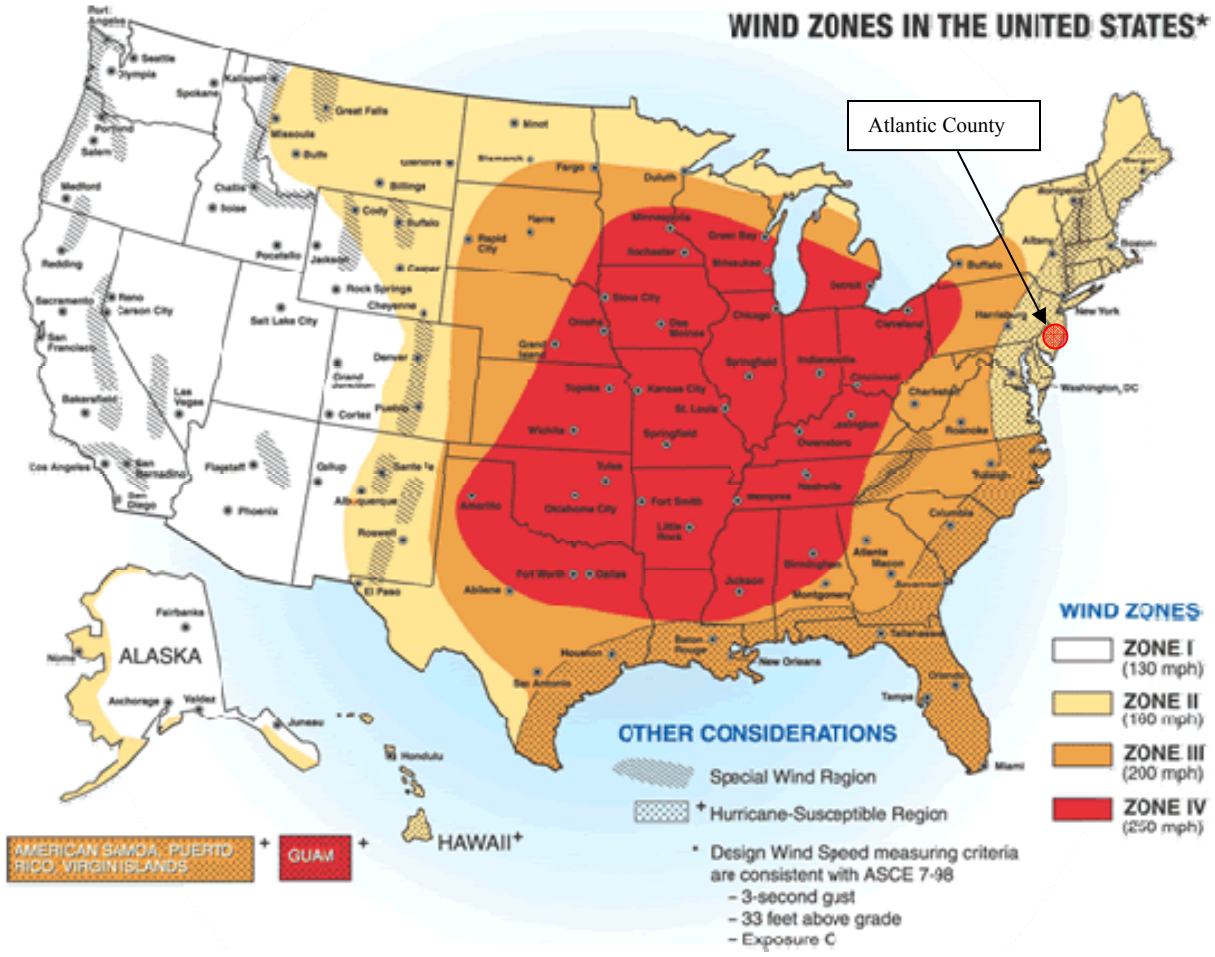


Figure 3a.2 - Wind Zones in the United States

Extent – Extreme Winds

The severity of a severe wind event depends upon the maximum sustained winds experienced in any given area. Extreme winds pose a significant threat to lives, property and infrastructure due to direct wind forces but also flying debris, such as rocks, lumber, fuel drums, sheet metal and loose gear of any type that can be picked up by the wind and hurled with great force. Extreme winds also down trees and power lines that often result in power outages across an affected area. Table 3a.2 illustrates the severity and typical effects of various wind speeds, as obtained from the NOAA NCDC web site.

Table 3a.2
Severity and Typical Effects of Various Speed Winds

Maximum Wind Speeds	Equivalent Saffir-Simpson Scale* (Hurricanes)	Equivalent Fujita Scale (Tornadoes)	Severity	Typical Effects
40-72 mph *(35-62 kt)*	Tropical Storm = 39-73 mph	F0	Minimal	Some damage to chimneys; breaks twigs and branches off tress; pushes over shallow-rooted trees; damages signboards; some windows broken; hurricane wind speed begins at 73 mph.
73-112 mph *(63-97 kt)*	Cat 1 = 74-95mph Cat 2 = 96-110 mph Cat 3 = 111-130 mph	F1	Moderate	Peels surfaces off roofs; mobile homes pushed off foundations or overturned; outbuildings demolished; moving autos pushed off the roads; trees snapped or broken.
113-157 mph *(98-136 kt)*	Cat 3 = 111-130 mph Cat 4 = 131-155 mph Cat 5 > 155 mph	F2	Considerable	Roofs torn off frame houses; mobile homes demolished; frame houses with weak foundations lifted and moved; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.
158-206 mph *(137-179 kt)*	Cat 5 > 155 mph	F3	Severe	Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forests uprooted; heavy cars lifted off the ground and thrown; weak pavement blown off roads.
207-260 mph *(180-226 kt)*	? Cat 5 > 155 mph	F4	Devastating	Well constructed homes leveled; structures with weak foundations blown off some distance; cars thrown and disintegrated; large missiles generated; trees in forest uprooted and carried some distance away. The maximum wind speeds of hurricanes are not likely to reach this level.
261-318 mph *(227-276 kt)*	N/A	F5	Incredible	Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 300 ft (100 m); trees debarked; incredible phenomena will occur. The maximum wind speeds of hurricanes are not expected to reach this level.
Greater than 319 mph *(277 kt)*	N/A	F6	N/A	The maximum wind speeds of tornadoes are not expected to reach this level. The maximum wind speeds of hurricanes are not expected to reach this level.

** The Saffir-Simpson Scale is a five-category wind speed / storm surge classification scale used to classify Atlantic hurricane intensities. The Saffir-Simpson values range from Category 1 to Category 5. The strongest SUSTAINED hurricane wind speeds correspond to a strong F3 (Severe Tornado) or possibly a weak F4 (Devastating Tornado) value. Whereas the highest wind gusts in Category 5 hurricanes correspond to moderate F4 tornado values, F5 tornado wind speeds are not reached in hurricanes.*

Previous Occurrences – Extreme Winds

Atlantic County has experienced numerous types of damaging extreme wind events in the past including severe thunderstorms, tornadoes, hurricanes, tropical storms and nor'easters.

According to NOAA's NCDC, 75 recorded high wind events have affected Atlantic County between July 1957 and May 2008, with 69 of them recorded since 1987 (data includes wind events greater than 50 knots, with the exception of tornado events which are addressed separately within this section). These 69 incidents resulted in a reported one death, 18 injuries and caused an estimated $16 million in property damages. The NCDC also attributes an additional two deaths, 10 injuries, and $6 million in property damages to wind events affecting Atlantic County for which the wind speed was less than 50 knots or not recorded. Some recent notable events include the following:

8 October, 1996
High winds associated with the remnants of Tropical Storm Josephine caused wind damage along

coastal New Jersey. Wind gusts reached 70 mph at the Atlantic City Beach Patrol. In Atlantic County, trees were uprooted in the cities of Margate City and Brigantine. A house in Brigantine suffered roof damage. About 31,000 customers lost power when power lines were brought down. The hardest hit municipalities were the City of Northfield and Egg Harbor Township.

1 June 1998
A line of severe thunderstorms uprooted several trees, broke some street signs and twisted flag poles in Atlantic County. Hammonton was one of the harder hit communities with trees damaging several properties. Connectiv Energy reported that 20,000 customers lost power in their southern New Jersey service area including Atlantic County.

6 August, 2003
A severe thunderstorm produced wind damage in Atlantic City between Kentucky and Pennsylvania Avenues and extended to the shore to the Steel Pier. A large billboard was damaged and debris fell onto the deck of the Central Pier. Several light fixtures were blown down. Lifeguard stands and boats were damaged or destroyed when tossed and rolled by the wind. A beach chair storage shed was ripped from its base and carried away. It was never found. The two-sided billboard that blew down knocked down fencing and palm trees on the Central Pier. Four surfboats owned by the Atlantic City Beach Patrol were damaged and two were totaled. One boat went end-over-end for a quarter of a mile. Parts of the building brick facade of the Community Radiology building was torn away by the high winds. The Atlantic City Beach Patrol's anemometer recorded a peak wind gust of 64 mph.

23 September 2003
A powerful line of severe thunderstorms uprooted trees and knocked down wires in the Town of Hammonton and the Township of Mullica. About 2,000 homes and businesses in the two areas lost power.

14 October 2003
A line of severe thunderstorms produced a damaging microburst and macroburst in eastern Atlantic County in the cities of Pleasantville and Absecon, respectively, as well as wind damage in the cities of Linwood, Northfield and Atlantic City. In Pleasantville, about a dozen 65 foot tall, twenty inch thick, one ton electrical transmission poles were snapped like toothpicks along Delilah Road. Uninjured motorists had to abandon five vehicles in the middle of the snapped poles. The poles were transmitting 69,000 volts of electricity. The bridge into Pleasantville via U.S. Route 30 was closed through the evening of the 15th until the poles were removed. In Absecon, the macroburst produced wind damage in a three mile long by one mile wide area of the city. The most concentrated damage was along Wynnewood Drive, Park Avenue and Read Road. More than 40 large trees were knocked down and damaged about a half dozen homes and vehicles. A road billboard was reduced to splinters. Flag poles were knocked down. The roof of a boat shop was torn away and the subsequent debris and rain damaged the boats in the show room. A local Home Depot had its air conditioning units blown off the roof and its rear doors ripped away. Downed trees and poles were reported in Atlantic City, Linwood and Northfield. Conectiv Energy reported about 38,000 of its customers lost power because of the severe thunderstorm in southeastern New Jersey.

14 December, 2003
A squall line of showers produced wind gusts as strong as 58 mph across eastern parts of Atlantic County. A measured peak wind gust of 58 mph was recorded at the Atlantic City International Airport. Downed wires and fallen trees were reported in the cities of Margate City, Pleasantville and Somers Point. A drain pipe was pulled from a house in Atlantic City. Power outages were

concentrated in Atlantic City, Ventnor City, Margate City and the Borough of Longport. Conectiv Energy reported about 4,700 of its customers lost power in southern New Jersey

14 July, 2004
A severe thunderstorm caused wind damage from Weymouth Township east to the coast around Atlantic City. The same thunderstorm dropped golf ball size as it passed across Egg Harbor Township and produced a funnel cloud that did not touch down in Mays Landing (Hamilton Township). About 5,000 Conectiv Electric customers lost power. The worst wind damage occurred around Tenth Street in Dorothy (Weymouth Township). A swath of trees was knocked down. Downed trees caused roof damage to two homes and one camper suffered substantial damage. In the City of Estell Manor, a wind gust to 58 mph was measured. Downed trees caused the closure of a couple of roads including State Route 50. Two large trees were uprooted in Margate City and a wind gust to 59 mph was measured at the Ocean Life Center in Atlantic City.

1 September 2006
The combination of the remnants of Tropical Storm Ernesto and a large high pressure system over eastern Canada produced heavy rain and flooding, strong and in some cases damaging winds, tidal flooding and beach erosion in New Jersey. The coastal counties were hit the hardest with both the tidal and inland flooding and high winds. Over 200,000 homes and businesses lost power with more than half of the outages in southeastern New Jersey's Atlantic City Electric Service area. In Atlantic County, a home in the City of Northfield was damaged by a split tree. Four boats in the City of Port Republic sank, 5 others were damaged.

Probability of Occurrence – Extreme Winds

Extreme wind events will remain a very frequent occurrence in Atlantic County, and the probability of future occurrences in the County is certain. The entire planning area is susceptible to a wide variety of recurring events that cause extreme wind conditions including severe thunderstorms (most frequent), tornadoes, hurricanes, tropical storms and nor'easters.

Table 3a.3 illustrates a summary of wind-related events in both New Jersey and Atlantic County based on historic occurrences reported in NOAA's NCDC Storm Events Database during the 58 year period of record from 1950 to 2008, and provides an associated average annual number of storms. It shows an average annual number of high wind events in Atlantic County of 3.5 based on historical occurrences, compared to the NOAA National Severe Storms Laboratory's estimate of the mean number of days per year with one or more severe wind events (winds of at least 57.5 miles per hour) in Atlantic County is approximately four to five. The NCDC database does not include hurricanes and tornados in this category, and in the years prior to the late 1980s, reporting of events appears to have been less comprehensive than in recent decades.

Table 3a.3
Average Annual Number of Wind Events (Statewide vs. Atlantic County)
(Source: NOAA's NCDC Storm Events Database for the period January 1950 – October 2008)

Event Type	Total Number of Events in New Jersey	Total Number of Events in Atlantic County	Average Annual Number of Events in New Jersey	Average Annual Number of Events in Atlantic County
Thunderstorm and High Wind Events	2,465	201	42.5	3.5

Extreme winds are a probabilistic natural phenomenon: it is impossible to predict in what years windstorms will occur or how severe the winds will be. Wind hazards are often expressed in terms of wind frequencies or recurrence intervals, such as a 10-year wind or a 100-year wind. A "100-year wind" means that there is a 1 percent chance in any given year of a wind at the 100-year or higher wind speed. A 10-year wind means that there is a 10 percent chance in any given year of a wind at the 10-year or higher wind speed. Wind recurrence intervals don't mean that windstorms occur exactly at these intervals; rather, they express probabilities of winds. Thus, a given location may experience two 100-year windstorms in a short time period or go several decades without experiencing a 10-year windstorm.

Extreme winds can occur during tornadoes, hurricanes, tropical cyclones, extratropical cyclones (northeasters), destructive wind, and thunderstorms, but can also occur in their absence as mere "windstorms." Extreme winds have a history of occurrence throughout Atlantic County, and are highly likely to occur in the future.

The degree of wind hazard risk at a particular site is characterized by the wind speeds expected at the site with recurrence intervals of 10-, 25-, 50-, 100-, and 2000- years. The FEMA Benefit-Cost Module for Wind Hazard Risk (Version 1.0, 01/20/95) provides wind speed data for various return periods at a series of mileposts located along US Gulf and Atlantic coastlines. The data is provided for locations at the coast and for locations 200 km (approximately 125 miles) inland. For the purposes of estimating wind data applicable for Atlantic County, milepost 2450 was assumed to most closely resemble conditions in Atlantic County. This milepost is located midway between milepost 2400 (located at the mouth of the Delaware River, south of Atlantic County) and milepost 2500 (located on the New Jersey shore, to the north of Atlantic County). Table 3a.4 illustrates wind speed data for Atlantic County and the surrounding area. FEMA's Hurricane Benefit Cost Analysis module was used to obtain wind speeds at distances between the Atlantic County shore to 30 miles inland (north western Atlantic County).

Table 3a.4
Wind Speed Probabilities for Atlantic County and Surrounding Area
(Milepost 2550, as per FEMA B-C Module – Wind, Version 1.0, January 20, 1995)

Recurrence Interval (Years)	Annual Probability of Occurrence (%)	Wind Speed at the Shoreline (mph)	Wind Speed 30 miles inland (mph)
10	10	47	43
25	4	65	58
50	2	79	76
100	1	92	90
2000	0.05	130	130

Importing this data into FEMA's Hurricane Benefit Cost Analysis module allows the user to generate the estimated annual number of wind events that reach various strengths. These estimates are calculated from the wind recurrence interval data, wind speed data, and the number of miles inland the site is from the nearest milepost. "Expected annual number" of windstorms does not mean that this number of windstorms occurs every year, but rather "expected" indicates the long-term statistical average number of windstorms per year. Table 3a.5 illustrates the expected annual number of wind events of various magnitudes at the Atlantic County shoreline, and, at the County's farthest inland point, while Table 3a.6 illustrates the associated annual probability of occurrence.

Table 3a.5
Expected Annual Number of Wind Events of Various Magnitudes
At Various Distances from the Coast
For Atlantic County and Surrounding Areas
(Milepost 2550, as per FEMA B-C Module – Wind, Version 1.0, January 20, 1995)

Storm Class (Saffir-Simpson Scale)	Wind speed (mph)	Expected Annual Number of Wind Events	
		Atlantic County Shore	30 miles Inland
0	60-73	0.0246	0.0151
1	74-95	0.0182	0.0159
2	96-110	0.0049	0.0040
3	111-130	0.0015	0.0013
4	130-155	0.0004	0.0003
5	>155	0.0001	0.0001

Table 3a.6
Annual Probability of Wind Events of Various Magnitudes
At Various Distances from the Coast
For Atlantic County and Surrounding Areas
(Milepost 2550, as per FEMA B-C Module – Wind, Version 1.0, January 20, 1995)

Storm Class (Saffir-Simpson Scale)	Wind speed (mph)	Expected Annual Number of Wind Events	
		Atlantic County Shore	30 miles Inland
0	60-73	2.46%	1.51%
1	74-95	1.82%	1.59%
2	96-110	0.49%	0.40%
3	111-130	0.04%	0.03%
4	130-155	0.01%	0.01%

Hurricanes and Tropical Storms

Hazards Associated with Hurricane and Tropical Storm Events

Hurricanes and tropical storms are particular types of *events*. The *hazards* associated with a hurricane or tropical storm event are: high winds, flooding (including storm surge), coastal erosion, and wave action. Each of the unique hazards associated with hurricane and tropical storm events are summarized briefly below, and addressed specifically elsewhere in the plan. Hurricane and tropical storm events are discussed in the remainder of this section.

- Winds. After making landfall, hurricane winds can remain at or above hurricane force well inland (sometimes more than 100 miles). In addition, hurricanes can also spawn tornadoes. Typically, the more intense a hurricane is, the greater the tornado threats. High winds are addressed separately in this document.
- Flooding. Upon making landfall, a hurricane rainfall can be as high as 20 inches or more in a 24-hour period, with amounts in the 10 to 15 inch range being most common. If the storm is large and moving slowly, the rainfall amounts can be much higher. Heaviest rainfall tends to be along the coastline, but sometimes there is a secondary maximum further inland. Following a hurricane, inland streams and rivers can flood and trigger landslides. Flooding can also be caused when drainage system capacities are exceeded. Flooding is addressed separately in this document.
- Storm Surge. Even more dangerous than the high winds of a hurricane is the storm surge, a dome of ocean water that is basically pushed ashore by the hurricane winds. Hurricane storm surge can be as much as 20 feet at its peak and 50 to 100 miles wide, depending on hurricane strength and depth of offshore waters. Generally, the stronger the hurricane and the shallower the offshore water depths, the higher the storm surge. Most hurricane fatalities and coastal damages are attributable to storm surge, as opposed to hurricane winds. Storm surge can cause the most damage when it occurs during high tides. Storm surge can come ashore as much as five hours in advance of the time that a hurricane makes landfall.
- Coastal Erosion. The currents created by the tide and storm surge, combined with wave action, can severely erode coastlines. Many buildings withstand hurricane force winds until their foundations, undermined by erosion, are weakened and fail.
- Wave Action**.** Hurricanes and tropical storms are also associated with significant wave action, which can damage not only buildings but infrastructure and protective features along ocean shorelines.

Description – Hurricanes and Tropical Storms

A **hurricane** is a severe tropical cyclone with winds that have reached a constant speed of 74 miles per hour or more. Hurricane winds blow in a large spiral around a relative calm center known as the "eye." The "eye" is generally 20 to 30 miles wide, and the system can extend outward from the eye by up to 400 miles. In the Northern Hemisphere, circulation is in a counterclockwise motion around the eye. These storms are usually short in duration but are extremely powerful and cause the greater amount of damage due to significant storm surges and high winds. If these systems have wind speeds of between 39 and 73 miles per hour, they are classified as **tropical storms**.

In the Atlantic basin, hurricanes and tropical storms are most likely to occur between June 1st and November 30th, with the peak number of events typically occurring between mid-August and late October.

Location – Hurricanes and Tropical Storms

No one jurisdiction within Atlantic County is any more likely to have the path of such a system traverse within its borders than any other location. Because of the size of hurricane and tropical storm systems, areas within Atlantic County can still be affected even when the eye makes landfall outside of the County's boundaries. The hazards associated with hurricane and tropical storm events have distinct hazard area locations, discussed in other sections of this report. For Atlantic County, these include wind, flood, wave action, erosion, and storm surge hazards.

Extent – Hurricanes and Tropical Storms

The magnitude or severity of hurricanes is categorized by the Saffir-Simpson scale. The Saffir-Simpson Scale is a five-category wind speed / storm surge classification scale used to classify Atlantic hurricane intensities. The scale is used to give an estimate of the potential property damage and flooding that can be expected. The Saffir-Simpson values range from Category 1 to Category 5, as shown in Table 3a.7. Wind speed is the determining factor in the scale, as storm surge values are highly dependent on the slope of the continental shelf in the landfall region.

Note that, for tropical storms (not represented on the scale), winds are between 39 and 73 miles per hour and typical effects include breakage of twigs and branches off tress, toppling of shallow-rooted trees, and some damage to signboards and windows.

Table 3a.7
The Saffir-Simpson Hurricane Scale

Category	Wind Speed (miles per hour)	Storm Surge (feet above normal sea level)	Expected Damage	Photo Example
1	74-96 mph	4-5 ft	Minimal: Damage is done primarily to shrubbery and trees, unanchored mobile homes are damaged, some signs are damaged, no real damage is done to structures	
2	96-110 mph	6-8 ft	Moderate: Some trees are toppled, some roof coverings are damaged, and major damage is done to mobile homes.	
3	111-130 mph	9-12 ft	Extensive: Large trees are toppled, some structural damage is done to roofs, mobile homes are destroyed, and structural damage is done to small homes and utility buildings.	
4	131-155 mph	13-18 ft	Extreme: Extensive damage is done to roofs, windows, and doors; roof systems on small buildings completely fail; some curtain walls fail.	
5	Greater than 155 mph	Greater than 18 ft	Catastrophic: Roof damage is considerable and widespread, window and door damage is severe, there are extensive glass failures, and entire buildings could fail.	

** Source: FEMA's How-To #2, page 2-23*

The magnitude or severity of hurricane and tropical storm events will increase under the following conditions:

- as the storm category increases;

- as the diameter of the storm system increases;
- as the system's forward speed decreases;
- as rainfall amounts increase;
- as the quantity of people, structures and infrastructure in the affected areas increases.

For the sake of clarity, we will also point out that, for communities with mapped erosion, surge, or wave action zones, the magnitude or severity will also increase with increasing degree of erosion, surge and/or wave action.

Previous Occurrences – Hurricane and Tropical Storm Events

Hurricanes and tropical storms have impacted Atlantic County and its component jurisdictions in the past, and will continue to do so in the future.

Atlantic County has an active history of hurricanes and tropical storms. According to NOAA historical records, 39 hurricane or tropical storm tracks have passed within 65 miles of Atlantic County since 1856, as listed in Table 3a.8. This includes eight Category 2 hurricanes; three Category 1 hurricanes; and 28 tropical storms. Of the 25 recorded storm events, the center tracks of eight storms traversed directly through Atlantic County (marked with * in Table 3a.8). Of these eight storms, one was a Category 1 hurricane in 1903 and the remainder were tropical storms occurring between 1872 and 1971.

Table 3a.8
Historical Storm Tracks within 65 Miles of Atlantic County (Since 1856)

Date of Occurrence	Storm Name	Maximum Wind Speed (mph)	Storm Category
8/20/1856	Not Named	50	Tropical Storm
9/17/1859	Not Named	50	Tropical Storm
9/27/1861	Not Named*	60	Tropical Storm
11/2/1861	Not Named	60	Tropical Storm
9/19/1863	Not Named	50	Tropical Storm
10/30/1866	Not Named	60	Tropical Storm
10/26/1872	Not Named*	40	Tropical Storm
9/29/1874	Not Named*	50	Tropical Storm
8/18/1874	Not Named	90	Category 2 Hurricane
9/10/1881	Not Named	50	Tropical Storm
9/23/1882	Not Named*	40	Tropical Storm
9/25/1889	Not Named	40	Tropical Storm
8/24/1893	Not Named	85	Category 2 Hurricane
9/30/1894	Not Named	65	Category 1 Hurricane
10/10/1894	Not Named	65	Category 1 Hurricane
9/24/1897	Not Named	60	Tropical Storm
9/16/1903	Not Named*	70	Category 1 Hurricane
9/15/1904	Not Named	55	Tropical Storm
8/4/1915	Not Named	40	Tropical Storm
9/18/1936	Not Named	85	Category 2 Hurricane
10/1/1943	Not Named	35	Tropical Storm
8/3/1944	Not Named	35	Tropical Storm
9/14/1944	Not Named	85	Category 2 Hurricane
9/1/1952	Able	35	Tropical Storm
8/31/1954	Carol	85	Category 2 Hurricane
8/18/1955	Diane	45	Tropical Storm
7/11/1959	Cindy	40	Tropical Storm

Table 3a.8
Historical Storm Tracks within 65 Miles of Atlantic County (Since 1856)

Date of Occurrence	Storm Name	Maximum Wind Speed (mph)	Storm Category
7/30/1960	Brenda*	45	Tropical Storm
9/12/1960	Donna	95	Category 2 Hurricane
9/14/1961	Not Named*	35	Tropical Storm
8/28/1971	Doria*	55	Tropical Storm
6/22/1972	Agnes	60	Tropical Storm
8/9/1976	Belle	90	Category 2 Hurricane
9/27/1985	Gloria	90	Category 2 Hurricane
9/24/1985	Henri	35	Tropical Storm
9/26/1992	Danielle	40	Tropical Storm
7/13/1996	Bertha	60	Tropical Storm
9/16/1999	Floyd	60	Tropical Storm
8/31/2004	Gaston	35	Tropical Storm

Probability of Occurrence – Hurricane and Tropical Storm Events

Internet resources on NOAA's Atlantic Oceanographic and Meteorological Laboratory (AOML) web site were researched to gain an understanding of the relative likelihood of Atlantic County being impacted by a coastal storm as compared to other locations in the Atlantic Basin (see Figure 3a.3). Based upon a review of this data, it was determined that Atlantic County and its jurisdictions have roughly a 20 to 30 percent chance of being impacted by a named coastal storm in any given year.

NOAA studies also indicate that the expected return periods for various categories of hurricanes striking the Atlantic County area are as follows:

Category 1	22 Years
Category 2	50 Years
Category 3	87 Years
Category 4	190 Years
Category 5	480 Years

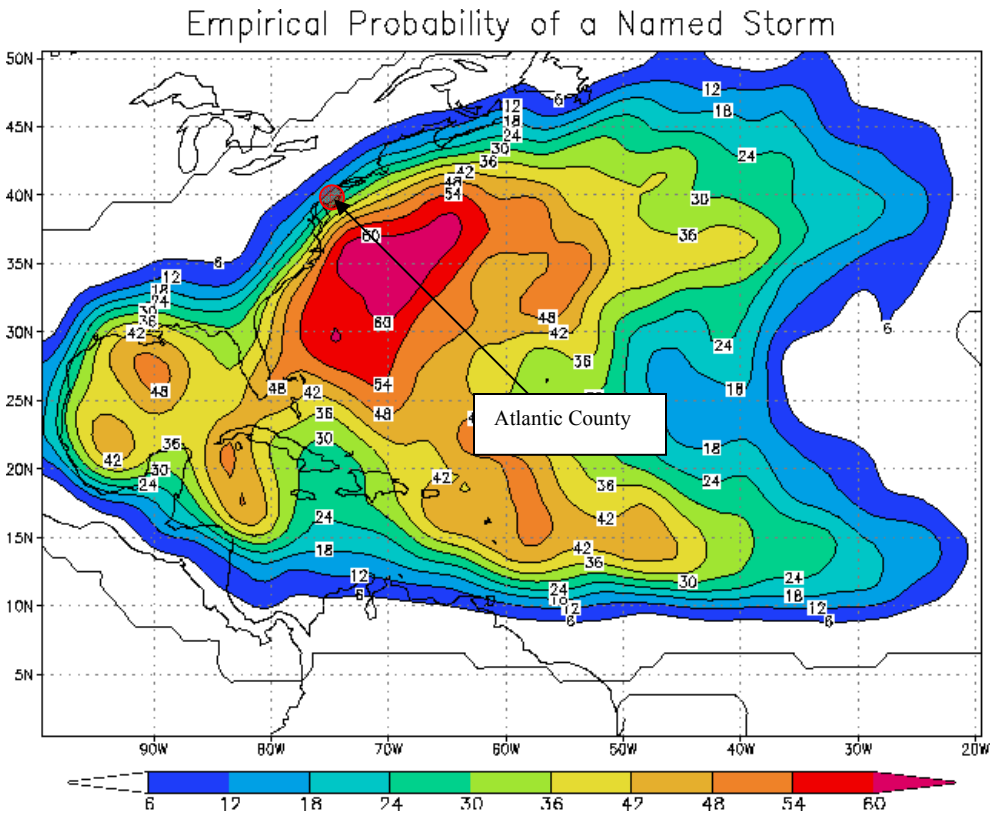


Figure 3a.3 - Empirical Probability of a Named Storm (Atlantic Basin)

Lightning

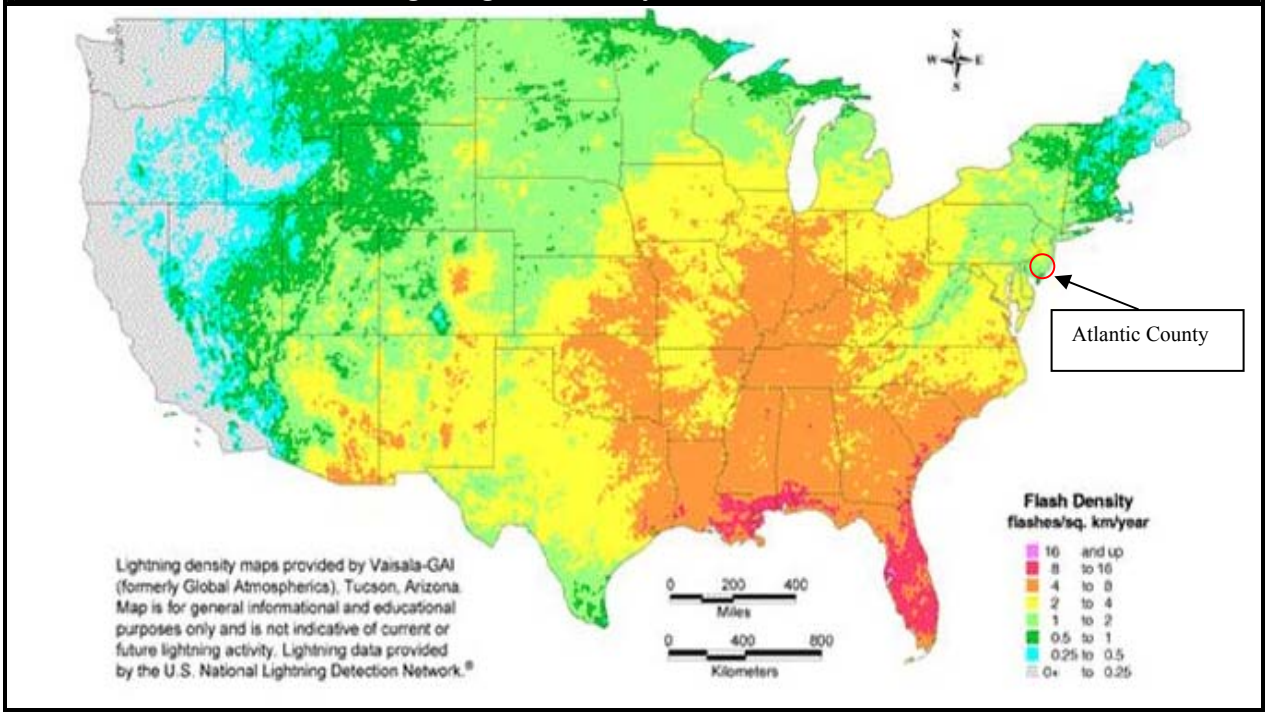
Description – Lightning

Lightning is a discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm, creating a "bolt" when the buildup of charges becomes strong enough. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Lightning rapidly heats the sky as it flashes, but the surrounding air cools following the bolt. This rapid heating and cooling of the surrounding air causes thunder. On average, 73 people are killed each year by lightning strikes in the United States.

Location - Lightning

Atlantic County is located in a region of the country that is susceptible to lightning strike, though not as susceptible as southeastern states. Figure 3a.4 shows a lightning flash density map for the years 1996-2000 based upon data provided by Vaisala's U.S. National Lightning Detection Network (NLDN®). This data indicates that Atlantic County experiences one to two lightning strikes per square kilometer per year. This equates to 2.6 to 5.2 lightning strikes per square mile, or approximately 1,500 to 2,900 strikes per year over the whole county.

Figure 3a.4
Lightning Flash Density in the United States



Source: Vaisala U.S. National Lightning Detection Network

Extent - Lightning

All areas of Atlantic County are equally susceptible to lightning strike. While lightning occurs randomly anywhere and anytime, the most common location for lightning fatalities and injuries to people is in open areas such as parks, beaches, golf courses and other recreational areas. Atlantic County remains susceptible to lightning deaths and injuries due to the large number of people who engage in outdoor activities, particularly more so along the shoreline of its coastal jurisdictions.

Previous Occurrences – Lightning

NOAA records that New Jersey ranked 26th for deaths from lightning in the United States from 1959 to 1994, and 41st for reported damage due to lightning over the same period.

NOAA's National Climatic Data Center (NCDC) records details for lightning events in Atlantic County from June 1994 onwards. The NCDC database reports 14 significant lightning events for Atlantic County between June 1994 and November 2008. These events have resulted in three recorded injuries and $1.06 million in property damage. Some notable examples include:

18 April, 2002
An active thunderstorm caused lightning strike damage in Hamilton Township during the late afternoon of the 18th. Lightning strikes started a couple of small brush fires, struck a senior citizen center and damaged the township's emergency center telephone lines and radio communications.

6 June, 2002
Lightning struck the parking lot of a closed service station in the City of Somers Point. The lightning traveled to the underground gasoline tank. The subsequent explosion created a crater about 50 feet in diameter and 8 to 10 feet deep. No serious injuries were reported.

5 August, 2002
Lightning strikes injured one person and damaged a couple of structures in the City of Brigantine. Lightning struck a house under construction. It also struck a construction worker at the site and injured him. Another lightning strike hit a garage. The ensuing fire damaged the garage and garage roof and then spread to the home. The porch roof and exterior walls of the house were damaged before the fire was extinguished. Damage to the home was estimated at $25,000. Lightning also struck an antenna on a hotel roof. Guests were evacuated from the hotel. No fire occurred, but heavy rain damaged one room. Brigantine beach patrol's radio tower was also struck by lightning as were two radio stations' antennas. About 1,200 Conectiv homes and businesses lost power in the cities of Brigantine and Northfield and the Township of Egg Harbor.

18 July, 2005
Thunderstorms with frequent lightning caused power outages across southern Ocean County and northern Atlantic County. Atlantic City Electric reported about 4,500 homes and businesses lost power in the two counties. The outages in Atlantic County were concentrated in Galloway Township.

29 June, 2008
A lightning strike and ensuing fire destroyed the landmark Sweetwater Casino Restaurant in Mullica Township. Lightning struck the restaurant's electrical system. When firefighters arrived, the building was already engulfed in flames.

9 September, 2008
A lightning strike started a two alarm fire at a Kirklin Avenue home in Linwood. The fire began in the electrical system in the house's kitchen. More than forty fire fighters from four municipalities battled the blaze. U.S. Route 9 was closed for 45 minutes.

Probability of Future Occurrences – Lightning

The probability of occurrence for future lightning events in Atlantic County is certain. According to NOAA, Atlantic County is located in an area of the country that experiences an average of one to two lightning flashes per square kilometer per year (in the order of 1,500 to 3,000 flashes countywide per year). Given this regular frequency of occurrence, it can be expected that future lightning events will continue to threaten life and cause property damages throughout Atlantic County.

Nor'easters

Description – Nor'easters

Similar to hurricanes, nor'easters are ocean storms capable of causing substantial damage in the Eastern United States due to their associated strong winds and heavy precipitation. Nor'easters are named for the winds that blow in from the northeast and drive the storm up the East Coast along the Gulf Stream, a band of warm water that lies off the Atlantic coast. They are caused by the interaction of the jet stream with horizontal temperature gradients and generally occur during the fall and winter months when moisture and cold air are plentiful.

Nor'easters are known for dumping heavy amounts of rain and snow, producing hurricane-force winds, and creating high surf that causes severe beach erosion and coastal flooding. There are two main components to a nor'easter: (1) a Gulf Stream low-pressure system (counter-clockwise winds) generated off the southeastern U.S. coast, gathering warm air and moisture from the Atlantic, and pulled up the East Coast by strong northeasterly winds at the leading edge of the storm; and (2) an Arctic high-pressure system (clockwise winds) which meets the low-pressure system with cold, arctic air blowing down from Canada. When the two systems collide, the moisture and cold air produce a mix of precipitation and have the potential for creating dangerously high winds and heavy seas. As the low-pressure system deepens, the intensity of the winds and waves will increase and cause serious damage to coastal areas as the storm moves northeast. Nor'easters can be extremely large (up to 1,000 miles in diameter) and their duration can last for days and multiple tidal cycles, often causing major coastal flooding, erosion and damages that might even exceed the impacts of shorter-term hurricane events.

While there are a variety of indicators for nor'easter intensity, Table 3a.9 describes the Dolan-Davis Nor'easter Intensity Scale which is based on coastal storm erosion, degradation and property damage.

Table 3a.9
Dolan-Davis Nor'easter Intensity Scale

Storm Class	Beach Erosion	Dune Erosion	Overwash	Property Damage
1 WEAK	Minor changes	None	No	No
2 MODERATE	Modest; mostly to lower beach	Minor	No	Modest
3 SIGNIFICANT	Erosion extends across beach	Can be significant	No	Loss of many structures at local level
4 SEVERE	Severe beach erosion and recession	Severe dune erosion or destruction	On low beaches	Loss of structures at community-scale
5 EXTREME	Extreme beach erosion	Dunes destroyed over extensive areas	Massive in sheets and channels	Extensive at regional-scale; millions of dollars

Source: Federal Emergency Management Agency

Location– Nor'easters

Nor'easters threaten the entire Atlantic Coast of the United States, and while coastal areas are most directly exposed to the damaging forces of such storm systems their impact is often felt far inland. Atlantic County is located in an area that is extremely susceptible to nor'easters. No one jurisdiction within the County is any more likely to have the path of such a system traverse within its borders than any other location.

Extent – Nor'easters

All areas throughout Atlantic County are susceptible to the nor'easter hazard effects of extreme wind, flooding and heavy snowfall. Nor'easters are most notable for snow accumulations in excess of nine inches, accompanied by high, sometimes gale force winds and storm surge in coastal areas. Major property damages and power outages are also common.

Historical Occurrences – Nor'easters

Atlantic County has a lengthy history of devastating impacts wrought by nor'easters. This includes damages caused by the effects of extreme wind, heavy snowfall, flooding, wave action, and coastal erosion. Some notable examples include:

6-8 March, 1962
In what became know as the "Ash Wednesday Nor'easter", a massive storm caused by an unusual combination of three pressure areas and exceptionally high tides associated with the spring equinox stalled in the mid-Atlantic for almost three days, pounding coastal areas with continuous rain, high winds, and tidal surges, and dumping large quantities of snow inland for several hundred miles. In Atlantic City the Steel Pier was partially destroyed, and the Cities of Brigantine, Margate City, Ventnor City and Longport also suffered significant damage from wind and flooding.

11-12 January, 1992
An intense, slow-moving "nor'easter" storm hit the eastern coast of New Jersey during December 11 and 12, 1992. This storm produced strong winds and record or near-record flooding along the entire Atlantic Coast of New Jersey from Bergen County to Cape May. Two deaths were attributed to the storm. The President of the United States declared Bergen, Essex, Hudson, Somerset, Union, Middlesex, Monmouth, Ocean, Salem, Atlantic, Cumberland, and Cape May Counties a disaster area. The State was granted $46 million in disaster relief funds for public damages and $265 million for insured damage (National Weather Service, 1994) that occurred as a result of this storm.

10-14 December, 1992
A severe weather system of snow, sleet, rain, and high winds struck Connecticut, Delaware, Maryland, Massachusetts, New Jersey, New York, Pennsylvania, Rhode Island, Virginia, and West Virginia. The highest recorded winds from this nor'easter were 80 miles per hour (mph) gusts at Cape May. The tidal surge was 1-4 feet above normal, and wave heights were 20-25 feet near the shore. Atlantic County was among those counties covered by the resulting Federal disaster declaration.

28-29 January, 1998
An intense northeaster pounded the New Jersey Shore with tidal flooding, beach erosion, strong winds and rain on the 28th. Conditions were progressively worse farther south along the New Jersey shore. In Atlantic County, both the White Horse (U.S. Route 30) and Black Horse (U.S. Route 40) Pikes in and out of Atlantic City were closed for more than four hours the morning of the 28th. The Eastbound lanes of the Black Horse Pike were closed again the evening of the 28th. Several other roads were closed due to bayside tidal flooding in Egg Harbor Township, Absecon, Atlantic City and Pleasantville. Sections of U.S. Route 9 in Linwood and County Road 152 in Somers Point and Longport were also closed. Along the oceanside, erosion took a heavy toll. In Margate 50 to 90 percent of the dunes vanished or suffered damage. In Brigantine about 1,000

feet of dune fencing was lost. In Ventnor City, the ramp to the beach washed away and the ocean carved huge chunks out of the dunes. Atlantic City lost about 3 feet of its beach and vertical drops of 3 to 4 feet were created in Absecon and Brigantine.

4-9 February, 1998

The strongest northeaster of the winter battered Coastal New Jersey, especially from Ocean County southward, with damaging winds, moderate to severe coastal flooding, extensive beach erosion, several dune breaches and heavy rain. A state of emergency was declared for all the coastal counties and both Atlantic and Cape May Counties were declared federal disaster areas. Damage statewide was estimated at about 17 million dollars and it was the worst storm to affect the area since December 1992. Atlantic County suffered an estimated 3.9 million dollars in damage. Twenty-two persons from Brigantine and Atlantic City were sheltered. Throughout the county one home and one business suffered major damage, 93 other dwellings and businesses suffered minor damage while tidal flooding affected but caused little damage to 219 others. Brigantine suffered substantial flooding and beach erosion, especially at the north end of the island. About 75 percent of its sand was carried away. Within Atlantic City, the 84 residents of the Oceanside Nursing Home were removed to 14 other nursing homes on the mainland. The boardwalk was ripped at New Hampshire Avenue. All access roads into the city were closed on the morning of the 5th, except for the Atlantic City Expressway. The worst tidal flooding occurred in the back bay area with much of Venice Park, the Chelsea Bay Front and Chelsea Heights inundated. Dozens of parked cars had water up to their doors. The beach was described as "destroyed" in Margate. In Longport, the ocean met the bay from 11th through 24th Streets. The erosion caused vertical cliffs of 4 to 5 feet and streets had to be cleared of debris. The mainland was not spared in the county as the heavy rain caused basement flooding in the Donald J. Adams School in Northfield and trees were uprooted in Linwood.

Probability of Future Occurrences – Nor'easters

Nor'easters will remain a very frequent occurrence for Atlantic County, and the probability of future occurrences affecting all of Atlantic County's jurisdictions is certain.

Tornado

Hazards Associated with Tornado Events

Tornadoes are particular types of events. The hazard associated with a tornado event is high winds. The high wind hazard is addressed specifically elsewhere in the plan. Tornado events are discussed in the remainder of this section.

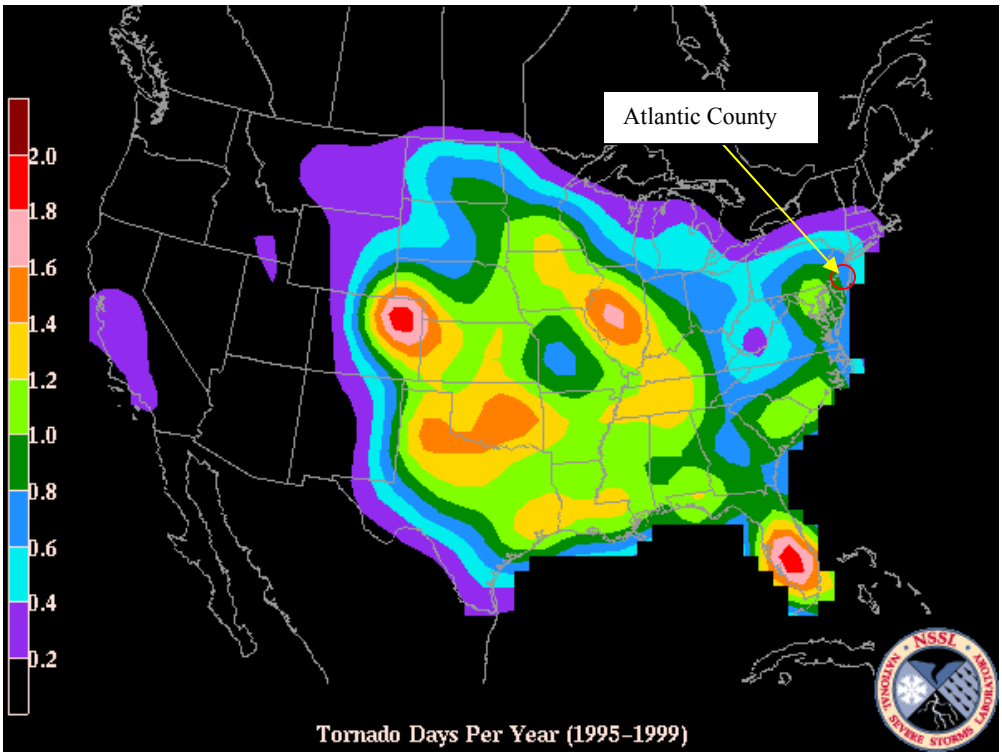
Description – Tornado Events

The American Meteorological Society, "Glossary of Meteorology" defines a tornado as violently rotating column of air that has contact with the ground and extends downward from a cumulonimbus cloud. Tornado wind speeds can range from as low as 40 mph to as high as 318 mph. Tornadoes often accompany thunderstorms and hurricanes. Tornadoes can occur at any time of the year but are more prevalent during the spring and summer months.

Location – Tornado Events

Tornadoes can occur anywhere in the US. They have struck in all 50 states, with the highest concentration on the central plains and in the southeastern states, such as Oklahoma, Texas, and Florida. No one jurisdiction within Atlantic County is any more likely to have a tornado touch down within its borders than any other location. The hazard associated with tornado events (high winds) have distinct hazard area locations, discussed in other sections of this report. According to the NSSL, Atlantic County is located in an area which experiences an average of 0.6 to 0.8 tornado days per year:

Figure 3a.5: NSSL Tornado Days per Year



Extent-Tornado Events

The magnitude or severity of a tornado is dependent upon wind speed and is categorized by the Fujita Scale, presented in Table 3a.10. Tornadoes are typically considered to be "significant" for F2 or F3 on the Fujita Scale and "violent" for F4 and F5.

Table 3a.10
The Fujita Scale: Tornado Magnitude
(Source: NOAA)

Scale	Wind Estimate (mph)	Damage Type	Damage Description
F0	< 73	Light	Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.
F1	73 - 112	Moderate	Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads.
F2	113 - 157	Considerable	Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
F3	158 - 206	Severe	Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
F4	207 - 260	Devastating	Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.
F5	261 - 318	Incredible	Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yards); trees debarked; incredible phenomena will occur.

Previous Occurrences – Tornado Events

Tornadoes are a particular type of high wind event which have been recorded by NOAA's NCDC seven times between November 1970 and November 2008. In total, the seven tornadoes recorded in Atlantic County have reportedly caused $1.025 million in property damages and three injuries (though no deaths or crop damages were reported). A summary of information available on all eleven events is presented in Table 3a.11.

Table 3a.11
Tornadoes Reported in Atlantic County
(Source: NOAA's NCDC Storm Events Database for the period September 1975 to February 2008)

Date	Affected Municipality	Deaths	Injuries	Property Damage	Crop Damage	Magnitude	Length (miles)	Width (yards)
11/4/1970	Atlantic City, City of	0	0	$250,000	$0	F2	1	100
7/21/1987	Egg Harbor, Township of	0	3	$3,000	$0	F2	1	100
8/5/1987	Buena Vista, Township of	0	0	$3,000	$0	F0	?	50
10/18/1990	Ventnor City, City of	0	0	$250,000	$0	F0	1	1,100
8/21/1993	Hammonton, Town of	0	0	$500,000	$0	F2	2	330
9/8/1993	Brigantine, City of	0	0	$5,000	$0	F0	1	50
7/5/2001	Cities of Somers Point and Linwood	0	0	$15,000	$0	F1	4	100

Source: NOAA's National Climatic Data Center
Notes: Casualty and damage information are the total reported for the event, not necessarily the total for the county. Magnitude refers to the Fujita Scale.

The NCDC database includes descriptions of the three most recent tornados that have been recorded in the County:

21 August, 1993:
Eyewitnesses indicated that a tornado touched down just northwest of Hammonton Lake which is oriented east-west in a heavily wooded area. The tornado moved east-southeast across the lake, becoming a waterspout. One witness stated that the waterspout pulled up a large quantity of water as it traversed the lake. On the eastern edge of the lake, the tornado apparently lifted off the ground for about 500 feet and then touched down again farther east before dissipating. Tree damage was extensive, with several trees twisted, snapped off and uprooted. Numerous trees were 2 to 3 feet in diameter, with a few of the trees 4 to 5 feet in diameter. The damage suggested that the tornado hugged the northern edge of the lake more closely. One large portion of a tree was sent through the roof of a nearby house. Another house was damaged by a 3-foot diameter trunk falling over on its roof. A wooden boat dock, some 30 feet in length, was completely destroyed and tossed up on the land. A 10- foot by 10-foot wooden shed was demolished and its roof lifted and carried about 200 feet away. Some other observers reported automobiles being moved about by the wind, and large areas of sod being vacuumed off the ground leaving exposed root pits. Fortunately, there were no known injuries from the storm.

8 September, 1993:
Four waterspouts were observed off the southern New Jersey coast in the midst of very moist and unstable atmospheric conditions. One waterspout was located 20 miles east of Barnegat, the other three were reported off the barrier island City of Brigantine. One of the three moved inland as a weak tornado at the northern end of the City of Brigantine. Police said the tornado moved southward tearing off roof shingles and tree limbs along it short path. One resident had a 55-pound barbecue grill tossed about 150 feet from its original position and an outdoor table destroyed. The funnel dissipated rapidly after moving inland and was accompanied by small hail and very heavy rain.

5 July 2001:
An F1 tornado caused wind damage in Somers Point and Linwood. About six homes were damaged by the tornado. More than 30 trees were either uprooted or badly twisted. Electrical, telephone and cable wires were knocked down. Siding was ripped off several houses and one porch was badly damaged. At least one vehicle was damaged by downed trees. About 400 Conectiv customers lost power. Strongest winds were estimated at about 90 mph in Somers Point. The tornado apparently touched down as a waterspout over Patcong Creek and then moved into Somers Point. It crossed the Garden State Parkway near mile marker 30.4. The first observed wind damage were trees down on Bala Drive. Wind damage also occurred on Bucknell and Exton Roads. On Bucknell Road, a boat was tossed 90 feet into a neighbor's yard. The tornado traveled east-northeast down Southview Drive across Chapman Boulevard. It was at this location where it reached its maximum intensity, badly damaged a porch and uprooted several large trees. The tornado proceeded to move through Crestview Drive, across U.S. Route 9, Euclid Avenue and Abbey Road before entering Linwood near West Royal Drive. Trash cans were flying in circular motions. The last property damage occurred in Linwood near Candlewood Drive where a couple of bird house poles were bent and twisted. The tornado continued on the ground through the marshes before it dissipated as a waterspout over Scull Bay. The total path length was about 3.6 miles. The tornado was not on the ground its entire length. Its maximum width was about 100 yards. No serious injuries were reported.

In addition to events recorded in the NCDC database, local sources also report that a tornado of unknown magnitude struck Ventnor City on October 19, 1990, causing damage to trees, chimneys, and beachfront structures.

Probability of Occurrence – Tornado Events

For tornado events, this plan indicates the probability of future occurrences in terms of frequency based on historical events. According to the NOAA National Climatic Data Center, Atlantic County has experienced seven recorded tornadoes in the 38 year period between 1970 and 2008, or an average of 0.18 tornadoes per year in that period. When annualized over the full time period covered by the NOAA database, this annual occurrence falls to 0.19 tornadoes per year in the County. Table 3a.12 illustrates a comparative summary of tornado events in both New Jersey and Atlantic County, and provides an associated average annual number of storms for each type.

Table 3a.12
Probability of Occurrence of Tornadoes
(Source: NOAA's NCDC Storm Events Database for the period January 1, 1950 – November 30, 2008)

Category	Total Number of Events	Probability of Occurrence*	Average Annual Number of Events
New Jersey			
F0	47	29.94%	0.81
F1	63	40.13%	1.09
F2	26	16.56%	0.45
F3	4	2.55%	0.07
F4	0	0.00%	0.00
F5	4	2.55%	0.07
Unable to Determine	13	8.28%	0.22
Total, New Jersey	*157*		*2.71*
Atlantic County			
F0	3	42.86%	0.05
F1	1	14.29%	0.02
F2	3	42.86%	0.05
F3	0	0.00%	0.0
F4	0	0.00%	0.0
F5	0	0.00%	0.0
Unable to Determine	0	0.00%	0.0
Total, Atlantic County	*7*		*0.34*

*The probability of occurrence is presented in terms of frequency within the set of recorded historical events. The probability of occurrence has been calculated by dividing the number of events of a given magnitude by the total number of events for all categories. e.g.: the probability of occurrence of a tornado of magnitude F1 in the State as a whole has been determined as 63/157 = 0.4013. i.e. if a tornado were to touch down in New Jersey, there is a 40% chance that it will be of magnitude F1.

Winter Storm / Ice Storm

Hazards Associated with Winter Storm / Ice Storm

Severe winter storms are particular types of events. They are characterized by the hazards of high winds, extreme cold, heavy precipitation (in the form of snow and/or ice), and sometimes wave action, coastal erosion and flooding. Winter storm and ice storm events are discussed in general terms in this section of the document; their specific hazards are discussed elsewhere in the plan.

Description – Winter Storms / Ice Storms

Winter storms consist of cold temperatures and heavy snow or ice. Because winter storms are regular, annual occurrences in Atlantic County, they are considered hazards only when they result in damage to specific structures and/or overwhelm local capabilities to handle disruptions to traffic, communications, and electric power.

Winter storms typically occur in New Jersey from late November through mid-April, with peak months being December through March. Northeasters are one type of winter storm that is common in Atlantic County. These storms usually form off the US East Coast near the Carolinas then follow a track northward along the coast until they blow out to sea, hence the term "northeaster". Occasionally they are large enough to cover a majority of the state. Northeasters are most notable for snow accumulations in excess of nine inches accompanied by high winds (sometimes gale force) and storm surges.

Statewide, according to NOAA data average annual snowfall ranges from a low of approximately 15 inches in the Cape May area and along most of the shore, to up to 50 inches in the northern extremity of the State (see Figure 3a.6). For most of Atlantic County, average annual snowfall ranges from 15 to 20 inches per year. This can very greatly from one year to the next, particularly if several major extended-period storms impact the area (during which snowfall totals can approach or exceed annual averages).

Freezing rain is another common manifestation of winter storms: This occurs when precipitation that begins as snow at high altitude melts as it falls through zones with an air temperature above freezing, before encountering a colder layer prior to ground impact, causing it to freeze on contact with any object it encounters at ground level. Freezing rain frequently causes travel problems on roadways, breaks off tree limbs and brings down power and telephone cables. Atlantic County lies within an area which experiences an average of around six hours of freezing rain per year, slightly less on average than some western and northern parts of the state (See Figure 3a.7). Freezing rain is comparatively uncommon in the USA outside the northeastern states.

Figure 3a.6: Average Annual Snowfall Totals in New Jersey

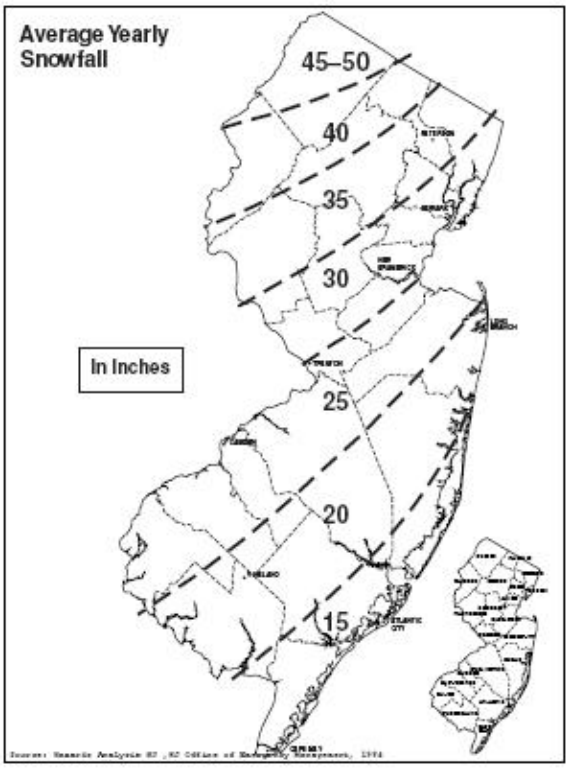
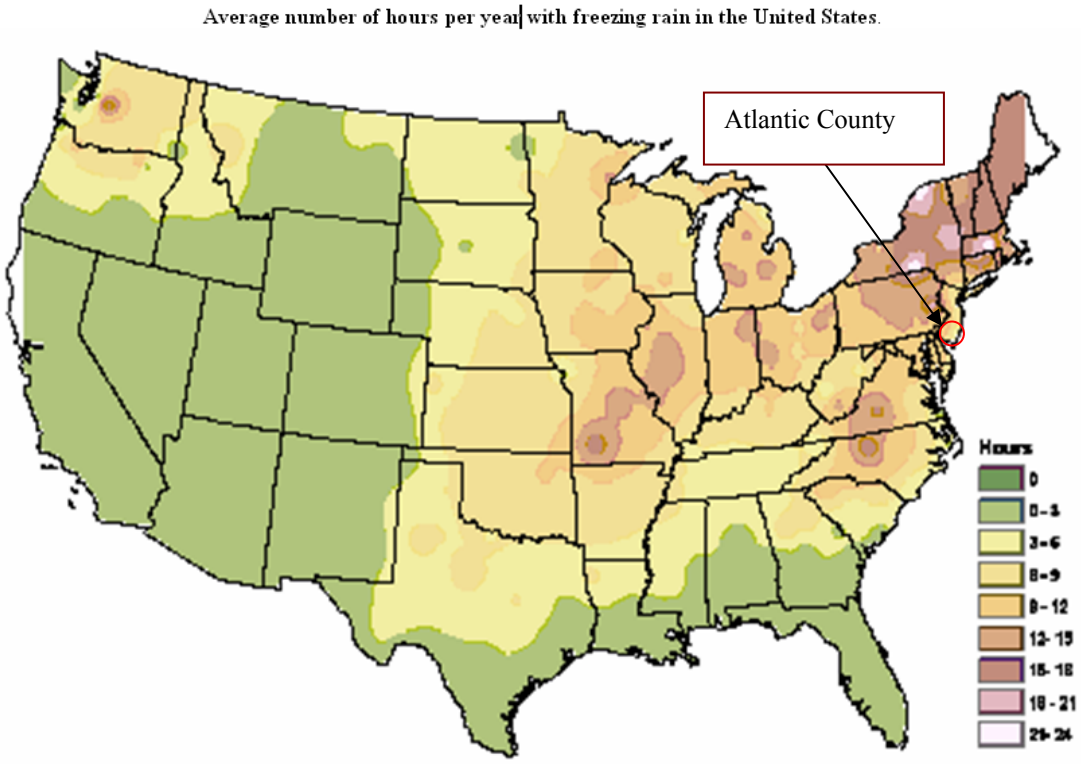


Figure 3a.7: Freezing Rain Zones Nationwide



Source: "FREEZING RAIN EVENTS IN THE UNITED STATES", National Climatic Data Center, Asheville, North Carolina

Location – Winter Storms / Ice Storms

Severe winter storms and ice storms can occur anywhere in the County; generally no single jurisdiction within Atlantic County is any more likely to be impacted by a severe winter storm or ice storm within its borders than any other location. The hazards associated with this event have distinct hazard area locations, discussed in other sections of this report.

Extent – Winter Storms / Ice Storms

A severe winter storm can adversely affect roadways, utilities, business activities and can cause loss of life, frostbite, or freezing. The most common effect of winter storms and ice storms is traffic accidents, interruptions in power supply and communications; and the failure of inadequately designed and/or maintained roofing systems. Power outages and temperatures below freezing for extended periods of time can cause pipes to freeze and burst. Heavily populated areas tend to be significantly impacted by losses of power and communications systems due to downed lines. Distribution lines can be downed by the weight of snow or ice, or heavy winds. When limbs and lines fall on roadways, transportation routes can be adversely affected and buildings, automobiles can be damaged. Heavy snow loads can cause roof collapse for residential, commercial, and industrial structures in cases of inadequate design and/or maintenance. Severe winter storms can also cause extensive coastal flooding, coastal erosion, and wave damage. If significant snowfall amounts melt quickly, inland flooding can occur as bankfull conditions are exceeded or in areas of poor roadway drainage.

The severity of the effects of winter storms and ice storms increases as the amount and rate of precipitation increase. In addition, storms with a low forward velocity are in an area for a longer duration and become more severe in their affects. Storms that are in full force during the morning or evening rush hours tend to have their affects magnified because more people are out on the roadways and directly exposed. Storms that arrive at high tide can also have exacerbated affects in coastal areas.

The magnitude of a severe winter storm or ice storm can be qualified into five main categories by event type, as shown below:

- Heavy Snowstorm: Accumulations of four inches or more of snow in a six-hour period, or six inches or more of snow in a twelve-hour period.
- Sleet Storm: Significant accumulations of solid pellets which form from the freezing of raindrops or partially melted snowflakes causing slippery surfaces posing hazards to pedestrians and motorists.
- Ice Storm: Significant accumulations of rain or drizzle freezing on objects (tress, power lines, roadways, etc.) as it strikes them, causing slippery surfaces and damage from the sheer weight of ice accumulation.
- Blizzard: Wind velocity of 35 miles per hour or more, temperatures below freezing, considerable blowing snow with visibility frequently below one-quarter mile prevailing over an extended period of time.
- Severe Blizzard: Wind velocity of 45 miles per hour, temperatures of 10 degrees Fahrenheit or lower, a high density of blowing snow with visibility frequently measured in feet prevailing over an extended period of time.

Previous Occurrences – Winter Storms / Ice Storms

In Atlantic County, severe winter snow and ice storms are normal and expected. A review of the NCDC database yielded 39 significant snow and ice/winter storm events which were reported as having affected

Atlantic County from February 1995 to November 2008 (the entire period for which events are recorded in any detail by NCDC). These events are reported as being responsible for property damage totaling more than $30 million, although this includes damage reported in counties besides Atlantic County that were affected by the same events. One death and two injuries were attributed to these events.

Event designations given by the NCDC for these 39 events recorded in the County are generic, but are summarized in Table 3a.13, while descriptions for some of these events are as follows:

16-17 February, 1996:
A low pressure system lingered over North Carolina on the 15th and developed quickly once it reached Cape Hatteras during the early morning hours of the 16th. It then moved northeast over the Western Atlantic reaching the Gulf of Maine the morning of the 17th Its storm track was far enough offshore to keep cold air in place and to locate its axis of heaviest snow over Delaware and New Jersey. Individual accumulations included 11 inches in Hammonton and Folsom.

9 April, 1996:
A low pressure system developed near Cape Hatteras the morning of the 9th intensified and moved slowly northeast during the next 24 hours. It reached Cape Cod the morning of the 10th. This caused a late season rain and snow storm across New Jersey with the heaviest accumulations along Coastal New Jersey. Accumulations inland averaged around 2 inches, but along the coast increased to 5 to 8 inches. Roads and overpasses became slippery and this resulted in accidents. Along coastal New Jersey, the accumulating snow started causing power outages as the heavy wet snow pulled tree limbs and power lines down. In Atlantic County, about 10,000 customers lost power starting at about 6:45 pm EDT on the 9th. All but 600 had power restored by 4 a.m. EDT on the 10th. Specific accumulations included 8 inches in Egg Harbor City.

25 January, 2000:
The most intense winter storm since the Blizzard of 1996 buried New Jersey on the 25th with 6 to 15 inches of snow, sleet and freezing rain, wind gusts as strong as 60 mph along the shore, moderate coastal flooding and drifts as high as four feet. For the first time since 1996 county and government offices were closed. Many businesses and all schools were closed. Many malls never opened and all the others closed early. Dozens of public events were postponed. Both the Millville Airport and the Atlantic City International Airport were shut down. In Atlantic County, there was a long list of bayside roads flooded from Brigantine to Somers Point. In Atlantic City, both the Black (U.S. Route 40 and 322) and White (U.S. Route 30) Horse Pikes were closed. Individual accumulations included 10 inches in Pomona (Township of Galloway), 9 inches in the City of Estell Manor and 8.3 inches at the Atlantic City International Airport.

16-17 February, 2003:
The most powerful storm to affect New Jersey since the Blizzard of 1996 struck during the President's Day Weekend. Strong winds caused about 11,000 homes and businesses to lose power along coastal New Jersey on the 17th. Power was restored by 6 p.m. EST that evening in Atlantic County. In Atlantic County, the roof parapet of the Egg Harbor Township Middle School collapsed. It caused cracks and strain in the supports of the school's gym and auditorium. Flights at the Atlantic City International Airport resumed on the 18th after being halted on the 16th. Bus transportation in and out of Atlantic City was suspended on the 16th and restored on the 18th. Schools did not reopen until the 20th. Many business awnings collapsed because of the weight of the snow and sleet. In Atlantic County, causeways into the Borough of Longport and Margate City were closed on the 17th. U.S. Route 40 (The Black Horse Pike) was closed due to flooding throughout the 17th. Severe erosion was reported in Ventnor. The beach dropped seven feet in Atlantic City. Peak wind gusts reached 53 mph

at the Atlantic City International Airport, Specific snow accumulations included 19.8 inches in Margate City.

12 February, 2006:
A major winter storm affected the northeastern United States, including the northern mid Atlantic region, during Saturday February 11th and Sunday February 12th. New Jersey was greatly affected, with intense snowfall rates, gusty winds and near whiteout conditions. About 120,000 Atlantic City Electric customers lost service during the height of the storm. Specific snow accumulations included 8.6 inches in the City of Estell Manor.

Probability of Occurrence – Winter Storms / Ice Storms

This plan indicates the probability of future occurrences in terms of frequency based on historical events. Using the historical data presented above, and the generic descriptions of the significant events recorded in Atlantic County by the NCDC, Table 3a.13 summarizes the occurrence of winter storm events and their annual occurrence. Atlantic County and its participating jurisdictions have experienced 39 winter weather events between 1995 and 2008, an average of three significant events per year.

Table 3a.13
Occurrence of Winter Storms/Ice Storms, Atlantic County (1995 – 2008)
(Source: NOAA's NCDC Storm Events Database)

Type	Total Number of Events	Average Annual Number of Events
Heavy Snow	17	1.3
Snow	8	0.6
Freezing Rain	3	0.2
Ice Storm	2	0.15
Winter Storm	9	0.7
Total	*39*	*3.0*

Winter storm events will remain a very frequent occurrence in Atlantic County, and the probability of future occurrences in the County is certain, but the impacts of snow and ice storms are more likely to be major disruptions to transportation, commerce and electrical power as well as significant overtime work for government employees, rather than large scale property damages and/or threats to human life and safety.

Dam Failure

Description – Dam Failure

Dam failure is the breakdown, collapse or other failure of a dam structure characterized by the uncontrolled release of impounded water that results in downstream flooding. In the event of a dam failure, the energy of the water stored behind even a small dam is capable of causing loss of life and severe property damage if development exists downstream. There are varying degrees of failure, and an unexpected or unplanned dam breach is considered one type of failure. A breach is an opening through a dam which drains the water impounded behind it. A controlled breach is a planned, constructed opening and not considered a dam failure event, while an uncontrolled breach is the unintentional discharge from the impounded water body and considered a failure.

Dam failure can result from natural events, human-induced events or a combination of the two. Natural occurrences that may cause dam failure include hurricanes, floods, earthquakes and landslides; human-induced actions may include the deterioration of the foundation or the materials used in dam construction. In recent years, dams have also received considerably more attention in the emergency management community as potential targets for terrorist acts.

Dam failure presents a significant potential for disaster, in that significant loss of life and property would be expected in addition to the possible loss of power and water resources. The most common cause of dam failure is prolonged rainfall that produces flooding. Failures due to other natural events such as hurricanes, earthquakes or landslides are significant because there is generally little or no advance warning. The best way to mitigate dam failure is through the proper construction, inspection, maintenance and operation of dams, as well as maintaining and updating Emergency Action Plans for use in the event of a dam failure.

Federal guidelines for dam Safety issued by FEMA classify dams into three categories of Low, Significant, and High hazard potential, based on the probable loss of human life and the impacts on economic, environmental, and lifeline interests that would result from failure or misoperation of the dam. These categories are not intended to imply any judgment regarding the structural condition of the dam or the probability of failure.

> *Low Hazard Potential*: Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.
>
> *Significant Hazard Potential:* Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.
>
> *High Hazard Potential*: Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life and extensive property damage.

Atlantic County Dams

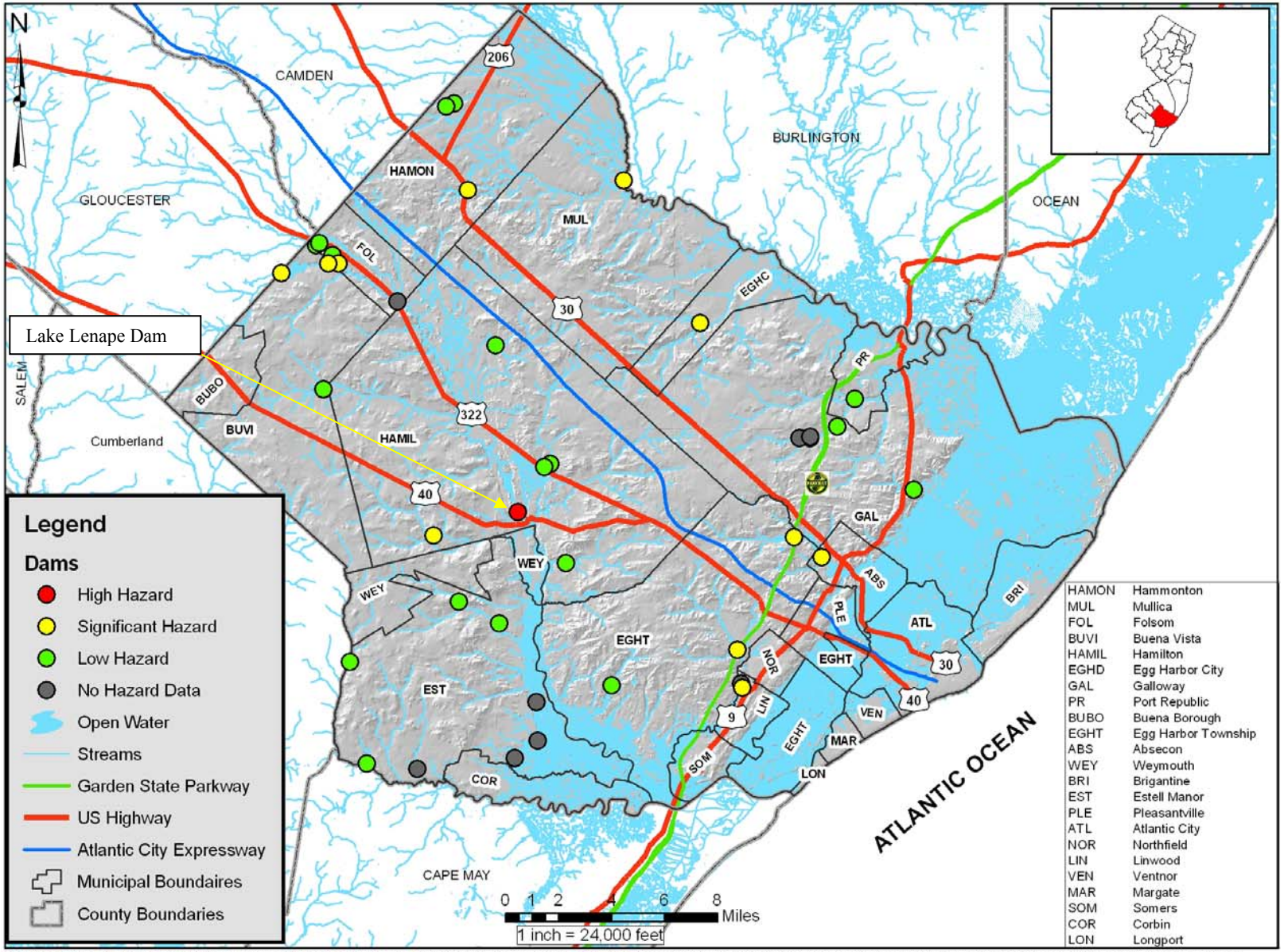
The detailed National Inventory of Dams (NID) maintained by the U.S. Army Corps of Engineers (USACE) records 26 dams in Atlantic County, of which one is classified as High Hazard Potential, 11are classified as Significant Hazard Potential, and the remainder Low Hazard Potential. The database of the National Performance of Dams Program (NPDP), based at Stanford University, lists seven dams in addition to the USACE list, but provides very few associated details. GIS data provided by Atlantic County includes 15 dams additional to the USACE list. The location and potential hazard designation for all dams for which basic information was readily available is presented in Figure 3a.8, while more detailed information for all High and Significant Hazard Potential dams in Atlantic County is presented in Table 3a.14.

Table 3a.14
High/Significant Potential Hazard Dams, Atlantic County
(Source: USACE NID)

Dam Name	Municipality	River/Stream	Owner	Storage (Acre-Feet)	Hazard Potential
Lake Lenape Dam	Hamilton, Township of	Great Egg Harbor River	Hamilton Township	6,610	H
Doughty Pond Dam	Absecon, City of	Absecon Creek	Atlantic City M.U.A.	2,400	S
Kuehnle Pond Dam	Egg Harbor, Township of	South Branch Absecon Creek	Atlantic City M.U.A.	2,100	S
Hammonton Lake Dam	Hammonton, Town of	Hammonton Creek	NJDOT	426	S
Patcong Lake Dam	Egg Harbor, Township of	Patcong Creek	Lakeside Estates	209	S
Pleasant Mills Dam	Mullica, Township of	Hammonton Creek	Nescochague Lake Assoc. Inc.	160	S
Lake George Dam	Buena Vista, Township of	Great Egg Harbor River-TR	Collings Lakes Civic Association	160	S
Lake Albert Dam	Folsom, Borough of	Great Egg Harbor River-TR	Collings Lakes Civic Association	147	S
Stephen Lake Dam	Estell Manor, City of	Stephen Creek	Lenape Game Preserve & Breeding Assoc.	130	S
Bargaintown Mill Pond Dam	Egg Harbor, Township of	Patcong Creek	County of Atlantic	123	S
Egg Harbor City Park Dam	Egg Harbor City, City of	Indian Cabin Creek	City of Egg Harbor City	111	S
Cedar Lake Dam	Buena Vista, Township of	Great Egg Harbor River-TR	Mildred T. Wilson	80	S

TR- : Tributary of

Figure 3a.8: Atlantic County Dams



SOURCE: NJDEP: County Boundaries, NJ 2003; Municipal Boundary Atlantic County, NJ 2003; 10-meter DEMs, 2002; Waters of New Jersey (Lakes and Ponds) 2002; US Census Borough: TIGER data, 2000; Atlantic County Office of GIS, 2004Dams; Stanford U - NPDP data, 2008

The single identified "high hazard" dam in Atlantic County is also classified by USGS as "major" dam. According to USGS, major dams are described as 50 feet or more in height, or with a normal storage capacity of 5,000 acre-feet or more, or with a maximum storage capacity of 25,000 acre-feet or more, and represent the most significant hazard risk based on the potential consequences of a dam failure. While detailed inundation mapping was not readily available for this dam, sources in the Township of Hamilton estimate that under certain circumstances the effects of a failure would be felt up to five miles downstream of the dam and would impact approximately 75 residential structures and 12 commercial properties.

Historical Occurrences – Dam Failure

According to NJDEP's Bureau of Dam Safety and Flood Control, New Jersey has not experienced any historic major dam failures but there have been an increasing number of small dam failures in the state. This is largely attributed to the lack of maintenance and inspection, as well as the fact that many of the dams in the state are nearing the end of their design life.

Local sources report concerns regarding a series of lakes and dams on the campus of the Richard Stockton College of New Jersey, in the Township of Galloway. The lower dam (Lake Fred Dam) forms the main impoundment of the lakes. Constructed in the 1930's, the Lake Fred Dam is an earth fill embankment approximately 850 feet long, 12-feet wide and 10 feet high. On August 20, 1997, the entire length of the earth fill dam was overtopped from a 100-year storm due to the apparent failure of the main spillway to control the volume of water. At that time a hole was scoured under the bottom of the main spillway, water overtopped the majority of the dam's crest causing erosion along the dam's downstream slope of the embankment, and sections of the earth fill dam along the spillway were undermined causing subsidence (sinkholes) in the dam's crest. Downstream areas of concern for the flooding were the Evergreen Woods Lakefront Resort Campground and the Garden State Parkway. After the incident, the rehabilitation of the Lake Fred Dam was managed by the State of New Jersey, Division of Property Management and Construction in coordination with the requirements of the New Jersey Department of Environmental Protection, Bureau of Dam Safety & Flood Control. Rehabilitation included: a new spillway, with sluice gate, designed to manage the additional volume of water generated by a 100-year storm and prevent overtopping of the dam, and articulated concrete block on the downstream slope of the embankment designed to prevent erosion if overtopping should occur. These design elements of the rehabilitation effort have minimized concerns associated with the Lake Fred Dam, which is currently classified by the Bureau of Dam Safety & Flood Control as a Class III structure (Low Hazard Potential - those dams the failure of which will cause loss of the dam itself but little or no additional damage to other property. Failure may result in the damage of farm buildings, agricultural lands and non-major roads).

Probability of Occurrence – Dam Failure

The probability of a dam failure occurrence in Atlantic County is relatively low due to routine inspection, repair and maintenance programs carried out by the NJDEC, which serves to ensure the safety and integrity of dams in New Jersey and, thereby, protect people and property from the consequences of dam failures. However, the possibility of a future failure event is likely increasing due to aging dam structures that may be in need of repair or reconstruction, and occasional problems related to private dam owners' degree of cooperation with State regulatory agencies.

Coastal Erosion

Description – Coastal Erosion

Coastal erosion is a hydrologic hazard defined as the wearing away of land and loss of beach, shoreline or dune material by the action of the ocean and is commonly expressed in engineering and related fields as the change in the position or horizontal (landward) displacement of a shoreline over a period of time (i.e., feet eroded per year). Short-term erosion typically results from episodic natural events such as hurricanes and storm surge, windstorms and flooding hazards, but may be exacerbated by human activities such as boat wakes, removal of dune and vegetative buffers, shoreline hardening and dredging. Long-term erosion is a function of multi-year impacts such as wave action, sea level rise, sediment loss, subsidence and climate change. Climatic trends can change a beach from naturally accreting to eroding due to increased episodic erosion events caused by waves from an above-average number of storms and high tides, or the long-term effects of fluctuations in sea level.

Natural recovery from erosion can take years to decades. If a beach and dune system does not recover quickly enough naturally, coastal and upland property may be exposed to further damage in subsequent coastal erosion and flooding events. Human actions to supplement natural coastal recovery, such as beach nourishment, dune stabilization and shoreline protection structures (sea walls, groins, jetties, etc.) can mitigate the hazard of coastal erosion, but may exacerbate it under some circumstances.

Death and injury are not associated with coastal erosion; however, it can cause the destruction of buildings and infrastructure and represents a major threat to the local economies of coastal communities that rely on the financial benefits of recreational beaches.

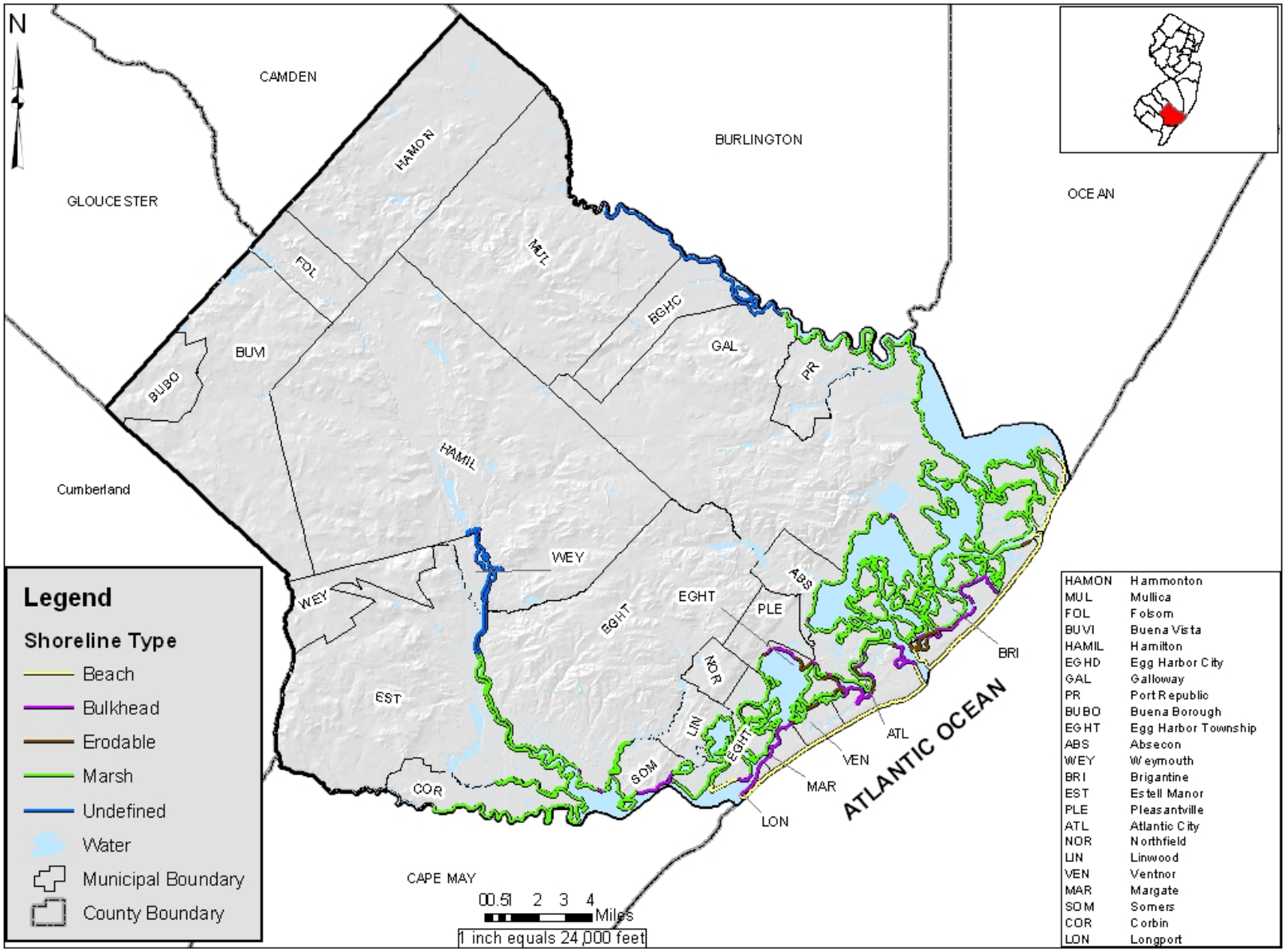
Location and Extent – Coastal Erosion

All of Atlantic County's coastal municipalities are susceptible to the coastal erosion hazard to some degree. The municipalities with shorelines on the Atlantic Ocean are the cities of Atlantic City, Brigantine, Ventnor City, Margate City, the Borough of Longport, and the Township of Galloway. All these municipalities are located on barrier islands which lie between the mainland and the Atlantic Ocean. Immediately landward of these islands are large backbay areas consisting primarily of swamp lands and tidal river estuaries. Municipalities with backbay shorelines (in addition to those municipalities on the barrier islands) are the Township of Egg Harbor, and the cities of Corbin City, Somers Point, Linwood, Northfield, Pleasantville and Absecon. The locations of municipalities with ocean or backbay shorelines are presented in Figure 3a.9, which also includes the types of shorelines present in the County, as classified by NJDEP.

Defined shoreline types in Atlantic County include:

- Beach – waterfront areas consisting of 100% sand (sometimes backed on the landward side by boardwalks and other structures in developed areas).
- Bulkhead – man-made structures immediately adjacent to the water's edge, designed to hold back water and protect from erosion.
- Marsh – areas of natural marshland edge
- Erodable – any soft shoreline other than beach, rock, or marsh at the water's edge. Usually this is taken to mean exposed earth banks along tidal rivers or backbay shorelines.

Figure 3a.9: Atlantic County Shoreline Classifications



SOURCE: NJDEP, Shoreline Type, 1993; County Boundaries of New Jersey, 2003; Waters of Nwe Jersey (Lakes and Ponsd), 2008; Municipal County Boundary Atlantic County, NJ, 2003

Since there are no readily available records which indicate significant shoreline retreat or loss of land to erosion in areas which are subject to tidal forces but not directly adjacent to the Atlantic Ocean, it has been assumed for the purposes of this plan that the erosion hazard in Atlantic County is limited to oceanfront areas. Since these areas are densely developed (with the exception of the oceanfront in Galloway, which is part of the Edwin B. Forsythe National Wildlife Refuge), the long-term erosion hazard is currently addressed through beach nourishment programs funded jointly by Federal agencies such as the US Army Corps of Engineers and local/state government.

Previous Occurrences – Coastal Erosion

Historical occurrences of coastal erosion in Atlantic County have been identified using the NOAA NCDC database records for hurricanes and other severe coastal storms, and reports from the New Jersey Beach Profile Network (NJBPN), compiled by the Richard Stockton College of New Jersey, Coastal Research Center. The following details are recorded for some of these events:

20 August, 1997:
Very strong onshore winds coupled with torrential rain, that nearly coincided with high tide along the back bays caused moderate tidal flooding along the barrier islands of Atlantic County, and some significant erosion was observed in Atlantic City.

28 January, 1998:
An intense northeaster pounded the New Jersey Shore with tidal flooding, beach erosion, strong winds and rain. Along the oceanside, erosion took a heavy toll. In Margate 50 to 90 percent of the dunes vanished or suffered damage. In the City of Brigantine about 1,000 feet of dune fencing was lost. In the City of Ventnor City, the ramp to the beach washed away and the ocean carved huge chunks out of the dunes. Atlantic City lost about 3 feet of its beach and vertical drops of 3 to 4 feet were created in the Cities of Absecon and Brigantine.

4-9 February, 1998:
The strongest northeaster of the winter battered Coastal New Jersey, especially from Ocean County southward, with damaging winds, moderate to severe coastal flooding, extensive beach erosion, several dune breaches and heavy rain. A state of emergency was declared for all the coastal counties and both Atlantic and Cape May Counties were declared federal disaster areas. Damage statewide was estimated at about 17 million dollars and it was the worst storm to affect the area since December 1992. Atlantic County suffered an estimated 3.9 million dollars in damage. Twenty-two persons from the Cities of Brigantine and Atlantic City were sheltered. Throughout the county one home and one business suffered major damage, 93 other dwellings and businesses suffered minor damage while tidal flooding affected but caused little damage to 219 others. The City of Brigantine suffered substantial flooding and beach erosion, especially at the north end of the island. About 75 percent of its sand was carried away. The boardwalk was ripped up at New Hampshire Avenue. All access roads into the city were closed on the morning of the 5th, except for the Atlantic City Expressway. The beach was described as "destroyed" in Margate City. In the Borough of Longport, the ocean met the bay from 11th through 24th Streets. The erosion caused vertical cliffs of 4 to 5 feet and streets had to be cleared of debris.

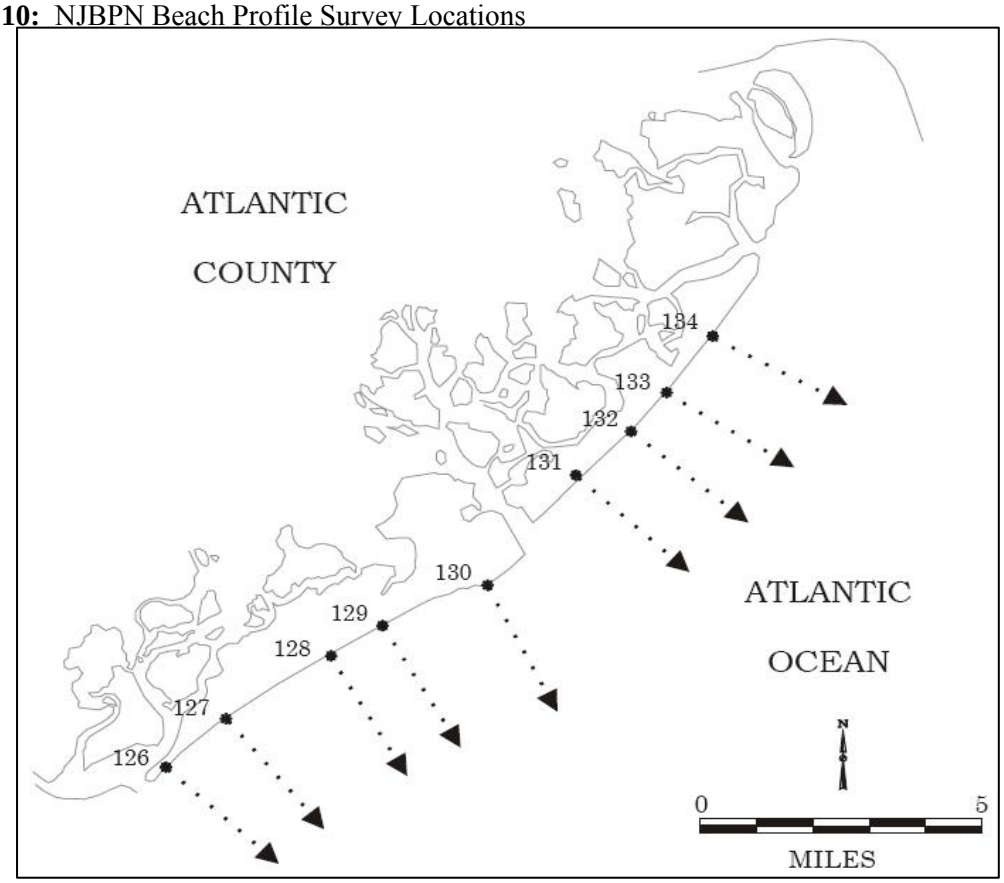
29 September, 2001:
The onshore flow around a northeaster brought minor to locally moderate tidal flooding along the New Jersey coast from the 29th through October 1st. Some beach erosion occurred. In the City of Brigantine, heavy beach erosion along the north end of the island produced cliffs that were four feet high.

18-19 September, 2003:
Tropical Storm Isabel passed some way to the south east of Atlantic County, but caused winds gusting up to 62 mph in New Jersey and considerable beach erosion in Atlantic County.

21-25 October, 2004:
The combination of a nearly stationary high pressure system over nearby Canada and low pressure systems over the western Atlantic produced six consecutive days of rough surf along the New Jersey shore from the 20th through the 25th Waves as large as six to eight feet were reported breaking on the shore. This produced moderate beach erosion along the coast with areas of severe erosion on Long Beach Island in Ocean County. In Atlantic County, erosion averaged between 3 and 5 feet vertically and sloped up to 100 feet wide. The worst reported damage was in the Cities of Brigantine and Atlantic City. In the City of Brigantine, an 8 foot vertical cut to the dune system occurred between Promenade and Vernon Place. In Atlantic City, damage occurred to the dune system north of Rhode Island Avenue with loss of sand fencing. Groins were exposed in the City of Margate City.

Following a review of historic shoreline data dating back to 1836 from NJDEP and NJBPN it is clear that Atlantic County has experienced significantly changing shorelines (moving landward and seaward) due to the effects of erosion, accretion, beach nourishment and structural shoreline protection measures. A closer examination of the nine locations (see Figure 3a.10) subject to detailed regular surveys by NJBPN indicates that (based on measurements prior to the implementation of beach nourishment programs) the likely *natural* shoreline change regimes at these locations are:

Figure 3a.10: NJBPN Beach Profile Survey Locations



Green Acres Tract, Brigantine (Profile 134): this area is undeveloped and part of the Edwin B. Forsythe National Wildlife Refuge: it is subject to natural processes only and has exhibited an overall shoreline retreat of approximately 2 to 3 feet per year since 1986.

4th Street North, Brigantine (Profile 133): this location is within the shoreline segment covered by the initial City of Brigantine – NJ State-sponsored beach replenishment initiated in 1997. Prior to 1997, this location was exhibiting a shoreline retreat of approximately 20 feet per year.

15th Street South, Brigantine (Profile 132): this area was not part of the above-mentioned project, which was initiated in 1997, but while in the 1980s the shoreline appeared to be retreating, overall this area has exhibited a significant advance since the early 1990s.

43rd Street South, Brigantine (Profile 131): overall the shoreline in this area has exhibited a consistent advance since the construction of the jetty on the north side of Brigantine Inlet in the 1940s.

North Carolina Avenue, Atlantic City (Profile 130): prior to the completion of a Federal shore protection project in 2004, this area was experiencing a consistent shoreline retreat of approximately three feet per year.

Raleigh Avenue, Atlantic City (Profile 129): prior to the completion of the Federal shore protection project in 2004, this area appears to have been stable, without significant long-term retreat or advance.

Dorset Avenue, Ventnor City (Profile 128): prior to the completion of a Federal shore protection project in 2004, this area was experiencing a consistent shoreline retreat of approximately five feet per year.

Benson Avenue, Margate City (Profile 127): historically the shoreline at this location has been stable, with neither significant retreat nor advance over the long term. Although Margate City declined to participate in the 2004 Federal shore protection project, since implementation of that project the shoreline has exhibited modest accretion due to southerly transport of sand from the nourished beach at Ventnor.

17th Street, Longport (Profile 126): although the Borough of Longport declined to participate in the 2004 Federal shore protection project, the shoreline at this location has generally exhibited accretion since the 1980s, despite occasional significant losses of beach during storm events and a downturn in the trend since 2001.

Probability of Occurrence – Coastal Erosion

Coastal erosion remains a natural, dynamic and continuous process for Atlantic County's coastal jurisdictions and its probability of occurrence to some degree is certain. The damaging impacts of coastal erosion are currently mitigated through continuous (and costly) beach nourishment programs. However, it is likely that the impacts of coastal erosion will increase in severity due to future episodic storm events as well as the anticipated slow onset, long-term effects of climate change and sea level rise.

Drought

Description – Drought

The general term "drought" is defined by the US Geological Survey (USGS) as, "a prolonged period of less-than-normal precipitation such that the lack of water causes a serious hydrologic imbalance." As stated in FEMA's, "Multi-Hazard Identification and Risk Assessment " (1997), drought is the consequence of a natural reduction in the amount of precipitation expected over an extended period of time, usually a season or more in length.

According to the National Oceanic and Atmospheric Administration's (NOAA's) Drought Information Center, there are four types of drought:

- Meteorological Drought – A measure of precipitation departure from normal.
- Agricultural Drought – When the amount of moisture in soil does not meet the needs of a particular crop.
- Hydrological Drought – When both surface and subsurface water supplies are below normal.
- Socioeconomic Drought - When a water shortage begins to affect people.

Meteorological droughts are typically defined by the level of "dryness" when compared to an average, or normal amount of precipitation over a given period of time. Agricultural droughts relate common characteristics of drought to their specific agricultural-related impacts (when the amount of moisture in soil does not meet the needs of a particular crop). Hydrological drought is directly related to the effect of precipitation shortfalls on surface and groundwater supplies. Human factors, particularly changes in land use, can alter the hydrologic characteristics of a basin. Socio-economic drought is the result of water shortages that affect people and limit the ability to supply water-dependent products in the marketplace.

Drought conditions typically do not cause property damages or threaten lives (although they may cause wildfires to be more frequent and more difficult to contain in certain types of land cover), but rather drought effects are most directly felt by agricultural sectors. At times, drought may also cause community-wide impacts as a result of acute water shortages (regulatory use restrictions, drinking water supply and salt water intrusion). The magnitude of such impacts correlates directly with local groundwater supplies, reservoir storage and development densities. In general, impacts of drought can include significant adverse consequences to:

- Public water supplies for human consumption
- Rural water supplies for livestock consumption and agricultural operations
- Water quality
- Natural soil water or irrigation water for agriculture
- Water for forests and for fighting forest fires
- Water for navigation and recreation.

Another impact of droughts that is essentially unique to coastal areas is that greatly reduced precipitation allows salt to accrete on power lines and transmission equipment, such that when the drought ends and rain does fall, blown fuses, arcing wires, and pole fires may occur, leading to power outages.

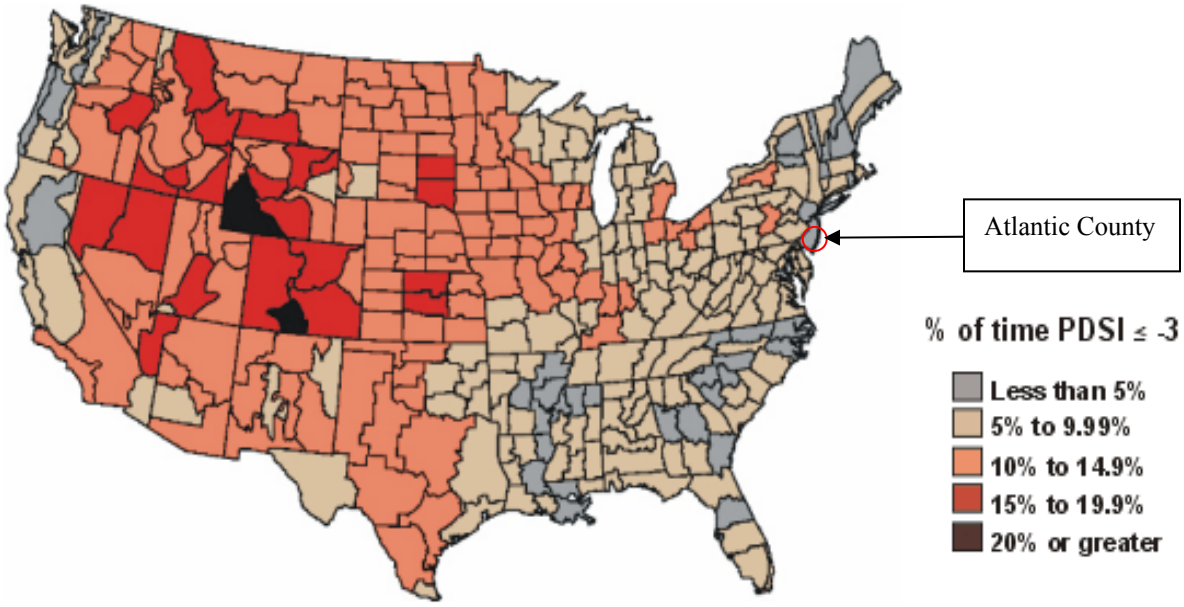
The severity of these impacts depends not only on the duration, intensity, and geographic extent of a specific drought event, but also on the demands made by human activities and vegetation on regional water supplies.

Location and Extent – Drought

Droughts occur in all parts of the country and at any time of year, depending on temperature and precipitation over time. Arid regions are more susceptible to long-term or extreme drought conditions, while other areas (including Atlantic County) tend to be more susceptible to short-term, less severe droughts.

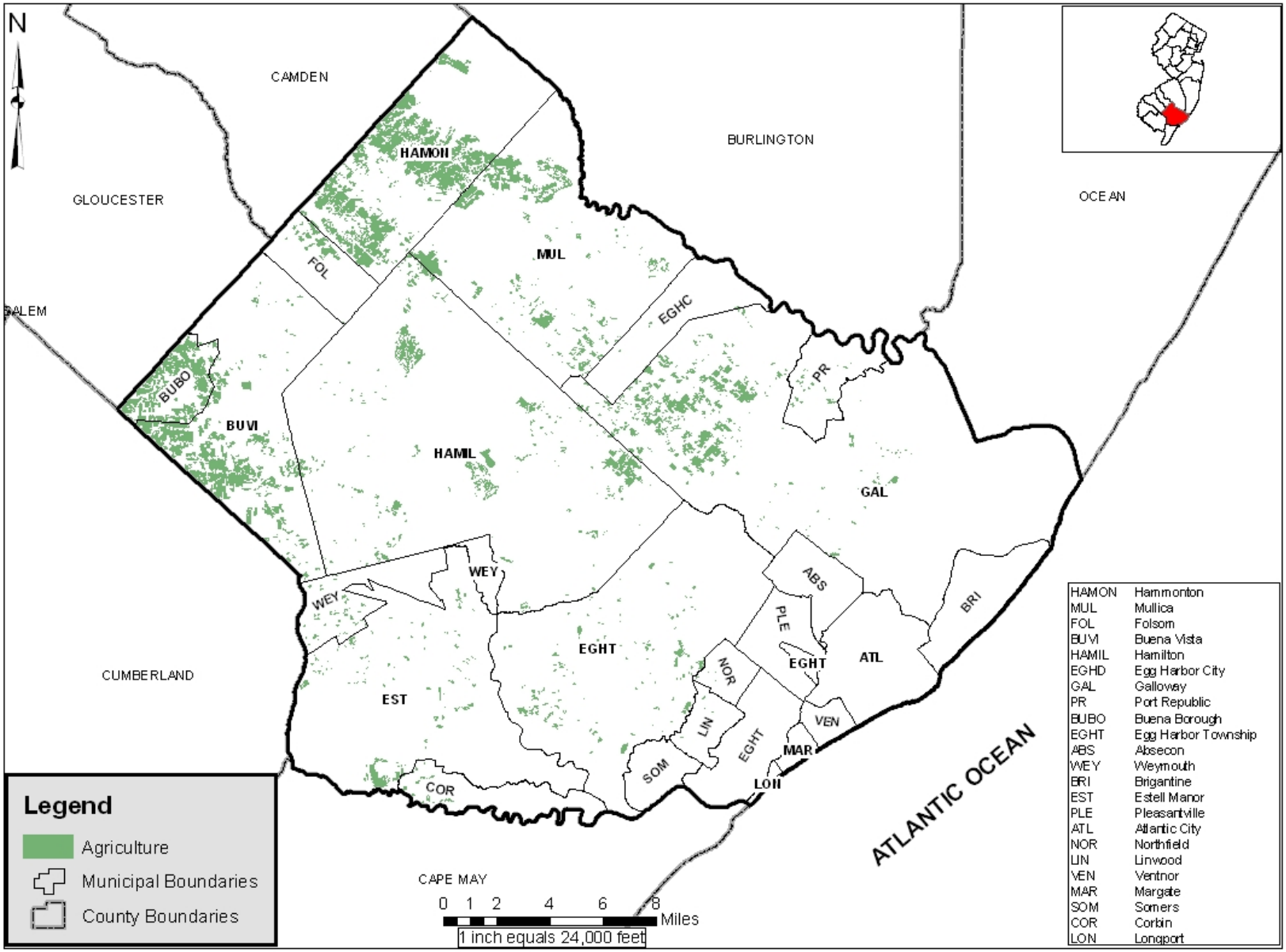
Figure 3a.11 shows the Palmer Drought Severity Index (PDSI) Summary Map for the United States from 1895 to 1995. PDSI drought classifications are based on observed drought conditions and will range from -0.5 (incipient dry spell) to -4.0 (extreme drought). According to the PDSI map, Atlantic County is in a zone that experienced severe drought conditions for less than five percent of the 100-year period during 1895 to 1995, meaning that severe drought conditions are a relatively low risk for Atlantic County. However, short term droughts of less severity are more common and may occur several times in a decade.

Figure 3a.11: Palmer Drought Severity Index Summary Map for the United States



While the extent of drought impacts for Atlantic County may include all of the issues listed above, the most severe effects of drought in the County are likely to be experienced by farmers, who can suffer heavy financial losses due to crop damage or loss. Figure 3a.12 shows the approximate extent, location and distribution of agricultural land across Atlantic County, and Table 3a.15 presents a breakdown of agricultural land by municipality, based on available land use/land cover data. It is evident from the figure and the table that municipalities in the western and northern areas of the County are most at risk from agricultural losses due to drought, with the Borough of Buena, the Township of Buena and the Town of Hammonton the most vulnerable to agricultural losses. Jurisdictions closer to the shoreline tend to have much less land devoted to agriculture, with those actually adjacent to the ocean having no land at all devoted to agriculture. Although at first glance the proportions of municipality areas devoted to agriculture may not appear to be significant, the USDA National Agricultural Statistics Service 2007 Census records that the county's 500 or so farms contribute approximately $128 million to the local economy.

Figure 3a.12: Atlantic County Agricultural Land



SOURCE: NJDEP: County Boundaries, NJ 2003; Municipal Boundary Atlantic County, NJ 2003; LULC data, WMAs 14,15, & 17, 2002

Table 3a.15
Distribution of Agricultural Land in Atlantic County
(Source: NJDEP Land Use/Land Cover Data, 2002)

Municipality	Total Area (Acres)	Cultivated Cropland (Acres)	Cultivated Cropland (%)
Absecon, City of	3,728	6	0.2%
Atlantic City, City of	7,232	0	0.0%
Brigantine, City of	2,077	0	0.0%
Buena Vista, Township of	4,855	2,361	48.6%
Buena, Borough of	26,631	4,079	15.3%
Corbin City, City of	5,130	182	3.5%
Egg Harbor City, City of	7,124	810	11.4%
Egg Harbor, Township of	43,741	44	0.1%
Estell Manor, City of	34,660	774	2.2%
Folsom, Borough of	5,368	379	7.1%
Galloway, Township of	57,257	3,307	5.8%
Hamilton, Township of	72,131	2,579	3.6%
Hammonton, Town of	26,621	6,726	25.3%
Linwood, City of	2,557	15	0.6%
Longport, Borough of	248	0	0.0%
Margate City, City of	930	0	0.0%
Mullica, Township of	36,195	2,858	7.9%
Northfield, City of	2,324	10	0.5%
Pleasantville, City of	3,664	0	0.0%
Port Republic, City of	5,040	114	2.3%
Somers Point, City of	2,631	0	0.0%
Ventnor City, City of	1,335	0	0.0%
Weymouth, Township of	7,670	209	2.7%
Atlantic County Total	*359,149*	*24,452*	*6.9%*

Not:e USDA NASS records 30,372 acres of land in farms in 2007, but does not provide a breakdown by municipality.

Previous Occurrences – Drought

Historical occurrences of drought in Atlantic County have been identified using the NCDC database, which records droughts affecting Atlantic County from 1995 onwards, and records significant drought events specifically listing Atlantic County as an affected area in every year from 1995 to 2002. The following details are recorded for some of these events:

July – December, 1998:
July 1998 started a run of drier than normal weather across New Jersey. The unseasonably dry weather forced the New Jersey State Department of Environmental Protection to issue a severe forest fire warning for southern New Jersey, and on December 14th the New Jersey State Department of Environmental Protection declared a drought warning for the entire state. Agriculture was significantly affected, with grain farmers in particular suffering serious losses of corn and late season crops. For most of the state the precipitation was around 2.5 inches below normal. July through December 1998 was the second driest six month period ever in the state of New Jersey: the average statewide precipitation total of 12.04 inches was only 52 percent of normal. The only drier six month period previously recorded was November 1984 through April 1985 when a statewide average of 11.92 inches of precipitation fell. Statewide precipitation records have been kept in New Jersey since 1895.

June – September, 1999:
Unseasonably dry weather that had begun in May 1999 intensified into a more severe drought in July, and on July 19th Governor Christie Whitman declared a water shortage alert and called for residents to voluntarily conserve water by not watering lawns or washing cars. On August 5th this was raised to a drought emergency, with mandatory water restrictions. Farmers in New Jersey felt a double pinch: Irrigation, if possible, was driving up the costs of farming. Meanwhile, ideal growing conditions elsewhere in the country kept crop prices low. If possible, irrigation was occurring everywhere. Irrigation ponds were drying out and well permits were being issued. Irrigated corn fields were in fair condition, most corn was in poor condition. Low yields and nutrient content were expected with many fields already lost. Livestock feed crops were at a near-total loss and many farmers had to borrow money to buy food for their cattle into 2000. Soybean crops (normally not irrigated) were in fair to poor condition. The second hay cutting was poor at best. No third cutting of alfalfa was possible. Pasture conditions were in poor condition. Supplemental feeding, some that is normally saved for the winter, was occurring. The hot weather also cut back milk production by about 20 percent. Sun damage was reported to pepper and tomato crops. Overall crop losses in the State of New Jersey were estimated at exceeding $80 million dollars. On August 10th, Secretary of Agriculture Dan Glickman declared 19 counties in New Jersey a drought disaster. This made farmers in those counties and adjacent ones eligible for low interest loans of up to $500,000. Farmers eligible for help must have lost at least 30 percent of their crops, have adequate security, be turned down by two banks and be able to repay the loan. The Department of Agriculture also provided $20 million dollars in grants to provide emergency services to low income migrant and seasonal farm workers in declared drought disaster areas.

October 2001 – September, 2002:
October 2001 was an unseasonably dry month across the state of New Jersey. The ongoing dry weather prompted the state Environmental Protection Commissioner to issue a drought watch for the entire state on October 30th. The declaration called on residents to voluntarily conserve water. The NJDEP upgraded the drought watch to a drought warning for counties in southern New Jersey on November 21st. It was also the driest meteorological winter on record at the Atlantic City International Airport as only 4.66 inches of precipitation fell. By the time near-normal precipitation returned in September 2002, it was estimated that the drought will cost farmers about $125 million in revenue. The corn harvest was expected to be down 25 percent and the soybean harvest down 30 percent. Revenue drops in some areas were over 50 percent. Field crops such as hay, wheat, sorghum, soybeans and corn for animal feed were hardest hit because they are not irrigated. *USA Today* reported on 9/1/2002 that in New Jersey "crop damage is widespread, varying from a total loss to expected drops in yield of 20% to 50%, depending on the crop, when it was planted and farm location."

Probability of Occurrence – Drought

If the occurrences mentioned above are considered to be separate events, Atlantic County has experienced drought conditions during seven of the thirteen years since January 1995, as reported in the NOAA NCDC database. While this would seem to imply that the chances of Atlantic County experiencing drought conditions in any given year are greater than 50%, more detailed and lengthy historical records would be required to definitively assess the probability of drought occurrence, especially given that Figure 3a.10 suggests that Atlantic County is less prone to drought conditions than most other parts of the country. It can, however, be stated with some certainty that Atlantic County will continue to experience periodic drought conditions in the foreseeable future, possibly with greater frequency if some of the current predictions regarding climate change prove to be accurate.

Floods

Description – Floods

FEMA's National Flood Insurance Program (NFIP) defines the general term "flooding" as "a general and temporary condition of partial or complete inundation…from overflow of inland or tidal waters, unusual and rapid accumulation or runoff of surface waters from any source, or a mudflow." According to FEMA's *NFIP Floodplain Management Requirements: a Study Guide and Desk Reference for Local Officials* (FEMA-480), most floods fall into the following three categories:

- **Riverine Flooding – Flooding that occurs along a channel** (where a "channel" is defined as a feature on the ground that carries water through and out of a watershed, whether natural channels such as rivers and streams, or man-made channels such as drainage ditches).
    - Overbank flooding occurs along a channel as excess flows overflow channel banks. Overbank flooding occurs when downstream channels receive more rain or snowmelt from their watershed than normal, or a channel is blocked by an ice jam or debris.
    - Flash floods are a type of riverine flooding typically caused when a significant amount of rainfall occurs in a very short duration. Flash flooding is characterized by a rapid rise in water level and high velocity flows. Flash floods can also be caused by ice jams (ice jam flooding, which can be upstream of an intact jam or downstream of a jam that has broken downstream) or dam breaks.
- **Coastal Flooding – Flooding that occurs along the coasts of oceans, the Gulf of Mexico, and large lakes** (i.e., the Great Lakes). Hurricanes and severe storms cause most coastal flooding, including "Nor'easters" which are severe storms that occur in the Atlantic basin that are extratropical in nature with winds out of the northeast.
    - Storm surge is one characteristic of coastal flooding caused as persistent high winds and changes in air pressure work to push water on shore, often on the order of several feet.
- **Shallow Flooding – Flooding that occurs in flat areas where a lack of channels means water cannot drain away easily.**
    - Sheet flow occurs when there are inadequate or no defined channels, and floodwaters spread out over a large area at a somewhat uniform depth. Sheet flow occurs after intense or prolonged rainfalls during which rain cannot soak into the ground.
    - Ponding occurs when runoff collects in a depression and cannot drain out. Ponding floodwaters do not move or flow away; they will remain until the water infiltrates into the soil, evaporates, or is pumped away.
    - Urban drainage flooding occurs when the capacity of an urban drainage system is exceeded. An urban drainage system comprises the ditches, storm sewers, retention ponds and other facilities constructed to store runoff or carry it to a receiving stream, lake or the ocean. Urban drainage flooding can also occur in areas protected by levees, as water collects on the protected side of the levee when pump capacities are exceeded during severe storms.

Floods are considered hazards when people and property are affected. Historically, development in floodplains was often a necessity, as water bodies provided a means of transportation, electricity, water supply, and often supported the livelihood of local residents (i.e., fishing, farming, etc.). Today, development in floodplains is more often spurred by the aesthetic and recreational value of the floodplain. Flooding is widely regarded as the most common major natural hazard in the State of New Jersey.

The NFIP was established by Congress with the passage of the National Flood Insurance Reform Act of 1968. Through this program, Federally-backed flood insurance is made available to homeowners, renters, and businesses in a community if that community adopts and enforces a floodplain management ordinance to reduce future flood damages within its floodplains. This includes not only preventative measures for new development, but also corrective measures for existing development. FEMA also administers the Community Rating System (CRS), a program under which communities choosing to implement floodplain management actions that go beyond the minimum requirements of the NFIP become eligible for discounts on flood insurance premiums for properties within that community. At present, every individual municipality in Atlantic County is an active member of the NFIP, and six have so far become eligible for the CRS (see Pages 3a.56-57 for more details).

In addition to providing flood insurance, the NFIP also studies and maps the nation's floodplains, preparing its findings in Flood Insurance Rate Maps (FIRMs) and Flood Insurance Studies (FISs). FEMA also prepares digital Q3 Flood Data files, which contain digital flood hazard mapping. Using GIS, these digital maps can be overlaid upon a community's existing GIS base map. FEMA Q3 Flood Data and the Atlantic County GIS formed the basis of this analysis of the flood hazard for Atlantic County.

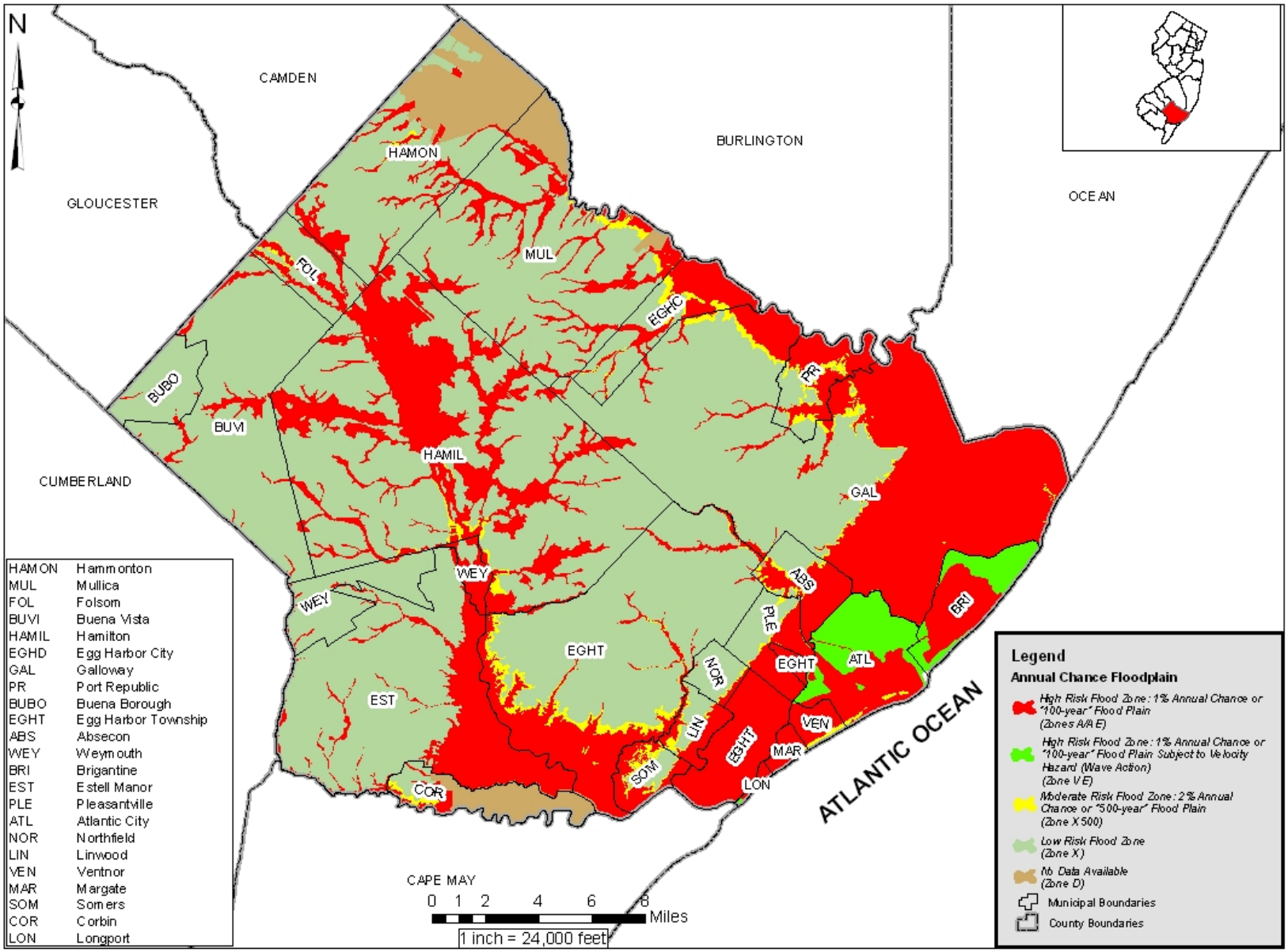
Location and Extent – Floods

Atlantic County and its jurisdictions experience several types of flooding. Since Atlantic County is adjacent to the open ocean, the County is highly susceptible to coastal flooding from storm surges and wave action (both are examined in more detail as separate hazards later in this plan section). Significantly, Atlantic County also experiences considerable riverine flooding and shallow flooding resulting from urban drainage issues.

The extent of flooding associated with a 1 percent probability of occurrence – the "100-year flood" or "base flood" – is used as regulatory boundaries by a number of federal, state and local agencies. Also referred to as the "special flood hazard area", this boundary is a convenient tool for assessing vulnerability and risk in flood prone. FEMA's Q3 Flood Data was used to identify the location of flood hazard areas in Atlantic County. According to the Q3 data, high/moderate flood risk zones exist in all Atlantic County jurisdictions, as shown in Figure 3a.13. This Figure illustrates the mapped flood risk using FEMA zone designations, which are explained in more detail below:

High Risk Areas	Zones A, AE, V, and VE: These are areas with a 1% chance of being flooded in any given year (the "100-year" floodplain). AE zones are those areas where the Base Flood Elevation (BFE – the "100-year flood) has been determined analytically. A Zones are areas where the base floodplain has been mapped by approximate methods and the BFE has not been determined. VE Zones are coastal areas with a 1% annual chance of being flooded which are also susceptible to a velocity hazard (i.e. wave action).
Moderate Risk Areas	Zone X500: These are areas lying between the "100-year" and "500-year" (0.2% annual chance of flooding) floodplain limits. They also include areas of shallow flooding with average depths of less than one foot, or drainage areas less than one square mile.
Low Risk Areas	Zone X: These are areas outside of the 500-year floodplain, where the flood hazard is minimal. They may include areas of ponding or with local drainage problems not significant enough to warrant detailed study or designation as base floodplain.
Possible Risk Areas	Zone D: Areas where there are possible but undetermined flood hazards.

Figure 3a.13: Atlantic County Flood Hazard Areas



SOURCE: FEMA Q3 Data; NJDEP: Counties Boundaries, 2003; Municipal Boundary, Atlantic County, 2003

The mapped Q3 flood data is not exact, and in some cases flood hazard area boundaries may not match landform boundaries. While limitations in the data should be recognized, this represents best readily available GIS data at the time of the study and is generally deemed suitable for mitigation planning purposes. Preliminary Digital Flood Insurance Rate Maps (DFIRMs) for Atlantic County are currently in development; as of June 2010 preliminary DFIRMs are tentatively scheduled for release in August 2012, with the final effective DFIRMs targeted for release in February 2014. Consequently, the sections of the plan dealing with flooding should be revised accordingly during the first plan update.

FEMA Q3 flood mapping was overlaid upon the Atlantic County GIS Base Map to summarize the Q3 flood mapping and flood risk areas for all municipalities in Atlantic County, and the collated data is presented in Tables 3a.16 and 3a.17.

In total, approximately 30% of the County area lies within high flood risk zones, according to current Q3 mapping data, with a further 8% located in moderate risk flood zones. The City of Brigantine and the Borough of Longport lie entirely within the high risk flood zone, while the Cities of Atlantic City and Margate City lie almost entirely within the high risk flood area. The vast majority of the City of Ventnor City also lies within the high risk flood area, and the Cities of Absecon and Port Republic are the only other municipalities in the County of which more than 50% of their area lies within this zone. Of the remaining municipalities, seven have less than 25% of their area within the high risk flood zone, with the Borough of Buena and Township of Buena Vista having the smallest proportions of land in this area (2% and 6% respectively).

The GIS analysis indicates that just under 40% of all structures in the county lie within high flood risk areas (using improved values on each tax parcel as an indicator of the presence of buildings). Essentially every building in the City of Brigantine and the Borough of Longport is located in a high risk flood zone. The number of buildings (in terms of improved value) in the high risk flood zone in the Cities of Atlantic City and Margate City are also approaching 100%, and Ventnor City is the only other municipality in which more than 75% of the improved value lies in the high risk area. Apart from the Cities of Somers Point and Corbin City (22% and 38% respectively), all other municipalities in the county have less than 20% of their total improved value in the high risk flood zone. For the City of Northfield and the Borough of Buena, less than 1% of the total improved value lies within this zone.

Velocity hazard (VE) zones, in which the base flood may be accompanied by waves of three feet or higher, are described in detail later in this section.

For a more detailed description of the derivation, intended uses, and limitations of improved values, see Section 3b: Asset Identification and Characterization.

Table 3a.16
Summary of FEMA Q3 Flood Data by Municipality: Land in Hazard Areas

Municipality	Total Land Area (Acres)	High Flood Risk (Acres)		Moderate Flood Risk (Acres)	Low Flood Risk (Acres)	Possible But Undetermined Risk (Acres)	Land in High Flood Risk %		Land in Moderate Flood Risk %
		VE	A, AE	X500	X	D	VE	A, AE	X500
Absecon, City of	3,728	0	1,912	389	1,382	45	0.0%	51.3%	10.4%
Atlantic City, City of	7,232	3,407*	3,686	139	0	0	47.1%	51.0%	1.9%
Brigantine, City of	2,077	495*	1,582	0	0	0	23.8%	76.2%	0.0%
Buena, Borough of	4,855	0	95	0	4,760	0	0.0%	2.0%	0.0%
Buena Vista, Township of	26,631	0	1,554	1	25,076	0	0.0%	5.8%	0.0%
Corbin City, City of	5,130	0	712	309	973	3136	0.0%	13.9%	6.0%
Egg Harbor City, City of	7,124	0	3,004	639	3,481	0	0.0%	42.2%	9.0%
Egg Harbor, Township of	43,741	0	11,838	1,937	29,965	0	0.0%	27.1%	4.4%
Estell Manor, City of	34,660	0	9,850	0	24,762	48	0.0%	28.4%	0.0%
Folsom, Borough of	5,368	0	1,492	130	3,745	0	0.0%	27.8%	2.4%
Galloway, Township of	57,257	0	21,392	1,280	34,585	0	0.0%	37.4%	2.2%
Hamilton, Township of	72,131	0	23,317	582	48,229	0	0.0%	32.3%	0.8%
Hammonton, Town of	26,621	0	2,996	99	15,055	8470	0.0%	11.3%	0.4%
Linwood, City of	2,557	0	1,235	292	1,030	0	0.0%	48.3%	11.4%
Longport, Borough of	248	14	234	0	0	0	5.6%	94.4%	0.0%
Margate City, City of	930	37	883	10	0	0	4.0%	94.9%	1.1%
Mullica, Township of	36,195	0	6,319	502	26,542	2836	0.0%	17.5%	1.4%
Northfield, City of	2,324	0	354	71	1,900	0	0.0%	15.2%	3.1%
Pleasantville, City of	3,664	0	1,263	177	2,224	0	0.0%	34.5%	4.8%
Port Republic, City of	5,040	0	2,665	723	1,652	0	0.0%	52.9%	14.3%
Somers Point, City of	2,631	0	1,237	497	897	0	0.0%	47.0%	18.9%
Ventnor City, City of	1,335	35	1,144	156	0	0	2.6%	85.7%	11.7%
Weymouth, Township of	7,670	0	1,413	1	6,256	0	0.0%	18.4%	0.0%
Atlantic County Total	*359,149*	*3,988*	*100,177*	*7,935*	*232,513*	*0*	*1.1%*	*27.9%*	*2.2%*

*Includes undeveloped backbay marshland areas

Table 3a.17
Summary of FEMA Q3 Flood Data by Municipality: Improved Values in Hazard Areas

Municipality	Total Improved Value	Improved Value in High Flood Risk Areas		Improved Value in Moderate Flood Risk Areas	Improved Value in Low Flood Risk Areas	Improved Value in High Flood Risk Areas %		Improved Value in Moderate Flood Risk Areas %
		VE	A, AE	X500	X	VE	A, AE	X500
Absecon, City of	$263,139,927	$0	$29,724,892	$30,013,100	$203,401,935	0%	11.3%	11.4%
Atlantic City, City of	$5,847,037,300	$77,986,239	$5,560,144,493	$208,906,487	$0	1.3%	95.1%	3.6%
Brigantine, City of	$513,295,303	$23,405,230	$489,890,073	$0	$0	4.6%	95.4%	0%
Buena, Borough of	$132,115,107	$0	$566,522	$0	$131,179,439	0%	0.4%	0%
Buena Vista, Township of	$479,119,804	$0	$15,307,091	$14,019	$463,567,116	0%	3.2%	0%
Corbin City, City of	$28,793,922	$0	$9,166,217	$4,992,579	$14,635,126	0%	31.8%	17.3%
Egg Harbor City, City of	$80,098,041	$0	$1,202,802	$1,310,315	$77,584,923	0%	1.5%	1.6%
Egg Harbor, Township of	$3,470,834,305	$0	$265,355,808	$125,222,825	$3,080,255,671	0%	7.6%	3.6%
Estell Manor, City of	$102,859,729	$0	$1,864,380	$0	$100,995,348	0%	1.8%	0%
Folsom, Borough of	$148,509,885	$0	$13,363,424	$13,209,915	$121,908,590	0%	9.0%	8.9%
Galloway, Township of	$2,285,757,329	$0	$47,483,423	$12,687,353	$2,225,585,621	0%	2.1%	0.6%
Hamilton, Township of	$1,728,805,249	$0	$86,078,691	$62,854,493	$1,579,872,064	0%	5.0%	3.6%
Hammonton, Town of	$936,333,112	$0	$41,515,877	$4,875,744	$887,941,507	0%	4.4%	0.5%
Linwood, City of	$498,008,251	$0	$65,208,322	$74,727,989	$358,071,941	0%	13.1%	15.0%
Longport, Borough of	$165,551,868	$64,292	$165,487,576	$0	$0	0.04%	99.96%	0%
Margate City, City of	$662,149,894	$181,572	$649,879,825	$12,088,497	$0	0.03%	98.1%	1.8%
Mullica, Township of	$402,224,021	$0	$60,891,985	$30,889,251	$310,395,101	0%	15.1%	7.7%
Northfield, City of	$800,316,450	$0	$7,142,473	$18,599,479	$774,574,498	0%	0.9%	2.3%
Pleasantville, City of	$1,134,689,566	$0	$41,540,030	$49,774,919	$1,043,374,617	0%	3.7%	4.4%
Port Republic, City of	$92,347,407	$0	$16,728,898	$19,713,045	$55,905,464	0%	18.1%	21.3%
Somers Point, City of	$1,034,500,500	$0	$225,320,851	$243,098,319	$566,081,329	0%	21.8%	23.5%
Ventnor City, City of	$380,608,771	$577,952	$286,374,593	$93,656,225	$0	0.2%	75.2%	24.6%
Weymouth, Township of	$111,684,498	$0	$13,494,252	$0	$98,144,835	0%	12.1%	0%
Atlantic County Total	*$21,298,780,238*	*$102,215,285*	*$8,093,732,498*	*$1,006,634,554*	*$12,093,475,126*	*0.48%*	*38.0%*	*4.7%*

Previous Occurrences – Floods

Floods have occurred in Atlantic County's communities in the past, and will continue to do so in the future. Atlantic County and its component municipalities have mostly been impacted by riverine and coastal flooding. A picture of the flooding history of Atlantic County in terms of damage to private property over the last three decades or so can be derived from the recorded flood losses and payments data from the NFIP. In addition to participating in the NFIP, at the time of writing, six municipalities in Atlantic County were also eligible for participation in FEMA's Community Rating System (CRS), under which municipalities implementing and enforcing floodplain management measures above beyond the NFIP minimum requirements are rewarded with discounted flood insurance premiums. This data is presented in Table 3a.18, along with the total number of current policies, the total coverage values, current CRS Class, and key dates associated with the municipalities' participation in the NFIP.

The table shows that Atlantic County's NFIP paid flood losses have totaled more than $58 million since 1978, or approaching $2 million per year. Actual flood losses community-wide are likely to be higher, since this value only includes NFIP payouts and does not include losses incurred by non-policy holders, losses for which a claim was not submitted, or losses for which payment on a claim was denied.

There has been at least one NFIP loss payment in each of the 23 municipalities in the County, and the average NFIP payment for the County overall is currently around $8,600 per individual loss. Atlantic City has suffered the most losses in terms of number and total dollar value, while three municipalities (Cities of Corbin City and Estell Manor, and the Borough of Folsom) have each recorded only one paid NFIP loss. The data indicates that most flood losses for which NFIP payments were made have been concentrated in just five municipalities, with approximately 80% of the losses occurring in the City of Atlantic City, City of Brigantine, Township of Egg Harbor, City of Margate City, and City of Ventnor City. Atlantic City alone accounts for approximately one third of all NFIP payments in Atlantic County.

While compiling data for Table 3a.18, it became apparent that the total number of active NFIP policies in Atlantic County appears to be decreasing. Comparisons with NFIP records from six months prior to those in Table 3a.18 show a total reduction of 1,111 NFIP policies in that period, with the vast majority of these reductions occurring in the City of Atlantic City, City of Brigantine, Township of Hamilton, City of Margate City, and City of Ventnor City. Possible explanations for this include homeowners who are no longer burdened by a mortgage (either due to completing payments or being foreclosed) allowing their policies to expire, changes in development which see multi-family residences replaced by a smaller number of single family structures, individual property owners successfully challenging FEMA mapping showing their property in hazard areas, and the clearance of older housing in Atlantic City in areas yet to be developed.

All municipalities (and in particular those experiencing the greatest decreases in active NFIP policies) are encouraged to investigate trends in NFIP policy enrollment/expiration, and to aim to reverse downward trends if it becomes apparent that significant numbers of properties within high risk flood zones are becoming uninsured as a result.

Table 3a.18 also includes information regarding municipal Floodplain Administrators (FPAs), as identified on questionnaires completed by the CPG members. Additional information regarding FPAs on record in FEMA Region 2, as well as copies of the completed questionnaires, are included in Appendix F.

Table 3a.18
FEMA NFIP Policy and Claim Information for Atlantic County Jurisdictions
Source: www.fema.gov / www.bsa.nfipstat.com, as of 12/31/2008

NFIP Participating Communities	Community Number	Floodplain Administrator (as reported by CPG unless otherwise noted)	Date Entered NFIP	Current Effective FIRM Date	CRS Class	Date Entered CRS	Total Active Policies	Insurance in Force ($)	Total Number of Paid Losses	Total Loss Payments ($)
Absecon, City of	340001	Construction official	3/5/1976	8/23/1999	N/A	N/A	162	$42,178,300	93	$2,570,157
Atlantic City, City of	345278	Construction official	6/18/1971	2/1/1985	9	10/1/1992	8,234	$1,196,719,000	2,235	$16,432,785
Brigantine, City of	345286	City solicitor/floodplain manager	6/18/1971	7/15/1992	7	10/1/1992	7,332	$1,494,894,400	1,248	$8,222,270
Buena Vista, Township of	340525	* *Al Pelegrini*	6/22/1979	6/22/1979	N/A	N/A	25	$5,317,700	4	$20,118
Buena, Borough of	340004	Borough engineer	3/4/1983	3/4/1983	N/A	N/A	2	$210,200	4	$28,498
Corbin City, City of	340005	John Peterson	9/30/1981	9/30/1981	N/A	N/A	39	$9,017,900	1	$307
Egg Harbor City, City of	340006	* *Robert Lemur*	8/2/1982	8/2/1982	N/A	N/A	19	$4,716,500	9	$21,636
Egg Harbor, Township of	340007	Construction official	2/16/1983	2/16/1983	N/A	N/A	709	$166,874,800	284	$5,820,567
Estell Manor, City of	340573A	* *DCA DCA*	11/3/1978	7/2/2003	N/A	N/A	9	$2,640,900	1	$1,920
Folsom, Borough of	340586	Code enforcement	1/6/1982	1/6/1982	N/A	N/A	20	$4,637,600	1	$657
Galloway, Township of	340008	Construction officer	5/2/1983	6/30/1999	N/A	N/A	164	$44,990,900	54	$348,793
Hamilton, Township of	340009	Code enforcement officer	3/15/1977	3/15/1977	N/A	N/A	935	$190,436,100	160	$1,255,502
Hammonton, Town of	340010	Code enforcement officer	1/6/1982	1/6/1982	N/A	N/A	29	$6,039,700	4	$8,828
Linwood, City of	340011	Construction officer	1/19/1983	1/19/1983	N/A	N/A	282	$72,553,400	14	$67,190
Longport, Borough of	345302	CRS director/Zoning officer	6/18/1971	8/15/1983	8	10/1/1995	1,430	$337,638,500	378	$3,856,268
Margate City, City of	345304	Emergency management coordinator	6/19/1971	10/18/1983	7	10/1/1992	5,496	$1,193,288,500	674	$6,129,636
Mullica, Township of	340517	Zoning official	3/1/1982	3/1/1982	10	10/1/1994	134	$29,120,800	61	$509,249
Northfield, City of	340014	* *Richard Stevens*	11/2/1979	2/19/1983	N/A	N/A	75	$21,112,700	14	$264,178
Pleasantville, City of	340015	City clerk/building department	1/19/1983	1/19/1983	N/A	N/A	132	$24,796,100	130	$2,315,209
Port Republic, City of	340016	U	7/5/1983	7/15/1992	N/A	N/A	47	$11,517,800	34	$295,346
Somers Point, City of	340017	* *Burton Federman*	11/17/1982	11/17/1982	N/A	N/A	989	$187,519,500	112	$808,808
Ventnor City, City of	345326	Emergency mgmt./CRS coordinator	9/15/1983	6/18/1971	8	10/1/1992	4,640	$888,878,900	1,270	$9,594,913
Weymouth, Township of	340536	Township engineer	8/10/1979	1/16/2003	N/A	N/A	18	$45,886,900	5	$17,081
						Atlantic County Totals	*30,922*	*$5,980.987,100*	*6,790*	*$58,589,916*

* = *Not reported; see Appendix F for name on file as per FEMA Region 2*
U = unlisted on FEMA FPA file

Repetitive Losses

FEMA defines a repetitive loss property as any insurable building for which two or more claims of more than $1,000 were paid by the NFIP within any rolling 10-year period, since 1978. A repetitive loss property may or may not be currently insured by the NFIP. Currently there are over 100,000 repetitive loss properties nationwide, and approximately 6,600 in New Jersey, according to the Congressional Research Service report "Federal Flood Insurance: The Repetitive Loss Problem" of June 30, 2005.

According to FEMA repetitive loss property records, there are currently 775 "non-mitigated" repetitive loss properties located in Atlantic County as of June 30, 2008. These properties are associated with a total of 2,408 individual losses and almost $28 million in claims payments under the NFIP since January 1978 (the earliest recorded date of loss), as shown in Table 3a.19, while Table 3a.20 identifies the number and type of repetitive loss properties that are located in each identified flood hazard zone for each municipality. The approximate areas where RL properties are clustered are plotted in Figures 3a.14 through 3a.17 in comparison with the extent of the mapped A/AE Zones (the Base/100-year floodplain). These figures do not show areas of the County where occasional RL properties are located in isolation or widely spaced and they show only the approximate areas covering clusters of RL properties, since the component data is subject to the 1974 Privacy Act. This legislation prohibits the public release of any information regarding individual NFIP claims or information which may lead to the identification of associated individual addresses and property owners. However, while this information is not available to the general public, the County may subsequently obtain comprehensive RL property data from FEMA for the purposes of targeted mitigation of RL areas or individual RL structures.

More than two thirds (16 out of 23) of the municipalities in Atlantic County are identified as having at least one Repetitive Loss (RL) property, with more than one third (35%) of these properties located in just one municipality, the City of Atlantic City. The two municipalities with the next highest number of RL properties are the adjacent oceanfront Cities of Brigantine and Ventnor City, with approximately 20% each. Slightly more than two thirds of all RL properties are single-family residential buildings, while only 8% are non-residential. The remainder are other residential structures such as multi-family residences and condominiums. Data to permit a further breakdown of the non-residential structures into commercial, institutional, and so on was not readily available at the time of writing.

The average repetitive loss property in Atlantic County has experienced 3 loss events: 52% have experienced two losses, 21% have experienced three, and 26%% have experienced more than three, including one non-residential property in the City of Absecon which is recorded as suffering 23 losses. There are a further 11 properties reporting 10 or more losses, of which seven are in the City of Ventnor City, three in the Township of Egg Harbor, and one in Atlantic City.

Table 3a.20 and Figures 3a.14 through 3a.17 indicate that the vast majority of RL properties (97%) are located in the 100-year floodplain, and the remainder are scattered across the 500-year floodplain and areas of minimal or no identified flood risk. Of the RL properties which are single family residential structures, 65% are located in the 100-year floodplain. Only 2.5% of RL properties are located in velocity hazard areas (V-Zones).

To summarize, almost one half (48%) of all NFIP payments in Atlantic County may be attributable to just 2.5% of insured properties in the County (depending on how many of these properties remain insured by the NFIP).

Table 3a.19
NFIP Repetitive Loss Property Statistics (as of June 30, 2008)
(Source: FEMA Region 2)

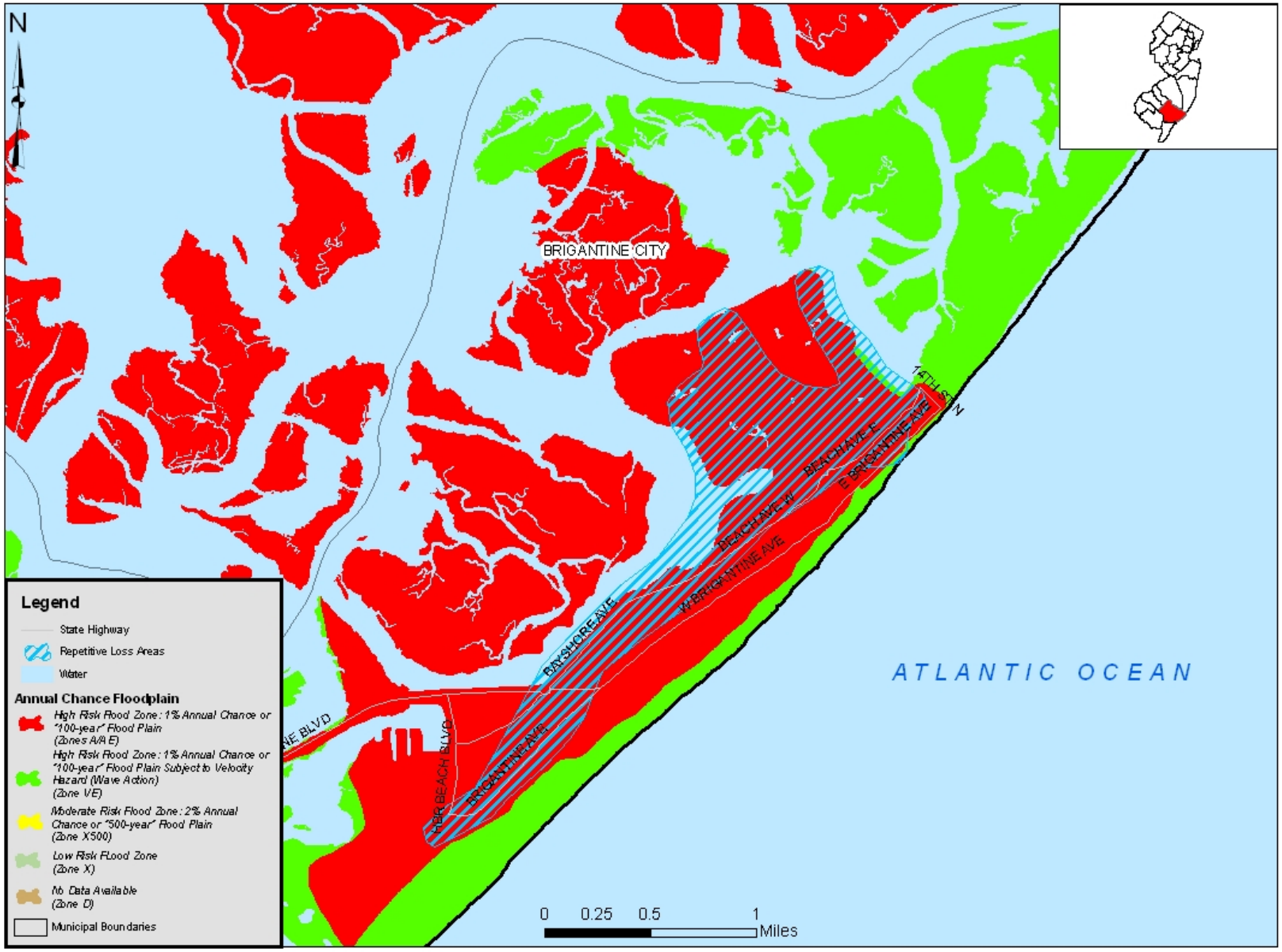
Jurisdiction	Single Family			Other Residential			Non-Residential			Total		
	Properties	Losses	Payments	Properties	Losses	Payments	Properties	Losses	Payments	Properties	Losses	Payments
Absecon, City of	3	6	$37,569	1	3	$138,532	3	27	$1,392,103	7	36	$1,568,204
Atlantic City, City of	156	470	$3,288,664	94	302	$2,575,258	22	71	$1,296,490	272	843	$7,160,411
Brigantine, City of	125	332	$2,538,372	15	41	$375,673	6	14	$268,217	146	387	$3,182,262
Buena Vista, Twp. of	1	2	$11,025	0	0	$0	0	0	$0	1	2	$11,025
Buena, Borough of	0	0	$0	0	0	$0	0	0	$0	0	0	$0
Corbin City, City of	0	0	$0	0	0	$0	0	0	$0	0	0	$0
Egg Harbor City, City of	0	0	$0	0	0	$0	0	0	$0	0	0	$0
Egg Harbor, Twp. of	17	46	$454,422	2	9	$432,035	18	95	$4,100,795	37	150	$4,987,253
Estell Manor, City of	0	0	$0	0	0	$0	0	0	$0	0	0	$0
Folsom, Borough of	0	0	$0	0	0	$0	0	0	$0	0	0	$0
Galloway, Twp. of	10	28	$250,617	1	2	$13,724	0	0	$0	11	30	$264,341
Hamilton, Twp. of	3	8	$71,570	0	0	$0	1	2	$31,121	4	10	$102,691
Hammonton, Town of	1	2	$10,831	0	0	$0	0	0	$0	1	2	$10,831
Linwood, City of	0	0	$0	0	0	$0	0	0	$0	0	0	$0
Longport, Borough of	40	110	$1,601,857	0	0	$0	0	0	$0	40	110	$1,601,857
Margate City, City of	41	120	$1,750,937	12	29	$324,363	9	23	$444,502	62	172	$2,519,802
Mullica, Township of	9	20	$221,560	0	0	$0	0	0	$0	9	20	$221,560
Northfield, City of				1	3	$50,669	1	3	$192,256	2	6	$242,924
Pleasantville, City of	9	30	$309,039	0	0	$0	0	0	$0	9	30	$309,039
Port Republic, City of	4	12	$118,568	0	0	$0	1	3	$92,712	5	15	$211,280
Somers Point, City of	8	18	$82,318	2	4	$211,653	0	0	$0	10	22	$293,970
Ventnor City, City of	100	322	$2,654,901	55	231	$2,334,113	4	20	$253,110	159	573	$5,242,125
Weymouth, Twp. of	0	0	$0	0	0	$0	0	0	$0	0	0	$0
Totals	*527*	*1,526*	*$13,402,249*	*183*	*624*	*$6,456,019*	*65*	*258*	*$8,071,305*	*775*	*2,408*	*$27,929,573.09*

Table 3a.20
NFIP Repetitive Loss Properties by Flood Hazard Zone
(Source: FEMA Region 2)

Jurisdiction	V Zone (100-Year Floodplain with Velocity Hazard)			A Zone (100-Year Floodplain)			X500 Zone (500-Year Floodplain)			Other Zone (>500-Year Floodplain)		
	Single-Family	Other Res.	Non-Res.	Single-Family	Other Res.	Non-Res.	Single-Family	Other Res.	Non-Res.	Single-Family	Other Res.	Non-Res.
Absecon, City of	0	0	0	3	1	3	0	0	0	0	0	0
Atlantic City, City of	1	3	5	154	91	17	0	0	0	1	0	0
Brigantine, City of	1	1	1	124	14	5	0	0	0	0	0	0
Buena Vista, Township of	0	0	0	0	0	0	0	0	0	1	0	0
Buena, Borough of	0	0	0	0	0	0	0	0	0	0	0	0
Corbin City, City of	0	0	0	0	0	0	0	0	0	0	0	0
Egg Harbor City, City of	0	0	0	0	0	0	0	0	0	0	0	0
Egg Harbor, Township of	0	0	0	13	1	13	0	1	1	0	0	4
Estell Manor, City of	0	0	0	0	0	0	0	0	0	0	0	0
Folsom, Borough of	0	0	0	0	0	0	0	0	0	0	0	0
Galloway, Township of	0	0	0	5	0	0	0	0	0	0	0	0
Hamilton, Township of	0	0	0	2	0	1	1	0	0	0	0	0
Hammonton, Town of	0	0	0	1	0	0	0	0	0	0	0	0
Linwood, City of	0	0	0	0	0	0	0	0	0	0	0	0
Longport, Borough of	3	0	0	37	0	0	0	0	0	0	0	0
Margate City, City of	3	0	1	38	12	8	0	0	0	0	0	0
Mullica, Township of	0	0	0	8	0	0	1	0	0	0	0	0
Northfield, City of	0	0	0	0	0	0	0	0	0	0	1	1
Pleasantville, City of	0	0	0	7	0	0	0	0	0	2	0	0
Port Republic, City of	0	0	0	4	0	1	0	0	0	0	0	0
Somers Point, City of	0	0	0	6	0	0	1	0	0	0	1	0
Ventnor City, City of	0	0	0	94	55	4	3	0	0	3	0	0
Weymouth, Township of	0	0	0	0	0	0	0	0	0	0	0	0
Totals	*8*	*4*	*7*	*496*	*174*	*52*	*6*	*1*	*1*	*7*	*2*	*5*

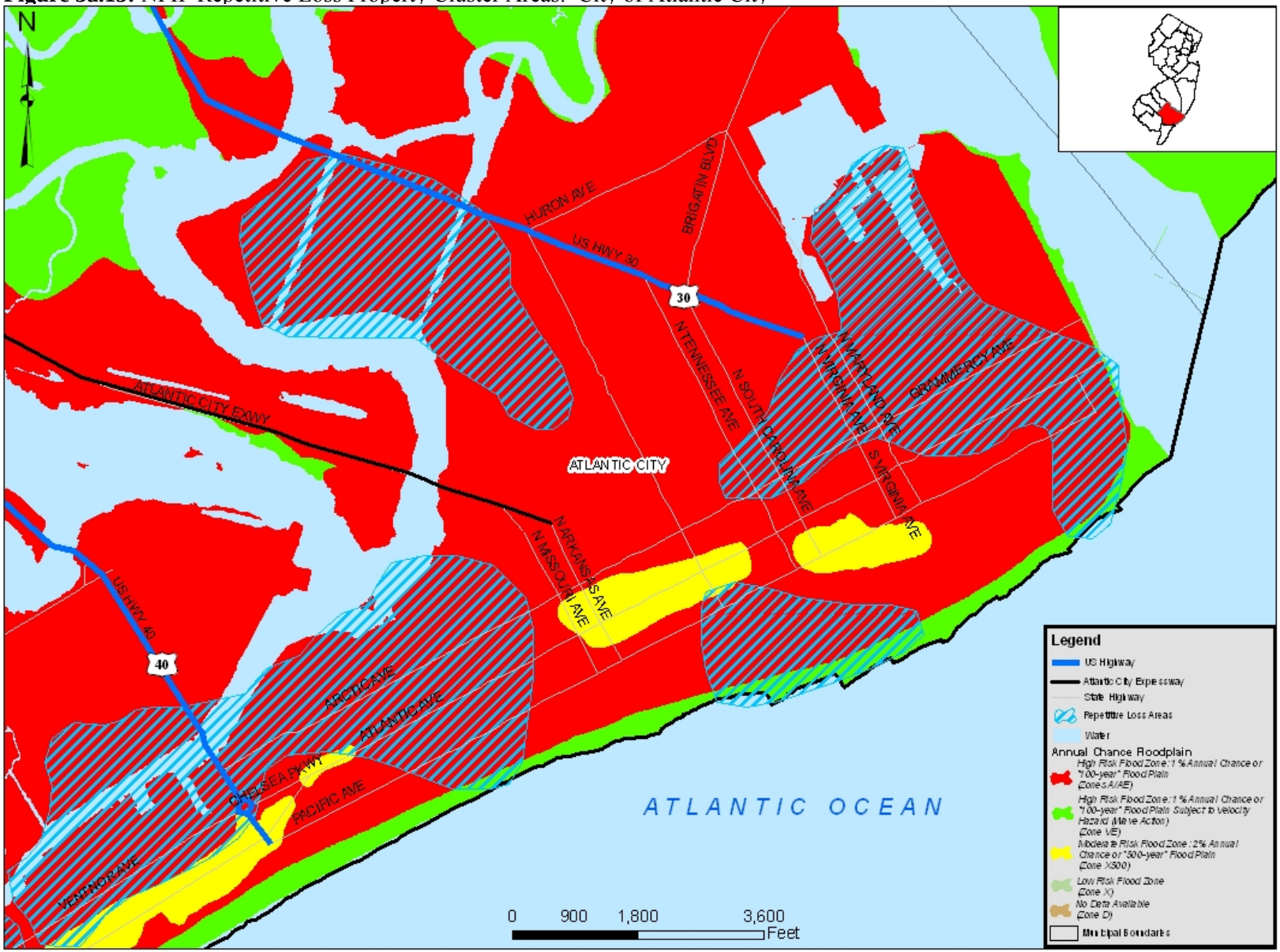
Address details were incomplete for some Repetitive Loss Properties

Figure 3a.14: NFIP Repetitive Loss Property Cluster Areas: City of Brigantine



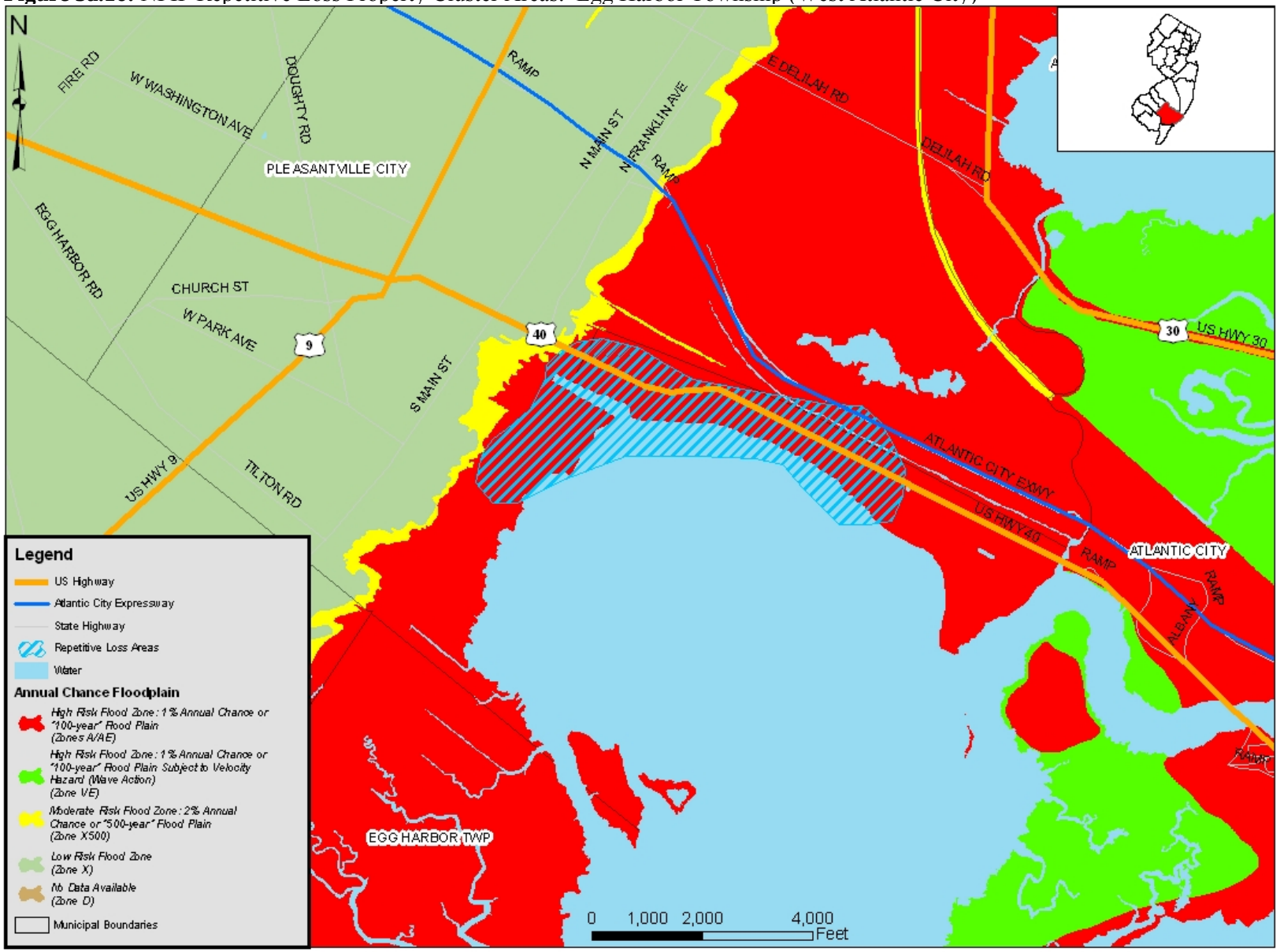
SOURCE: FEMA Q3 data, NJDEP: County Boundaries, NJ 2003; Municipal Boundary Atlantic County, NJ 2003; Waters of New Jersey (Lakes and Ponds) 2008; US Census Borough: TIGER data, 2000

Figure 3a.15: NFIP Repetitive Loss Property Cluster Areas: City of Atlantic City



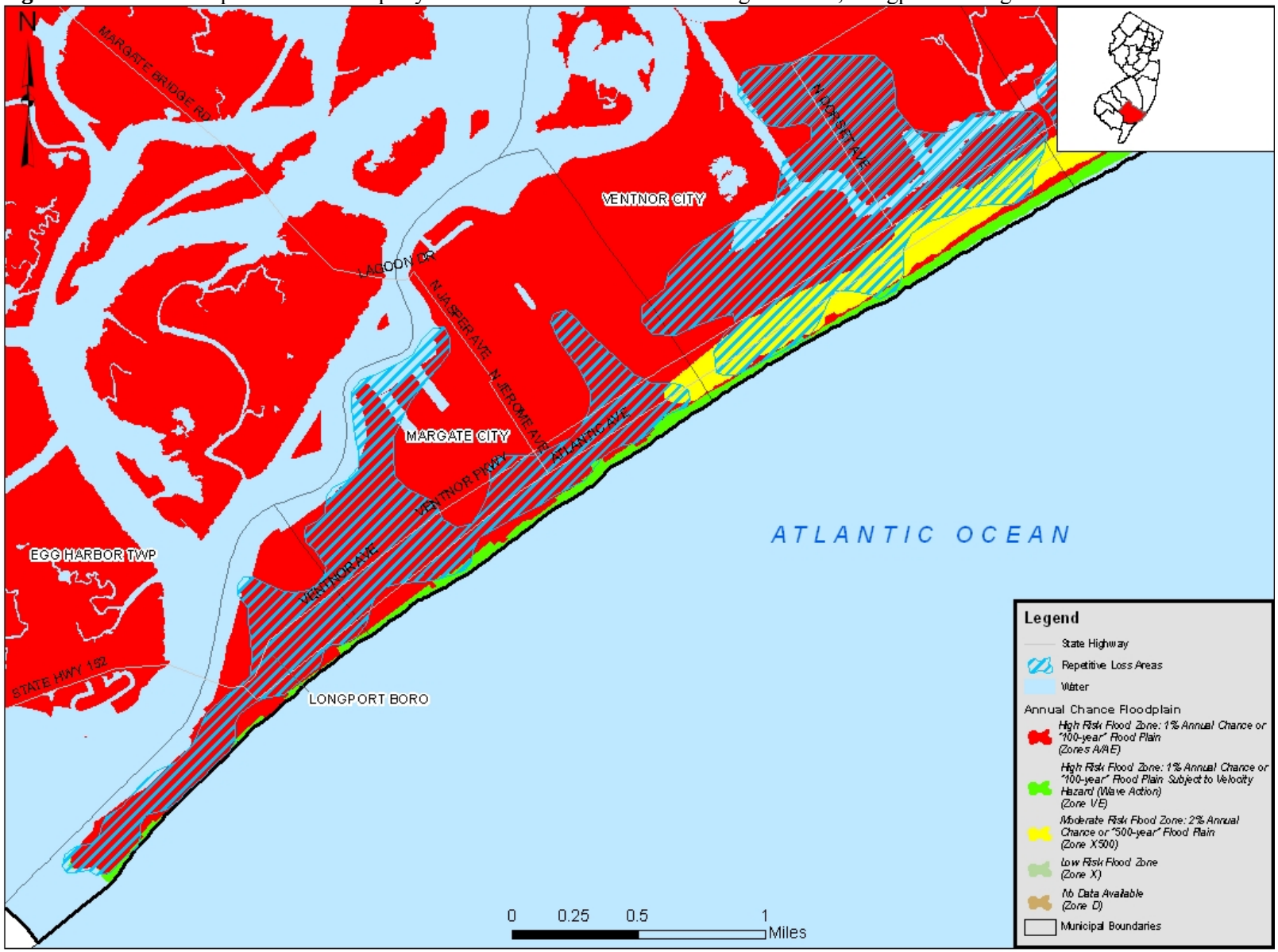
SOURCE: FEMA: Q3 data, NJDEP: County Boundaries, NJ 2003; Municipal Boundary Atlantic County, NJ 2003; Waters of New Jersey (Lakes and Ponds) 2008; US Census Borough: TIGER data, 2000

Figure 3a.16: NFIP Repetitive Loss Property Cluster Areas: Egg Harbor Township (West Atlantic City)



SOURCE: FEMA: Q3 data, NJDEP: County Boundaries, NJ 2003; Municipal Boundary Atlantic County, NJ 2003; Waters of New Jersey (Lakes and Ponds) 2008; US Census Borough: TIGER data, 2000;

Figure 3a.17: NFIP Repetitive Loss Property Cluster Areas: Ventnor and Margate Cities, Longport Borough



SOURCE: FEMA: Q3 data, NJDEP: County Boundaries, NJ 2003; Municipal Boundary Atlantic County, NJ 2003; Waters of New Jersey (Lakes and Ponds) 2008; TIGER data, 2000

Flood Disaster Declarations

The New Jersey State Office of Emergency Management reports Atlantic County as having been affected by five Federal Disaster and Emergency Declarations related to flooding from 1992 to 2008, as summarized in Table 3a.21. The table also indicates which form of post-disaster assistance Atlantic County became eligible for after the declaration.

Through the Public Assistance (PA) Program, FEMA provides supplemental Federal disaster grant assistance for debris removal, emergency protective measures, and the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain Private Non-Profit (PNP) organizations. The Individual Assistance Program (IA) provides money or direct assistance to individuals, families and businesses in an area whose property has been damaged or destroyed and whose losses are not covered by insurance. It is meant to assist with critical expenses that cannot be covered in other ways, rather than to restore damaged property to its condition before the disaster.

Table 3a.21
Major Flood Disaster and Emergency Declarations Affecting Atlantic County
(Source: NJOEM, FEMA)

Date	Event #	Event Type	Description	Available Assistance
4/26/2007	1694	Declared Disaster	Severe storms, inland and coastal flooding (Nor'easter)	Public
3/3/1998	1206	Declared Disaster	Coastal storm (severe Nor'easter)	Public, Individual
12/18/1992	973	Declared Disaster	Coastal storm, high tides, heavy rain, flooding (Nor'easter)	Public, Individual
3/3/1992	936	Declared Disaster	Severe coastal storm (Nor'easter)	Public
9/17/1999	3148	Declared Emergency	Hurricane Floyd	Public

The NCDC database records flood events in Atlantic County from December 1993 onwards, and there have been 62 recorded flood events affecting Atlantic County between December 1993 and November 2008, causing reported damages totaling almost $88 million, including damages incurred outside Atlantic County. Table 3a.22 presents selected flood events recorded in the NCDC database as having affected Atlantic County, for which some detailed information was available.

Table 3a.22
Selected Flood Events Affecting Atlantic County
(Source: NOAA / NCDC)

Date	Affected Municipalities	Description	Reported Property Damage*
7/3/1994	City of Margate City, City of Northfield	Slow moving thunderstorms dropped 2 to 3 inches of rain within one hour over Atlantic County and caused widespread urban flooding over eastern parts of the county. The Black Horse Pike (U.S. Routes 40 and 322) was flooded near Atlantic City. Motorists had to be rescued from their cars. Widespread urban flooding was reported in Northfield and Margate. Every road in Margate was described as impassable.	Not recorded
7/24/1997	City of Absecon, City of Atlantic City, City of Brigantine, City of Northfield, City of Somers Point	Heavy rain, associated with weak low pressure systems riding along a nearly stationary frontal boundary in the southern Delmarva Peninsula, caused urban flooding, especially on the back bay sides of the barrier islands of Atlantic, Cape May and Ocean Counties. Although it was southeast of this frontal boundary, some of the moisture from Tropical Storm Danny was ingested into this boundary and exacerbated the heavy rain. Periods of heavy rain started during the early morning of the 24th. The heaviest rain occurred around noon and coincided with the high tide on the back bay side. This slowed the drainage of the rain into the bays. In Atlantic County flooding and high water blocked cars from roads in Absecon, Atlantic City (where some sewers backed up), Brigantine, Northfield and Somers Point.	Not recorded
8/20/1997	Multiple	Torrential rain fell across southeast New Jersey as a low pressure system developed over the Delmarva Peninsula and slowly moved northeast across southern New Jersey. A series of thunderstorms developed along this low pressure system's frontal boundaries and trained or moved over the same areas. This caused extremely heavy rain to fall over several hours across eastern parts of Atlantic County. The county bore the brunt of the storm and the flooding with storm totals in excess of 8 inches from Estell Manor through Galloway Township. The storm total at the Atlantic City International Airport of 13.52 inches represented by far a greater than 100 year storm for the area. A 100-year-storm for this area is 7.25 inches. Several major roadways and bridges collapsed or were completely washed out. The governor declared a state of emergency for the county on the 21st and the county was eventually declared a federal disaster area. In Galloway Township, the hardest hit area, about 1,100 homes suffered damage. This represented about 10 percent of all the township housing. The most damage was occurred in the Pomona Oaks Development as 75 homes were badly flooded when a drainage pond filled and backed up. The Osprey Court Development was also badly flooded. The Atlantic City Medical Center was closed to emergencies when its first floor and basement were flooded. Emergency personnel pumped out 1.8 million gallons of water from the center. The adjacent Bacharach Rehabilitation Center was also flooded. Flooding also damaged the Absegami High School and several facilities at the Richard Stockton College. The Atlantic City International Airport was closed at 1230 a.m. EDT on the 21st when power was knocked out to the runways and street flooding closed access to the airport. The airport reopened at 1130 a.m. EDT on the 21st, but had to shut down again at sunset as the runway lights were	$54,000,000

Table 3a.22
Selected Flood Events Affecting Atlantic County
(Source: NOAA / NCDC)

Date	Affected Municipalities	Description	Reported Property Damage*
		still not working. The FAA Technical Center was also closed. In Hamilton Township, three major bridges were closed: The Sugar Hill Bridge on County Road 559, The Gravelly Run Bridge (County Road 559 also) on Ocean Heights Avenue and the bridge between the Lake Lenape Dam and the Great Harbor River. Persons in homes near these bridges were evacuated to a senior citizen center. Working around the clock, the Sugar Hill Bridge was repaired in time for the Labor Day Weekend. The two other bridges were repaired by Late September. Two New Jersey Transit buses and 40 passengers became stuck in the flood waters near the Hamilton Mall and had to be rescued. Five thousand books in the Atlantic Community College were damaged by the flooding. Parts of the Black Horse Pike (U.S. Route 40) were closed because the road washed out. Sections of U.S. Route 40 were also closed in Egg Harbor Township. In Absecon, a 180 foot section of the New Jersey Transit train track was closed after the gravel bed was washed away. In Pleasantville, the motels around U.S. Routes 30 and 40 were evacuated because of the heavy rain and back bay flooding. Several people had to be rescued from their vehicles. At the water treatment plant pumping station, the sediment rate was above acceptable standards. Even though Atlantic City proper escaped the heavy rain, residents had to boil their tap water for several days to make it potable because the city's reservoir in Egg Harbor Township flooded. The United States Geological Survey Gage on the Tuckahoe River at Head of River reached a new record crest of 9.1 feet. This represented a greater than 100 year recurrence interval. To put the storm total of 13.52 inches at the Atlantic City International Airport in perspective, the all-time certified 24 hour rainfall record for the state of New Jersey is 14.81 inches in Tuckerton (Ocean County) on August 19, 1939. The 11.12 inches of rain that fell through midnight EST on the 20th, was a new all-time daily record. The previous 24 hour record was 6.46 inches set on July 10, 1949. The 13.52 inches also broke the previous all-time monthly record of 13.09 inches set in July of 1959 August 1997 would have a new rainfall record of 16.12 inches at the airport. Other storm totals from Atlantic County included 12.7 inches in Mays Landing, 12.6 inches in Estell Manor, and 10.21 inches in Pleasantville.	
1/28/1998	Multiple	An intense northeaster pounded the New Jersey Shore with tidal flooding, beach erosion, strong winds and rain. In Atlantic County, both the White Horse (U.S. Route 30) and Black Horse (U.S. Route 40) Pikes in and out of Atlantic City were closed for more than four hours the morning of the 28th. The Eastbound lanes of the Black Horse Pike were closed again the evening of the 28th. Several other roads were closed due to bayside tidal flooding in Egg Harbor Township, Absecon, Atlantic City and Pleasantville. Sections of U.S. Route 9 in Linwood and County Road 152 in Somers Point and Longport were also closed.	$15,000,000
2/9/1998	City of Atlantic City, City of Brigantine, City of	The strongest northeaster of the winter battered Coastal New Jersey, especially from Ocean County southward, with damaging winds, moderate to severe coastal flooding, extensive beach erosion, several dune breaches and heavy rain. A state of emergency was declared for all the coastal counties and both	$3,900,000

Table 3a.22
Selected Flood Events Affecting Atlantic County
(Source: NOAA / NCDC)

Date	Affected Municipalities	Description	Reported Property Damage*
	Linwood, City of Northfield, City of Margate City	Atlantic and Cape May Counties were declared federal disaster areas. Atlantic County suffered an estimated $3.9 million in damage. Twenty-two persons from Brigantine and Atlantic City were sheltered. Throughout the county one home and one business suffered major damage, 93 other dwellings and businesses suffered minor damage while tidal flooding affected but caused little damage to 219 others. Brigantine suffered substantial flooding and beach erosion, especially at the north end of the island. About 75 percent of its sand was carried away. Within Atlantic City, the 84 residents of the Oceanside Nursing Home were removed to 14 other nursing homes on the mainland. The boardwalk was ripped at New Hampshire Avenue. All access roads into the city were closed on the morning of the 5th, except for the Atlantic City Expressway. The worst tidal flooding occurred in the back bay with much of Venice Park, the Chelsea Bay Front and Chelsea Heights inundated. Dozens of parked cars had water up to their doors. The beach was described as "destroyed" in Margate. In Longport, the ocean met the bay from 11th through 24th Streets. The erosion caused vertical cliffs of 4 to 5 feet and streets had to be cleared of debris. The mainland was not spared in the county as the heavy rain caused basement flooding in the Donald J. Adams School in Northfield and trees were uprooted in Linwood.	
6/17/2001	Township of Egg Harbor, Township of Galloway, City of Ventnor City	The remnants of Tropical Storm Allison produced showers and thunderstorms with heavy rain during the morning of the 17th. This caused small stream and poor drainage flooding in the county. Gusty winds also knocked down weak tree limbs and wires. Both the Black Horse (U.S. Routes 40 & 322) and the White Horse (U.S. Route 30) Pikes were closed between the mainland and Atlantic City. In Ventnor, emergency service personnel were pushing vehicles from waist high water. There were other road closures in Egg Harbor and Galloway Townships. The flooding was so severe in Galloway Township, that the Absecon Estates development became an island. About 13,000 Conectiv customers lost power.	Not recorded
4/15/2007	Borough of Folsom, Township of Hamilton	Flooding along the Great Egg Harbor River threatened about two dozen homes from New Jersey State Route 54 in Folsom southeast to Lake Lenape in the May's Landing section of Hamilton Township. The Town of Hamilton Police Department reported that 14 structures (mostly residential) suffered flooding either in their basements or above first floor level. A two mile stretch of County Route 561 was closed because of the flooding. One lane of U.S. Route 322 was also closed. The Great Egg Harbor River at Folsom was above its 6 foot flood stage from 210 p.m. EDT on the 16th through 100 a.m. EDT on the 20th. It crested at 8.03 feet at 1045 p.m. EDT on the 17th.	$1,000,000
6/4/2007	City of Northfield, City of Pleasantville, City of Somers Point, City of Ventnor City	The heavy rain forced the closure of major roads in Atlantic County. The heaviest rain fell across the eastern part of the county. Cars were stuck in flood waters in Ventnor. Two feet of standing water was common on the streets of Northfield. Road closures occurred in Pleasantville and Somers Point.	Not recorded

*Includes damage incurred outside Atlantic County unless stated otherwise in the table.

Probability of Occurrence – Floods

The probability of occurrence of a flood at a given location (the odds of being flooded) is expressed in percentages as the chance of a flood of a specific magnitude occurring in any given year. The "100-year flood" has a 1% chance of occurring in any given year. The 100-year flood is often also referred to as the "base flood". This probability of occurrence might imply that a 100-year flood would reoccur only once every 100 years; in reality, this is not the case. A 100-year flood can happen multiple times in a single year, or not at all for more than 100 years. Properties located in FEMA-mapped A- and V-Zones are within the footprint of the 100-year floodplain. FEMA A-Zones represent the 100-year floodplain

For all floodplains, there is an associated water surface elevation. This elevation is unique to any given location on the map (in other words, 100-year flood levels vary from one community to the next throughout Atlantic County, and also within individual communities).

Within the 100-year floodplain, flooding can occur at less than the 100-year flood level, and also more than the 100-year flood level. The 100-year flood represents a flood of high magnitude – it is a deep and widespread event. The 500-year flood is of a greater magnitude, and would be deeper and more widespread than a 100-year event. However, it is not as likely to occur. Smaller floods, with magnitudes of 10-years or 50-years for example, are also possible within the 100-year floodplain. These are not as deep or as widespread as a 100-year flood would be, however, they are much more likely to occur.

The term "100-year flood" can often be confusing to someone not intimately familiar with flooding or statistics. FEMA's *NFIP Floodplain Management Requirements: a Study Guide and Desk Reference for Local Officials* (FEMA-480), suggests that another way to look at flood risk is to think of the odds that a 100-year flood will happen some time during the life of a 30-year mortgage of a home in the floodplain. Figure 3a.18 illustrates these odds, over various time periods for different size floods. In any given year, a property in the 100-year floodplain has a 10 percent chance of being flooded by a 10-year flood, and a 1 percent chance of being flooded by a 100-year flood. This may not sound particularly risky at first glance. However, over a 30–year period, that same location has a 96 percent chance of being flooded by a 10-year flood and a 26 percent chance of being flooded by a 100-year flood.

Figure 3a.18: Odds of Being Flooded

WHAT ARE THE ODDS OF BEING FLOODED?

The term "100-year flood" has caused much confusion for people not familiar with statistics. Another way to look at flood risk is to think of the odds that a 100-year flood will happen sometime during the life of a 30-year mortgage—a 26% chance for a structure located in the SFHA.

Chance of Flooding over a Period of Years

Time Period	Flood Size 10-year	25-year	50-year	100-year
1 year	10%	4%	2%	1%
10 years	65%	34%	18%	10%
20 years	88%	56%	33%	18%
30 years	96%	71%	45%	26%
50 years	99%	87%	64%	39%

Even these numbers do not convey the true flood risk because they focus on the larger, less frequent, floods. If a house is low enough, it may be subject to the 10- or 25-year flood. During a 30-year mortgage, it may have a 26% chance of being hit by the 100-year flood, but the odds are 96% (nearly guaranteed) that it will be hit by a 10-year flood. Compare those odds to the only 1-2% chance that the house will catch fire during the same 30-year mortgage.

Storm Surge

Description – Storm Surge

Storm surge occurs when the water level of a tidally influenced body of water increases above the normal astronomical high tide, and are most common in conjunction with coastal storms with massive low-pressure systems with cyclonic flows such as hurricanes, tropical storms and nor'easters. The low barometric pressure associated with these storms cause the water surface to rise, and storms making landfall during peak tides have surge heights and more extensive flood inundation limits. Storm surges will inundate coastal floodplains by dune overwash, tidal elevation rise in inland bays and harbors, and backwater flooding through coastal river mouths. The duration of a storm is the most influential factor affecting the severity and impact of storm surges. While hurricanes and tropical storms often move through areas relatively quickly, nor'easters can last for days and multiple tidal cycles – often causing major coastal flooding, erosion and damage.

A storm surge is often described as a wave that has outrun its generating source and become a long period swell. It is often recognized as a large dome of water that may be 50 to 100 miles wide and rising anywhere from four to five feet in a Category 1 hurricane up to 20 feet in a Category 5 storm. The storm surge arrives ahead of the storm center's actual landfall and the more intense the storm is, the sooner the surge arrives. Water rise can be very rapid, posing a serious threat to those who have not yet evacuated flood-prone areas. The surge is always highest in the right-front quadrant of the direction in which the storm is moving. As the storm approaches shore, the greatest storm surge will be to the north of the low-pressure system or hurricane eye. Such a surge of high water topped by waves driven by hurricane force winds can be devastating to coastal regions, causing severe beach erosion and property damage along the immediate shoreline.

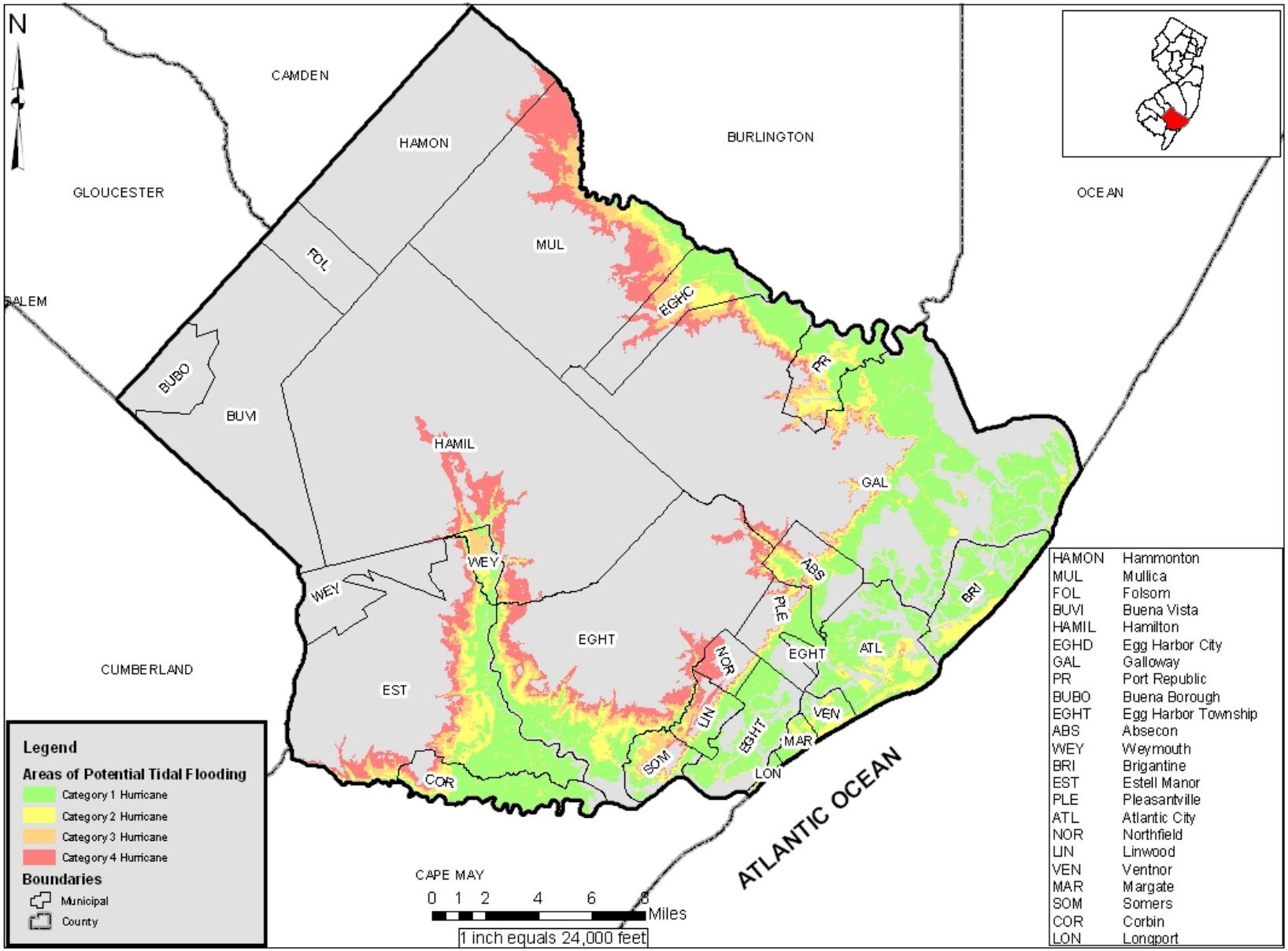
Storm surge heights and associated waves are dependent on not only the storm's intensity but also upon the shape of the offshore continental shelf (narrow or wide) and the depth of the ocean bottom (bathymetry). A narrow shelf, or one that drops steeply from the shoreline and subsequently produces deep water close to the shoreline, tends to produce a lower surge but higher and more powerful storm waves. The storms that generate the largest coastal storm surges can develop year-round, but they are most frequent from late summer to early spring.

Location and Extent – Storm Surge

There are many areas in Atlantic County subject to potential storm surge inundation as modeled and mapped by the U.S. Army Corps of Engineers (USACE). Figure 3a.19 illustrates inundation zones storm surges associated with hurricanes of category 1 to 4 for Atlantic County derived from georeferenced SLOSH (Sea, Lake and Overland Surge from Hurricanes) data produced by the USACE in coordination with NOAA. SLOSH is a modeling tool used to estimate storm surge for coastal areas resulting from historical, hypothetical or predicted hurricanes taking into account maximum expected levels for pressure, size, forward speed, track and winds. Therefore, the SLOSH data is best used for defining the potential maximum surge associated with various storm intensities for any particular location.

Table 3a.23 presents an estimation of the total value of improved property in the various SLOSH zones for each municipality, based on the data graphically presented in Figure 3a.19.

Figure 3a.19: Hurricane Storm Surge Inundation Zones in Atlantic County



SOURCE: National Weather Service's SLOSH (Sea, Lake and Overland Surge from Hurricanes) data; NJDEP: Counties Boundaries, 2003; Municipal Boundary, Atlantic County, 2003

Table 3a.23
Improved Values in SLOSH Zones

Municipality	Total Improved Value	Improved Values in SLOSH Zones							
		Category 1	% of Total	Category 2	% of Total	Category 3	% of Total	Category 4	% of Total
Absecon, City of	$263,139,927	$8,869,384	3%	$43,274,739	16%	$85,333,328	32%	$125,568,950	48%
Atlantic City, City of	$5,847,037,300	$2,224,391,041	38%	$5,562,320,514	95%	$5,650,372,964	97%	$5,665,950,416	97%
Brigantine, City of	$513,295,303	$259,184,375	50%	$509,785,820	99%	$511,641,792	100%	$511,641,792	100%
Buena, Borough of	$132,115,107	$0	0%	$0	0%	$0	0%	$0	0%
Buena Vista, Township of	$479,119,804	$0	0%	$0	0%	$0	0%	$0	0%
Corbin City, City of	$28,793,922	$3,588,359	12%	$11,346,575	39%	$14,942,633	52%	$20,422,619	71%
Egg Harbor City, City of	$80,098,041	$0	0%	$0	0%	$213,051	0.3%	$486,232	1%
Egg Harbor, Township of	$3,470,834,305	$128,401,926	4%	$184,363,058	5%	$290,179,348	8%	$532,298,907	15%
Estell Manor, City of	$102,859,729	$120,357	0.1%	$723,905	1%	$2,034,158	2%	$5,539,965	5%
Folsom, Borough of	$148,509,885	$0	0%	$0	0%	$0	0%	$0	0%
Galloway, Township of	$2,285,757,329	$9,346,848	0%	$27,391,465	1%	$59,795,489	3%	$119,672,268	5%
Hamilton, Township of	$1,728,805,249	$8,709,018	1%	$22,954,433	1%	$52,258,075	3%	$240,066,332	14%
Hammonton, Town of	$936,333,112	$0	0%	$0	0%	$0	0%	$0	0%
Linwood, City of	$498,008,251	$11,977,274	2%	$59,906,414	12%	$169,080,164	34%	$332,647,147	67%
Longport, Borough of	$165,551,868	$165,008,105	99.7%	$165,008,105	99.7%	$165,008,105	99.7%	$165,008,105	99.7%
Margate City, City of	$662,149,894	$472,598,206	71%	$653,286,084	99%	$653,333,790	99%	$653,333,790	99%
Mullica, Township of	$402,224,021	$21,826,583	5%	$32,910,811	8%	$77,768,259	19%	$106,827,468	27%
Northfield, City of	$800,316,450	$3,888,411	0.5%	$35,648,002	4%	$55,009,986	7%	$272,533,969	34%
Pleasantville, City of	$1,134,689,566	$30,131,670	3%	$104,072,459	9%	$195,355,802	17%	$313,844,355	28%
Port Republic, City of	$92,347,407	$5,088,599	6%	$30,499,896	33%	$65,608,770	71%	$71,493,165	77%
Somers Point, City of	$1,034,500,500	$51,829,859	5%	$255,327,116	25%	$601,187,605	58%	$712,043,761	69%
Ventnor City, City of	$380,608,771	$186,554,784	49%	$378,646,072	99%	$378,960,626	100%	$378,960,626	100%
Weymouth, Township of	$111,684,498	$1,330,622	1%	$9,856,525	9%	$33,155,429	30%	$33,450,027	30%
Totals	*$21,298,780,238*	*$3,592,845,423*	*17%*	*$8,087,321,992*	*38%*	*$9,061,239,373*	*43%*	*$10,261,789,894*	*48%*

As shown in Figure 3a.19, all municipal jurisdictions in Atlantic County except for three in the county's western inland extremity (the Boroughs of Buena and Folsom and the Township of Buena Vista) are potentially affected to some degree by storm surges. A fourth municipality (the Town of Hammonton) has a small area potentially affected by severe storm surges, but this area currently contains no recorded property improvements. The Atlantic County community most vulnerable to storm surges appears to be the City of Longport, of which virtually the entire inventory of improved property lies within the area potentially affected by the storm surge associated with a Category 1 hurricane. The Cities of Atlantic City, Margate City, Ventnor City, and Brigantine are potentially affected to the same degree by hurricanes of Category 2 or greater.

Historical Occurrences – Storm Surge

There is limited data available for historical weather events that have caused significant storm surge inundation in Atlantic County. While NCDC records do not list storm surges as a specific event category, descriptions of the effects of storm surges can be found within the detailed descriptions for hurricanes and tropical storms, ocean & surf, and flood events. Examination of the events listed in the NCDC database indicate that storm surges have accompanied a significant number of storm events in recent years, particularly nor'easters, which have been described in some detail in other sections of this plan chapter. Examples of such events include the storms of February 2, 1998 and March 22, 2000.

Probability of Occurrence – Storm Surge

Atlantic County faces a relatively low probability of major storm surge inundation as derived from current SLOSH data for major hurricanes (Category 3-4), since (as outlined in the Hurricane section of this plan chapter), NOAA studies indicate that the expected return periods for such storms are in the order of 90 years and upwards. However, less severe to moderate storm surge events typically associated with nor'easters and less intense coastal storms are more likely to occur, and in the case of nor'easters will last longer and possibly cause more damage than fast-moving hurricanes. Additionally, the long-term rise in sea level can be expected to impact the occurrence of significant storm surges and hence future damages from coastal flooding in Atlantic County. Rising sea levels over time will shorten the return period (or exceedance interval) and hence increase the frequency of significant storm surge events. To take a hypothetical example, a one foot rise in sea level over 50 years could result in a storm surge event with a current annual occurrence probability of 2% (a "50-year" event) becoming an event of 10% annual probability (a "10-year" event).

Wave Action

Description – Wave Action

Wave action refers to the additional destructive force of floodwater that may cause severe property damage and coastal erosion along the immediate shoreline of an ocean, bay or other large body of water. Waves typically result from wind or geologic effects and may travel thousands of miles before striking land. They range in size from small ripples to huge tsunamis or seiches (standing waves occurring in an enclosed body of water), with the most dominant factors being wind speed, fetch (distance of water the wind has blown over) and the length of time the wind has blown over a given area. The largest of wind-induced waves are associated with large coastal storms including hurricanes, tropical storms and nor'easters.

Waves generated by wind locally are steeper and shorter (crests close together); and the stronger and longer the wind blows the bigger and longer (crests far apart) the waves get. Long waves travel faster than short waves, and very long waves called "swells" come from storms far away, and are too long and round to be dangerous until they reach shallow water and closer to shore.

Wave action is a significant hazard to buildings and infrastructure located in coastal areas. Large, fast moving waves can cause extreme erosion and scour and their impact on buildings can cause severe damage. During hurricanes, nor'easters and other high-wind events, storm surge and wind increase the destructiveness of waves and cause them to reach higher elevations and penetrate further inland.

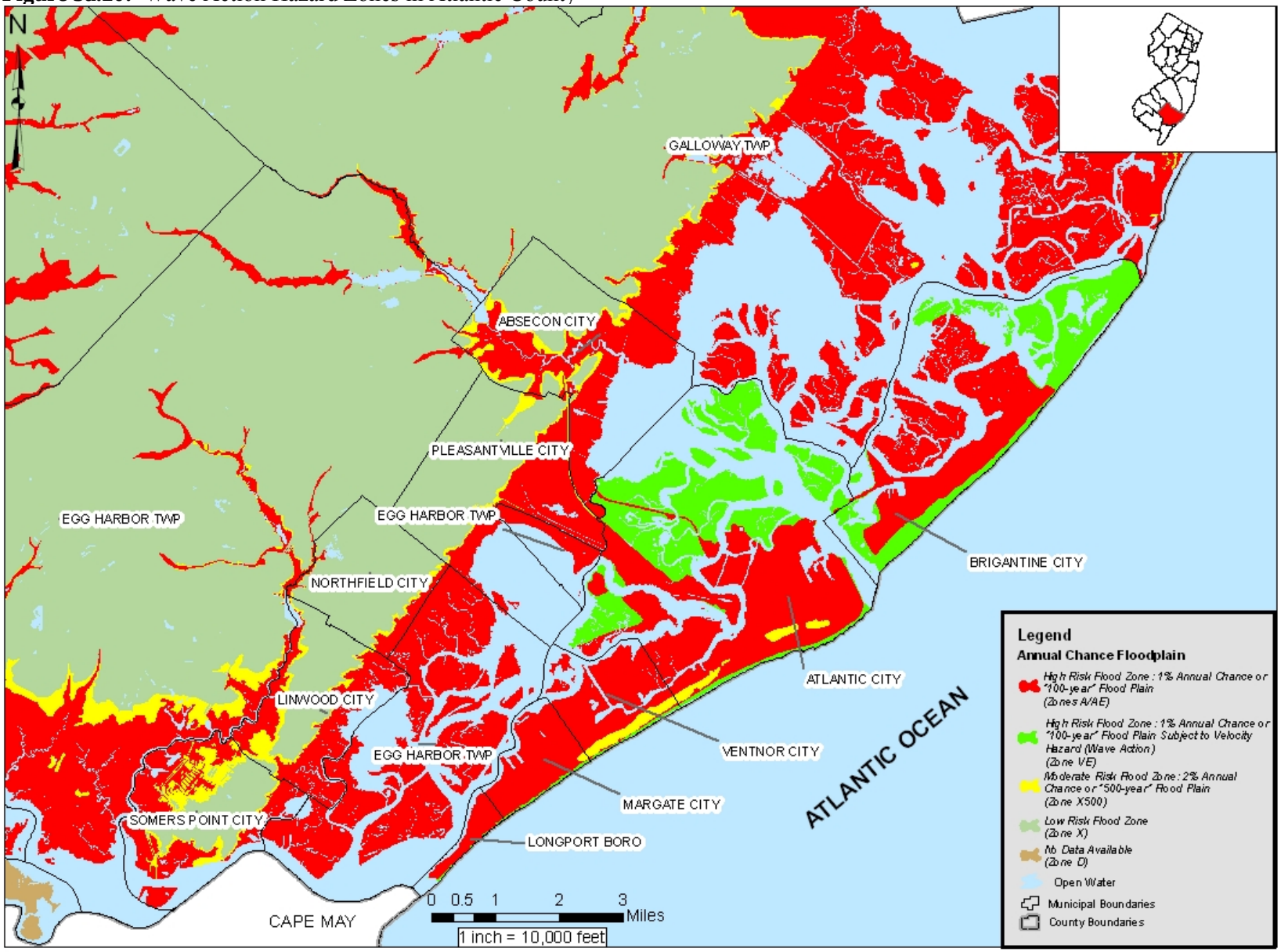
Location and Extent – Wave Action

The areas susceptible to wave action in Atlantic County are located along the immediate shoreline areas adjacent to the Atlantic Ocean and in some backbay areas between the coastal barrier islands and the mainland. Figure 3a.20 depicts the wave action hazard zones for Atlantic County based on FEMA digital Q3 flood data. This includes areas mapped as Zone VE according to the most recent Flood Insurance Study (FIS) completed by FEMA. Zone VE typically refers to the area between the shoreline and area where computed wave heights for the base (i.e. 1% annual chance of occurrence) flood are three feet or more. A wave height of three feet has been selected as the critical height by FEMA for use in flood studies because it generally carries enough energy to break wall panels away from walls to which they have been nailed. The extent of V-Zone areas and improved values within those areas by municipality are presented in Table 3a.24.

Historical Occurrences – Wave Action

According to the NCDC database, there have been 15 events specifically recorded as including aggressive wave action and/or heavy surf since August 1993, excluding wave action associated with other major historical events addressed separately within this section, such as hurricanes and nor'easters. While wave and surf events have been recorded as having caused a small number of deaths and injuries in Atlantic and neighboring Counties, the victims have all been people who voluntarily entered the ocean, such as swimmers, kayakers, and surfers. Information regarding damage to property directly attributable to wave action (beyond that already described in the preceding sections for hurricanes and other coastal storms) was not readily available.

Figure 3a.20: Wave Action Hazard Zones in Atlantic County



SOURCE: FEMA Q3 Data; NJDEP: Counties Boundaries, 2003; Municipal Boundary, Atlantic County, 2003; Waters of New Jersey (Lakes and Ponds), 2008

Table 3a.24
Areas and Improved Values in Wave Hazard Zones

Municipality	Total Area (Acres)	Area in V/VE Zones (Acres)	% of Total Area	Total Improved Value	Improved Value in V/VE Zones	% of Total Improved Value
Absecon, City of	3,728	0	0%	$263,139,927	$0	0%
Atlantic City, City of	7,232	3,407	47.1%	$5,847,037,300	$77,986,239	1.3%
Brigantine, City of	2,077	495	23.8%	$513,295,303	$23,405,230	4.6%
Buena, Borough of	4,855	0	0%	$132,115,107	$0	0%
Buena Vista, Township of	26,631	0	0%	$479,119,804	$0	0%
Corbin City, City of	5,130	0	0%	$28,793,922	$0	0%
Egg Harbor City, City of	7,124	0	0%	$80,098,041	$0	0%
Egg Harbor, Township of	43,741	0	0%	$3,470,834,305	$0	0%
Estell Manor, City of	34,660	0	0%	$102,859,729	$0	0%
Folsom, Borough of	5,368	0	0%	$148,509,885	$0	0%
Galloway, Township of	57,257	0	0%	$2,285,757,329	$0	0%
Hamilton, Township of	72,131	0	0%	$1,728,805,249	$0	0%
Hammonton, Town of	26,621	0	0%	$936,333,112	$0	0%
Linwood, City of	2,557	0	0%	$498,008,251	$0	0%
Longport, Borough of	248	14	5.8%	$165,551,868	$64,292	0.04%
Margate City, City of	930	37	4.0%	$662,149,894	$181,572	0.03%
Mullica, Township of	36,195	0	0%	$402,224,021	$0	0%
Northfield, City of	2,324	0	0%	$800,316,450	$0	0%
Pleasantville, City of	3,664	0	0%	$1,134,689,566	$0	0%
Port Republic, City of	5,040	0	0%	$92,347,407	$0	0%
Somers Point, City of	2,631	0	0%	$1,034,500,500	$0	0%
Ventnor City, City of	1,335	35	2.6%	$380,608,771	$577,952	0.2%
Weymouth, Township of	7,670	0	0%	$111,684,498	$0	0%
Totals	*359,149*	*3,988*	*1.1%*	*$21,298,780,238*	*$102,215,285*	*0.48%*

While velocity hazard (VE) zones cover noticeable areas in some municipalities (i.e., in the northern parts of Atlantic City and Brigantine), these areas are mostly undeveloped, and only five municipalities exhibit improved values in VE zones. In the City of Brigantine, this amounts to almost 5% of the total improved value for the city, while in the other four municipalities the proportion of improved value in VE zones is around 1% or less.

Probability of Occurrence – Wave Action

Wave action will remain a frequent occurrence for the coastal flood hazard zones of Atlantic County, and the probability of future occurrences is certain. Less severe wave action events will be more frequent but likely cause less impact (i.e., minor damages, coastal erosion, etc.), while more severe waves associated with less frequent coastal storm events such as hurricanes and nor'easters will cause higher impacts (including property damages) along Atlantic County's shoreline. Additionally, the long-term rise in sea level can be expected to impact the occurrence and hence damage caused by waves in Atlantic County. Whether or not sea level rise and other effects of climate change will give rise to larger and more frequent destructive waves than currently observed is beyond the scope of this study, but it can be stated with a reasonable degree of certainty that as sea levels rise, the areas exposed to waves are likely to expand inland, with an increasing amount of property becoming exposed to the hazard in developed shoreline areas in future.

Earthquakes

Description – Earthquakes

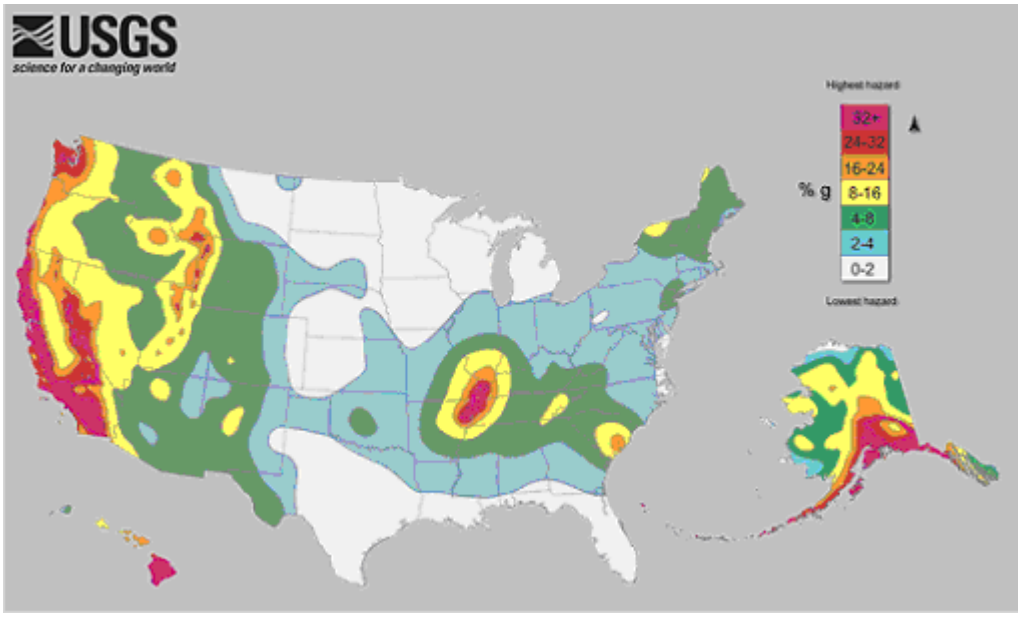
FEMA defines the term "earthquake" as a sudden, rapid shaking of the Earth caused by the breaking and shifting of rock beneath the Earth's surface. This movement forces the gradual buildup and accumulation of energy. Eventually, strain becomes so great that the energy is abruptly released, causing the shaking at the earth's surface which we know as an earthquake.

According to the USGS Earthquake Hazards Program, most earthquakes (approximately 90%) occur at the boundaries where the plates meet, although it is possible for earthquakes to occur entirely within plates. Atlantic County is significantly distant from any plate boundaries. Regardless of where they are centered, earthquakes can impact locations at – and well beyond – their point of origin. They are often accompanied by "aftershocks" – secondary quakes in the earthquake sequence. Aftershocks are typically smaller than the main shock, and can continue over a period of weeks, months, or years from the main shock. In addition to the effects of ground shaking, earthquakes can also cause landslides and liquefaction under certain conditions. Liquefaction occurs when unconsolidated, saturated soils exhibit fluid-like properties due to intense shaking and vibrations experienced during an earthquake. Together, ground shaking, landslides, and liquefaction can damage or destroy buildings, disrupt utilities (i.e., gas, electric, phone, water), and sometimes trigger fires.

Location – Earthquakes

Earthquakes are possible within any of Atlantic County's communities. Figure 3a.21 show an earthquake hazard map for the conterminous United States prepared by the USGS Earthquake Hazards Program. It shows that the earthquake hazard is low relative to other parts of the country (for example the west coast of the USA), but the possibility for noticeable earthquakes does exist in New Jersey.

Figure 3a.21: Earthquake Hazard Map of the Conterminous United States

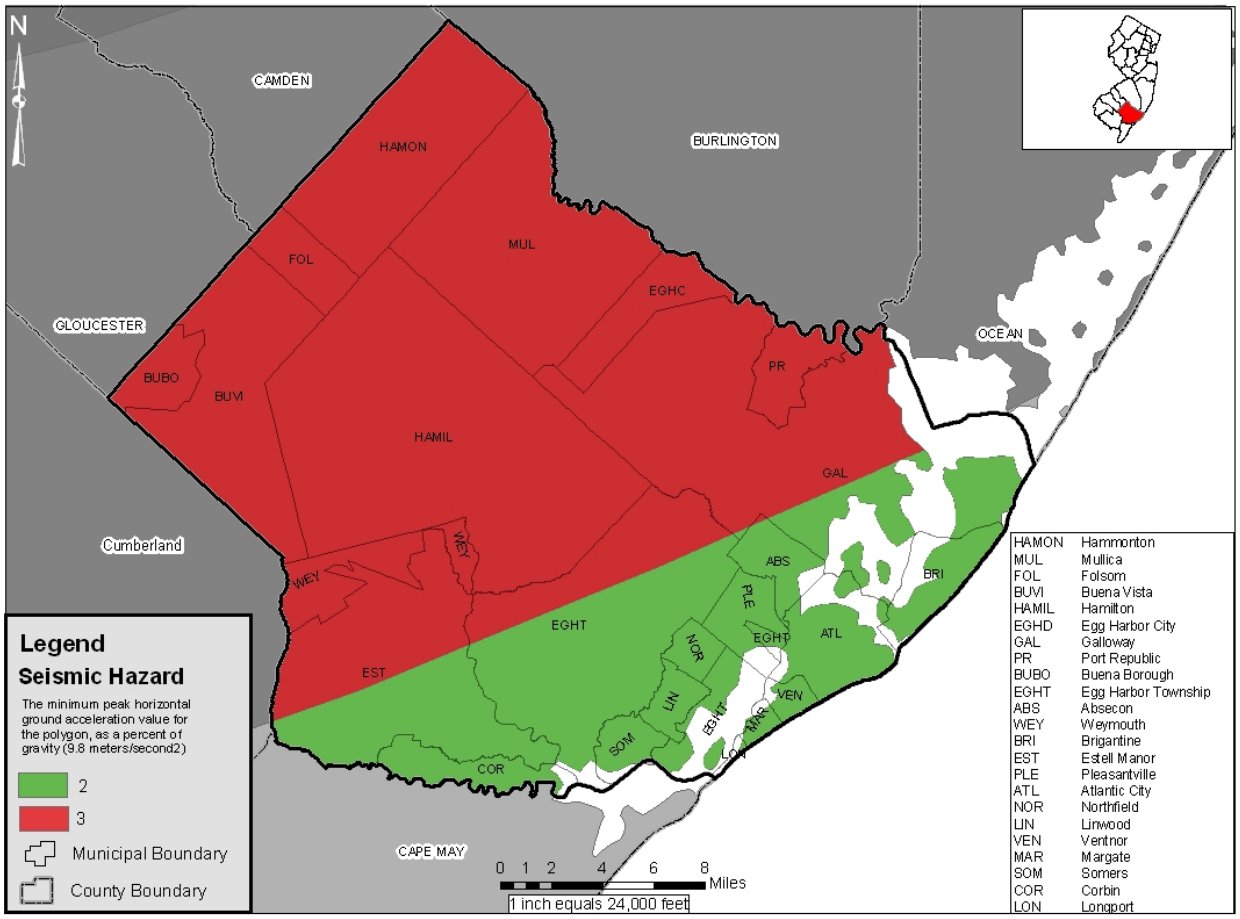


The severity of an earthquake at a given location depends on the amount of energy released at the epicenter, and the location's distance from the epicenter. The terms "magnitude" and "intensity" are two terms used to describe the severity of an earthquake. An earthquake's "magnitude" is a measurement of the total amount of energy released while its "intensity" is a measure of the effects of an earthquake at a particular place. Another way to express an earthquake's severity is to compare its acceleration to the normal acceleration due to gravity. Peak Ground Acceleration (PGA) measures the rate of change in motion of the earth's surface and expresses it as a percent of the established rate of acceleration due to gravity (9.8 m/sec^2). Figure 3a.22 shows that, for Atlantic County, PGA values of between 2 and 3%g have a 10 percent chance of being exceeded over 50 years (i.e., events of these magnitude are expected to occur, on average, once every 500 years). All of Atlantic County has some degree of exposure to the earthquake hazard. While there are two mapped degrees of exposure, it is important to note that the effects at these low levels would be very similar. The GIS files used to generate Figure 3a.22 were used to estimate the extent of exposed land area in each municipality to the various degrees of earthquake hazard, as presented in Table 3a.25. Since current FEMA guidance currently recommends that earthquake hazards be comprehensively assessed for areas where a PGA of 3% has at least a 10% chance of exceedance, Table 3a.25 does not include areas in Atlantic County where the same probability is associated with earthquakes of lesser magnitude.

Table 3a.25
Areas and Improved Values in Earthquake Hazard Areas

Municipality	Total Area (Acres)	PGA 3% Area (Acres)	PGA 3% Area %	Total Improved Value	PGA 3% Improved Value	PGA 3% Improved Value %
Absecon, City of	3,728	74	2%	$263,139,927	$13,316,311	5%
Atlantic City, City of	7,232	0	0%	$5,847,037,300	$0	0%
Brigantine, City of	2,077	0	0%	$513,295,303	$0	0%
Buena Vista, Township of	4,855	4,855	100%	$132,115,107	$132,115,109	100%
Buena, Borough of	26,631	26,631	100%	$479,119,804	$479,119,804	100%
Corbin City, City of	5,130	0	0%	$28,793,922	$0	0%
Egg Harbor City, City of	7,124	7,124	100%	$80,098,041	$80,098,041	100%
Egg Harbor, Township of	43,741	12,502	29%	$3,470,834,305	$1,050,359,856	30%
Estell Manor, City of	34,660	18,314	53%	$102,859,729	$96,322,871	94%
Folsom, Borough of	5,368	5,368	100%	$148,509,885	$148,509,885	100%
Galloway, Township of	57,257	45,252	79%	$2,285,757,329	$2,102,409,797	92%
Hamilton, Township of	72,131	72,131	100%	$1,728,805,249	$1,728,805,259	100%
Hammonton, Town of	26,621	26,621	100%	$936,333,112	$936,333,112	100%
Linwood, City of	2,557	0	0%	$498,008,251	$0	0%
Longport, Borough of	248	0	0%	$165,551,868	$0	0%
Margate City, City of	930	0	0%	$662,149,894	$0	0%
Mullica, Township of	36,195	36,195	100%	$402,224,021	$402,224,021	100%
Northfield, City of	2,324	0	0%	$800,316,450	$0	0%
Pleasantville, City of	3,664	0	0%	$1,134,689,566	$0	0%
Port Republic, City of	5,040	5,040	100%	$92,347,407	$92,347,407	100%
Somers Point, City of	2,631	0	0%	$1,034,500,500	$0	0%
Ventnor City, City of	1,335	0	0%	$380,608,771	$0	0%
Weymouth, Township of	7,670	7,670	100%	$111,684,498	$111,684,493	100%
Totals	*359,149*	*267,776*	*75%*	*$21,298,780,238*	*$7,373,645,965*	*35%*

Figure 3a.22: Atlantic County Earthquake Hazard Zones



SOURCE: USGS, Seismic Hazard Map for the United States, 2002; NJDEP, County Boundaries of New Jersey, 2003; NJDEP, Municipal County Boundary for Atlantic County, NJ, 2003

Extent-Earthquakes

An approximate relationship between PGA, magnitude, and intensity is shown in Table 3a.26. Using Table 3a.26, one can approximate that, for an earthquake of expected severity for Atlantic County and its participating jurisdictions (PGA values of 2 to 3%g), perceived shaking would be light to moderate (depending upon the distance from the epicenter) and potential damage could range from none to very light (also depending upon the distance from the epicenter).

Table 3a.26
Earthquake Magnitude/Intensity Comparison

PGA	Magnitude	Intensity	Perceived Shaking	Potential Damage
< 0.17	1.0 - 3.0	I	Not Felt	None
0.17 – 1.4	3.0 – 3.9	II - III	Weak	None
1.4 – 9.2	**4.0 – 4.9**	**IV – V**	**IV. Light V. Moderate**	**IV. None V. Very Light**
9.2 - 34	5.0 – 5.9	VI – VII	VI. Strong VII. Very Strong	VI. Light VII. Moderate
34 - 124	6.0 – 6.9	VIII - IX	VIII. Severe IX. Violent	VIII. Moderate/Heavy IX. Heavy
> 124	7.0 and higher	X and higher	Extreme	Very Heavy

Sources: (1) FEMA Mitigation Planning "How-To" Guide 386-2 (as reported in the New York State Hazard Mitigation Plan 2005; (2) Wald, D., et al., 1999, Relationship between Peak Ground Acceleration, Peak Ground Motion, and Modified Mercalli Intensity in California", Earthquake Spectra, V. 15, p. 557-564; (3) Community Internet Intensity, USGS Modified Mercalli Intensity, and Instrumental Intensity. 1999. http://www-socal.wr.usgs.gov/ciim/pubs/ciim/node5.html (July 27, 2003).

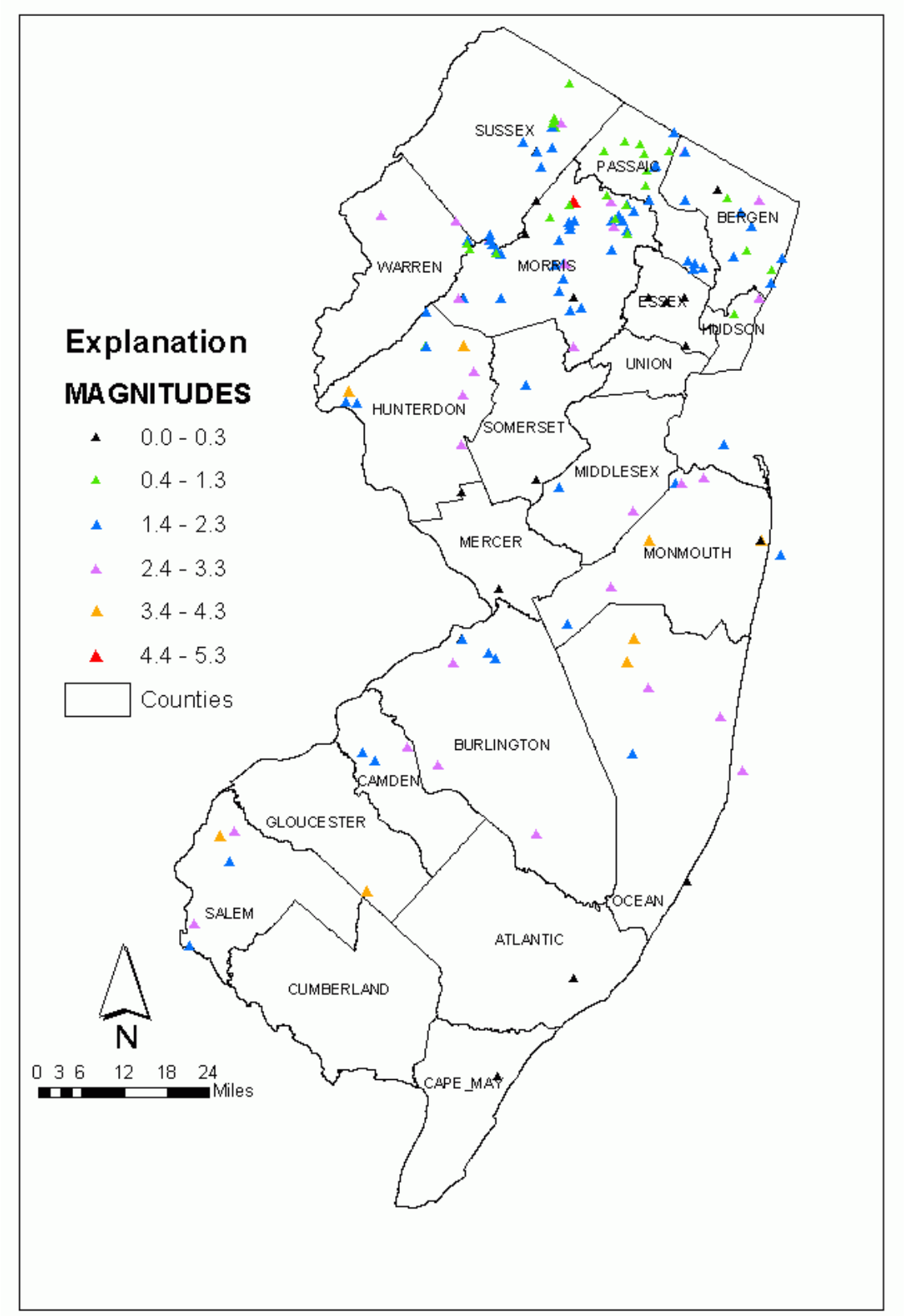
An earthquake with a 10 percent chance of exceedance over 50 years in Atlantic County would have a PGA of 2 to 3%g and an intensity ranging from only III to IV, which would result in light to moderate perceived shaking, and damages ranging from none to very light. An earthquake of intensity IV on the Modified Mercalli Scale would most likely cause vibrations similar to heavy trucks driving over roads, or the sensation of a jolt. Hanging objects would swing; standing cars would rock; windows, dishes and doors would rattle; and, in the upper ranges of intensity IV, wooden walls and frames would creak. For comparison, an earthquake of intensity V on the Modified Mercalli Scale would be felt outdoors, awaken sleepers, disturb or spill liquids, displace small unstable objects, swing doors, and cause shutters and pictures to move.

In addition to the underlying seismic mechanism soil type can have an impact on the severity of an earthquake at a given location. For example, soft soils (i.e., fill, sand) are more likely to amplify ground motion during an earthquake and hence cause much higher levels of shaking. Liquefaction is also more likely to occur in areas of soft soils. In contrast, harder soils (i.e., granite) tend to reduce ground motion during an earthquake. The New Jersey Geological Survey has compiled some detailed maps of soil type for the purposes of estimating earthquake losses, but these maps have so far only been published for the seven counties in the northeastern part of the state, where the level of seismic hazard is the highest. Until such data becomes readily available for southern New Jersey, further analysis of earthquake risk in Atlantic County is not possible within the current scope of the mitigation planning process.

Previous Occurrences – Earthquakes

Although the probability of damaging earthquakes in New Jersey is low, earthquakes do occur on a regular basis in the state and the surrounding region. Figure 3a.23 illustrates the location of all recorded earthquakes with epicenters in New Jersey, according to the New Jersey Geological Survey. Only one earthquake has been recorded as being epicentered in Atlantic County: An earthquake of magnitude less than 0.4, which was recorded in the City of Pleasantville on April 23, 1910. There are no records of any damages attributable to this event.

Figure 3a.23: Recorded Earthquakes Epicentered in New Jersey



An earthquake does not have to be epicentered in Atlantic County - or even in New Jersey - for Atlantic County to feel its effects. According to the New Jersey State Mitigation Plan there have been a number of recorded events in the surrounding region which have been of sufficient magnitude to cause damage within New Jersey. These include three events in the New York City area in 1737, 1783, and 1884, and one in the Atlantic Ocean near Asbury Park, NJ, in 1927. Based on damage patterns, these events were approximately magnitude 5.0 to 5.5, and resulting damage was relatively minor, consisting primarily of chimney collapses and objects dislodged from shelves.

Additionally, the US Geological Survey National Earthquake Information Center has posted on its web site an earthquake history of New Jersey, as abridged from Earthquake Information Bulletin, Volume 7, Number 2, March - April 1975, by Carl A. von Hake. This history has been reproduced in Table 3a.27 below. The New Jersey Geological Survey notes on their web site that damage in New Jersey from earthquakes has been minor: items knocked off shelves, cracked plaster and masonry, and fallen chimneys. There are no recorded earthquake-related deaths in New Jersey.

Table 3.a27
Earthquake History of New Jersey
http://earthquake.usgs.gov/regional/states/new_jersey/history.php

Date	Description
Pre-1895	On December 18, 1737, a damaging earthquake near New York City was felt throughout most of New Jersey. The strong earthquakes off Cape Ann, Massachusetts, in 1755; the New Madrid, Missouri, area in 1811 – 1812; at Riviere-Ouelle, Canada, in 1860; Wilmington, Delaware, in 1871; New York City, New York, in 1884; and Charleston, South Carolina, in 1886, all could be felt in New Jersey. Impacts typically involved the perception of slight movement, church bells ringing, etc.
09/01/1895	A moderately strong earthquake, centered near High Bridge, was felt over a considerable area to the northeast and southwest. The total felt area covered points from Maine to Virginia in a long, narrow elliptical zone of about 92,000 square kilometers. Articles fell from shelves and buildings rocked (intensity VI) in several Hunterdon County towns. The shock was fairly sharp at Camden and Burlington. At Philadelphia, Pennsylvania, broken windows and overturned crockery were reported.
01/26/1921	Moorestown and Riverton were shaken moderately (intensity V). A rumbling noise was reported to be heard.
06/01/1927	The highest intensity earthquake ever observed in New Jersey occurred in the Asbury Park area. Three shocks were felt along the coast from Sandy Hook to Toms River. Maximum intensities of VII were observed at Asbury Park and Long Branch. Several chimneys fell, plaster cracked, and articles were thrown from shelves. The felt area extended over approximately 7,800 square kilometers.
01/24/1933	A sharp jolt was felt over central New Jersey from Lakehurst to Trenton. Although there is some doubt whether the shock was of seismic origin, the event was felt most strongly at Lakehurst, where people reported they were rolled out of bed (intensity V). Other people reported pictures shaken from walls. The shock was also felt at Bordentown, Burlington, Columbus, Englishtown, Freehold, Hightstown, New Egypt, Robbinsville, and White Horse.
08/22/1938	Central New Jersey was disturbed by a shock somewhat stronger than the 1933 event. The earthquake caused minor damage at Gloucester City and Hightstown (intensity V). The total felt area was about 13,000 square kilometers, including bordering portions of Delaware and Pennsylvania. Glassware was broken at Gloucester City and Hightstown and some furniture was displaced at Pitman. A few windows and some glassware were reported broken at Ardmore, Pennsylvania. Four smaller shocks occurred on August 23rd and one on August 27th.
11/14/1939	Residents of Salem County were startled by earthquake tremors which caused more excitement than damage. The disturbance was reported felt from Trenton to Baltimore, Maryland, and from Cape May to Philadelphia and its adjoining counties. About 16,000 square kilometers were affected. Small objects were reported to have overturned at Deepwater, but little or no damage was noted.
09/03/1951	Northeastern New Jersey experienced minor effects from an earthquake on September 3, 1951 that was apparently centered in Rockland County, New York. On March 23, 1957, a shock affected west-central New Jersey, near the site of the 1895 earthquake. Chimneys cracked (intensity VI), windows and dishes broke, and pictures fell at Lebanon. A cracked chimney was also reported from Hamden. At Long Valley some walls were cracked and plaster fell. The felt area was small in comparison with the other shocks previously described.
12/27/1961	In northeastern Philadelphia and adjoining portions of New Jersey and Pennsylvania residents were alarmed by loud rumbling sounds. In New Jersey, the tremor was felt by many at Bordentown and Trenton, where houses shook (intensity V) and windows and dishes rattled.
12/10/1968	A similar disturbance affected much of the same area as the 12/27/1961. An earthquake measured at magnitude 2.5 occurred in Burlington County. The press reported some broken windows. Intensity V effects were noted at Camden, Moorestown and at Darby and Philadelphia, Pennsylvania. It was reported that toll booths on the Benjamin Franklin and Walt Whitman Bridges in Philadelphia trembled during the shock.
02/28/1973	Most of New Jersey and adjoining portions of Delaware, Maryland, and Pennsylvania experienced a moderately strong earthquake. One town in southern Connecticut and one in eastern Virginia also reported the shock. The magnitude 3.8 tremor was centered in northwestern Salem County, near the Delaware River border with the State of Delaware. Observers reported cracked plaster (intensity V) at Laurel Springs and Penns Grove and cracked cinder blocks at Harrisonville. Also, small objects shifted and fell in several towns. Similar types of minor damage occurred in nearby areas of Delaware, Maryland, and Pennsylvania.

Additionally, while the Great Alaska Earthquake of 1964 did not appear in the history cited above, it was reportedly such a significant event that vibrations could be felt across the globe. One Atlantic County resident who was a prior employee of the Atlantic County NOAA office reported to the Village of Margate his recollection that citizens in Margate called in to report minor impacts such as items falling off of shelves.

Probability of Occurrence – Earthquakes

Earthquakes cannot be predicted. They strike without warning, at any time of the year, and at any time of the day or night. Earthquake hazard maps – sometimes referred to as "PGA maps" – are used as a tool to project the likelihood of a various intensity quake being exceed at a certain location over a given period of time. They depict the Peak Ground Acceleration (PGA), expressed as a percentage of the force of gravity that can be expected to be exceeded at a given location for a particular probability of exceedance over a specific time frame. As Figure 3a.22 shows, the earthquake hazard is relatively low but shows some degree of variation across the county, with higher hazard areas being in the inland areas of the county, with coastal areas being subject to a lower level of risk.

According to the currently available earthquake hazard mapping, there is a 10 percent chance over 50 years that an earthquake with a PGA of greater than 2%g to3%g will be centered within Atlantic County and/or its participating jurisdictions. This earthquake, if it did occur, would likely have associated with it light to moderate perceived shaking and little to no damage.

Wildfires

Description – Wildfires

A wildfire is an uncontrolled fire burning in an area of vegetative fuels such as grasslands, brush, or woodlands. Wildfires can occur in areas essentially void of development, or in areas where development intermingles with these natural areas (known as the "urban-wildland interface"). Many wildfires occur in locations that abound in dense forests, grasslands and shrubs. Heavier fuels with high continuity, steep slopes, high temperatures, low humidity, low rainfall, and high winds all work to increase risk.

Wildfires can occur at any time of the year, but will usually occur during warmer and dryer months. Wildfires are most commonly caused by people (i.e., arson, debris burns, and carelessness). Lightning is the next most common cause of wildfires. As reported by the Wildland Fire Assessment System (WFAS) wildfires resulting from a lightning strike largely depend on the duration of the current and the kind of fuel the lightning hits. Spread of the wildfire after ignition usually depends primarily on fuel moisture.

Location and Extent – Wildfires

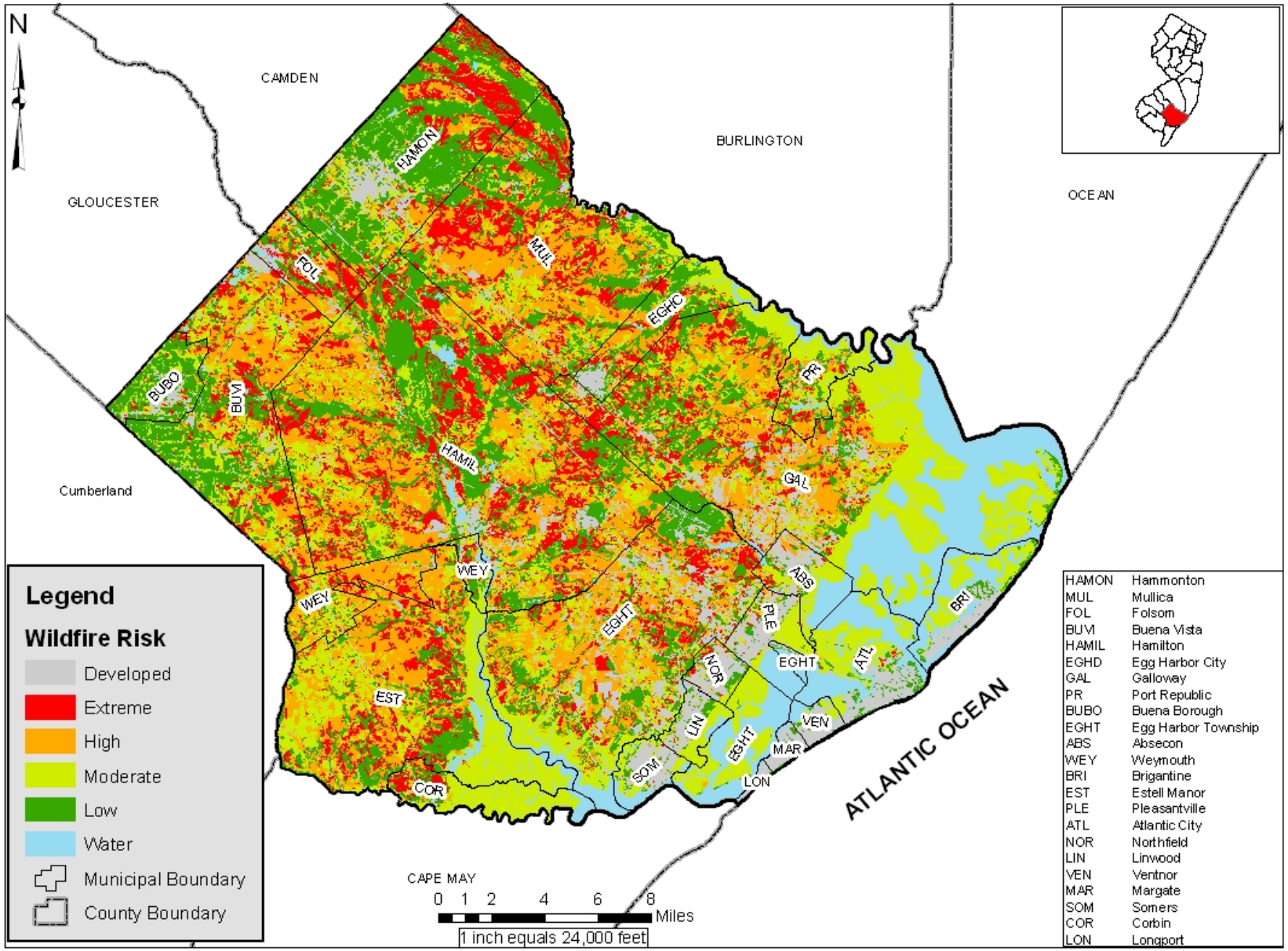
Areas that are typically considered to be safe from wildfires include highly urbanized, developed areas that are not contiguous with vast areas of wild lands. Areas typically considered to be prone to wildfires include large tracts of wild lands containing heavier fuels with high continuity, at steeper slopes.

Wildfires are a significant hazard in Atlantic County, particularly in the forested areas which cover much of the county away from the shoreline and back bay areas, where past wildfires have destroyed thousands of acres of forest with property loss running into the thousands of dollars. Several major transportation routes such as the Atlantic City Expressway, the Garden State Parkway, and Routes 30, 40, and 322, also traverse forested areas, leaving them vulnerable to closure during forest fire due to smoke conditions. Areas in Atlantic County where the magnitude and severity of the hazard are the greatest tend to exhibit the lowest population densities in the County; as a result, exposure of people living and working in the highest hazard areas is often relatively low.

Figure 3a.24 shows the areas of Atlantic County that are considered to be at risk from wildfire color-coded according to the level of risk. At-risk areas generally include forest, shrub land, and grassland, while developed and agricultural land are not generally considered to be at significant risk from wildfire for the purposes of this plan and its component risk assessment. An estimation of the improved property values within the two highest risk hazard areas is presented in Table 3a.28. Figure 3a.24 and Table 3a.28 show that areas considered at high or extreme risk are numerous and widespread throughout the inland areas of Atlantic County, and that more than 10% of the County's total improved property value lies within one of these zones.

The municipalities at the greatest risk from wildfire, according to this estimation, are the Townships of Egg Harbor, Galloway, Hamilton, Mullica, and Weymouth, and the Cities of Estell Manor and Port Republic, all of which have more than 20% of their total improved values located within high or extreme wildfire risk areas. The highly developed municipalities along the oceanfront have essentially no structures in high or extreme wildfire risk zones.

Figure 3a.24: Wildfire Risk Areas in Atlantic County



SOURCE: New Jersey Forest Fire Service, Wildfire Hazard Assessment, 2004; NJDEP, County Boundaries of New Jersey. 2003; NJDEP, Municipal County Boundary Atlantic County, NJ 2003

Table 3a.28
Improved Property in Wildfire Risk Zones by Municipality

Municipality	Total Improved Value	Extreme Wildfire Risk Area		High Wildfire Risk Area		Moderate Wildfire Risk Area		Combined Extreme-High Wildfire Risk Area	
		Improved Value	% of Total	Improved Value	% of Total	Improved Value	% of Total	Improved Value	% of Total
Absecon, City of	$263,139,927	$1,536,050	1%	$7,720,177	3%	$12,807,279	5%	$9,256,226	4%
Atlantic City, City of	$5,847,037,300	$20,029,399	0%	$61,028	0%	$101,480,097	2%	$20,090,427	0%
Brigantine, City of	$513,295,303	$0	0%	$0	0%	$700,535	0%	$0	0%
Buena Vista, Township of	$132,115,107	$892,877	1%	$2,219,829	2%	$14,042,671	11%	$3,112,705	2%
Buena, Borough of	$479,119,804	$19,447,987	4%	$44,332,862	9%	$137,063,027	29%	$63,780,848	13%
Corbin City, City of	$28,793,922	$3,557,070	12%	$2,169,639	8%	$6,544,139	23%	$5,726,709	20%
Egg Harbor City, City of	$80,098,041	$1,008,294	1%	$1,572,125	2%	$5,012,251	6%	$2,580,420	3%
Egg Harbor, Township of	$3,470,834,305	$195,968,796	6%	$865,229,066	25%	$490,394,601	14%	$1,061,197,862	31%
Estell Manor, City of	$102,859,729	$6,480,589	6%	$23,633,214	23%	$55,736,137	54%	$30,113,802	29%
Folsom, Borough of	$148,509,885	$13,349,854	9%	$11,098,384	7%	$21,552,187	15%	$24,448,237	16%
Galloway, Township of	$2,285,757,329	$154,337,270	7%	$364,637,336	16%	$322,311,156	14%	$518,974,605	23%
Hamilton, Township of	$1,728,805,249	$77,137,462	4%	$348,743,942	20%	$213,240,438	12%	$425,881,404	25%
Hammonton, Town of	$936,333,112	$16,490,084	2%	$34,348,522	4%	$132,939,467	14%	$50,838,606	5%
Linwood, City of	$498,008,251	$603,111	0%	$5,554,034	1%	$23,631,974	5%	$6,157,145	1%
Longport, Borough of	$165,551,868	$0	0%	$0	0%	$725,251	0%	$0	0%
Margate City, City of	$662,149,894	$0	0%	$0	0%	$4,016	0%	$0	0%
Mullica, Township of	$402,224,021	$33,029,216	8%	$53,866,285	13%	$122,911,182	31%	$86,895,501	22%
Northfield, City of	$800,316,450	$3,806,554	0%	$16,602,754	2%	$25,225,124	3%	$20,409,308	3%
Pleasantville, City of	$1,134,689,566	$6,110,301	1%	$27,978,002	2%	$91,669,697	8%	$34,088,303	3%
Port Republic, City of	$92,347,407	$7,746,408	8%	$11,379,586	12%	$38,385,515	42%	$19,125,994	21%
Somers Point, City of	$1,034,500,500	$1,747,784	0%	$3,115,520	0%	$13,013,512	1%	$4,863,304	0%
Ventnor City, City of	$380,608,771	$0	0%	$0	0%	$276,702	0%	$0	0%
Weymouth, Township of	$111,684,498	$5,371,644	5%	$20,159,899	18%	$46,106,017	41%	$25,531,543	23%
Totals	*$21,298,780,238*	*$568,650,747*	*3%*	*$1,844,422,204*	*9%*	*$1,875,772,974*	*9%*	*$2,413,072,951*	*11%*

The wildfire risk for the individual municipalities within Atlantic County has also been quantified by measuring the length of the urban-wildland interface, and these estimations are presented in Table 3a.29. This gives a measure of the potential for fires in (typically) woodland areas to spread to adjacent built-up areas, thus causing significant property damage. The urban-wildland interface measurements were estimated incorporating a 200 foot buffer extending from the urban/developed areas into the wildfire risk areas, to account for the likelihood that structures in the urban area are at risk of combustion before a wildfire reaches the exact interface. Based on the length of the urban/wildland interface, development in the Townships of Egg Harbor, Hamilton, and Galloway could be said to be the most at risk from wildfires, since they all have interfaces in excess of 100 miles.

Table 3a.29
Urban/Wildland Interface

Municipality	Urban/Wildland Interface (Feet)	Urban/Wildland Interface (Miles)
Absecon, City of	39,416	7.47
Atlantic City, City of	0	0.00
Brigantine, City of	5,025	0.95
Buena Vista, Township of	15,439	2.92
Buena, Borough of	175,242	33.19
Corbin City, City of	21,791	4.13
Egg Harbor City, City of	54,663	10.35
Egg Harbor, Township of	753,841	142.77
Estell Manor, City of	87,072	16.49
Folsom, Borough of	77,589	14.69
Galloway, Township of	568,736	107.72
Hamilton, Township of	720,083	136.38
Hammonton, Town of	110,323	20.89
Linwood, City of	590	0.11
Longport, Borough of	0	0.00
Margate City, City of	0	0.00
Mullica, Township of	257,270	48.73
Northfield, City of	16,576	3.14
Pleasantville, City of	12,929	2.45
Port Republic, City of	39,806	7.54
Somers Point, City of	2,867	0.54
Ventnor City, City of	0	0.00
Weymouth, Township of	63,940	12.11
Totals	3,023,200	572.58

Previous Occurrences – Wildfires

According to the New Jersey State Hazard Mitigation Plan, Atlantic County experienced 191 wildfire incidents between 1996 and 2006, more than any other in the State with the exception of neighboring Ocean County. Of these 191 fires, 22 affected more than 10 acres. During this period, Atlantic County experienced an average of 318 acres of land burned, the third highest in the state, behind Ocean and Burlington Counties.

Specific historical occurrences of wildfires in Atlantic County have also been identified using the NOAA NCDC database, which records details for five significant wildfire events that mention Atlantic County as an affected area since July 1997. The following details are recorded for some of these events:

29 July 1997
In all 381 wildfires blackened 3,095 acres of forest throughout New Jersey during the month of July. The largest forest fire of the month blackened about 1,920 acres of the Wharton State Forest in the Township of Mullica and Town of Hammonton. One fire fighter suffered heat exhaustion. The fire started about 2.5 miles from the Totem Village in the Township of Mullica. About 100 persons (75 homes) were evacuated for about a day from that development and placed in the Mullica Township firehouse. The fire was declared contained at 6 p.m. EDT on the 30th. The unseasonably hot and dry weather contributed to a larger than normal number of wild and forest fires in the State of New Jersey.

30 April 1999
A five acre marsh fire caused by a welder's torch was exacerbated by the unseasonably dry weather during the second half of April and very strong and gusty northeast winds. The fire started around 1120 a.m. EDT behind Harrah's within Atlantic City. Workers were building a walkway from a parking lot into the casino. The strong winds coupled with flames stretching into the marsh beyond the hoses' reach made it a difficult fire to control. Nevertheless, it was contained by 1 p.m. EDT. No injuries, property damage or evacuations occurred. The peak wind gust at the Marina within Atlantic City was 29 mph.

5 March 2000
A fast moving brush fire, exacerbated by strong gusty northwest winds, forced the evacuation of an apartment complex in the City of Somers Point and the closure of the Garden State Parkway for 80 minutes. The fire started as a grass fire on Hoter Avenue in Somers Point shortly before 1 p.m. EST. It spread into the meadow grass and the strong gusty northwest winds extended it beyond the Garden State Parkway. The fire came dangerously close to three buildings in the Somers Point Village Apartments before it was extinguished at 247 p.m. EST. About 15 acres were burned. It was extinguished in 15 minutes. The peak wind gust at the Atlantic City International Airport was 33 mph.

5 March 2007
A grass fire in the Township of Egg Harbor closed the northbound and southbound lanes of the Garden State Parkway near the intersection with the Atlantic City Expressway at 230 p.m. EST. Heavy smoke sharply reduced visibility. Later that afternoon, one lane in each direction on the Garden State Parkway was reopened. Traffic was also diverted on the Atlantic City Expressway. The spread of the brush fire was assisted by the gusty northwest winds. The peak wind gust at the Atlantic City International Airport on the 5th was 46 mph.

21-27 October 2008
The Sauder Ditch Wildfire consumed about 1950 acres of forest before it was contained. The fire began in a secluded section of Wharton State Forest in Waterford Township (Camden County) close to 3 p.m. EDT on the 21st. This location is west of U.S. Route 206 and south of the Atsion Recreational Area. It spread into parts of the Town of Hammonton (Atlantic County). Gusty northwest winds along with recent dry weather helped spread the fire quickly and hampered fire fighting efforts on the 21st and 22nd. About four homes and two businesses on U.S. Route 206 in the Town of Hammonton were evacuated because of fear of smoke and the fire itself on the 21st

They were allowed to return at noon EDT on the 22nd The fire reached up to 100 feet in the air and was visible from Atlantic City. The heavily traveled U.S. Route 206 was closed between the White Horse Pike (U.S. Route 30) in the Town of Hammonton and Atsion Lake (Shamong Township, Burlington County) after the fire jumped the roadway on the evening of the 21st. The roadway had sporadic closures, especially at night when the smoke became thicker, through the 25th. About 200 fire fighters battled the blaze and used brush trucks, helicopters, bull dozers and air tankers in their efforts. Water was retrieved from nearby Atsion Lake. The fire was considered twenty percent contained on the 21st, forty percent contained on the 22nd, fifty percent contained on the 23rd, seventy percent contained on the 24th, ninety percent contained on the 26th and fully contained on the morning of the 27th. A firefighter suffered an irregular heart beat from battling the blaze and one traffic cop was struck by a vehicle. On the morning of the 24th an atmospheric inversion caused by a nearby high pressure system trapped the smoke near the ground. This caused thick smoke with near zero visibilities to affect the Town of Hammonton and surrounding area. All Hammonton schools were closed and the White Horse Pike (U.S. Route 30) in Hammonton and Winslow was closed. Heavy rain on the 25th helped fire fighting efforts. The peak wind gusts at Atlantic City International Airport were 37 mph on the 21st and 35 mph on the 22nd

In addition to NCDC reports, information from local sources reports that a large wildfire in the 1960s threatened Weymouth Township, causing large scale evacuations and the actual loss of several homes.

Probability of Occurrence - Wildfires

Wildfire events will remain a frequent occurrence in Atlantic County, and the probability of future occurrences in the County is certain. Any future increase in development (particularly residential) can only result in an increase in the length of the urban-wildland interface, an increase in the improved value of property within wildfire hazard zones, and a greater risk of property damage and danger to the public in future years. However, most wildfire events in the County are typically contained and extinguished rather quickly and those events causing major property damage or life/safety threats are much less likely to occur.

A Distinction Between "Hazards" and "Events"

This section of the plan speaks to hurricanes and tropical storms, tornadoes, and winter storms/ice storms. These are severe weather events (not hazards themselves). Severe weather events have specific hazards associated with them. The unique hazards associated with the severe weather events discussed in this section are addressed specifically elsewhere in the plan; they are summarized briefly here. While HAZARDS are fully identified and profiled, with vulnerability assessments completed, EVENTS are merely summarized here for information only. EVENTS are not fully profiled and a vulnerability assessment has not been completed. The reader is, however, directed to the HAZARDS associated with these EVENTS (for profile/vulnerability assessment/etc.).

SECTION 3d - RISK ASSESSMENT: EXISTING LAND USES AND FUTURE DEVELOPMENT TRENDS IN HAZARD AREAS

The Atlantic County Master Plan (2000) and the Atlantic County Open Space and Recreation Plan (2000) work in concert as a guide for the overall future growth and development of Atlantic County in support of local land use planning and decision-making. Guided by these plans, the overall goal of the Department of Regional Planning and Development is to ensure that Atlantic County continues to grow in an orderly and planned way while maintaining the County's unique quality of life.

Historic

Prior to the arrival of the first documented European explorers in the late 16th and early 17th centuries, Southern New Jersey was originally the home of the Leni-Lenape Indians. The first survey of the area was made for the Dutch East India Company by Henry Hudson in 1609, and the Dutch explorer Cornelius Mey became the first to chart the Atlantic County Coastline in detail in 1614. However, it was not until 1695 before the first permanent settlement in the county was established at Somers Point, primarily by members of the Quaker Society of Friends. In the following year the nearby settlement of Egg Harbor was formally incorporated into the jurisdiction of Gloucester County. In subsequent years settlements were established at Leeds Point, Absecon, Atlantic City, and Mays Landing.

Initially the principal economic activities in the 1700s centered around fishing and shipbuilding, principally for the whaling trade. Mills, ironworks and brickyards were also established in the area at this time, while further settlements took root at Brigantine, Hammonton, Pleasantville, and Egg Harbor City. Until 1837, the area which now forms Atlantic County had been known as Egg Harbor and had been administered as part of Gloucester County. Atlantic County was formally established in February 1837, with the County Seat in Mays Landing, and with boundaries that have not been substantially modified since.

Railroads first came to Atlantic County in 1854, with the opening of the line to Atlantic City from the Philadelphia/Camden Area. Several other lines were to follow, spurring the development of the Atlantic County shore as a resort area, initially for residents of Philadelphia, and subsequently also for residents of the New York City and Northern New Jersey urban areas. In the 20th century, the tourist industry and development along the shore boomed with the construction of several major highways, principally the Garden State Parkway, (originally constructed between 1956 and 1947), and the Atlantic City Expressway (constructed between 1962 and 1965).

Atlantic City has always been a major driving force in the overall development of the County. Historically, Atlantic City served as a seaside destination while today it is world renowned as a casino resort.

During the Great Depression and war years, growth slowed to a standstill in Atlantic County. After World War II and into the 1950s, Atlantic City retained its popularity as a resort and remained relatively prosperous. However, its population began to decrease while the rest of the County's population was increasing, reflecting the national trend of suburban growth and urban decline. In marked contrast to Atlantic City, the rest of Atlantic County continued to grow and prosper as its economy diversified and became less dependent on the resort/convention industry in the city.

During the 1970s, suburban growth moved out of the bay communities and into Egg Harbor and Galloway Townships. In November 1976, the New Jersey State Legislature was authorized to allow casino gambling in Atlantic City, bringing with it a spike in not only casino development and construction

of new hotels but also condominium and housing development. A Casino Control Commission was established to revitalize Atlantic City without using public funds; to reduce unemployment in the area; and to allocate a percentage of the casino revenue in the form of aid to the elderly.

Atlantic County continued to grow substantially during the 1980s, when the County experienced explosive population growth as a direct result of the maturation of the casino industry. Substantial retail, warehousing, office, hotel, and residential development on the mainland bolstered the regional economy.

Within Atlantic County the passage of the Coastal Area Facilities Review Act of 1973 (CAFRA) and the Pinelands Protection Act of 1979 has resulted in significant growth in CAFRA Coastal Centers and Pinelands Regional Growth Areas such as Egg Harbor, Galloway, and Hamilton Townships.

Throughout the 1990's there was generally a moderation in population growth. Many municipalities, such as Somers Point, Absecon, Brigantine, Hammonton, and Hamilton Township expanded through the addition of regional shopping centers. The construction of the Galloway National, Blue Heron Pines, and Harbor Pines Golf Courses has witnessed a surge in the popularity of golf in Atlantic County. In Atlantic City, growth was characterized primarily by casino improvements (addition of hotel rooms, construction improvements/expansions at existing facilities), though several new facilities were constructed such as the Atlantic City Convention Center, New Jersey Transit Bus Terminal, and the Renaissance Plaza -- a modern shopping center located in the heart of Atlantic City.

In the early part of this century, Atlantic County was in the midst of what was commonly referred to as the "second wave" of development spurred by a relatively strong economy, low inflation, and unyielding demographic trends. Traditional singe-family developments tended to replace the 1980s multi-family development. Age restricted units (those limited to persons age 55 and above for instance) and assisted living facilities for those needing varying degrees of medical assistance have also been on the rise as the nation's population ages. These housing developments have been predominately located in the Pinelands Regional Growth Areas of the County: Egg Harbor, Galloway, and Hamilton Townships. Over time, it appears residential and commercial growth will continue to move farther west while the Island and Bay communities will demonstrate slower growth because of their already developed condition.

Existing Land Use

Atlantic County is one of the southernmost counties in New Jersey, and is located approximately 40 miles south east Philadelphia, and 100 miles south west of New York City (measured from the Atlantic County Seat at Mays Landing). It is 671 square miles in area (561 square miles not including open water), making it the fourth largest county in the State by area. The County is bounded to the northwest by Gloucester and Camden Counties, to the northeast by Burlington and Ocean Counties, to the west by Cumberland County, and by Cape May County to the south. To the southeast the county is bounded by the Atlantic Ocean, with which the county has more than 20 miles of oceanfront (not including tidal areas between the barrier islands and the mainland).

There are now 23 incorporated municipalities in Atlantic County: 13 cities, three boroughs, six townships, and one town. The Countywide population as determined by the 2000 Census was 252,552, and the U.S. Census Bureau projects the 2007 population to be 270,664. The Census 2000 population gives the county a population density of 450 people per square mile – only about 40 percent of the population density for New Jersey overall (which is 1,134 people per square mile). Atlantic County is the 15th largest of 21 counties in New Jersey by population, and also the 15th most densely populated. More people live in the City of Atlantic City than in any other incorporated municipality (40,517 people, representing 16 percent of the County's overall population).

The practice of designating permitted uses of land based on mapped zones which separate one set of land uses from another, or 'zoning'(as per a local government's ordinances or zoning regulations), guides not only the uses that are approved for legal operation on a given parcel today but also sets forth the standards for what will be acceptable - and where - in terms of future development in the community.

Figure 3d.1 presents a graphical depiction of land use / land cover (LULC) in Atlantic County, and the component data used to compile this figure is presented in Tables 3d.1 and 3d.2.

Table 3d.1 quantifies existing land use in each municipality through identifying the total number of acres of each land use category. Through presentation of county-wide totals, this table also summarizes existing land use at the overall county level.

Table 3d.2 expands upon Table 3d.1 and furthers the goal of quantifying existing land use through showing this same distribution as a percentage each municipality's total acreage. Through presentation of county-wide percentages, this table also summarizes existing land use at the overall county level.

Note that land use / land cover (LULC) data used for this plan was obtained from the State of New Jersey and is current as of 2002. Atlantic County does maintain a database of land use information; however, the County data set was not incorporated into this plan because staff in the County Department of Regional Planning and Development indicated that the data is only current to 1999-2000 and does not provide comprehensive, county-wide coverage for all parcels.

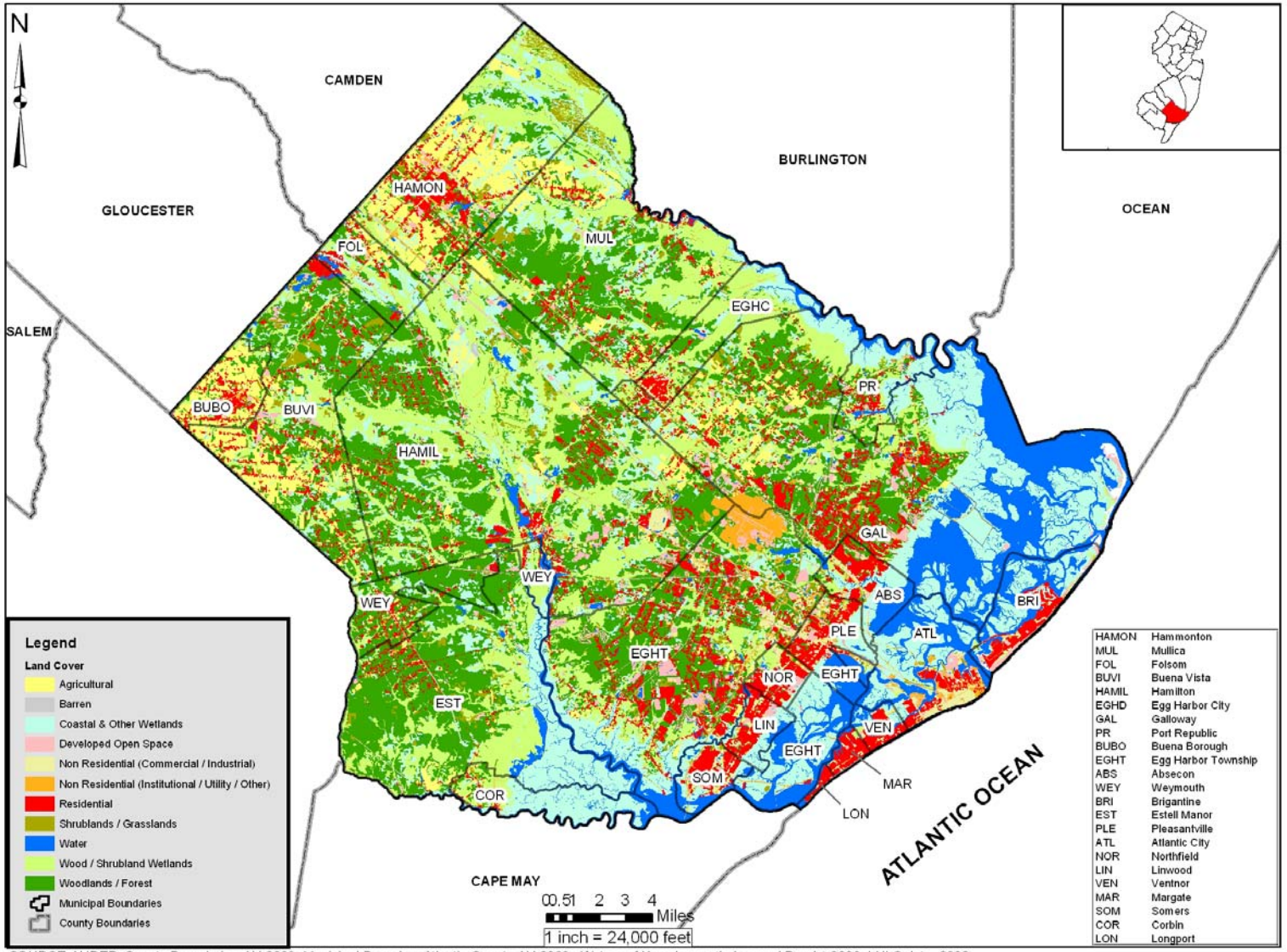
Together, Tables 3d.1 and 3d.2 and Figure 3d.1 show that 39 percent of the County land area is forested, 34 percent is wetlands, and only 17 percent of the County classified as developed urban land. The remaining 10 percent is comprised of agricultural lands (seven percent), water (three percent), and barren lands (less than one percent). Of all urban lands, the vast majority (58 percent) is comprised of residential structures. Eighteen percent of all urban lands are developed open space; 13 percent are institutional/utility/other uses; and eleven percent are commercial/industrial uses.

Approximately twenty percent of the county is parkland, and significant areas of designated protected undeveloped land include the following:

- Edwin B Forsyth NWR 19,446 acres
- Wharton State Forest 11,783 acres
- Tuckahoe (Lester G Macnamara) WMA 11,455 acres
- Makepeace Lake WMA 9,321 acres
- Absecon WMA 4,190 acres
- Peaslee WMA 3,652 acres
- Estell Manor Park 1,905 acres
- Gibson Creek WMA (Great Egg Harbor Greenway) 1,867 acres
- Atlantic County Park at Lake Lenape 1,809 acres
- Hammonton Creek WMA 1,592 acres
- Port Republic WMA 930 acres
- Great Egg Harbor River (Great Egg Harbor) Greenway 885 acres
- Great Egg Harbor WMA 813 acres
- Pork Island WMA 783 acres
- Riverbend Park 511 acres

- Maple Lake WMA 414 acres
- Atlantic County Seaview Park (Seaview Estates) 328 acres
- Atlantic County Open Space (Thomas Property) 300 acres
- Birch Grove Park 285 acres
- Egg Harbor Township Open Space (Temple Property) 152 acres
- Hammonton Lake State Park 130 acres
- Powell Creek Natural Area 123 acres
- Blackwater Pond Park 101 acres

Figure 3d.1: Atlantic County Land Cover



SOURCE: NJDEP: County Boundaries, NJ 2003; Municipal Boundary Atlantic County, NJ 2003; Waters of New Jersey (Lakes and Ponds) 2008; LULC data, 2002

Table 3d.1
Land Cover Acreage Breakdowns by Municipality

Municipality	Urban				Agricultural	Forest		Wetlands		Barren Land		Water	Total (Acres)
	Residential	Non-Residential (Commercial / Industrial)	Non-Residential (Institutional / Utility / Other))	Developed Open Space	Agricultural	Shrublands / Grasslands	Woodland / Forest	Wood / Shrub Wetlands	Coastal and Other Wetlands	Barren	Beaches	Water	
Absecon, City of	1,076	206	112	164	6	99	370	285	1,243	0	0	168	3,728
Atlantic City, City of	889	794	562	484	0	112	0	143	3,581	7	88	573	7,232
Brigantine, City of	1,153	108	56	294	0	13	0	28	262	0	95	68	2,077
Buena, Borough of	910	152	164	73	2,362	251	692	236	16	0	0	1	4,855
Buena Vista, Township of	2,329	303	389	617	4,100	1,438	13,041	3,869	240	7	0	298	26,631
Corbin City, City of	163	27	33	5	182	90	472	833	3,092	0	0	233	5,130
Egg Harbor City, City of	559	147	136	65	47	86	1,575	3,527	872	3	0	107	7,124
Egg Harbor, Township of	5,857	1,343	2,534	3,078	826	1,666	14,606	5,317	7,123	59	14	1,317	43,741
Estell Manor, City of	819	24	136	288	774	907	17,517	8,114	5,017	2	0	1,061	34,660
Folsom, Borough of	529	122	153	122	379	151	2,501	1,244	15	0	0	153	5,368
Galloway, Township of	5,684	657	1,285	1,847	3,341	1,117	16,672	8,203	15,724	5	192	2,532	57,257
Hamilton, Township of	4,103	970	960	1,808	2,589	2,270	34,139	22,282	1,680	228	0	1,101	72,131
Hammonton, Town of	2,681	627	551	653	6,728	1,966	5,398	6,201	1,432	26	0	358	26,621
Linwood, City of	1,025	153	47	194	15	8	55	28	871	2	0	158	2,557
Longport, Borough of	209	9	2	26	0	1	0	0	0	0	0	2	248
Margate City, City of	714	72	16	58	0	3	0	27	9	0	10	21	930
Mullica, Township of	2,193	162	206	335	2,908	1,248	17,541	10,612	769	4	0	217	36,195
Northfield, City of	1,023	271	70	205	10	24	125	292	268	0	0	35	2,324
Pleasantville, City of	1,326	443	183	290	0	106	150	99	994	0	0	71	3,664
Port Republic, City of	479	8	57	178	114	70	1,197	1,133	1,557	0	0	249	5,040
Somers Point, City of	993	313	102	223	0	26	69	79	694	3	4	126	2,631
Ventnor City, City of	637	99	16	36	0	25	0	63	302	0	34	123	1,335
Weymouth, Township of	769	31	65	140	209	145	4,762	1,215	267	0	0	67	7,670
Atlantic County Totals	**36,122**	**7,042**	**7,835**	**11,181**	**24,591**	**11,820**	**130,882**	**73,828**	**46,027**	**346**	**436**	**9,039**	
	Total Acres Urban = 62,180				*Total Acres Agricultural = 24,591*	*Total Acres Forest = 142,702*		*Total Acres Wetlands= 119,855*		*Total Acres Barren Land = 782*		*Total Acres Water = 9,039*	**359,149**

Table 3d.2
Land Cover Percentage Breakdowns by Municipality

Municipality	Urban				Agricultural	Forest		Wetlands		Barren Land		Water	Total (%)
	Residential	Non-Residential (Commercial / Industrial)	Non-Residential (Institutional / Utility / Other))	Developed Open Space	Agricultural	Shrublands / Grasslands	Woodland / Forest	Wood / Shrub Wetlands	Coastal and Other Wetlands	Barren	Beaches	Water	
Absecon, City of	29%	6%	3%	4%	< 1%	3%	10%	8%	33%	0%	0%	4%	1%
Atlantic City, City of	12%	11%	8%	7%	0%	2%	0%	2%	50%	< 1%	1%	8%	2%
Brigantine, City of	56%	5%	3%	14%	0%	1%	0%	1%	13%	0%	5%	3%	1%
Buena, Borough of	19%	3%	3%	1%	49%	5%	14%	5%	< 1%	0%	0%	< 1%	1%
Buena Vista, Township of	9%	1%	1%	2%	15%	5%	49%	15%	1%	< 1%	0%	1%	7%
Corbin City, City of	3%	1%	1%	0%	4%	2%	9%	16%	60%	0%	0%	5%	1%
Egg Harbor City, City of	8%	2%	2%	1%	1%	1%	22%	50%	12%	< 1%	0%	2%	2%
Egg Harbor, Township of	13%	3%	6%	7%	2%	4%	33%	12%	16%	< 1%	< 1%	3%	12%
Estell Manor, City of	2%	0%	0%	1%	2%	3%	51%	23%	14%	< 1%	0%	3%	10%
Folsom, Borough of	10%	2%	3%	2%	7%	3%	47%	23%	< 1%	0%	0%	3%	1%
Galloway, Township of	10%	1%	2%	3%	6%	2%	29%	14%	27%	< 1%	< 1%	4%	16%
Hamilton, Township of	6%	1%	1%	3%	4%	3%	47%	31%	2%	< 1%	0%	2%	20%
Hammonton, Town of	10%	2%	2%	2%	25%	7%	20%	23%	5%	< 1%	0%	1%	7%
Linwood, City of	40%	6%	2%	8%	1%	< 1%	2%	1%	34%	< 1%	0%	6%	1%
Longport, Borough of	84%	3%	1%	11%	0%	< 1%	0%	0%	0%	0%	0%	1%	< 1%
Margate City, City of	77%	8%	2%	6%	0%	< 1%	0%	3%	1%	0%	1%	2%	< 1%
Mullica, Township of	6%	0%	1%	1%	8%	3%	48%	29%	2%	< 1%	0%	1%	10%
Northfield, City of	44%	12%	3%	9%	< 1%	1%	5%	13%	12%	0%	0%	2%	1%
Pleasantville, City of	36%	12%	5%	8%	0%	3%	4%	3%	27%	0%	0%	2%	1%
Port Republic, City of	10%	0%	1%	4%	2%	1%	24%	22%	31%	0%	0%	5%	1%
Somers Point, City of	38%	12%	4%	8%	0%	1%	3%	3%	26%	< 1%	< 1%	5%	1%
Ventnor City, City of	48%	7%	1%	3%	0%	2%	0%	5%	23%	0%	3%	9%	< 1%
Weymouth, Township of	10%	0%	1%	2%	3%	2%	62%	16%	3%	0%	0%	1%	2%
Atlantic County Totals	**10%**	**2%**	**2%**	**3%**	**7%**	**3%**	**36%**	**21%**	**13%**	**< 1%**	**< 1%**	**3%**	
	Percentage of Urban Lands = 17 %				*Percentage of Agricultural Lands = 7%*	*Percentage of Forested Lands = 39%*		*Percentage of Wetlands = 34%*		*Percentage of Barren Lands = < 1%*		*Percentage Water = 3%*	**100%**

Land Use Planning

Land use planning in the State of New Jersey is primarily a function of local communities, with Atlantic County serving a coordination function for those elements that are best served on a regional level. However, the 1986 State Planning Act also provides guidelines for counties and municipalities to reach agreements with the State Planning Commission on land use and other planning issues through the cross-acceptance process. The Atlantic County Master Plan facilitates the cross-acceptance process by establishing an integrated planning strategy that incorporates State, County, and local objectives.

The Atlantic County Department of Regional Planning and Development is comprised of four major units responsible for:

- **Office of Policy, Planning and Development (OPPD)** serves to coordinate the various functions of the Department and in large part develops the overall agenda in terms of short- and long-range planning for infrastructure, open space and land development within the County The OPPD also manages projects such as the Strategic Growth Initiative, the Great Egg Harbor Watershed planning effort, and responsibilities include the update of the Atlantic County Master Plan and Atlantic County Open Space and Recreation Plan, October 2000, and the Atlantic County Land Development Standards adopted in June, 2002. These initiatives are implemented with the goal of predicting and identifying future growth issues in order to plan and implement actions commensurate with those issues. Many of these initiatives are referred to as Growth Management. The OPPD administers the review and approval of subdivisions and site plans proposed within Atlantic County. The Atlantic County Land Development Standards adopted in June 2002 provide procedures and standards for review of land development by Atlantic County.
- **The Division of Engineering** ensures that the County's physical infrastructure such as our roads, intersections, and bridges are maintained and enhanced as the population of Atlantic County continues to grow.
- **Office of Land Acquisition** implements the recommendations of the Atlantic County Open Space and Recreation Plan, October 2000. The Office ensures that sufficient Open Space is set aside for Atlantic County residents to enjoy. Through the establishment of the County/Municipal Open Space Partnership Program, County Government has enabled the County's 23 municipalities to choose the Open Space projects of their choice and to fund those projects utilizing a portion of the Open Space Trust funds. The County also pursues lands for acquisition through the traditional means of identifying and purchasing lands utilizing funds from the County's Open Space Trust.
- **Office of Geographic Information Systems** focuses on the creation of data layers and applications which are used by all of the staff within the Department to further their respective functions.

As part of the hazard mitigation plan development process, participating jurisdictions were asked to complete a questionnaire in order to provide URS with information regarding land use regulatory capabilities in each municipality. Out of a total of 24 jurisdictions participating in the planning process (Atlantic County plus 23 municipalities), 19 responses were received. Completed questionnaires were not provided by: Buena Vista Township, Corbin City, Egg Harbor City, City of Port Republic, or Weymouth Township. All of the 19 jurisdictions who returned the Capability Assessment Questionnaire (that is, Atlantic County and 18 municipalities) reported having building codes, zoning statutes and subdivision statutes. Atlantic County CPG members have noted that every municipality in the County has such bylaws. Only 15 participating jurisdictions (Atlantic County and 14 municipalities) reported having comprehensive or master plans. Municipalities that reported the non-existence of a comprehensive or

master plan were: Folsom Borough, Hamilton Township, City of Linwood, and the City of Pleasantville. Again, no information was provided by Buena Vista Township, Corbin City, Egg Harbor City, City of Port Republic, or Weymouth Township for incorporation into this section of the plan.

Table 3d.3
Communities with Land Use Regulations
(Source: returned CA Questionnaires)

Municipality	Building Code	Zoning Statutes	Subdivision Statutes	Comprehensive Plans
Atlantic, County of	Y	Y	Y	Y
Absecon, City of	Y	Y	Y	Y
Atlantic City, City of	Y	Y	Y	Y
Brigantine, City of	Y	Y	Y	Y
Buena Vista, Township of	*Unknown – A completed Capability Assessment Questionnaire was not returned*			
Buena, Borough of	Y	Y	Y	Y
Corbin City, City of	*Unknown – A completed Capability Assessment Questionnaire was not returned*			
Egg Harbor City, City of	*Unknown – A completed Capability Assessment Questionnaire was not returned*			
Egg Harbor, Township of	Y	Y	Y	Y
Estell Manor, City of	Y	Y	Y	Y
Folsom, Borough of	Y	Y	Y	N
Galloway, Township of	Y	Y	Y	Y
Hamilton, Township of	Y	Y	Y	Y
Hammonton, Town of	Y	Y	Y	Y
Linwood, City of	Y	Y	Y	N
Longport, Borough of	Y	Y	Y	Y
Margate City, City of	Y	Y	Y	Y
Mullica, Township of	Y	Y	Y	Y
Northfield, City of	Y	Y	Y	Y
Pleasantville, City of	Y	Y	Y	N
Port Republic, City of	*Unknown – A completed Capability Assessment Questionnaire was not returned*			
Somers Point, City of	Y	Y	Y	Y
Ventnor City, City of	Y	Y	Y	Y
Weymouth, Township of	*Unknown – A completed Capability Assessment Questionnaire was not returned*			

Future Development Trends – County Overview

Atlantic County's economy and population continue to grow led by a continued expansion of the casino gaming industry. This growth has in turn resulted in the diversification and strengthening of the County's economy to include a broad array of residential development (single and multifamily, assisted living, and age restricted), retail centers, first class golf courses, and other industries which cater not only to the needs of the casino industry but to all of those people drawn to Atlantic County in search of employment opportunities.

While the introduction and then maturation of the casino industry has had a tremendous impact on the development of Atlantic County, the Master Plan points out that regulatory legislation at the State level has also significantly affected County development trends in the past two decades, specifically:

- Coastal Area Facilities Review Act of 1973 (CAFRA) attempts to steer growth to designated Coastal Centers throughout the CAFRA area

- Pinelands Protection Act of 1979 and the subsequent Pinelands Comprehensive Management Plan concentrates growth, based on zoning, into regional growth areas.
- New Jersey State Development and Redevelopment Plan (SDRP) impacts all communities throughout the State. The SDRP was adopted on June 12, 1992, by the State Planning Commission with the goal of revitalizing urban areas and reducing suburban sprawl.

These regulations are expected to continue to have significant impacts upon future development trends throughout Atlantic County.

Underlying the recommendations of the Atlantic County Master Plan are the following goals which articulate visions for the County's future related to planning, land use, transportation, wastewater management, water supply, natural resources, solid waste management, affordable housing, historic preservation, and farmland preservation. The goals and policies set forth in the Master Plan provide a direction to be considered in formulating future studies and laws. Important decisions will be made in the next decade which will sculpt the landscape of Atlantic County for the future. These goals and policies should guide the choices made to move into the next millennium.

Planning Goals identified in the Master Plan are as follows:

- Enhance the quality of life for County residents by expanding active recreation opportunities through the acquisition and development of an extensive County Park System.
- Ensure quality growth and development by planning and developing County infrastructure to complement land use goals established by State and local plans.
- Encourage a diversity of economic opportunities for job creation to compliment the new convention facilities and expected casino growth.
- Promote the location of research and development businesses for mutual benefit of industry; job searchers and the colleges in Atlantic County.
- Coordinate the planning and development of adequate potable water supply and wastewater treatment capacity to accommodate future growth.
- Preserve and enhance the quality of the natural resources of the County.
- Preserve selected critical natural areas supporting endangered species and wildlife habitat.
- Promote safe and efficient transportation systems for access to the County and within the County, including air, rail and motor vehicle systems.
- Preserve and make more efficient use of existing roadway capacities by encouraging sound land use planning and highway access control.
- Preserve and protect the farmland and occupation of farming within the County.
- Preserve the historic and cultural resources in the County.

Land Use Goals identified in the Master Plan are as follows:

- Influence State and Regional master plans to support the land use goals of Atlantic County.
- Promote quality growth and development in areas where capital facilities are available.
- To encourage revitalization of urban neighborhoods where housing is in decline.
- To discourage growth in areas that would require unplanned extension of capital facilities.
- Promote lands for a diversity of economic development opportunities within the communities of Atlantic County.

Transportation Goals identified in the Master Plan are as follows:

- Maintain and improve a circulation system that provides for the safe and efficient movement of traffic.
- Provide an energy-efficient transportation system that minimizes the negative effects of vehicular emissions on air quality.

- Protect natural and manmade resources from the negative effects of traffic and road improvements.
- Provide transportation choices for work, recreation and other trips for County residents and visitors.
- Promote economic development and tourism in the transportation planning process.

Wastewater Management Goals identified in the Master Plan are as follows:

- Provide for the improvement to water quality in all surface and ground water systems.
- Provide sufficient wastewater collection and treatment capacity to meet future population growth.
- Research the viability of wastewater reuse systems to reduce reliance on potable water for non-consumptive uses.

Water Supply Goals identified in the Master Plan are as follows:

- Maintain adequate water supply sources for public and private uses.
- Educate the public concerning testing individual private water supply wells.
- Protect the aquifer from land uses that could contaminate water supplies.
- Work with New Jersey American Water Company and other water utilities to extend public water to areas with contaminated wells as per the Atlantic County Health Department records.

Natural Resources Goals identified in the Master Plan are as follows:

- Protect and preserve the significant natural resource assets of the County.
- Promote education of the citizens of the County as to the need to protect and preserve natural resources.
- Encourage State and Federal agencies to clean up hazardous waste sites in the County.

Solid Waste Management Goals identified in the Master Plan are as follows:

- Facilitate the County's management of solid waste through source reduction, recycling, and reuse.
- Educate the public, including seasonal residents and visitors on the County's Solid Waste Management Plan.

Affordable Housing Goals identified in the Master Plan are as follows:

- Insure that adequate housing facilities are available for all County residents.
- Insure that adequate infrastructure is available to support housing opportunities in the County.

Historic Preservation Goals identified in the Master Plan are as follows:

- Preserve the County's heritage by preserving the historic sites in the County.
- Document the remaining historic resources within the County.

Farmland Preservation Goals identified in the Master Plan are as follows:

- Preserve adequate farmland in the County for food production.
- Encourage the adoption of policies that promote the farming community.

Since some of the municipalities in Atlantic County are essentially built out, and the most significant areas of undeveloped space within their borders is protected as parkland or similar, future development may see redevelopment of existing built up areas and changes to building type and usage, rather than large increases in the numbers of structures overall.

In Section 2 of this Plan, 15 potential hazards were identified as of significant concern to warrant detailed investigation and to be addressed in the plan. The following section examines how future development

may be influenced by the identified hazards.

The New Jersey State Development and Redevelopment Plan (adopted in 2001). The State Development and Redevelopment Plan provides a balance between growth and conservation by designating planning areas that share common conditions with regard to development and environmental features:

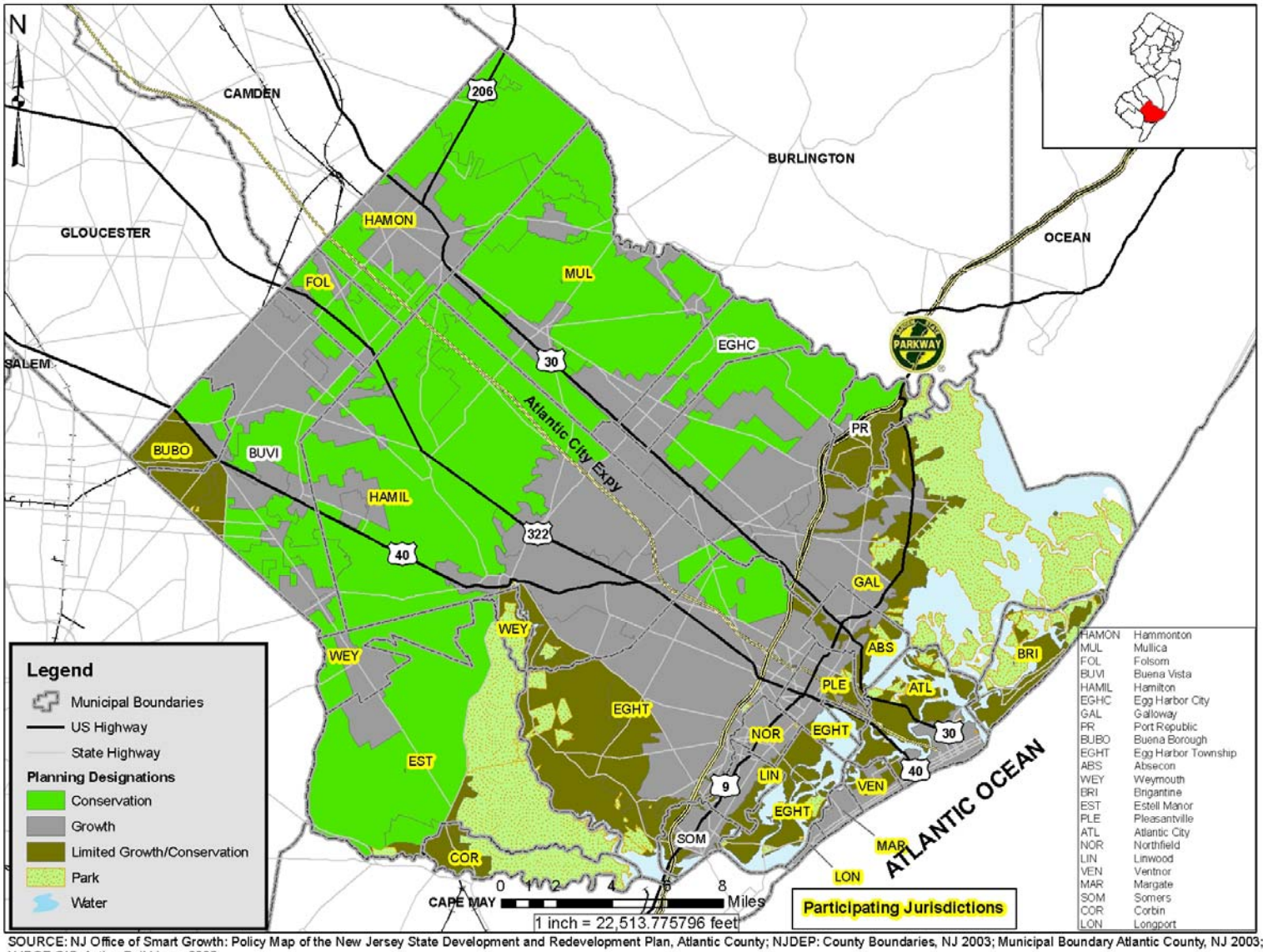
- Areas for Growth: Metropolitan Planning areas (Planning Area 1), Suburban Planning Areas (Planning Area 2) and Designated Centers in any planning area.
- Areas for Limited Growth: Fringe Planning Areas (Planning Area 3), Rural Planning Areas (Planning Area 4), and Environmentally Sensitive Planning Areas (Planning Area 5). In these planning areas, planning should promote a balance of conservation and limited growth—environmental constraints affect development and preservation is encouraged in large contiguous tracts.
- Areas for Conservation: Fringe Planning Area (Planning Area 3), Rural Planning Areas (Planning Area 4), and Environmentally Sensitive Planning Areas (Planning Area 5).

The State Plan Policy Map reflects these planning polices graphically and is a dynamic vision of New Jersey's development and conservation patterns. It serves as the underlying land use-planning and management framework that directs funding, infrastructure improvements, and preservation for programs throughout New Jersey. The State Plan Policy Map for Atlantic County includes growth, limited growth, and conservation areas as summarized by municipality in Table 3d.4 and Figure 3d.2.

Table 3d.4
State Plan Policy Map Growth Areas for Atlantic County

Municipality	Percentage of Land Area Targeted for Growth	Percentage of Land Area Targeted for Limited Growth	Percentage of Land Area Targeted for Conservation	Existing Parkland and Natural Areas
Absecon, City of	60%	37%	0%	3%
Atlantic City, City of	36%	56%	0%	7%
Brigantine, City of	0%	59%	0%	41%
Buena Vista, Township of	51%	10%	39%	0%
Buena, Borough of	11%	53%	36%	0%
Corbin City, City of	0%	34%	1%	65%
Egg Harbor City, City of	28%	0%	72%	0%
Egg Harbor, Township of	45%	42%	9%	4%
Estell Manor, City of	5%	2%	59%	34%
Folsom, Borough of	26%	0%	74%	0%
Galloway, Township of	40%	11%	18%	31%
Hamilton, Township of	38%	2%	59%	0%
Hammonton, Town of	26%	0%	74%	0%
Linwood, City of	61%	39%	0%	0%
Longport, Borough of	100%	0%	0%	0%
Margate City, City of	100%	0%	0%	0%
Mullica, Township of	19%	0%	81%	0%
Northfield, City of	94%	5%	0%	1%
Pleasantville, City of	74%	24%	0%	2%
Port Republic, City of	5%	55%	30%	9%
Somers Point, City of	65%	35%	0%	0%
Ventnor City, City of	64%	36%	0%	0%
Weymouth, Township of	25%	6%	59%	11%
Atlantic County Total	**33%**	**13%**	**42%**	**11%**

Figure 3d.2 – State Plan Policy Map Growth Areas for Atlantic County



SOURCE: NJ Office of Smart Growth: Policy Map of the New Jersey State Development and Redevelopment Plan, Atlantic County; NJDEP: County Boundaries, NJ 2003; Municipal Boundary Atlantic County, NJ 2003; 1(
NJDOT GIS, Active Rail Lines, 2005.

Based on the State Plan Policy Map for Atlantic County, it can be observed that areas targeted for conservation tend to be toward the westernmost regions of the county. While much of the eastern portion of the County is currently parkland or land designated for limited growth/conservation, most of the area designated for growth is located in the easternmost regions of the County. From a natural hazards perspective this means that, over time, additional assets are likely to be constructed in some of the areas of the County that are most likely to be impacted by coastal flooding and hurricane/tropical storm force winds (particularly, the barrier island communities of Atlantic City, Ventnor, Margate and Longport).

Future Development Trends in Each Municipality

A "Land Uses and Development Trends Questionnaire" was distributed to all jurisdictions in the County and asked jurisdictions to: (1) describe development trends occurring within their jurisdiction, such as the predominant types of development occurring, location, expected intensity, and pace by land use; and (2) describe any regulations/ordinances/codes their jurisdiction enforces to protect new development from the effects of natural hazards.

A full summary of responses contained within all the completed Land Use and Development Questionnaires returned by individual jurisdictions is presented in Table 3d.5

Summary of Responses – Land Use and Development Trends Questionnaire

Table 3d.5
Summary of Responses
Land Uses and Development Trends Questionnaire
(Source: Core Planning Group Members)

Community	Land Uses and Development Trends in Hazard Areas	Regulations/Codes/Ordinances To Protect New Development From Natural Hazards
Absecon, City of	In the past ten years Absecon has seen relatively large growth in the number of residential units dedicated to the population over 55 years old. There are approximately 450 units of senior housing occupied or in construction in the past three years, with potentially 100 units in the planning phase. This increase in senior housing could expand the City's over 55 population in excess of 1,000 people or an increase of 12% in the total city population. All of the new senior housing development has been low to mid-rise construction, with density approaching 30 units per acre. Compared to the majority of residential development in Absecon this new development is substantially denser than the City has experienced in the past. While quantitative data will not be available until the 2010 census, there are projections that the population of Absecon, other than the new residents, are "aging in place". Older members of the community are staying in large single-family homes longer than previous generations for various reasons. This contributes to the aging of the overall population of the City. There are no significant trends in the commercial or industrial development of Absecon that would impact hazard mitigation at this time.	The City of Absecon does enforce zoning ordinances that regulate development for setbacks and density, wooded buffers and floodplains. In addition we enforce building codes which address high wind considerations and the most current fire codes.
Atlantic City, City of	Revel Hotel Casino building mega casino in N. Inlet. High density commercial property. Pinnacle project on hold until at least 2010, former site of the Sands.	
Brigantine, City of	The current development trend within the City of Brigantine is predominantly single family residential development. Most of the new construction is occurring on properties which had an existing structure demolished for the new construction. As of 8-31-08 the year to date construction permits issued are as follows: New construction-24, additions-19, alterations-586, and demolitions 32.	Yes, the City of Brigantine enforces regulations and ordinances to protect new development from the effects of natural hazards. The natural hazards that threaten the City are mainly flooding, wave velocity, and high wind. The City participates in FEMA's NFIP and the construction department enforces regulations for minimum floor height, foundation construction and flood vents. The constructions department also enforces the IBC-IRC codes that provide construction criteria for structures within high wind areas. (Information provided by City Engineer and Deputy Coordinator Edward Stinson.)
Buena Vista, Township of	1. Retirement community located outside the Pinelands. Land that	N/A

Table 3d.5
Summary of Responses
Land Uses and Development Trends Questionnaire
(Source: Core Planning Group Members)

Community	Land Uses and Development Trends in Hazard Areas	Regulations/Codes/Ordinances To Protect New Development From Natural Hazards
	was previously used for farming. To begin in the next year or two. Potential 71 units. 2. Single family homes on individual lots scattered throughout the township inside the Pinelands area. 3. Planned residential single family homes. Major sub-division. 80 units.	
Buena, Borough of	• High-occupancy senior housing in areas that were previously occupied by single family dwellings or farmland. • Development of small business or single family dwellings in once wooded areas.	Not at this time.
Corbin City, City of	*No response was received from this municipality.*	*No response was received from this municipality.*
Egg Harbor City, City of	*No response was received from this municipality.*	*No response was received from this municipality.*
Egg Harbor, Township of	Egg Harbor Township has experienced significant growth in the last 10 years. We are designated a Pinelands Regional Growth Community with the Pinelands Area located west of the Garden State Parkway and North of Ocean Heights Ave. Over 4800 homes have been built in the last 10 years and over 5400 have been approved by the planning board. Development trends favor single family homes on lots of 10,000 square feet or larger. The median value of an owner occupied home increased from $131,400 to $263,100 between 2000 and 2007 according to the latest Census Bureau Statistics. In the same time period median income increased $12,000 to $71,036 for a family. Additional statistics are available through the Census Bureau. The Pinelands Commission mandated growth of over 20,000 housing units for Egg Harbor Township and our zoning has been modified to accommodate this requirement. Less than a third of the units have been built. With the influx of new residents comes the requirement to educate the children. Currently there are 8,000 students and ten school buildings. The Pinelands Regional Growth Area continues to see new housing even in the slumping economy.	All State regulations for building codes are enforced. Flood Plain requirements are checked during plan review. We have some zones where higher wind restrictions apply and codes are enforced to ensure buildings meet requirements.
Estell Manor, City of	A) Single Family Residential Development is occurring in presently undeveloped woodlands. 1) Low density all Pinelands Approvals and CAFRA approvals needed. A) Entire community Pinelands or CAFRA.	We enforce all Pinelands and CAFRA regulations and recommendations. All FEMA information is also reviewed.
Folsom, Borough of	The Borough of Folsom does not experience enough development for there to be a "trend" in the development patterns. However, one of the main recommendations made by the Borough's Planning Board in its 2007 Master Plan, was to facilitate increased opportunities for commercial development along the Black Horse Pike (US Route 322) corridor. To	The Borough's design and development standards are consistent with those contained within the Pinelands Comprehensive Management Plan (CMP). The Borough has expanded on these requirements to help protect and mitigate the effects of natural disasters. For example, the Borough requires that all new homes maintain a clear driveway width

Table 3d.5
Summary of Responses
Land Uses and Development Trends Questionnaire
(Source: Core Planning Group Members)

Community	Land Uses and Development Trends in Hazard Areas	Regulations/Codes/Ordinances To Protect New Development From Natural Hazards
	this end, the Borough Council passed ordinances that increased the size of the Forest Commercial (FC) zoning district in the area. Although, no new development has yet taken place, the Borough believes that this re-zoning will result in several new commercial development projects over the next few years. Residential development throughout the Borough continues to take place in a piecemeal fashion. In the last seven years, there have been several minor subdivisions approved by the Borough's Planning Board, but only one (1) major subdivision. The major subdivision that was approved was relatively small, containing only seven (7) building lots. Additionally, the seven proposed lots were all located on existing roads, so no new road development was required. The Borough is wholly contained with the jurisdiction of the Pinelands Commission. Therefore, the overall intensity of development in the Borough is light. Without public water and sewer, all commercial development is subject to meeting the stringent septic nitrate dilution standards of the Pinelands Comprehensive Management Plan (CMP). This makes wastewater-intensive uses impractical in the Borough. On the residential side, the most dense residential zoning requires (2) acres for every dwelling unit. The least dense residential zoning requires 30 acres for every dwelling unit. In 2007, the Borough Council did pass an ordinance that allows "cluster"-type development in the Forest and Rural Development zones. This ordinance allows residential development on one (1) acre parcels, but requires that the remaining area required to meet the full zoning standard be reserved as open space. Therefore, the overall base density of the zone cannot be exceeded.	of twenty (20) feet to ensure adequate access for emergency vehicles. The Borough is also currently considering efforts to increase the minimum buffer between a new residence and wooded areas to 100 feet in an attempt to decrease the effects of wildfires.
Galloway, Township of	The Smithville Development is reaching capacity with over 1,000 age-restricted units of the total 1,355 approved homes. The balance are family units. Office Development is occurring on Jimmie-Leeds Rd. around the hospital. Single family residential is occurring in designated Pinelands Growth areas, in Pinehurst.	We are in conformance with the Pinelands Comprehensive Plan for land west of the Garden State Parkway. The Pinelands protects water quality wetlands, fire management and other environmental concerns. We have a tree protection ordinance for the entire Township. We have updated and implemented a Stormwater Management Plan, consistent with NJ regulations, designated to protect Groundwater Quality.

Table 3d.5
Summary of Responses
Land Uses and Development Trends Questionnaire
(Source: Core Planning Group Members)

Community	Land Uses and Development Trends in Hazard Areas	Regulations/Codes/Ordinances To Protect New Development From Natural Hazards
Hamilton, Township of	Planned adult Communities, multi-family house and major subdivision projects are currently under construction in the Township's Growth Area, mainly along Route 322, Rt. 40, Rt. 322/40 combined, Old Egg Harbor Rd., Wrangleboro Rd./Lombard Ave. and West Jersey Avenue. There are several major subdivisions that have been approved but not yet developed in the same area, and a planned village development in the area of Cologne Avenue and Rt. 40 is in the review stage. Three shopping centers have been approved but not yet constructed, one on Rt. 40 and 32nds St., the other two on opposite corners of Cologne Ave. and Rt. 322. Hamilton Mall is in the process of seeking approval for an expansion, and another shopping center on the south side of the Black Horse Pike, east of the Hamilton Mall, is being prepared for submission. Wal-Mart on the Black Horse Pike is seeking approval for an addition, and a hotel complex is seeking approval on the site just west of Wal-Mart. A sports complex is seeking approval to locate in the Hamilton Business Park, and approval was granted for three large warehouse/office buildings in the Hamilton Business Park. In Mays Landing, at the intersection of Mill St. and Old Harding Hwy., the Cotton Mill site has been designated an area in need of re-development, and it is anticipated that the building will be renovated to contain multi-family housing.	
Hammonton, Town of	The Town of Hammonton uses a zone map to determine construction and development of all building within the Town. The map contains info from New Jersey Pinelands and Wetlands to determine building feasibility on said locations. Hammonton also works closely with Adams Rehman & Hegan for all stormwater, flood water run off during pre and post construction projects to ensure proper planning of said construction. Hammonton Planning Board follows all State and Federal mandates prior to and during construction approvals.	The Town of Hammonton follows the Comprehensive Code Management Plan to ensure all new construction within the Town is built to up to date codes for all fire, flood, hurricane and any natural hazards that exist. Hammonton further enforces all uniform building code with a full time code enforcement officer appointed by City officials. Any non-compliant persons are cited and brought to municipal court to face hearing and possible fine until such time that owner remedies issue at hand. The Town follows a uniform construction code that is very comprehensive in scope and gets updated annually for currency.
Linwood, City of	Town approaching fully developed, largely residential. Some commercial development along Rt. 9 (New Road)	Currently NJDEP/CAFRA rules obtain.
Longport, Borough of	The Borough of Longport contains 3 Residential zones. Rsf-1; Rsf-2, Rsf-3 (Rsf = residential single family). Longport is predominantly single family detached homes with two 6 story hi-rise complexes. Rsf-1 is located 29th Street East side of Atlantic Ave. to the point. Rsf-2 is located Pelham Ave. to 36th Street East of Atlantic Ave. Rsf-3 is located	Longport is a participating community within the NFIP and CRS Programs. Longport his been enforcing the NFIP Regulations via a "Flood Hazard Ordinance". Longport recently adopted a revised Ordinance replacing its "Flood Hazard Ordinance". It is called the "Flood Damage Prevention

Table 3d.5
Summary of Responses
Land Uses and Development Trends Questionnaire
(Source: Core Planning Group Members)

Community	Land Uses and Development Trends in Hazard Areas	Regulations/Codes/Ordinances To Protect New Development From Natural Hazards
	west of Atlantic Ave. from 36 to Bay Haven Drive. Although there has been some sporadic development (old homes torn down and new ones built approximately within Rsf-1 & 2, 8 new homes) the majority of new developments old homes torn down and new ones built. 56 new homes have been constructed within the Rsf-3 Zone – (see Map) the Rsf-3 zones contain homes that were predominantly constructed in the 1950s. It is the area which has seen the most development over the past 3 years and we predict that this trend will continue. The total area of Longport is 2.37 sq. miles. It is predominantly a summer home community, with most of the Borough consisting of single family homes that are used predominantly as a vacation for weekend residences. The Borough contains 3 residential zones, a handful of duplexes, 2 mid-size 5 story multi-family condominiums, nine parcels containing townhouses 2-4 stories in height, a commercial strip mall containing 2 restaurants, a Real Estate office and one Post Office with Realty Office attached. The Borough is essentially fully developed with some development limited to in-fill, reconstruction and/or tear-downs, all of which are governed by local municipal land use ordinances. Development trend of Longport are positive, properties (ground values) are valuable, most of the housing stock 20+ yrs old. Therefore older homes are being torn down and larger homes constructed max. out Bldg and lot coverages.	Ordinance". It contains all of the Model Requirements of the NFIP. It additionally contains several higher regulatory requirements. Basic Flood from EL 10 to El 12. Substantial Improvements. And Substantial. Damage to 40% of Market Value. Substantial Improvements and Substantial. Damage accumulative over 7 yrs. Additional definitions for clarity. i.e. Enclosures, lateral additions, Building heights CRS, NFIP higher Regulatory standards. Increase cost of compliance, Rep Loss, Severe. Rep. Loss. Longport is surrounded by water on 3 sides. Its greatest hazard is flooding: Longport has a Zoning Ord. and Flood Hazard Ord. going back to the early 70s. The Flood Haz. Ord. contained the min. requirements as prescribed by NFIP. The "All Hazard Mit. Com." Est. 9/07-reviewed all Hazards, developed a "New Flood Hazard Plan", and rec. revising a new "Flood Haz. Ord" w/higher req. standards. This was accomplished through a series of meetings/presentations and public hearings. Both were approved and adopted 9/08. For all new construction, substantial improvements, renovations, additions and alterations "prior approvals" including floodplain management and zoning review is required prior to issuance of a Bldg permit. A singular zoning Rev. and Floodplain Management application/permit was dev. 1/08 and is required for all construction.
Margate City, City of	Currently and for the coming 2 to 3 years, we expect a very light volume of construction, mostly of single family homes, and most of them seasonal occupancy, throughout the City, with no particular area of Margate having more activity than any other. We do not expect any significant net gain in occupied units. Multi-family development in the area from Washington to Coolidge Avenue, very active up to about 2006 has dwindled down to nearly zero in the past 6-12 months. There are no commercial developments whatever anticipated at this time. Roger Rubin, PP (1512), Land Use Administration Zoning Officer, City of Margate, NJ 609-822-5438	Yes: 1) We have bulkhead height Ordinances 2) We have a new Ordinance requiring bayfront and canal front properties to submit to site plan review for all new development, for approval of the City Engineer. Bldg Inspector, and Land Use Administrator. 3) FFF is established as 11 ft AMSL throughout Margate. 4) We require 35% of all SF land when developed to be open and permeable; 45% of multi-family development.
Mullica, Township of	Mullica Township is a town that is strictly controlled by Pinelands. The Township has no significant residential or commercial development at this time. Over the past several years, the Town has experienced increased Single Family Dwelling Development, but this is limited due to	Yes Mullica Township works closely with Department of Environmental Protection and the Pinelands Commission for wetlands areas and utilizes flood maps to identify floodplain. Mullica works with Department of Community Affairs to ensure all building

Table 3d.5
Summary of Responses
Land Uses and Development Trends Questionnaire
(Source: Core Planning Group Members)

Community	Land Uses and Development Trends in Hazard Areas	Regulations/Codes/Ordinances To Protect New Development From Natural Hazards
	Pineland Restrictions. A 55 and older community of approximately 100 homes is being discussed, however it has not reached either the zoning or Planning Board. The site is on Rt. 30 at an abandoned junkyard.	regulations are met. We also have a Fire Management Ordinance (copy attached) to ensure fire safety for structures.
Northfield, City of	Northfield is basically fully developed. The only possible area for future development would be the Atlantic City Country Club, which is located between Shore Road and the bay. If the Country Club was to ever be redeveloped it could have flooding issues with its close proximity to the bay.	CAFRA Development Regulations Flood Hazard Area Waterfront Development Tidelands Freshwater Wetlands FEMA Floodplain management ordinances
Pleasantville, City of	The City of Pleasantville is in a transition period. Once a thriving residential and commercial community, the City has over past decades seen considerable social and economic decline. Businesses have left the City and significant portions of the municipality exhibit physical and social blight. Despite these indices of distress, Pleasantville is beginning to see a trend toward revitalization. Residential property prices are escalating and developers are again showing interest. To date, background growth (i.e., growth not sponsored by the public sector) has generally taken the form of infill (single-family) residential development, which is occurring city-wide. Larger-scale residential development has been limited to two 11-unit senior citizen residential projects sponsored by Caring, Inc. on Delilah Road (County Route 646) between Linden Avenue and New Road (State Route 9) and a 34-unit (17-building) duplex project located on California Avenue (County Route 636) between New Road and Mill Road (currently under construction). Two 20+ unit projects have been approved but not yet constructed on New Road, north of the Atlantic City Expressway interchange and at Oneida Avenue. Non-residential background growth has been generally limited to light industrial uses. Several flex-space/warehousing projects have been constructed, on New Road at the City's southern boundary line, on Leeds Avenue just west of New Road, and on Cambria Avenue in the west of the City. Additionally, a Contractor's Warehouse project has recently been completed on Washington Avenue (County Road 608) between New and Fire Roads, and another at Clinton and Washington Avenues has been	To the best of [responding official's] knowledge, the City has no such regulations or ordinances. However, the City has adopted the 2006 International Building Code and International Residential Code, which require floodproof construction for development in the floodplain, and provides design for wind-pone areas. Additionally, FEMA requires that the lowest member of any residential floor be at elevation 10' and therefore above the floodplain. Pleasantville has no steep slopes, and is not prone to earthquakes or wildfires.

Table 3d.5
Summary of Responses
Land Uses and Development Trends Questionnaire
(Source: Core Planning Group Members)

Community	Land Uses and Development Trends in Hazard Areas	Regulations/Codes/Ordinances To Protect New Development From Natural Hazards
	approved and is awaiting financing. In terms of retail projects, a Super WaWa convenience store and gas station has been completed on Delilah Road just west of New Road, , and a new strip center has recently been completed on New Road just south of Delilah Road. A midsized shopping center has been approved for the corner of New Road and Old Tilton Road, and a CVS Pharmacy has been approved for the northeast corner of New and Delilah Roads. Publicly-sponsored development in the City is taking the form of redevelopment projects under the State's Local Redevelopment and Housing Law (NJSA 40A:12A-1 et. Seq.). While completed residential redevelopment projects are limited to a 140-unit HOPE VI low income project (60 units of single-family and duplex housing scattered throughout the City and 80 units of single-family and duplex housing at the site of the former Woodland Terrace public housing project), redevelopment plans for a six story condominium project (300+ units) have been approved for the nine-acre former high school site at Franklin Boulevard/Ansley Avenue, and for a 2-3 story townhouse project (approx. 34 units) has been approved for a site at Narcissus and Park Avenues. The Cambria Commerce Center, the City's lone non-residential (flex-space) redevelopment project is nearing completion. At present, the first project in the City Center redevelopment area – the renovation of the commercial laundry on Franklin Boulevard between Washington Avenue and Old Turnpike has been completed and the City is negotiating with a redeveloper for the second project (The District), a large-scale mixed-use development on 4-5 blocks fronting Main Street (generally) between Milan Avenue and Martin Luther Kin Jr. Avenue and Old Turnpike. Finally, the Planning Board has recently adopted amendments to its Master Plan. The recommended material changes are: • Permitting multi-family residential (duplex, townhouse and multi-story condominium) development in the Waterfront Residential Zoning District east of Main Street between (generally) Bayview and Park Avenues. • The creation of the Bayside Mixed-Use Zoning District permitting multi-story condominium development east of Franklin Boulevard	

Table 3d.5
Summary of Responses
Land Uses and Development Trends Questionnaire
(Source: Core Planning Group Members)

Community	Land Uses and Development Trends in Hazard Areas	Regulations/Codes/Ordinances To Protect New Development From Natural Hazards
	between (generally) Milan Avenue and the Atlantic City Expressway. • The creation of the Bayside Mixed-Use Overlay Districts permitting multi-story condominium development east of Franklin Boulevard between Ingersoll Avenue and the Atlantic City Expressway, and between Loraine Avenue and Delilah Road.	
Port Republic, City of	Port Republic is predominantly a single family community with limited commercial properties. The predominant development that has occurred and is presently occurring is slow density single family development.	Port Republic does indeed enforce the FEMA regulations and flood plain management measures at the time a property obtains a building permit. Also, the City utilizes the International Building Code for all building permit requests which sets the rules for all design standards for wind, soil, structural, electrical, etc.
Somers Point, City of	*No response was received from this municipality.*	*No response was received from this municipality.*
Ventnor City, City of	Very limited in un-developed land; Island Community of 2 square miles; Redevelopment of apartment buildings, replace by Condo's, approximately 50 units. In general, City would like future promotion of 55 plus; Water-front developed; few vacant lots; One City owned parcel of plus acreage with no plans of development.	90% of the Community is located in an A-8 flood zone, also being coastal, 115 MPH wind speed is designated for new construction. Wetlands and floodplains are also incorporated thus the following agencies are prior approvals, DEP & FEMA. High wind speeds/impact glazing under UCC Regulations.
Weymouth, Township of	*No response was received from this municipality.*	*No response was received from this municipality.*

Potential for Future Development in Delineated Hazard Areas

While future development patterns are subject to many regulatory and market-driven factors, it is possible to prepare general estimates of the relative potential for future development to occur in hazard areas by analyzing vacant parcels and their relation to the various hazard areas. As discussed in detail in the Risk Assessment, the planning area is susceptible to certain hazards uniformly. However, the nature of other hazards is such that only delineable portions of the study area are at risk. Using GIS, land use mapping provided by the State of New Jersey was evaluated to estimate the number of vacant and potentially developable parcels in each municipality. Vacant and potentially developable parcels have been assumed to be inclusive of agricultural lands (as is the case with farmland being converted into residential subdivisions), forested lands, and barren lands. It was assumed that all of these land uses would be potentially developable in the future, at least to some extent. Excluded are currently developed parcels, beaches, and wetland categories.

Next, "vacant" parcels were combined with geographically delineated hazard area boundaries to tally the acreage of vacant, potentially developable parcels within each municipality and further, the relative percentage of this acreage lying within each of the geographically delineated hazard areas.

According to the analysis, it is estimated that there are 170,573 acres of vacant, potentially developable land in the County's 23 jurisdictions – nearly 50% of the County's total land area. On a municipal level, this ranges from a minimum of 1 acre in the Borough of Longport to a maximum of 39,871 acres in the Township of Hamilton. In the Atlantic County communities, there are 13,261 acres of vacant land in flood hazard areas (that is, high or moderate flood risk areas as defined by FEMA Q3 mapped 100- or 500- year flood zones); 34 acres of vacant land subject to wave action (FEMA Q3 mapped V-zones); 110,520 acres of vacant land located in wildfire hazard areas; 14,123 acres of vacant land in areas potentially impacted by storm surge.

Table 3d.6 lists the estimated acreage of potentially developable vacant parcels in each municipality, and quantifies the acres of vacant land as a percentage of the total acreage of each municipality. It further indicates the percentage of each municipality's vacant land area that lies within geographically delineated hazard zones. Ideally, municipalities would strive to minimize future development in hazard areas, or to impose certain development restrictions which would offer some form of protection from hazard events.

Table 3d.6
Vacant, Potentially Developable Land in Delineated Hazard Areas

Municipality	Total Acres Vacant Land	Vacant Land as Percent of Municipality's Total Acreage	Percent of Municipality's Vacant Land in Flood Hazard Areas (100 and 500 year floodplains)	Percent of Municipality's Vacant Land Susceptible to Wave Action	Percent of Municipality's Vacant Land in Wildfire Hazard Areas	Percent of Municipality's Vacant Land Potentially Susceptible to Storm Surge (Cat. 1-4)
Absecon, City of	517	14%	36%	0%	70%	50%
Atlantic City, City of	283	4%	92%	8%	19%	96%
Brigantine, City of	13	1%	25%	75%	0%	100%
Buena, Borough of	3,324	68%	1%	0%	13%	0%
Buena Vista, Township of	18,800	71%	1%	0%	52%	0%
Corbin City, City of	745	15%	29%	0%	53%	52%
Egg Harbor City, City of	1,710	24%	16%	0%	88%	36%
Egg Harbor, Township of	18,056	41%	9%	0%	71%	16%
Estell Manor, City of	19,237	56%	3%	0%	67%	12%
Folsom, Borough of	3,082	57%	12%	0%	75%	0%
Galloway, Township of	21,536	38%	3%	0%	65%	8%
Hamilton, Township of	39,871	55%	13%	0%	72%	3%
Hammonton, Town of	14,294	54%	9%	0%	41%	1%
Linwood, City of	88	3%	52%	0%	36%	75%
Longport, Borough of	1	< 1%	70%	0%	0%	70%
Margate City, City of	4	< 1%	99%	0%	0%	99%
Mullica, Township of	21,840	60%	6%	0%	75%	12%
Northfield, City of	180	8%	5%	0%	67%	47%
Pleasantville, City of	301	8%	11%	0%	49%	34%
Port Republic, City of	1,400	28%	32%	0%	72%	62%
Somers Point, City of	108	4%	64%	0%	56%	83%
Ventnor City, City of	25	2%	100%	0%	0%	100%
Weymouth, Township of	5,158	67%	5%	0%	70%	6%

Future Development Trends in Hazard Areas – Study Area Overview

Both the natural and built environments in Atlantic County make it quite a unique area. Its historic and cultural heritage, scenic oceanfront, barrier island areas, mainland communities, active agricultural regions, pine and oak forests of the watersheds of the Mullica and Great Egg Harbor Rivers, present an environment unlike no other in the State. These features, combined with the excitement of the casino gaming industry, continue to attract residents and visitors alike. In fact, Atlantic County is the destination of more than 37 million visitors and 300,000 conventioneers annually.

Future development trends in Atlantic County will likely to continue to be impacted heavily by the tourism industry. In Atlantic City, the relative lack of available open space combined with a steady demand for new construction is expected to continue to intensify existing land use patterns with higher occupancy, higher density development. The limited quantity of undeveloped parcels in other barrier island areas, combined with the draw of the ocean beaches and a demand for construction of additional housing units to support the casino gaming and tourism industries, is expected to continue to contribute toward a similar intensification of existing development and land use patterns in barrier island areas.

Mainland communities have been working diligently with state regulatory jurisdictions (i.e., CAFRA and the Pinelands Commission) toward achieving a balance between meeting demands for new development while preserving the County's open space. This, too, is expected to continue in the future, with the bulk of further development expected to be concentrated in Regional Growth Area.

Atlantic County is cognizant of the risks that it faces due to the impacts of natural hazards. Many municipalities have programs in place today which address certain natural hazards – whether it is a comprehensive or master plan, a floodplain management ordinance, or erosion hazard area construction limitations.

Together, the County's 23 municipalities have a total of 170,573 acres of vacant (potentially developable) land. This represents almost one quarter of the County's total area. Fifteen natural hazards were identified earlier in this plan as having a significant impact on the planning area and have been analyzed in detail in this plan. The paragraphs below analyze the likelihood for future development in each of the identified hazard areas to incorporate hazard-resistant design. Overall, while new development is expected to result in an increasing number of structures present in our municipalities, codes and standards in place today will require that they be designed to provide a certain degree of protection from the hazards to which the County is susceptible.

Future Development Trends - Extreme Temperatures

The extreme temperature hazard area covers the whole of Atlantic County and is essentially uniform for all jurisdictions; therefore, future development trends for the extreme temperature hazard area would be the same as those county-wide. If current demographic trends continue, the proportion of the population whose health can be particularly vulnerable to extremes in temperature is likely to increase in the foreseeable future.

Future Development Trends – Extreme Wind

One hundred percent of the land and built environment in the County is susceptible to extreme wind events. This is also true for currently vacant (developable) parcels. The wind hazard area encompasses the entire planning region and is essentially uniform from one jurisdiction to the next. Therefore, future

development trends for the extreme wind hazard area would be the same as those development trends identified on a municipal basis earlier in this chapter. New construction is subject to the requirements of the New Jersey State Building Code, which contains provisions for wind resistant design. It is anticipated that while an increasing number of structures will be present, they will be built to a code that will offer a certain degree of protection from the most frequent high wind events.

Future Development Trends – Severe Weather Events: Hurricanes and Tropical Storms, Nor'easters, Tornadoes and Winter Storms/Ice Storms

One hundred percent of the land and built environment in the participating jurisdictions is susceptible to severe weather events. This is also true for currently vacant (developable) parcels. Severe weather events such as hurricanes/tropical storms, nor'easters, tornadoes, and winter storms/ice storms can occur anywhere in the participating jurisdictions. These events have certain hazards associated with them.

- For hurricanes/tropical storms, see future development trends for flooding and extreme winds.
- For tornadoes, see future development trends for extreme winds.
- For winter storms/ice storms, see future development trends overview and for flooding and extreme winds. The New Jersey State Building code also contains provisions regarding snow/ice loads. It is anticipated that while an increasing number of structures will be present, they will be built to codes which include basic measures to protect against the potentially crushing effects of high accumulations of snow and ice on roofs.
- For nor'easters, see future development trends for flooding and extreme winds.

Future Development Trends – Lightning

One hundred percent of the land and built environment in the participating jurisdictions is susceptible to lightning. This is also true for currently vacant (developable) parcels. The lightning hazard area encompasses the entire planning region and is uniform from one jurisdiction to the next. Therefore, future development trends for the extreme wind hazard area would be the same as those development trends identified on a municipal basis earlier in this chapter. New construction is subject to the requirements of the New Jersey State Building Code, which contains provisions for lightning resistant design. It is anticipated that while an increasing number of structures will be present, they will be built to codes which include basic measures to protect against lightning strikes

Future Development Trends – Dam Failure

The probability of a dam failure occurrence in Atlantic County is assumed to be relatively low due to routine inspection, repair and maintenance programs carried out by the NJDEP, which serves to ensure the safety and integrity of dams in New Jersey and, thereby, protect people and property from the consequences of dam failures. However, the possibility of a future failure event is likely increasing due to aging dam structures that may be in need of repair or reconstruction, and occasional problems related to private dam owners' degree of cooperation with State regulatory agencies. Atlantic County dams of high or significant hazard potential are located in: Absecon, Buena Vista, Egg Harbor City, Egg Harbor Township, Estell Manor, Folsom, Hamilton, Hammonton, and Mullica. Inundation mapping was not readily available; therefore, the potential impact areas are unknown. At the time of writing, research of readily available data sources did not reveal any dams proposed or under construction, in addition to those listed by the US Army Corps of Engineers National Inventory of Dams, or the Stanford University National Performance of Dams Program. While planning is not known to be underway for construction of new dams in the participating jurisdictions, new development is possible on vacant parcels in inundation areas for existing dams.

Future Development Trends – Drought

The drought hazard area encompasses the entire planning region and is uniform from one jurisdiction to the next, although the local impact depends on the prevalence of agricultural land in individual municipalities. While the individual jurisdictions often strive to focus on the preservation of farmland and other open space, possible pressures on agricultural land to be zoned for residential and other development, may reduce the economic effects of drought on agriculture, while the impact on potable water supplies may increase.

Future Development Trends – Flood

Individuals and larger developers often look toward land along rivers, streams, canals, bays, and near the ocean for development because of the passive and active recreational opportunities that they offer. In turn, flood hazard areas (for flooding and storm surge) are often areas where development pressures are high due to the recreational value of these lands, particularly in communities where the amount of undeveloped land is small and the density of development is high.

Approximately eight percent of all currently vacant (developable) parcels in Atlantic County are located in areas potentially susceptible to the effects of storm surge (for Category 1-4 storms). They account for roughly 14,123 acres of potentially developable lands, and four percent of the County land area overall. Approximately eight percent of all currently vacant (developable) parcels in the County are located in flood hazard areas. They account for roughly 13,261 acres of potentially developable flood prone lands, and four percent of the County land area overall. Development within mapped flood hazard areas is currently regulated for communities participating in FEMA's National Flood Insurance Program (NFIP). At the time of writing, all 23 jurisdictions in Atlantic County were also participating in the NFIP and thereby must have in place a floodplain management ordinance to regulate activities in the floodplain, as well as a designated floodplain manager/NFIP Coordinator to enforce the relevant ordinances. This will work to protect new development and substantial improvements in the region's floodplains. In addition, several municipalities have included a discussion of floodplains in their comprehensive plans.

While an increased number of assets could be susceptible, it is assumed that they will be built to codes that will offer a certain degree of protection from the most frequent events.

Future Development Trends – Coastal Erosion

In Atlantic County there has been, and continues to be, a high demand for development in oceanfront communities, where development and redevelopment pressures are high. This means that over time, assets at risk in coastal erosion hazard areas could increase given existing regulations and development trends.

Development within coastal erosion hazard areas is currently regulated because in these areas buildings and structures could be damaged by erosion and flooding. The State of New Jersey protects coastal waters and the land adjacent to them under a variety of laws, including the Waterfront Development Law (N.J.S.A. 12:5-3), the Coastal Area Facility Review Act (N.J.S.A. 13:19), and the Wetlands Act of 1970 (N.J.S.A. 13:9A). The Department of Environmental Protection (DEP) applies the New Jersey Coastal Permit Program Rules, N.J.A.C. 7:7, and the Coastal Zone Management Rules, N.J.A.C. 7:7E, to determine what may or may not be built under these three laws. Regulation of coastal activities provides protection to fragile ecosystems and works to prevent loss of life and property from coastal storms, erosion, and flooding.

While an increased number of assets could be susceptible, they will be built under regulations that will offer a certain degree of protection from most frequent events. In addition, the damaging impacts of coastal erosion will continue to be mitigated if past practices of continuous (and costly) beach nourishment programs are implemented in the future.

Future Development Trends - Wave Action

Development within mapped V-zones is currently regulated for communities participating in FEMA's National Flood Insurance Program (NFIP). At the time of writing, all of Atlantic County's coastal community's participate in the NFIP.

Only 0.02 percent of all currently vacant (developable) parcels in Atlantic County are located in mapped V-zones (wave action hazard areas). They account for a total of 34 acres of potentially developable lands, and are located entirely within the cities of Atlantic City and Brigantine. Development within mapped wave action hazard areas is currently regulated for communities participating in FEMA's National Flood Insurance Program (NFIP). At the time of writing, both Atlantic City and Brigantine were participating in the NFIP and thereby must have in place a floodplain management ordinance to regulate activities in the V-zone, as well as a designated floodplain manager/NFIP Coordinator to enforce the relevant ordinances.

In Atlantic County there has been, and continues to be, a high demand for development in oceanfront communities, where development and redevelopment pressures are high. This means that over time, assets at risk in wave action hazard areas could increase given existing regulations and development trends. However, while an increased number of assets could be susceptible, the enforcement of local floodplain management ordinances will ensure they will be built to a code that will offer a certain protection from most frequent events.

Future Development Trends – Earthquake

Within Atlantic County, PGA values of between 2 and 3%g have a 10 percent chance of being exceeded over 50 years. The earthquake hazard area encompasses the entire region and is nearly uniform from one jurisdiction to the next, although the effects of an earthquake may vary from one jurisdiction and across jurisdictions as the soil type varies. While new development could lead to an increased number of assets susceptible to this hazard in the future, new construction is subject to the requirements of the New Jersey State Building Code, which contains provisions for earthquake resistant design. It is anticipated that while an increasing number of structures will be present, they will be built to a code that will offer a certain degree of protection from the most frequent events.

Future Development Trends – Wildfires

Sixty-five percent of currently vacant, developable parcels in Atlantic County are located in wildfire hazard areas - a total of 110,520 acres of potentially developable land. The severity of the hazard is greatest in areas of high fuel loading and steep slopes. Areas that are typically considered to be safe from wildfires include highly urbanized, developed areas that are not contiguous with vast areas of wild lands. Areas typically considered to be prone to wildfires include large tracts of wild lands containing heavier fuels with high continuity such as those forested areas in many parts of the study region. Pressure to develop some forested areas, especially for residential use, will generally result in increases to the wildland-urban interface and the value of improved property within these areas in most jurisdictions, and hence an increased risk of future property damage and public danger due to wildfires. However, these impacts will likely be limited, to some degree, if the Atlantic County Open Space Preservation Program and the Pinelands Comprehensive Management Plan continue to be implemented over time.

Next Steps

FEMA recommends that for future plan updates, additional data could be presented in this section of the plan to better describe vulnerability in terms of the types and numbers of future buildings, infrastructure, and critical facilities located in the identified hazard areas. While not required, this could include consideration of any or all of the following when analyzing development trends (as per FEMA's Local Multi-Hazard Mitigation Planning Guidance document of July 2008):

- Describe trends in terms of the amount of change over time (for example, projecting trends based on increases of numbers of permits, including demolition, issued per year) and identify where the development is occurring;
- Differentiate land uses of similar types that have distinctly different densities (for example, single-family homes, attached housing, and multifamily housing);
- Where the future land uses are likely to occur based on comprehensive plans, zoning, redevelopment plans, or proposed annexation areas;
- The expected growth or redevelopment for some reasonable future timeframe (for example, 10 years). The time frame could be coordinated with that of a local comprehensive or long-range plan review and update.

(Tip: Core Planning Group members would likely need to contact their municipal planning department staff members for this type of detailed information).

SECTION 4 - CAPABILITIES AND RESOURCES

This capability assessment examines the ability of Atlantic County and other participating jurisdictions to implement and manage a comprehensive mitigation strategy, which includes a range of mitigation actions. The strengths, weaknesses, and resources of participating jurisdictions are identified in this assessment as a means to develop an effective hazard mitigation program. Furthermore, the capabilities identified in this assessment are evaluated collectively to develop recommendations, which support the implementation of effective mitigation actions throughout the County.

URS Corporation distributed questionnaires to the Atlantic County Office of Emergency Preparedness and the Core Planning Group members in order to initiate this capability assessment. The questionnaires requested information pertaining to existing plans, polices, and regulations that contribute to or hinder the ability to implement hazard mitigation actions. They also requested information pertaining to the legal and regulatory capability, technical and administrative capacity, and fiscal capability of each jurisdiction. Nineteen of the twenty-four jurisdictions submitted completed questionnaires in a timely manner (by June 16, 2009) illustrating their capability to implement a mitigation strategy.

This section describes the activities currently underway at the local level that contribute to or can be utilized for hazard mitigation, as reported to URS by participating jurisdictions on the CPG. Latter sections of he capability assessment also emphasizes technical and financial resources available at the State and Federal levels that the County and its municipalities can access to effectively implement a hazard mitigation program.

Capabilities and Resources – Atlantic County and Participating Jurisdictions

Legal and Regulatory Capability

As indicated in Table 4-1, Atlantic County and its incorporated jurisdictions have several policies, programs, and capabilities, which help to prevent and minimize future damages resulting from hazards. These tools are valuable instruments in pre and post disaster mitigation as they facilitate the implementation of mitigation activities through the current legal and regulatory framework. These policies, programs, and capabilities are described in greater detail for Atlantic County and the participating jurisdictions, as well as the State and Federal levels.

Table 4-1
Jurisdictional Legal and Regulatory Capabilities

Jurisdiction	Building Code	Zoning Ordinance	Subdivision Ordinance	Special Purposes Ordinance	Growth Management Ordinance	Site Plan Review Requirements	Comprehensive Plan	Capital Improvements Plan	Economic Development Plan	Emergency Response Plan	Post-Disaster Recovery Plan	Post-Disaster Recovery Ordinance	Real Estate Disclosure Ordinance
Atlantic, County of	√	√	√	√	√	√	√	√	√	√	√	√	√
Absecon, City of	√	√	√	√		√	√	√	√	√			
Atlantic City, City of	√	√	√	√	√	√	√			√	√	√	√
Brigantine, City of	√	√	√	√	√	√	√	√	√	√			√
Buena, Borough of	√	√	√			√	√	√	√	√			
Egg Harbor , Township of	√	√	√	√	√	√	√	√	√	√	√		
Estell Manor, City of	√	√	√			√	√			√			
Folsom, Borough of	√	√	√	√	√	√							
Galloway, Township of	√	√	√	√	√	√	√	√	√	√			
Hamilton, Township of	√	√	√	√	√			√	√	√			
Hammonton, Town of	√	√	√	√	√	√	√	√	√	√	√		
Linwood, City of	√	√	√	√		√		√		√			
Longport, Borough of	√	√	√	√		√	√	√		√	√		√
Margate City, City of	√	√	√	√	√	√	√	√		√	√		√
Mullica, Township of	√	√	√	√	√	√	√	√	√	√	√		
Northfield, City of	√	√	√	√		√	√	√	√	√			
Pleasantville, City of	√	√	√	√		√		√	√	√			
Somers Point, City of	√	√	√	√	√	√	√	√	√	√	√	√	√
Ventnor City, City of	√	√	√	√	√	√	√	√	√	√			

Building Code

Building codes regulate construction standards and are developed for specific geographic areas of the country. They consider the type, frequency, and intensity of hazards present in the region. Structures built to applicable building codes are inherently resistant to many hazards such as strong winds, floods, and earthquakes. Due to the location specific nature of the building codes, these are very valuable tools for mitigation.

Atlantic County, the Cities of Absecon, Atlantic City, Brigantine, Estell Manor, Linwood, Margate City, Northfield, Pleasantville, Somers Point and Ventnor City; the Town of Hammonton; the Boroughs of Buena, Folsom and Longport; and the Townships of Egg Harbor, Galloway, Hamilton and Mullica have reported that they adhere to a building code through local authority. A number of communities

referenced that their Building Codes were based on the State Building Code, while the City of Atlantic City said that its Building Code was not based on the State's Code.

Zoning Ordinance

Zoning is a useful tool to consider when developing a mitigation strategy. It can be used to restrict new development, require low-density development, and designate specific uses (e.g. recreational) in the hazard prone areas. Private property rights must be considered, but enacting a zoning ordinance can reduce or potentially eliminate damages from future hazard events.

All of the jurisdictions that completed the Capability Assessment Questionnaire reported that they have adopted a zoning ordinance. The City of Estell Manor and the Borough of Folsom noted that their zoning ordinance was subject to approval of the Pinelands Commission. Atlantic County CPG members further noted that this is true for all municipalities located in the Pinelands.

Subdivision Ordinance

Subdivision ordinances offer an opportunity to account for natural hazards prior to the development of land as they formulate regulations when the land is subdivided. Subdivision design that incorporates mitigation principles can reduce the exposure of future development to hazard events

All of the jurisdictions that completed the Capability Assessment Questionnaire reported that they have adopted a subdivision ordinance. The City of Absecon and the Town of Hammonton noted that they enforce State Standards. The Cities of Estell Manor and Ventnor City noted that they enforce State of New Jersey Standards for residential construction and the City of Estell Manor and the Borough of Folsom also enforce Pinelands Commission requirements. Atlantic County CPG members further noted that subdivision ordinances are all subject to state jurisdiction.

Special Purpose Ordinance

A special purpose ordinance is a form of zoning in which specific standards dependent upon the special purpose or use must be met. For example, many special purpose ordinances include basic development requirements such as setbacks and elevations. The special purpose ordinance is a useful mitigation technique particularly when implemented to reduce damages associated with flooding and coastal erosion. Special purpose ordinances identified by jurisdictions include stormwater management, erosion, floodplain, steep slope, setback ordinances and standards for roads, bridges and drainage structures.

All of the jurisdictions that completed the Capability Assessment Questionnaire reported that they have adopted a special purpose ordinance with the exception of the City of Estell Manor and the Borough of Buena, and the latter's response indicated that the Borough adheres to special purpose ordinances through higher authority.

Growth Management Ordinance

Growth management ordinances are enacted as a means to control the location, amount, and type of development in accordance with the larger planning goals of the jurisdiction. These ordinances often designate the areas in which certain types of development is limited and encourage the protection of open space for reasons such as environmental protection, recreation, farmland preservation, or to maintain the integrity of certain types of historic and cultural resources.

The State Policies for Comprehensive Planning given in the New Jersey State Development and Redevelopment Plan (March 2001) encourages coordination of growth management plans and policies with hazard mitigation and emergency response planning.

Atlantic County; the Cities of Brigantine, Margate, Somers Point and Ventnor City; the Borough of Folsom; the Townships of Egg Harbor, Galloway, Hamilton, and Mullica; and the Town of Hammonton reported that they have adopted growth management ordinances. The Borough of Buena indicated that they adhere to growth management ordinances via higher authority. The County CPG members noted that despite what may have been reported to URS on the Capability Assessment Questionnaire, all municipalities in the County have adopted growth management ordinances.

Site Plan Review Requirements

Site plan review requirements are used to evaluate proposed development prior to construction. An illustration of the proposed work, including its location, dimensions, existing and proposed buildings, drainage and site access elevations, and many other elements are often included in the site plan review requirements. The site plan reviews offer an opportunity to incorporate mitigation principles, such as ensuring that the proposed development is not in an identified hazard area and that appropriate setbacks are included.

All of the jurisdictions that completed the Capability Assessment Questionnaire, except Hamilton Township, reported that they have adopted site plan review requirements. Atlantic County CPG members further noted that despite what may have been reported to URS on the Capability Assessment Questionnaire, all municipalities in the County have adopted site plan review requirements.

Comprehensive Plan

A comprehensive plan is a document which illustrates the overall vision and goals of a community. It serves as a guide for the community's future and often includes anticipated demographics, land use, transportation, and actions to achieve desired goals. Integrating mitigation concepts and policies into a comprehensive plan provides a means for implementing initiatives through legal frameworks and enhances the opportunity to reduce the risk posed by hazard events.

All of the jurisdictions that completed the Capability Assessment Questionnaire reported to URS that they have a Comprehensive Plan with the exception of the Cities of Linwood and Pleasantville; the Borough of Folsom, and the Township of Hamilton.

Capital Improvement Plan

Capital Improvement Plans schedule the capital spending and investments necessary for public improvements such as schools, transportation infrastructure, libraries, and fire services. These plans can serve as an important mechanism to reduce growth in identified hazard areas through limited public spending and can be used as a to develop a match for mitigation projects.

All of the jurisdictions that completed the Capability Assessment Questionnaire reported to URS that they have a Capital Improvement Plan with the exception of the Cities of Atlantic City and Estell Manor, and the Borough of Folsom.

Economic Development Plan

Economic development plans offer a comprehensive overview of the local or regional economic state,

establish policies to guide economic growth, and include strategies, projects, and initiatives to improve the economy in the future.

Furthermore, economic development plans, similar to capital improvement plans, offer an opportunity to reduce development in hazard prone areas by encouraging economic growth in more appropriate areas that are less susceptible to hazard events.

All of the jurisdictions that completed the Capability Assessment Questionnaire reported to URS that they have an Economic Development Plan with the exception of the Cities of Atlantic City, Estell Manor, Linwood and Margate City; and the Boroughs of Folsom and Longport.

Emergency Response Plan

Emergency response plans provide an opportunity for local governments to anticipate an emergency and plan the response accordingly. In the event of an emergency, a previously established emergency response plan can reduce adverse impacts, as the responsibilities and means by which resources are deployed has been previously determined.

All of the jurisdictions that completed the Capability Assessment Questionnaire reported to URS that they have adopted an emergency response plan, except for the Borough of Folsom. The City of Ventnor also noted that Emergency Inspections are conducted through Mutual Aid Plans.

Post-Disaster Recovery Plan

A post-disaster recovery plan guides the physical, social, environmental, capital improvements and economic recovery and reconstruction procedures after a disaster. Hazard mitigation principles are often incorporated into post-disaster recovery plans in order to reduce repetitive disaster losses.

Atlantic County; the Cities of Atlantic City, Somers Point, and Margate City; the Town of Hammonton, the Borough of Longport; and the Townships of Egg Harbor and Mullica reported to URS that they have developed post-disaster recovery plans.

Post-Disaster Recovery Ordinance

Post-disaster recovery ordinances are often produced in conjunction with post-disaster recovery plans. The ordinances are enacted after a hazard event to guide recovery and redevelopment in order to reduce future damages and mitigate repetitive loss. They identify the members of the recovery organization and the operations of the organization, how the recovery organization will interact with other agency and departments, and identify provisions that may be needed in a post-disaster situation.

Atlantic County, the City of Atlantic City, and the City of Somers Point reported to URS that they have adopted a post-disaster recovery ordinance.

Real Estate Disclosure Ordinance

A real estate disclosure ordinance requires individuals selling real estate to inform potential buyers of the hazards to which the property and/or structure is vulnerable prior to the sale. Such a requirement ensures that the new property owner is aware of the hazards to which the property is at risk of damage.

Atlantic County, the Cities of Absecon, Somers Point, Atlantic City, Brigantine and Margate; and the Borough of Longport reported to URS that they have adopted real estate disclosure ordinances.

Administrative and Technical Capability

The ability of a local government to develop and implement mitigation projects, policies, and programs is contingent upon its staff and resources. Administrative capability is determined by evaluating whether there are an adequate number of personnel to complete mitigation activities. Similarly, technical capability can be evaluated by assessing the level of knowledge and technical expertise of local government employees, such as personnel skilled in surveying and Geographic Information Systems.

Table 4-2 provides a summary of the administrative and technical capabilities currently in place in each participating jurisdiction (as provided to URS by the CPG). The checkmark (√) indicates that the local government maintains a staff member for the given function.

Table 4-2
Jurisdictional Administrative and Technical Capabilities

Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and management practices	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planner(s) or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS and/or HAZUS	Scientists familiar with the hazards of the community	Emergency Manager	Grant writers
Atlantic, County of	√	√	√	√ *	√	√	√	√ *	√	√
Absecon, City of	√	√	√		√	√	√		√	√
Atlantic City, City of	√	√	√	√		√	√		√	√
Brigantine, City of	√	√	√	√	√	√	√		√	√
Buena, Borough of	√	√	√	√	√	√				
Egg Harbor, Township of	√	√	√		√	√	√		√	
Estell Manor, City of	√	√	√		√		√		√	√
Folsom, Borough of	√	√	√		√		√		√	
Galloway, Township of	√	√	√	√					√	√
Hamilton, Township of	√	√	√				√		√	
Hammonton, Town of	√	√	√	√	√	√			√	√
Linwood, City of	√	√	√						√	
Longport, Borough of	√	√		√	√	√	√		√	√
Margate City, City of	√	√	√	√	√	√	√		√	√
Mullica, Township of	√	√	√	√	√	√	√		√	√
Northfield, City of	√	√	√		√	√			√	√
Pleasantville, City of	√	√	√		√	√			√	
Somers Point, City of	√	√	√			√			√	√
Ventnor City, City of	√	√	√	√	√	√	√	√	√	√

** The County Department of Regional Planning has depth of staff in biologic and hydrologic sciences that perform a significant amount of work in conjunction with Engineering/Planning.*

Fiscal Capability

The ability of a local government to implement mitigation activities is also associated with the funding available for policies and projects. Funding for such initiatives is often locally based revenue and financing, as well as outside grants. Costs associated with mitigation activities range from staffing and administrative costs to the actual cost of the mitigation project.

Table 4-3 provides a summary of the fiscal capabilities currently in place in each participating jurisdiction. The checkmark (√) indicates that the financial resource is available in the local jurisdiction for mitigation purposes.

Table 4-3
Jurisdictional Fiscal Capabilities

Jurisdiction	Community Development Block Grants (CDBG)	Capital Improvements Project Funding	Authority to Levy Taxes for Specific Purposes	Fees for Water, Sewer, Gas, or Electric Service	Impact Fees for Homebuyers or Developers for New Developments/Homes	Incur Debt through General Obligation Funds	Incur Debt through Special Tax and Revenue Bonds	Incur Debt through Private Activity Bonds	Withhold Spending in Hazard-Prone Areas	Other
Atlantic, County of	√	√	√	√	√	√	√		√ *	
Absecon, City of	√	√	√	√		√	√		√	√
Atlantic City, City of	√	√	√	√	√	√	√	√		
Brigantine, City of		√		√		√	√			
Buena, Borough of	√	√	√	√	√	√				
Egg Harbor ,Township of	√	√	√	√		√	√			
Estell Manor, City of	√	√								
Folsom, Borough of	√	√	√			√				
Galloway, Township of	√		√		√	√				
Hamilton, Township of	√		√		√	√				
Hammonton, Town of		√	√	√		√				
Linwood, City of	√	√	√	√	√	√	√			
Longport, Borough of	√	√	√	√	√	√	√			
Margate City, City of	√	√	√	√		√				
Mullica, Township of	√	√	√		√	√				
Northfield, City of			√	√						
Pleasantville, City of			√	√		√				
Somers Point, City of	√	√		√	√	√	√			
Ventnor City, City of	√	√	√	√	√	√	√	√	√	√

** The Atlantic County Planning and Engineering Department reported that they increase open space acquisition in hazard prone areas.*

Conclusion

Based on the responses provided by CPG members to the Capability Assessment Questionnaire, this capability assessment finds that Atlantic County and the other eighteen participating jurisdictions that completed the questionnaire collectively have a significant level of legal, regulatory, administrative and technical tools at their disposal to support hazard mitigation initiatives. However, it would seem that the extent of fiscal resources necessary to implement hazard mitigation strategies is of a more limited nature.

Capabilities and Resources – State of New Jersey

The State's Plan includes an evaluation of the State's overall pre and post hazard mitigation policies, programs, and capabilities; the policies related to development in hazard prone areas; and the State's funding capabilities. The Atlantic County Multi-Jurisdictional Hazard Mitigation Plan incorporates many of the resources identified in the State Plan to demonstrate the capabilities present for local jurisdictions to consider in the development of local hazard mitigation. The State Plan should be referred to directly for more specifics (on the web at www.state.nj.us/njoem/)

Emergency management in the State of New Jersey is under the direct control of the **Governor**, who is conferred specific emergency powers under the New Jersey Constitution and statues. The Superintendent of the State Police, a Division within the New Jersey Department of Law and Public Safety, is the **State Director of Emergency Management**.

The **Emergency Management Section** facilitates the flow of information to and from the various Bureaus supervised and serves as a conduit for communication with other Divisions. The Section is also responsible for planning, directing and coordinating emergency operations within the State which are beyond local control.

The **Recovery Bureau** supervises the Preparedness, Mitigation and Public Assistance units and three regional coordinators.

- The Preparedness Unit disseminates preparedness information in advance of a disaster or potential disaster.
- The Mitigation Unit undertakes hazard mitigation planning and the review of mitigation projects in advance of potential disasters, and is also activated during and immediately after disasters to evaluate existing and proposed mitigation measures in the affected areas. They make applicants aware of FEMA mitigation grant programs, and conduct training sessions and workshops and participate in public meetings to facilitate grant processes.
- The Public Assistance Unit accepts and reviews applications for funds for emergency work submitted by local individuals, households and businesses as well as from local governments during and immediately after a disasters.
- Regional Coordinators are the primary liaisons for NJOEM with the County Emergency Management Coordinators for seven contiguous counties in their assigned region (north, central, and south).

The State has an **Emergency Operations Center** which is activated and staffed whenever a disaster occurs, or is predicted to occur. The State's Emergency Operations Plan addresses the State's response to any disaster or emergency and provides the basis for coordinated emergency operations involving disaster planning, response, recovery and mitigation.

NJOEM staffing is limited, and this has historically hampered the NJOEM in addressing hazard mitigation initiatives in all its program goals.
NJOEM capabilities are often supplemented by staff in other state offices and departments with unique capabilities (for example, regarding certain hazards or IT/GIS capabilities), including but not limited to the New Jersey Department of Environmental Protection, the New Jersey Office of Information Technology/GIS.

New Jersey has several funding sources for conducting hazard mitigation projects. For example, grants for flood mitigation projects may be obtained through the New Jersey Office of Emergency Management for planning and projects.

Capital needs of the state are primarily funded through three methods, which may be used singularly or in combination. They are:

- Pay-as-you-go capital outlays used primarily for renovations and preservation of state properties, highway, and mass transit improvements and environmental projects.
- General obligation bond funds, used to finance more expensive capital construction projects such as new facilities and must yield substantial benefits for the present and future generations (these funds must be authorized by the state's voters)
- Lease or lease-purchase is an alternate method of financing capital construction by allowing the state to occupy a facility and, over a defined period of time, secure ownership.

The remainder of this section summarizes key funding sources (as related to hazard mitigation) outlined in Section F of the state plan (beginning on page 98 of the main text).

The State's Transportation Trust Fund provides funding for upkeep and maintenance of state highways, tunnels, bridges, public transit systems and goods movement systems.

A 1996 state bond act authorized the Dredging and Containment Facility Fund for dredging projects for New Jersey's ports and waterways, including funds to develop environmentally safe methods for managing dredged material.

In 1989, the Railroad Right of Way Preservation Fund was established to provide funds for acquiring or preserving rail corridors for future use.

The Statewide Transportation and Local Bridge Bond Act of 1999 provided funds for transportation projects. Roughly half of the funding was set aside for grants to county and municipal governments for the costs of the rehabilitation and improvement of structurally deficient bridges carrying county or municipal roads, including railroad overhead bridges. The remainder is available for other projects such as transit, statewide bridge repair, rail freight, airports, bikeways, and interchange improvement projects.

The NJDEP, with the New Jersey Environmental Infrastructure Trust, is responsible for three major capital programs affecting wastewater: the Environmental Infrastructure Financing Program, the Pinelands Infrastructure Trust Fund and the Sewage Infrastructure Improvement Act, all of which may potentially be used to mitigate natural hazards for vulnerable wastewater treatment and collection systems.

The New Jersey DEP has funds available for grants to organizations to conduct watershed planning, monitoring, and implementation. An effective program of local and on-site storm water management is

critical to reducing flood hazards. Since 1997, the Clean Water Environmental Infrastructure Financing Program has provided zero interest loans to communities for stormwater management.

The Natural Resources Bond Act of 1981 provided grant funding for high hazard dam rehabilitation, including engineering studies and designs for 30 high hazard publicly owned dams.

The Green Acres, Clean Water, Farmland and Historic Preservation Bond Act of 1992 authorized the issuance of New Jersey state bonds to finance a renewable loan program for dam restoration.

The Emergency Flood Control Fund provides 50 percent matching grants to counties and municipalities of up to $1 million per project for the acquisition, development, construction and maintenance of structural flood control facilities.

The 1995 Green Acres, Farmland and Historic Preservation, and Blue Acres Bond Act established a fund in the NJDEP for acquiring lands in the floodway of the Passaic River.

Intermittent high hazard areas, such as floodplains, are effectively used for public recreation, even active recreation such as playing fields, provided that adequate vegetation, contouring and drainage are installed to prevent ponding. Capital investment in public open space and recreation land has been provided largely from Green Acres bond programs and federal grant funds. In addition, some capital funding stems from other sources. While Green Acres acts as the purchasing agent for many open space and recreational projects, administration of the properties is conducted primarily by the Division of Parks and Forestry and the Division of Fish and Game in the NJDEP. This is supplemented by the Garden State Preservation Trust Fund Account (also for land acquisition and recreational development).

Federal Resources

This capability assessment finds that the State of New Jersey's various departments collectively have a significant level of legal, technical, and fiscal tools and resources necessary to implement hazard mitigation strategies.

Capabilities and Resources – Federal

The Federal government offers a wide range of funding and technical assistance programs to help make communities more disaster resistant and sustainable. Many of these are included in Table Z, the Federal Technical Assistance and Funding matrix. Programs associated with the construction or reconstruction of housing and businesses, public infrastructure (transportation, utilities, water, and sewer), and supporting overall hazard mitigation and community planning objectives are emphasized in the matrix. Some programs are disaster-specific, activated by a Presidential Disaster Declaration under the provisions of the Stafford Act. Also included are programs or grants that are not specifically disaster related.

Federal Resources

FEMA has developed a large number of documents that address implementing hazard mitigation at the local level. Five key resource documents are briefly described.

How-to Guides. Some communities in Atlantic County have chosen not to participate in the planning process at this time, but could participate during future updates of the plan. Those communities can find additional information about the hazard mitigation planning process on the FEMA web site. FEMA has developed a series of nine "how-to guides" to assist States, communities, and tribes in enhancing their

hazard mitigation planning capabilities. The first four guides mirror the four major phases of hazard mitigation planning used in the development of the Atlantic County Multi-Jurisdictional Hazard Mitigation Plan. The last five how-to guides address special topics that arise in hazard mitigation planning such as using benefit-cost analysis and integrating man-made hazards. The use of worksheets, checklists, and tables make these guides a practical source of guidance to address all stages of the hazard mitigation planning process. They also include special tips on meeting DMA 2000 requirements.

Post-Disaster Hazard Mitigation Planning Guidance for State and Local Governments. FEMA, DAP-12, September 1990. This handbook explains the basic concepts of hazard mitigation, and shows State and local governments how they can develop and achieve mitigation goals within the context of FEMA's post-disaster hazard mitigation planning requirements. The handbook focuses on approaches to mitigation, with an emphasis on multi-objective planning.

Mitigation Resources for Success CD. FEMA 372, September 2001. This CD contains a wealth of information about mitigation and is useful for State and local government planners and other stakeholders in the mitigation process. It provides mitigation case studies, success stories, information about Federal mitigation programs, suggestions for mitigation measures to homes and businesses, appropriate relevant mitigation publications, and contact information.

A Guide to Federal Aid in Disasters. FEMA 262, April 1995. When disasters exceed the capabilities of State and local governments, the President's disaster assistance program (administrated by FEMA) is the primary source of Federal assistance. This handbook discusses the procedures and process for obtaining this assistance, and provides a brief overview of each program.

The Emergency Management Guide for Business and Industry. FEMA 141, October 1993. This guide provides a step-by-step approach to emergency management planning, response, and recovery. It also details a planning process that companies can follow to better prepare for a wide range of hazards and emergency events. This effort can enhance a company's ability to recover from financial losses, loss of market share, damages to equipment, and product or business interruptions. This guide could be of great assistance to Atlantic County industries and businesses located in hazard prone areas.

Important Websites

The following are important websites that provide focused access to valuable planning resources for communities interested in sustainable development initiatives.

- http://www.fema.gov - Web site of the Federal Emergency Management Agency includes links to information, resources, and grants that communities can use in planning and implementation of sustainable measures.

- http://www.planning.org – Web site of the American Planning Association, a non-profit professional association that serves as a resource for planners, elected officials, and citizens concerned with planning and growth initiatives.

- http://www.ibhs.org – Web site of the Institute for Business and Home Safety, an initiative of the insurance industry to reduce deaths, injuries, property damage, economic losses, and human suffering caused by natural disasters. Online resources provide information on natural hazards, community land use, and ways you can protect your property from damage.

- http://www.epa.gov/Sustainability - Web site of the Sustainability Program of EPA's Office of Research and Development. The site provides one-stop access to EPA and related programs and the latest research and activities related to Urban Sustainability and the Built Environment; Water and Ecosystem Services; Energy, Biofuels and Climate Change; and Materials Management and Human Health.

- http://www.smartgrowth.org – Web site of the Smart Growth Network. In 1996, the USEPA joined with several non-profit and government organizations to form the Smart Growth Network (SGN). The Network was formed in response to increasing community concerns about the need for new ways to grow that boost the economy, protect the environment, and enhance community vitality. The Network's partners include environmental groups, historic preservation organizations, professional associations, developers, local and state government entities (see reverse). The SGN works to encourage development that serves the economy, community, and the environment.

Federal Technical Assistance and Funding

The Federal government offers a wide range of funding and technical assistance programs that communities can access to assist in their long-term recovery. Some of these programs are geared to disaster preparedness and mitigation planning, while the focus of others is the long-term vitality of the communities. To assist communities in their rebuilding efforts and to better prepare for the future, the information in Table 4-4 is divided under the headings of conservation and environment, economic development, emergency management, historic preservation, housing, infrastructure, and mitigation.

For further information on these and other Federal programs, see the Catalog of Federal Domestic Assistance (CFDA) available on online at http://www.cfda.gov.

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
CONSERVATION & ENVIRONMENT								
DOC; NOAA	Habitat Conservation	Cooperative grants to support a wide variety of research, habitat restoration, construction, management and public education activities for marine and estuarine habitats.	To benefit US fisheries, conserve protected resources, and add to the economic and social well being of the nation.	Local governments, universities and colleges, Indian Tribes, private profit and non-profit research and conservation organizations and individuals.	State coordinating official.	Submit application through Grants.gov. Proposals are evaluated for technical merit, soundness of design, competency of applicant to perform the proposed work, potential contribution of the project to national goals and appropriateness and reasonableness of costs.	90 days prior to the start date of the project.	Regional or local office. http://www.nmfs.noaa.gov/regional.htm
DOC; NOAA; Marine Fisheries Service	Unallied Management Costs	Cooperative grants to support management activities for high priority marine and estuarine resources.	To provide economic, sociological, public policy and other information needed by administrators for conserving and managing fishery resources and protected species in their environment.	Local governments, universities and colleges, Indian Tribes, private profit and non-profit research organizations and individuals.	State coordinating official.	Submit application through Grants.gov. Proposals are evaluated for technical merit, soundness of design, competency of applicant to perform the proposed work, potential contribution of the project to national goals and appropriateness and reasonableness of costs.	90 days prior to the start date of the project.	Southeast Federal Program Officer http://www.nmfs.noaa.gov/regional.htm (727) 824-5304.
DOD; USACE	Beach Erosion Control Projects	Specialized services to design and construct projects under a cost share method.	To protect beach and shore erosion through projects not specifically authorized by Congress.	Political subdivisions of the state and other responsible local agencies.	Consult with the nearest District Engineer.	Formal letter to District Engineer. Approval is subject to the availability of funds.	None.	Corps of Engineers District Office. http://www.usace.army.mil/howdoi/where.html
DOI; FWS	Conservation Grants Private Stewardship for Imperiled Species	Grants to fund voluntary restoration management, or enhancement of habitat on private lands for endangered, threatened, proposed, candidate or other at risk species.	To provide Federal financial and other assistance to individuals and groups engaged in local, private and voluntary conservation efforts to be carried out on private lands that benefit species listed or proposed as endangered or threatened.	Sponsored organization, individuals/families, specialized groups, public non-profit institutions/organizations, private non-profit institutions/organizations, small business, profit organizations and	See www.grants.gov or http;//endangered.fws.gov/grants/private_stewardship/index.html	See www.grants.gov or http;//endangered.fws.gov/grants/private_stewardship/index.html	See www.grants.gov or http://endangered.fws.gov/grants/private_stewardship/index.html	Regional or local office. http://endangered.fws.gov/grants/private_stewardship/index.html

Table 4-4: Federal Technical Assistance and Funding								
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CONSERVATION & ENVIRONMENT								
				other private institutions/organizations.				
DOI; FWS	North American Wetland Conservation Fund	Grants to acquire real property interest in lands and water, including water rights, and to restore, manage, and/or enhance wetland ecosystems and other habitats for migratory birds, and other fish and wildlife.	To provide grant funds for wetland conservation projects.	Public or private organizations or to individuals who have developed partnerships to carry our wetland conservation projects.	Grants.gov	Submit applications.	March and July of each year.	Regional or local office. http://www.fws.gov/birdhabitat/Grants/NAWCA/CouncilAct.shtm
DOI; National Park Service	Save America's Treasures	Project Grants to protect and preserve nationally significant historical sites and wall as nationally significant collections of intellectual and cultural artifacts.	To provide matching grants for preservation and/or conservation work on nationally significant intellectual and cultural artifacts and nationally significant historical structures and sites.	Intrastate, interstate, local agencies, public or private non-profit institutions/organizations, public or private colleges and universities, including state colleges and universities and federally recognized Indian tribes.	Contact Save American Treasures at http://www.cr.nps.gov/hps/treasures/ (202) 513-7270, ext. 6.	Contact Save American Treasures at http://www.cr.nps.gov/hps/treasures/ (202) 513-7270, ext. 6.	Contact Save American Treasures at http://www.cr.nps.gov/hps/treasures/ or (202) 513-7270, ext. 6.	Contact Save American Treasures at http://www.cr.nps.gov/hps/treasures/ or (202) 513-7270, ext. 6.
EPA; Office of Brownfields Cleanup and Redevelopment, Office of Solid Waste and Emergency Response	Brownfields Assessment and Cleanup Cooperative Agreements.	A revolving loan fund and project grants to provide funding to inventory, characterize, assess and conduct planning and community involvement related to Brownfield sites; to	To assist in the expansion, redevelopment, or reuse of sites complicated by the presence of a hazardous substance, pollutant, or contaminant.	A general purpose unit of local government, a land clearance authority or a quasi – government entity acting under the authority of the local government, a regional council or a group of	EPA Regional Office. http://www.epa.gov/epahome/locate2.htm	Competitive grant program. See Grant Announcement available from EPA.	Contact Regional Office. http://www.epa.gov/epahome/locate2.htm	Brownfields Regional Office Coordinator, Dallas, Texas (214) 665-6737. http://www.epa.gov/epahome/locate2.htm

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Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
CONSERVATION & ENVIRONMENT								
		capitalize a revolving loan fund and provide sub-grants to carry out cleanup activities at the sites; and, to carry out cleanup activities on land owned by the grant recipient.		general purpose units of government, a redevelopment agency, Indian Tribes, and non-profit organizations (subject to conditions).				
EPA, Office of Water	Regional Wetland Program Development Grants	Project Grants to encourage wetland program development by promoting the coordination and acceleration of research, investigations, experiments, training, demonstration, survey and studies related to the causes, effects, extent, prevention, reduction and elimination of water pollution.	To assist State, Tribal, local government agencies and interstate/intertribal entities to build capacity to protect, manage and restore wetlands.	Tribes, local governments, interstate agencies and intertribal consortia.	EPA Regional Office.	EPA Regional Office will review grant application and any grants will be awarded by the regional Administrator.	Contact EPA Regional Office. http://www.epa.gov/epahome/locate2.htm	EPA Regional Office, Wetland Coordinator. http://www.epa.gov/epahome/locate2.htm
USDA; Forest Service	Forest Land Enhancement Program	Project Grants for technical assistance to develop management plans, educational programs and assistance to increase awareness, and cost-share assistance to implement sustainable	Sustainable management of non-industrial private forests and other rural land suitable for sustainable forest management.	State Forestry Agencies and Landowners, managers of non-industrial private forests lands, nonprofit organization, consultant foresters, universities, other state, local and private organization and	State Forestry Agency. http://www.fs.fed.us/spf/coop/programs/loa/flep.shtml	The State must prepare a State Priority Plan that is approved by the Forest Service. After Approval a property owner is eligible for cost share assistance.	Deadlines are determined by State Forestry Agencies. http://www.fs.fed.us/spf/coop/programs/loa/flep.shtml	Regional or local office of US Forest Service. http://www.fs.fed.us/spf/coop/programs/loa/flep.shtml

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
CONSERVATION & ENVIRONMENT								
		forestry practices on the ground.		agencies.				
USDA; Forest Service	Urban and Community Forestry Program	Project grants for assistance in urban forestry programs.	To plan for, establish, manage and protect trees, forests, green spaces and related resources in and adjacent to cities and towns.	State Forestry, interested members of the public, private nonprofit organizations in urban and community forestry programs in cities and communities.	Contact Regional Offices.	Contact Regional Offices.	Contact Regional Offices. http://www.fs.fed.us/ucf/	Regional or local office of US Forest Service. http://www.fs.fed.us/ucf/

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
ECONOMIC DEVELOPMENT								
DOC; EDA	Economic Adjustment Assistance	Project Grants to help local interests design and implement strategies to adjust or bring about changes in the economy.	Aids the long-range economic development of areas with severe unemployment, and low family income problems, aids in the development of public facilities and private enterprises to create new, permanent jobs.	Economic Development Districts, cities or other political subdivisions of the state or a consortium of political subdivisions, Indian tribes or a consortium of Indian tribes, institutions of higher learning or a consortium of such institutions, or public or non-profit organizations or association acting in cooperation with the political subdivisions.	Meet with EDA's Economic Development Representative (EDR) to determine whether the preparation of a project proposal is appropriate.	After meeting with EDR the Regional Director will decide whether to invite an application. More information will be given at that time.	Continuing basis.	Regional or Local Office. http://www.eda.gov/Contacts/Contacts.xml
DOC; EDA	Economic Development Support for Planning Organizations	Project grants to establish economic development strategies designed to reduce unemployment and increase incomes.	To strengthen economic development planning capacity.	Economic Development Districts, Indian Tribes, units of local government, institutions of higher education and private non-profit organizations.	Submit a letter of interest, a statement of distress and a proposed work program not to exceed 10 pages and SF 424 to regional or Local Office.	Following invitation by agency a formal application is made to the regional office and to the EDA state representative.	None.	Regional or Local Office. http://www.eda.gov/Contacts/Contacts.xml
DOD; Office of Economic Adjustment	Growth Management Planning Assistance	To provide project grants to assist local governments to undertake community economic adjustment planning activities.	Planning in response to the establishment or expansion of Department of Defense military Installation.	Local governments or regional organizations.	http://www.oea.gov	Application is reviewed and approved by the Department of Defense's Office of Economic Adjustment.	None.	Regional or Local Office. http://www.eda.gov/Contacts/Contacts.xml

Table 4-4: Federal Technical Assistance and Funding								
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ECONOMIC DEVELOPMENT								
DOL	Disaster Unemployment Assistance	Direct Payments for Specified Use; Provision of Specialized Services.	Disaster Unemployment Assistance provides financial assistance to individuals whose employment or self-employment has been lost or interrupted as a direct result of a major disaster declared by the President of the United states. Before an individual can be determined eligible for Disaster Unemployment Assistance, it must be established that the individual is not eligible for regular unemployment insurance benefits (under any state or federal law). The program is administered by states as agents of the federal government.	In order to qualify for this benefit your employment or self-employment must have been lost or interrupted as a direct result of a major disaster and you must have been determined not eligible for regular state unemployment insurance. With exceptions for persons with an injury and for self-employed individuals performing activities to return to self-employment, individuals must be able to work and available for work, which are the same requirements to be eligible for state unemployment insurance benefits.	An applicant should consult the office or officials designated as the single point of contact in his or her State for more information on the process the State requires to be followed in applying for assistance, if the State has selected the program for review.	Claims should be filed in accordance with the state's instructions published in announcements about the availability of Disaster Unemployment Assistance, or contact the State Unemployment Insurance agency.	Applications for DUA must be filed within 30 days after the date of the SWA announcement regarding availability of DUA. When applicants have good cause, they may file claims after the 30-day deadline. However, no initial application will be considered if filed after the 26th week following the declaration date.	More information about this program and where to apply for benefits under this program is available at: http://workforcesecurity.doleta.gov/unemploy/disaster.asp To determine your eligibility for unemployment insurance (UI) benefits, you should contact the state unemployment insurance agency in the state where you are located as soon as possible after becoming unemployed. In some states, you can now file a claim by telephone and the Internet.
EDA	Economic Development and Adjustment Program, Sudden and Severe Economic Dislocation (Title IX)	Grants	To help States and localities to develop and/or implement strategies that address adjustment problems resulting from sudden and severe economic dislocation.	States, Localities, Non-Profit Organizations, and Indian Tribes.	Information regarding EDA's program procedures, regulations, and other requirements are available at EDA's website, www.eda.gov	Project grants can be funded in response to natural disasters including improvements and reconstruction of public facilities.	Contact the Disaster Recovery Coordinator, Economic Adjustment Division.	Disaster Recovery Coordinator, Economic Adjustment Division, EDA, DOC, Herbert C. Hoover Building, Washington, DC 20230. Telephone: 800.345.1222 or 202.482.6225. http://www.doc.gov/eda/html/prgtitle.htm

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
ECONOMIC DEVELOPMENT								
FHWA; Maritime Administration	Development and Promotion of Ports and Intermodal Transportation	Advisory Services and Counseling, Technical Information.	Promote and plan for the development and utilization of domestic waterways, ports and port facilities.	Local government Agencies, Metropolitan Planning Organizations, Public Port and Intermodal Authorities, Trade Associations and Private Intermodal and Terminal Operators.	Regional or Local Office.	Personal Conference or Explanation of Problem.	None.	Regional or Local Office. http://www.marad.dot.gov/welcome/regional%20off_directory.html
HUD; Community Planning and Development	Community Development Block Grants / Brownfields Economic Development Initiative	Project Grants to carry out economic development projects on contaminated building s or land.	To return Brownfields to productive economic use.	Units of local government.	Application Procedures will be published in Notice of Funding Availability in the Federal Register.	The Process will be published in Notice of Funding Availability in the Federal Register.	Deadline will be published in Notice of Funding Availability in the Federal Register.	Regional or local Office. http://www.hud.gov/offices/cpd/economicdevelopment/programs/bedi/index.cfm
HUD; Office of Community Planning and Development	Community Development Block Grants Section 108 Loan Guarantees	Guaranteed/Insured Loans for financing of economic development, housing rehabilitation, public facilities, and large scale physical development projects.	To provide communities with a source of financing for economic development, housing rehabilitation, public facilities, and large scale physical development projects.	Metropolitan Cities and Urban Counties.	See 24 Code of Federal regulations, Section 570.704 for application requirements.	See 24 Code of Federal regulations, Section 570.704 for application process.	Continuing basis.	Regional or Local Office. http://www.hud.gov/offices/cpd/communitydevelopment/programs/108/index.cfm
HUD; Office of Community Planning and Development	Community Development Block Grants / Technical Assistance Program	Project Grants (Cooperative Agreements) to transfer skills and knowledge of planning, developing and administering CDBG programs to eligible block grant entities.	To help units of local government, Indian tribes and area wide planning organizations to plan, develop and administer local CDBG programs.	Units of local government, national or regional non-profit organizations that have membership comprised predominantly of entities or officials of entities of CDBG recipients, professional and technical service companies, public	In answer to competitions and solicitations. They will be detailed in the Federal Register.	Applicants will be notified of acceptance or rejections.	Deadlines are in solicitation documents.	Regional or Local Office. http://www.hud.gov/offices/cpd/communitydevelopment/programs/index.cfm

Table 4-4: Federal Technical Assistance and Funding								
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ECONOMIC DEVELOPMENT								
				or private non-profit organizations including educational institutions and area-wide planning organizations.				
HUD; Policy Development and Research	Hispanic-Serving Institutions Assisting Communities	Project Grants for neighborhood revitalization, housing and economic development projects.	To assist Hispanic serving institutions of higher education to expand their role and effectiveness in addressing community development needs in their localities, consistent with the purposes of Title 1 of the housing and Community Development Act of 1974.	Nonprofit accredited Hispanic serving institutions of higher education that are on the US Dept. of Educations list of eligible HSI's or certify that they meet the statutory definition of an HIS.	Application Procedures will be published in Notice of Funding Availability in the Federal Register.	The Process will be published in Notice of Funding Availability in the Federal Register.	Deadline will be published in Notice of Funding Availability in the Federal Register.	HUD Office of University Partnerships http://www.oup.org/ (202) 708-3061.
HUD; Policy Development and Research	Historically Black Colleges and Universities Program	Project Grants for those activities that are eligible for CDBG funds as listed in 24 Code of Federal regulations, part 570, subpart C, particularly paragraphs 570,201 through 570.206.	To assist historically black colleges and universities to expand their role and effectiveness in addressing community development needs in their localities, including neighborhood revitalization, housing, and economic development, principally for persons of low-moderate income.	Historically Black Colleges and Universities as determined by the U.S. Dept. of Education.	Application Procedures will be published in Notice of Funding Availability in the Federal Register.	The Process will be published in Notice of Funding Availability in the Federal Register.	Deadline will be published in Notice of Funding Availability in the Federal Register.	HUD Office of University Partnerships http://www.oup.org/ (202) 708-3061.
USDA; Rural Utilities Service	Assistance to High Energy Cost Rural Communities	Project Grants and Direct loans use to acquire construct, extend, upgrade and improve energy generation, transmission, or	Assistance to rural communities with extremely high energy costs.	Political subdivisions of states, for-profit and non-profit businesses, cooperatives, association,	Application Procedures will be published in Notice of Funding Availability in the Federal Register.	Grants Awarded on a Competitive Basis.	Deadline will be published in Notice of Funding Availability in the Federal Register.	DOA Electric Program http://www.usda.gov/rus/electric/regs/fedreg.htm (202) 720-9545.

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Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
ECONOMIC DEVELOPMENT								
		distribution facilities in rural communities where the average expenditure on home energy cost is at least 275% of the national average		organization, and other entities organized under the laws of States, Indian tribes, tribal entities, and individuals.				
USDA; Rural Business-Cooperative Service	Business and Industry Loans	Direct Loans and Guaranteed/Insured Loans. Direct Loans for modernization, development cost, purchasing and developing land, easements, tights-of-way, buildings, facilities, leases or materials, purchasing equipment, leasehold improvements, machinery and supplies, and pollution control and abatement equipment. Guaranteed Loans are for the same actions mentioned above plus for agricultural production, when not eligible for the Farm Service Agency farmer program assistance and when it is part of an integrated business also involved in the processing of agricultural products.	To assist public, private and cooperative organizations, Indian Tribes or individuals in rural areas to obtain quality loans for the purpose of improving, developing or financing business, industry, and employment and improving the economic and environmental climate in rural communities including pollution abatement controls.	A cooperative, corporation, partnership, trust or other legal entity organized and operated on a profit or nonprofit basis, an Indian tribe, a municipality, county or other subdivision of state or individuals in rural areas.	Rural Development State Office.	Contact the Rural Development State Office or the State Coordinating Agency. http://www.rurdev.usda.gov/recd_map.html	Not Applicable.	Rural Development State Office. http://www.rurdev.usda.gov/recd_map.html

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
ECONOMIC DEVELOPMENT								
USDA; Rural Utilities Service	Community Connect Grant Program	Project grants for the deployment of broadband transmission services to critical community facilities, rural residents and rural businesses and for the construction, acquisition, expansion, and/or operation of a community center which would provide such services free to residents for at least 2 years.	To encourage community oriented connectivity in rural areas where such service does not currently exist.	Indian Tribe or tribal organization, local units of government or other legal entity, including cooperatives or private corporations of limited liability companies organized on a for profit or nonprofit basis, and have the legal authority to own and operate the broadband facilities as proposed in its application, to enter into contracts and to comply with federal statutes and regulations.	Application in accordance with 7 Code of Federal regulations, Section 1739.	Grants Awarded on a Competitive Basis.	Deadline will be published in Notice of Funding Availability in the Federal Register.	DOA Telecommunications Program http://www.usda.gov/rus/telecom/index.htm (202) 720-9554.
USDA; Rural Housing Service	Community Facilities Loans and Grants	Guaranteed/Insured Loans, Direct Loans or Project Grants for community facilities such as child care facilities, food recovery and distribution centers, assisted living facilities, group homes, mental health clinics, shelters and education facilities. Projects comprise community, social, cultural,	To construct, enlarge, extend or otherwise improve community facilities providing essential service to rural residents.	City and County agencies, political and quasi-political subdivisions of the state, associations including corporations, Indian tribes and existing private corporations which are operated on a not-for-profit basis, have or will have the authority necessary for constructing operating and	Obtain SF-424 from the rural Development Area Office for a pre-application.	The pre-application is reviewed by the Rural Development area office and state office and the applicant is advised whether to file an application.	None.	Regional or local office. http://www.rurdev.usda.gov/rd/pubs/pa1557.htm

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
ECONOMIC DEVELOPMENT								
		transportation, industrial park sites, fire and rescue services, access ways, and utility extensions. All facilities must be for public use.		maintaining the proposed facility or service and for obtaining, giving security for and repaying the loans, and are unable to finance the project fro its own resources or through commercial credit at a reasonable rate.				
USDA; Cooperative State Research, Education, and Extension Service	Community Food Projects	Project grants a comprehensive approach to develop long term solutions to help ensure food security in communities by linking the food sect to community development, economic opportunity, and environmental enhancement (50/50 program).	To support the development of community food projects designed to meet the food needs of low income people; increase the self-reliance of communities in providing their own needs; and promote comprehensive responses to local food, farm, and nutrition issues.	Private nonprofit entities.	Application Procedures will be published in Notice of Funding Availability in the Federal Register.	The Process will be published in Notice of Funding Availability in the Federal Register.	Deadline will be published in Proposal Solicitation in the Federal Register.	DOA Competitive Research Grants and Awards Management (202) 401-1761.
USDA	Livestock Assistance Program	Direct Payments.	To provide direct payments to eligible livestock producers who suffered grazing losses due to drought, hot weather, disease, insect infestation, fire, hurricane, flood, fire, earthquake, severe storm, or other disasters during the 2000 crop year. Benefits will be provided to eligible livestock producers only in those counties where a severe natural disaster	Citizens of, or legal resident alien in the United States; a farm cooperative, private domestic corporation, partnership, or joint operation in which a majority interest is held by the members, stockholders, or partners who are citizens of, or legal resident alien of		Applicants visit the county or parish Farm Service Agency (FSA) office in the eligible county or parish to make application, certify eligibility and report percent of grazing loss, number of grazing acres, and number of eligible livestock by type and weight on Form CCC-740.	Sign-up for assistance under the 2000 LAP began January 18, 2000. Date for ending the sign-up will be determined at a later date.	Regional or Local Office: Consult the local phone directory for location of the nearest county FSA office. If no listing, contact the appropriate State FSA office listed in the Farm Service Agency section of Appendix IV of the Catalog or on the WEB at http://www.fsa.usda.gov/edso/ Headquarters Office: Department of Agriculture, Farm Service Agency,

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
ECONOMIC DEVELOPMENT								
			occurred. A county must have been approved as a primary disaster area under a Secretarial disaster designation or Presidential disaster declaration after January 1, 2000, and subsequently approved for participation in the Livestock Assistance Program (LAP) by the Deputy Administrator for Farm Programs.	the United States; Indian tribe or tribal organization of the Indian Self-Determination and Education Assistance Act; any organization under the Indian Reorganization Act or Financing Act; and economic enterprise under the Indian Financing Act of 1974.				Production, Emergencies, and Compliance Division, Emergency Preparedness and Program Branch, Stop 0517, 1400 Independence Avenue SW., Washington, DC 20250-0517. Telephone: (202) 720-7641. http://www.fsa.usda.gov
USDA; Rural Business-Cooperative Service	Renewable Energy Systems and Energy Efficient Improvements Program	To create a program to make direct loans, loan guarantees and grants to agricultural producers and rural businesses to help reduce energy costs and consumption.	To create a program to make direct loans, loan guarantees and grants to agricultural producers and rural businesses to help reduce energy costs and consumption and help meet the nation's critical energy needs.	Agricultural producer or rural small business.	Rural Energy Coordinator in the State.	Application must be submitted to the rural Energy Coordinator who will score it and submit to the National Office. The Highest scored application nationally will receive funding.	Continual sign-up process.	The Rural Business-Cooperative Service State Office.
USDA; Rural Business–Cooperative Service	Rural Business Enterprise Grants	Project Grants to create, expand or operate rural distance learning networks or programs for education, job training instruction related to potential employment, job advancement; development, construction, acquisition, land, buildings, plants, equipment, access streets and roads,	To facilitate the development of small emerging business, industry and related employment for improving the economy of rural areas.	Public bodies and nonprofit corporations serving rural areas.	From the Rural Business Cooperative Service or the State Coordinating Agency.	The pre-application is filed with the local office. After review it will be reviewed and processed by the State office.	None.	Regional or local office.

Table 4-4: Federal Technical Assistance and Funding								
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ECONOMIC DEVELOPMENT								
		parking areas, utility extensions, water supply, waste water disposal facilities, refinancing, services and fees or to establish a revolving loan fund.						
USDA; Rural Business–Cooperative Service	Rural Business Opportunity Grants	Project grants to be used to assist in economic development of rural areas by providing technical assistance, training, and planning for business and economic development.	To promote sustainable economic development in rural communities with exceptional needs.	Public bodies, nonprofit corporations, Indian tribes and cooperatives with members that are primarily rural residents and that conduct activities for the mutual benefit of their members.	From the Rural Development State office or the State Coordinating Agency.	Applications will be scored and awards announce.	None.	Regional or local office.
USDA; Rural Business–Cooperative Service	Rural Cooperative Development Grants	Project Grants to facilitate the creation or retention of jobs in rural area through the development of new rural cooperative, value added processing and rural business.	To improve economic conditions in rural areas through cooperative development.	Nonprofit corporation and institutions of higher learning.	From the Rural Business Cooperative Service or the State Coordinating Agency.	The National Office reviews all applications, scores and ranks them.	Published in Federal Register.	Regional or local office.
USDA; Rural Business–Cooperative Service	Rural Economic Development Loans and Grants	Direct Loans and Project Grants for project feasibility studies, start-up costs, incubator projects and other reasonable costs for the purpose of fostering rural development.	For rural economic development and job creation projects.	Electric and telephone utilities that have current loans with the Rural Utilities Service or rural telephone Bank loans or guarantees outstanding.	Rural Development State Office.	See 7 Code of Federal Regulation, Section 1703.34.	None.	Regional or local office.
USDA; Farm Service Agency	Tree Assistance Program	Direct payments with unrestricted use to tree, bush and vine owners who have trees, bushes and	To assist producers whose trees, bushes or vines are damaged or destroyed in natural disasters.	Individual owners.	A form provided by FSA; a written estimate of the number or trees, bushes or vines lost or damaged	The County Committee makes recommendations and eligibility determinations on those determinations that it wants to recommend to a higher approval official.	To be announced.	Regional or local office.

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
ECONOMIC DEVELOPMENT								
		vines lost to a natural disaster, to replant or rehabilitate said vegetation and produce annual crops for commercial.			which is prepared by the owner or someone who is a qualified expert, as determined by the county Committee; the number of acres on which the loss was suffered; and sufficient evidence of the loss o allow the County Committee to calculate whether an eligible loss occurred.			
USTREAS	Casualties, Disasters, and Theft	Tax relief.	The program offers tax relief for casualty losses that result from the destruction of, or damage to your property from any sudden, unexpected, or unusual event such as a flood, hurricane, tornado, fire, earthquake or even volcanic eruption.	A victim of a Presidentially declared disaster and you must be a taxpayer who is interested in receiving tax information and preparation assistance.	Contact IRS, http://www.irs.gov/taxtopics/tc515.html	Casualty losses are claimed on Form 4684 (PDF), *Casualties and Thefts*. Section A is used for personal–use property and Section B is used for business or income-producing property. If personal-use property was destroyed or stolen, you may wish to refer to Publication 584, *Casualty, Disaster, and Theft Loss Workbook*, to help you catalog your property. If the property was business or income-producing property, refer to Publication 584B (PDF), *Business Casualty, Disaster, and Theft Loss Workbook.*	Check website, http://www.irs.gov/pub/irs-pdf/p547.pdf	For additional information contact: Internal Revenue Service Tax forms and Publications W:CAR:MP:FP 1111 Constitution Ave NW Washington, DC 20224. http://www.irs.gov/taxtopics/tc515.html

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
EMERGENCY MANAGEMENT								
DHS	Community Disaster Loans	Loan.	To provide loans subject to Congressional loan authority, to any local government that has suffered substantial loss of tax and other revenue in an area in which the President designates a major disaster exists. The funds can only be used to maintain existing functions of a municipal operating character and the local government must demonstrate a need for financial assistance	Applicants must be in a designated major disaster area and must demonstrate that they meet the specific conditions of FEMA Disaster Assistance Regulations 44 CFR Part 206, Subpart K, Community Disaster Loans.		Upon declaration of a major disaster, application for a Community Disaster Loan is made through the Governor's Authorized Representative to the Regional Director of FEMA. The Associate Director of the Response and Recovery Directorate approves or disapproves the loan. The Designated Loan Officer will execute a Promissory Note with the applicant. The promissory note must be co-signed by the State, or if the State cannot legally co-sign the note, the local government must pledge collateral security.	The loan must be approved in the fiscal year of the disaster or the fiscal year immediately following.	Regional or Local Office. http://www.dhs.gov
DHS	Disaster Legal Services	Legal assistance.	To provide legal assistance to individuals affected by a major Federal disaster.	Low-income individuals, families, and groups.	An applicant should consult the office or official designated as the point of contact in his or her State for more information on the process to be followed in applying for assistance, if the State has selected the program for review.	Upon declaration of an emergency or major disaster, individuals and households may register an application for assistance with FEMA via a toll-free number or by visiting a Disaster Recovery Center.	Not applicable.	Regional or Local Office. http://www.dhs.gov

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
EMERGENCY MANAGEMENT								
DHS	Disaster Unemployment Assistance	Direct Payments for Specified Use; Provision of Specialized Services.	To provide special federally funded weekly benefits to workers and self-employed individuals who are unemployed as a direct result of a Presidentially-declared major disaster, and who are not eligible for regular Unemployment Insurance benefits paid by States.	Disaster victims who have experienced direct loss of employment as a result of a Presidentially-declared major disaster designated for DUA.	From the local State Workforce Agency (SWA).	Upon declaration of a major disaster declaration designated for DUA, individuals may apply with their local State Workforce Agency (SWA).	Generally, applications for DUA must be filed within 30 days after the date of the SWA announcement regarding availability of DUA. When applicants have good cause, they may file claims after the 30-day deadline. However, no initial application will be considered if filed after the 26th week following the declaration date.	Regional or Local Office.
DOC; NOAA; Marine Fisheries Service	Fisheries Disaster relief	Cooperative Grants (75/25)	Assessment of the effects of Commercial Fishery failures, restoring fisheries, preventing future failures and assisting fishing communities affected by failures.	Fishing Communities.	National Marine Fisheries Service (NMFS).	Submit completed forms to NMFS through Grants.GOV	120 days before start of project.	National Marine Fisheries Service. http://www.nmfs.noaa.gov/
DOD	Emergency Rehabilitation of Flood Control Works or Federally Authorized Coastal Protection Works	Repair of Flood Control or Coastal Protection Works.	To assist in the repair and restoration of flood control works damaged by flood, or federally authorized hurricane flood and shore protection works damaged by extraordinary wind, wave, or water action.	Owners of damaged flood protective works, or State and local officials of public entities responsible for their maintenance, repair, and operation must meet current guidelines to become eligible for Public Law 84-99 assistance.	District Engineer or Corps of Engineers	Written application by letter or by form request if such form is locally used by the District Engineer of the Corps of Engineers.	Thirty days after a flood or unusual coastal storm.	Regional or Local Office: U.S. Army Corps of Engineers Division or District Engineers. Headquarters Office: Commander, U.S. Army Corps of Engineers, Attn: CECW-OE, Washington, DC 20314. Telephone: (202) 272-0251. FTS is not available. http://www.usace.army.mil/business.html
SBA	Economic Injury Disaster Loans	Loans to businesses suffering economic injury from Presidential, SBA, or Agricultural Disaster.	To provide working capital to small business, small agricultural cooperatives or nurseries who have actual economic injury.	Business owners who have suffered economic injury.	SBA Disaster Office.	File with nearest SBA Disaster Office.	Deadline established after each declaration.	SBA Disaster Office.
SBA	Physical Disaster Loans	Loans to victims of declared disasters for	To repair or replace damaged or destroyed real and/or personal	Loans to homeowners, renters, business and non-profit organizations	SBA Disaster Office.	File with nearest SBA Disaster Office.	60 days from disaster declaration unless extended by SBA.	SBA Disaster Office.

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
EMERGENCY MANAGEMENT								
		uninsured or otherwise uncompensated physical damage.	property to its pre-damage condition. The loan limit may increase by 20% to provide protective measures.	who have suffered physical loss do to a Presidential or SBA declared disaster.				
USDA	Direct Housing, Natural Disaster Grants and Loans	Repair or replace damaged Property.	To meet emergency assistance needs not provided by FEMA Programs.	Very-Low income owner-occupants of rural housing in declared disaster areas. Must be 62 years or older.	Rural Development Field Office of the applicants County.	Complete Form 410-4 and return to field office.	From Date of Declaration until appropriated funds are exhausted.	U.S.D.A. Rural Development Field Office.
USDA	Disaster Reserve Assistance	Direct Payments for Specified Use.	To provide emergency assistance to eligible livestock owners, in a State, county, or area approved by the Secretary or designee, where because of disease, insect infestation, flood, drought, fire, hurricane, earthquake, hail storm, hot weather, cold weather, freeze, snow, ice, and winterkill, or other natural disaster, a livestock emergency has been determined to exist.	An established producer or husbandry of livestock or a dairy producer. a farm cooperative, private domestic corporation, partnership, or joint operation in which a majority interest is held by the members, stockholders, or partners who are citizens of, or legal resident aliens of the United States. Any Indian tribe or tribal organization of the Indian Self-Determination and Education Assistance Act. Any organization under the Indian Reorganization Act or Financing Act.	Visit the county FSA office in the eligible county.	Applicants visit the county FSA office in the eligible county to make application, certify eligibility and report feed loss, feed available, and eligible livestock related to the disaster occurrence; and (2) applicants also receive authority to participate in the program as provided by the approving official.	Feeding periods for the disaster reserve assistance program begin (a) the first day of the 1996 crop year in counties approved for 1995 or 1996 livestock feed programs; (b) the date the producer filed an application, if the natural disaster began after the beginning of the 1996 crop year; the date of the occurrence for sudden natural disasters that occurred after the beginning of the 1996 crop year.	Regional or Local Office http://www.fsa.usda.gov
USDA	Emergency Loans	Direct Loans.	To assist established (owner or tenant) family farmers, ranchers and aquaculture operators with loans to cover losses resulting from major and/or natural disasters, which can be used for annual farm operating	Be an established family farmer, rancher, or aquaculture operator (either tenant-operator or owner-operator), who was conducting a farming operation at the time of occurrence of the disaster either as an individual proprietorship, a partnership, a	Consult the appropriate FSA State office.	Application Form FSA 410-1 provided by the Farm Service Agency must be presented, with supporting information, to the FSA county office serving the applicant's county. FSA personnel assist applicants in completing their application forms. This	Deadline for filing applications for actual loss loans is 8 months from the date of declaration/designation for both physical and production losses. Applicants should consult the FSA county office serving their area for application deadlines.	Regional or Local Office http://www.fsa.usda.gov

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
EMERGENCY MANAGEMENT								
			expenses, and for other essential needs necessary to return disaster victims' farming operations to a financially sound basis in order that they will be able to return to private sources of credit as soon as possible.	cooperative, a corporation, or a joint operation. Have suffered qualifying crop loss and/or physical property damage caused by a designated natural disaster. Be a citizen of the United States or legal resident alien, or be operated by citizens and/or resident aliens owning over a 50 percent interest of the farming entity. Have sufficient training or farming experience in managing and operating a farm or ranch. Be a capable manager of the farming, ranching, or aquaculture operations.		program is excluded from coverage under OMB Circular No. A-110.		

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
HISTORIC PRESERVATION								
DOI; National Park Service	Civil War Battlefield Land Acquisition Grants	Grants for Fee simple acquisition of land, or for the acquisition of permanent protective interests in land at Civil War Battlefields.	To preserve threatened civil war battlefields.	Local governments or private non-profit organization in partnership with local governments.	SF 424 and attached documents including hard copies of proposals. See application requirements for list of attachments.	File forms with National Park Service Office.	Ongoing.	National Park Service. http://www.nps.gov/
DOI; National Park Service	National Maritime Heritage Grants	Education activities and preservation activities or projects, such as: 1) activities associated with acquiring ownership of, or responsibility for, historic maritime properties for preservation purposes; 2) preservation planning; 3) documentation of historic maritime properties; 4) protection and stabilization of historic maritime properties; 5) preservation restoration, or rehabilitation of historic maritime properties; 6) maintenance of historic maritime properties; and 7) reconstruction or reproduction of well-documented historic maritime properties.	To preserve historic maritime resources and increase public awareness and appreciation.	Local governments and private non-profit organizations.	National Maritime Initiative.	State Historical Preservation Office or National Maritime Initiative.	Contact State Historical Preservation Office or National Maritime Initiative.	National Park Service Office, National Maritime Initiative. http://www.cr.nps.gov/Maritime/
DOI; National Park Service	Technical Preservation Service	Advisory services and counseling, dissemination of technical information, provision of specialized services.	To assist local governments and owners of certified historical structures to preserve and maintain properties.	Local governments and individuals.	Historic Preservation Certification Application through Appropriate State Official or NPS Office.	File through State Official or NPS Office.	None.	National Park Service Office. http://www.nps.gov/

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
HOUSING								
DHS	Disaster Housing Assistance To Individuals And Households In Presidential Declared Disaster Zones	Direct Payments for Specified Use.	To provide assistance to affected individuals and households within Presidential-declared disaster zones to enable them to address disaster-related housing and other necessary expenses and serious needs, which cannot be met through other forms of disaster assistance, insurance, or through other means.	Individuals and households, in areas declared an emergency or major disaster by the President, whose primary residence has been damaged or destroyed and whose losses are not covered by insurance are eligible to apply for this program. Must be a citizen of the United States, a non-citizen national, or a qualified alien.	An applicant should consult the office or official designated as the single point of contact in his or her State for more information on the process the State requires to be followed in applying for assistance, if the State has selected the program for review.	A Presidential Disaster or Emergency Declaration must be issued, before individuals and households can register an application for assistance with FEMA via a toll-free number or by visiting a Disaster Recovery Center.	Generally, individual and household applications for disaster assistance must be filed within 60 days of the disaster declaration.	Regional or Local Office.
DHS	Disaster Housing Program	Grant.	The Disaster Housing Program provides housing assistance in the form of a grant to individuals whose homes sustained damage as a result of a Presidentially declared disaster. To qualify for assistance, the damaged home must be your	Applicant must be a national, citizen or dual citizen of the US whose home was destroyed or damaged by a Presidentially declared major disaster.	Contact FEMA.	Individuals can apply for assistance by calling 1-800-621-FEMA. Insured homeowners should first file a claim with their home insurer before contacting FEMA. An inspection is performed and	Contact FEMA.	Additional general information can be found at: http://www.fema.gov/tabs_disaster.shtm

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
HOUSING								
			primary residence, and be located in the disaster-declared area. If insured, a claim should be filed. This program provides grants for lodging expense reimbursement, minimal home repairs and rental assistance. A determination of the types of housing assistance you are eligible to receive will be made if you apply.			a determination is made on your eligibility for one of the following types of assistance: Lodging expense reimbursement, minimal home repairs, rental assistance and Mortgage and Rental Assistance.		
DHS	Federal Assistance To Individuals And Households-Disaster Housing Operations	Direct Payments for Specified Use.	To address disaster-related housing needs of individuals and households suffering hardship who are within an area declared as a disaster zone, by the President.	Individuals and households, in areas declared an emergency or major disaster by the President, whose primary residence has been damaged or destroyed and whose losses are not covered by insurance are eligible to apply for this program. The individual or a member of the household must be a	An applicant should consult the office or official designated as the single point of contact in his or her State for more information on the process the State requires to be followed in applying for assistance, if the State has selected the program for review.	Upon declaration of an emergency or major disaster, individuals and households may register an application for assistance with FEMA via a toll-free number or by visiting a Disaster Recovery Center.	Generally, individual and household applications for disaster assistance must be filed within 60 days of the disaster declaration.	Regional or Local Office.

Table 4-4: Federal Technical Assistance and Funding

Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
HOUSING								
				citizen of the United States, a non-citizen national, or a qualified alien.				
DOI, Bureau of Indian Affairs	Indian Housing Assistance	Construction of housing, technical assistance to establish housing plans and determine extent and use of the Bureau's housing Improvement Program.	To eliminate substantially substandard Indian owned to inhabited housing for very low income individuals living in tribal service areas.	Individual members of Federally recognized tribes or tribal governments or organizations.	An informal conference should be scheduled with Bureau of Indian Affairs. Applications for Tribes or Tribal organizations should be submitted to Bureau of Indian affairs local office. Individuals may submit applications to the Bureau or to the tribal Servicing Housing Office.	Process is determined through annual Tribal work plan.	For Tribes or Tribal Organizations there is no deadline. For individuals the deadline is set at the local office.	Regional or Local Office of the Bureau of Indian Affairs.
HUD	Community Development Block Grant (CDBG)	Grant.	To develop viable urban communities by providing decent housing and a suitable living environment. Principally for low-to moderate-income individuals.	Eligible CDBG grant recipients include States, units of general local government (city, county, town, township, parish, village or other general purpose political subdivision determined to be eligible for assistance by the Secretary), the District of Columbia, Puerto Rico, Guam, the Virgin Islands, American Samoa, the Commonwealth of the Northern Marianas, and	http://www.hud.gov/offices/cpd/about/cpd_programs.cfm	Community Development activities that meet long-term needs. These activities can include acquisition, rehabilitation, reconstruction of properties and facilities damaged by a disaster, and redevelopment of disaster affected areas.	Consolidated Plans may be submitted between November 15 and August 16 of each fiscal year in which the State will administer funds.	State and Small Cities Division, Office of Block Grant Assistance, CPD, HUD, 451 7th Street, S.W., Washington, DC 20410-7000. Telephone: 202.708.3587. http://www.hud.gov/bdfy2000/summary/cpd/cdbg.html

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
HOUSING								
				recognized Native American tribes and Alaskan Native villages.				
HUD	Demolition and Revitalization of Severely Distressed Public Housing (HOPE VI)	Demolition of all or parts of severely distressed public housing projects, relocation cost of affected resident, disposition activities, rehabbing of units or community facilities, development of new units or community facilities, homeownership activities, acquisition activities, management improvements and administrative cost, community and supportive services.	To fund revitalization of severely distressed public housing developments.	Public housing authorities and Indian Housing Authorities, plus local governments for HOPE VI Main Street Grants.	Submission requirements and application are listed in Notice of Federal Assistance in the Federal Register.	HUD HQ reviews the application and rates them. Highest rated applications are funded.	As indicated in the Federal Register Notice.	HUD local or regional Office.
HUD	Mortgage insurance-Homes for Disaster Victims	Guaranteed / Insured Loans.	To insure lenders against losses on mortgage loans used to finance purchase or reconstruction of one-family home that will be the principal residence of a borrower that is a victim of a disaster.	Individuals and Families that are victims of a disaster designated by the President.	Mortgagee submits Application to HUD Field Office.	Mortgagee submits Application to HUD Field Office.	None.	HUD local or regional Office.

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
HOUSING								
HUD	Rehabilitation Mortgage Insurance	Guaranteed / Insured Loans.	To insure lenders against losses on mortgage loans for 1 to 4 unit structures used to finance the purchase of a structure and land and rehabilitate the structure; the purchase, relocation and rehabilitation of a structure from another site; refinance existing debt and rehabilitating a structure; finance the rehabilitating of a structure.	Individual purchasers.	A HUD Approved Lending Institution	Review by Lending Institution.	None.	HUD local or regional Office.
HUD	Rural housing and Economic Development	Grants for Capacity Building, Support of Innovative Housing and Economic Development Activities.	To build capacity for rural housing and economic development activities in rural areas.	Local Rural Non-Profit Organizations, Community Development Corporations, Indian Tribes, State agencies.	Submission requirements and application are listed in Notice of Federal Assistance in the Federal Register	As indicated in the Federal Register Notice.	As indicated in the Federal Register Notice.	HUD local or regional Office.
HUD	Self-Help Homeownership Opportunity Program (SHOP)	Land Acquisition and Infrastructure Improvements	To facilitate and encourage innovative homeownership opportunities for low income homeowners and contribute a significant amount of sweat equity.	National or regional non-Profit Organizations or Consortia.	Submission requirements and application are listed in SHOP Notice of Federal Assistance in the Federal Register.	As indicated in the Federal Register Notice.	As indicated in the Federal Register Notice.	HUD local or regional Office.

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
HOUSING								
HUD	Supplemental Loan Insurance-Multifamily Rental Housing	Financing of repairs, additions and improvements to multifamily projects, group practice facilities, hospitals and nursing homes already insured by HUD.	To insure lenders against losses on loans to finance additions and improvements to eligible properties.	Owners of Multifamily projects or facilities subject to mortgage insured by HUD or individual s/families and owners of multifamily projects.	HUD Multifamily HUB and Program Center.	Pre-application conference and then submittal of formal application through HUD approved mortgage.	Case-by-case basis.	HUD local or regional Office.
USDA	Direct Housing-Natural Disaster	Direct loans.	To assist qualified lower income rural families to meet emergency assistance needs resulting from natural disaster to buy, build, rehabilitate, or improve dwellings in rural areas. Funds are only available to the extent that funds are not provided by FEMA .For the purpose of administering these funds, natural disaster will only include those areas identified by a Presidential declaration.	Applicants must be without adequate resources to obtain housing or related facilities. Applicants must be unable to secure the necessary credit from other sources at prevailing terms and conditions for residential financing.	Rural Development Field office.	Applicants must file Form RD 410-4 at the Rural Development field office serving the county where the dwelling is located. This program is excluded from coverage under OMB Circular No. A-110.	Applicants must file applications from the date of declaration/designation and until supplemental appropriated funds are exhausted.	Regional or Local Office. Consult your local telephone directory under United States Department of Agriculture for Rural Development field office number. If no listing, contact appropriate Rural Development State Office at: http://www.rurdev.usda.gov/recd_map.html.
USDA; Rural	Farm Labor Housing Loans	Project grants and Guaranteed/insured	To provide decent, safe	Farmers, farm family	Applicant must furnish the following information: the number of farm laborers currently being used in the	Applications will be scored	None.	Regional or Local Office of Rural housing Service.

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
HOUSING								
Housing Service	and Grants	Loans for the construction, repair or purchase of year-around or seasonal housing; acquiring land and making improvements for housing; developing related support facilities.	and sanitary low-rent housing and related facilities for domestic farm laborers.	partnerships, family farm corporations, or an association of farmers.	area; the kind of labor performed; the future need for labor; the kind, condition, and adequacy of current housing; the ownership of current housing; the ability of workers to pay rent; and information that it is unable to provide housing from its own resources or terms and conditions that would enable it to provide labor housing.	and reviewed by State and National Offices.		http://www.rurdev.usda.gov/rhs/
USDA; Rural Housing Service	Rural Housing Preservation Grants	Loans, grants or other assistance to individual homeowners, rental properties or coops to pay any part of the cost for repair and rehabilitation of structures.	To assist very low- and low-income residents individual homeowners, rental property owners (single/multi-unit and consumer cooperative housing projects to complete necessary repairs and rehabilitation of dwellings.	Political subdivision of state, public non-profit corporation, or Indian tribal Corporations authorized to receive and administer housing preservation grants, private nonprofit corporations, or consortia.	Contact your regional or local office.	Consult with Rural Development Office prior to application and submit pre-application. An Environmental Impact Assessment is required.	See Federal Register of Notice of Funds Availability.	Regional or Local Office of Rural housing Service. http://www.rurdev.usda.gov/rhs/
USDA; Rural Housing Service	Section 538 Rural rental Housing Guaranteed Loans	Guaranteed/Insured Loans to supply affordable multi-family housing in rural areas.	To encourage private and public lenders to make loans for affordable rental properties.	Lenders.	Lender provides documentation required by RHS.	RHS will review applications for compliance and issue conditional Commitment of guarantee with conditions. Once Conditions are met the final Contract of guarantee will be issued.	See Federal Register of Notice of Funds Availability.	Regional or Local Office of Rural housing Service. http://www.rurdev.usda.gov/rhs/
USDA; Rural	Very Low-Income housing	Direct Loans and Project Grants to	To make essential	Applicant must own and	Rural Development State or District Office.	The Loan must be submitted to	None.	Regional or Local Office of Rural housing Service.

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
HOUSING								
Housing Service	Repair Loans and Grants	Very-Low Income Homeowners in rural areas to repair, improve or modernize their dwellings or to remove health and safety hazards.	repairs to homes to make them safe and remove health hazards.	occupy the home in a rural area, have sufficient income to repay a loan, be 62 years of age or older and be unable to repay a loan for that part of the assistance that comes as a grant.		RHS field office serving county where structure is located.		http://www.rurdev.usda.gov/rhs/
USDA; Rural Housing Service	Very Low to Moderate Income Housing Loans	Direct and Guaranteed Loans to buy, build, or improve applicant's permanent residence. New manufactured loans on a permanent site may also be approved.	To assist very low, low-income, and moderate households to obtain modest, decent, safe, and sanitary housing for use as a permanent residence in a rural area.	Very low, low-income, and moderate households.	For Direct Loans the application is made to the local Rural Development Office. For Guaranteed Loans application is made to the lender.	For Direct Loans the Rural Development Office makes a decision within 30 – 60 days. For Guaranteed Loans the decision is made within 3 days.	None.	Regional or Local Office of Rural housing Service. http://www.rurdev.usda.gov/rhs/

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
INFRASTRUCTURE								
DHS	National Dam Safety Program	State grants distributed directly to State dam safety programs.	To reduce the risks to life and property from dam failure in the United States through the establishment and maintenance of an effective national dam safety program to bring together the expertise and resources of the Federal and non-Federal communities in achieving national dam safety hazard reduction.	For a State to be eligible for primary assistance under the National Dam Safety Program, the State dam safety program must be working toward meeting the following criteria: The authority to review and approve plans and specifications to construct, enlarge, modify, remove, and abandon dams; the authority to perform periodic inspections during dam construction to ensure compliance with approved plans and specifications. All inspections be performed under the supervision of a State-registered professional engineer with experience in dam design and construction.	www.fema.gov/fima/damsafe	States wishing to participate in the National Dam Safety Program must submit a proposal with their application package including a program narrative statement, goals and objectives, performance measures, travel budget and related activities.	Applications should be submitted to FEMA by November 30 of each fiscal year.	*Headquarters Office*: Director, National Dam Safety Program, Mitigation Directorate, FEMA, DHS, 500 C Street SW., Washington, DC 20472; Telephone: (202) 646-3885. Additional information is available on the National Dam Safety Program web site, www.fema.gov/fima/damsafe
DOC; EDA	Grants for Public Works and Economic Development Facilities	Project grants for wate and sewer improvements, industrial access roads, industrial and business parks, port facilities, railroad sidings, distance learning facilities, skill-training facilities, redevelopment of brown fields, eco-industrial facilities, business incubator	To promote long-term economic development in areas experiencing substantial economic stress.	Cities, counties, institutions of higher education or a consortium of institutions of higher education, other political subdivision, Indian Tribes, Economic Development Districts and non-profit organizations.	The Economic Development Representative servicing the state or EDA.	Meet with EDR. If deemed appropriate the applicant will be invited to apply.	30 days after invitation.	Regional or Local Office. http://www.eda.gov/Contacts/Contacts.xml

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
INFRASTRUCTURE								
		facilities, and telecommunication infrastructure improvement needed for business retention and expansion.						
DOC; National Telecommunication and Information Administration	Public Telecommunications Facilities Planning and Construction	Grants for planning and construction of public telecommunications facilities.	To assist in the planning, acquisition, installation, and modernization of public telecommunications facilities through planning grants and matching construction grants.	Public or noncommercial educational broadcast station, noncommercial telecommunication entity, non-profit foundation, corporation, institution or association organized primarily for educational or cultural purposes, local government, tribal government or an agency thereof, or a political or special purpose subdivision of the state.	Request from agency or go to the web at: www.ntia.doc.gov/ptfp.	File application form, project narrative, project budget forms, relevant exhibits, CD-511, CD 346, SF 424B, and SF LLL. Contact State telecommunications agency where applicable.	See annual notification in the Federal Register.	Regional or Local Office. http://www.ntia.doc.gov/
DOD; USACE	Flood Control Works / Emergency Rehabilitation	Provision of Specialized Services.	To assist in the repair and restoration of public works damaged by flood, extraordinary wind, wave, or water action.	Owners of damaged flood protective works, or State and local officials of public entities responsible for their maintenance, repair, and operation.	Regional or Local Office: U.S. Army Corps of Engineers Division or District Engineers.	The Corps provides public works and engineering support to supplement State and local efforts toward the effective and immediate response to a natural disaster.	Thirty days after a flood or unusual coastal storm.	Program Manager PL 84-99 USACE, 20 Massachusetts Ave, N.W. Washington, DC 20314 Telephone: 202.761.0001. http://www.spd.usace.army.mil/hqpam.html
DOD; USACE	Protection of Essential Highways, Highway Bridge Approaches and Public Works	Protection of highways, highway bridges, essential public works, churches, hospitals, schools and other non-profit public services.	To provide bank protection for locations endangered by flood-caused erosion.	Political subdivision of states and other responsible local agencies established under state law with full authority and ability to undertake legal and financial responsibilities.	Formal letter to District Engineer.	Consult with District Engineer.	None.	Regional or Local Office. http://www.usace.army.mil/business.html
DOI; Bureau of Reclamation	Water Desalination Research and	Demonstration and development	To develop cost-effective,	Local entities, public/nonprofit	A proposal solicitation is announced by the Bureau of	There will be a general solicitation	Varies, contact	Bureau of Reclamation http://www.usbr.gov/

Table 4-4: Federal Technical Assistance and Funding

Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
INFRASTRUCTURE								
	Development Program	projects and related activities.	technically efficient and implementable methods by which water can be produced.	institutions/organizations, other public institutions/organizations.	Reclamation.	d one for pilot plants or demonstration projects, SF 424 and DI-2010 forms are required.	Bureau of Reclamation.	(303) 445-2432.
FHWA; FAA	Airport Improvement Program	Project Grants and advisory services and counseling.	Integrated airport system planning and airport master planning, construction and rehabilitation at public-use airports.	Counties, municipalities, other public agencies, Indian tribes, private owners of public-use reliever airports or airports having at least 2,500 passengers boarding annually and receiving scheduled passenger aircraft.	Contact the States single-point contact for aviation.	Pre-application is filed with the FAA office and reviewed regionally and/or in Washington D.C.	January 31 or another date specified in the Federal Register.	Regional or Local Office. http://www.faa.gov/about/office_org/
FHWA; FTA	Federal transit Capital Investment Grants	Formula Grants and Project Grants.	To assist in financing the acquisition, construction, reconstruction and improvement of facilities, rolling stock and equipment for use in public transportation service.	Municipalities and other subdivisions of the state, public agencies and instrumentalities of one or more states, public corporations. Boards and commissions.	Federal Transportation Authority or State single point of contact.	Applicant should contact the State single point of contact.	Contact FTA.	Regional or local office. http://www.fta.dot.gov/4_ENG_HTML.htm
FHWA; FTA	Transit Planning and Research	Project Grants, Technical Information, and Training.	Increase public ridership, improve safety and emergency preparedness, improve capital operating efficiencies, protect the environment and promote energy independence.	Public bodies, non-profit institutions, local agencies, universities and legally constituted public agencies and operators of public transportation services, and non-profit organizations.	Federal Transportation Authority.	Pre-Application Coordination.	None.	Associate Administrator for Research, Demonstration and Innovation, FTA (202) 366-4209. http://www.fta.dot.gov/4_ENG_HTML.htm
FHWA	Transportation: Emergency Relief Program	Special funding and technical assistance to	To provide aid for repair of Federal-aid roads.	State highway/transportation agency or Federal	www.fhwa.dot.gov	It is the responsibility of individual States to request ER funds for	Contact FHWA.	Director, Office of Engineering, FHWA, DOT, 400 7th Street, S.W., Washington, DC 20590.

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
INFRASTRUCTURE								
		States and Federal agencies.		agency.		assistance in the cost of necessary repair of Federal-aid highways damaged by natural disasters or catastrophic failures. A notice of intent to request ER funds filed by the State Department of Transportation with the FHWA Division Office located in the State will initiate the ER application process.		Telephone: 202.366.4655. http://www.fhwa.dot.gov/programadmin/erelief.html
USDA; Rural Utilities Service	Water and Waste Disposal Systems for Rural Communities	Project Grant, Direct Loans, guaranteed/Insured Loans for the installation, repair, improvement or expansion of rural water facilities including distribution lines, well pumping facilities and cost related thereto, and the installation, repair, improvement, or expansion or rural waste disposal facilities including the collection, and treatment of sanitary, storm and solid wastes.	To provide basic human amenities, alleviate health hazards and promote orderly growth of rural area.	Municipalities, counties and other political subdivisions of a states, such as authorities, associations, cooperatives, corporations operated on a not for profit basis, and federally recognized tribes. Serving rural businesses and rural residents.	Local USDA Rural Development Office.	Application is reviewed at the local level and forwarded to Rural Development State Director for review.	None.	Regional or local office. http://www.rurdev.usda.gov/recd_map.html
USDA; Rural Utilities Service	Water and Waste Disposal Loans and Grants (Section 306C)	Project Grants, Direct Loans to construct enlarge, extend or otherwise improve community	Provide water and waste disposal facilities and services to low income rural	Local levels of government, federally recognized tribes and non-profit associations. Per capita income may	Local USDA Rural Development Office.	Application is reviewed at the Rural Development State office and must compete on a	None.	Regional or local office. http://www.rurdev.usda.gov/recd_map.html

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
INFRASTRUCTURE								
		water or waste systems; extend lines; and connect individual residences to the system.	communities whose residents face significant health risks.	not exceed 70% of national average, unemployment rate is not less than 125% of national average, and residents must face significant health risks due to not having access to an affordable community water and/or waste disposal system.		national basis for review.		

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
MITIGATION								
DHS	Emergency Management Performance Grants (EMPG)	Formula Grants.	To encourage the development of comprehensive emergency management, including for terrorism consequence management, at the State and local level and to improve emergency management planning, preparedness, mitigation, response, and recovery capabilities.	Funding provided to States, which can be used to educate people and protect lives and structures from natural and technological hazards.	An applicant should consult the office or official designated as the single point of contact in his or her State for more information on the process the State requires to be followed in applying for assistance, if the State has selected the program for review. Technical assistance is available for application preparation from the FEMA Regional Offices.	Applications must be submitted online using the OJP GMS and must contain information and meet the requirements outlined in the program guidelines and application kit.	Applications will be made available on December 2, 2004, and must be received by ODP no later than January 16, 2005.	Office of Financial Management, FEMA, 500 C Street, S.W., Washington, DC 20472 Telephone: 202.646.7057. http://www.fema.gov
DHS	Flood Mitigation Assistance Program	Grants to States.	To help States and communities plan and carry out activities designed to reduce the risk of flood damage to structures covered under contracts for flood insurance.	The State or community must first develop (and have approved by FEMA) a flood mitigation plan that describes the activities to be carried out with assistance provided under this program. The plan must be consistent with a comprehensive strategy for mitigation activities, and be adopted by the State or community following a public hearing.	Applications can be obtained from the State Hazard Mitigation Officer. Eligible projects include acquisition, elevation, or relocation of National Flood Insurance Program (NFIP)-insured structures, especially those that have been repetitively flooded or substantially damaged.	The State Hazard Mitigation Officer applied to the Federal Emergency Management Agency for annual funds.	Annual.	Risk Reduction Branch, Mitigation Division, FEMA, DHS 500 C Street SW., Washington, DC 20472; Telephone: (202) 646-2856. Additional information is available on FEMA's web site, www.fema.gov/fima/planfma.shtm

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
MITIGATION								
DHS	Hazard Mitigation Grant Program	Grants.	To prevent future losses of lives and property due to disasters; to implement State or local hazard mitigation plans; to enable mitigation measures to be implemented during immediate recovery from a disaster; and to provide funding for previously identified mitigation measures to benefit the disaster area.	State and local governments; certain private and nonprofit organizations or institutions; Indian tribes or authorized tribal organizations; and Alaska Native villages or organizations.	For more information on where to obtain application go to website, http://www.fema.gov/fima/hmgp/hmgp_ref.shtm	Eligible applicants apply for the program through the State, as the State administers the program. Applicants are encouraged to contact the State Hazard Mitigation Officer for details. Each State has a hazard mitigation administrative plan that explains procedures for administering the HMGP. When the State requests a disaster declaration, it must also request that HMGP funding be made available. Individuals applying for a Hazard mitigation Grant can do it through their communities.	The State will submit all selected local applications or summaries to the Regional Director within 90 days after the State Hazard Mitigation Plan is approved. (Approximately 9-18 months after disaster declaration.)	Branch Chief, Risk Reduction Branch, Mitigation Division, FEMA, DHS, 500 C Street SW., Washington, DC 20472; Telephone: (202) 646–2856. Additional information is available on FEMA's web site, www.fema.gov
DHS	National Flood Insurance Program	Formula grants to States.	To enable persons to purchase insurance against physical damage to or loss of buildings and/or contents therein caused by floods, mudslide (i.e.,	Flood insurance can be made available in any community (a State or political subdivision thereof with authority to	Contact State Hazard Mitigation Officer for details.	Community officials must submit an NFIP eligibility application form, which is available from the FEMA, together with: copies of adopted	Communities with one or more identified special flood hazard areas must enter the program within 1 year after the	Regional or Local Office. Contact the appropriate FEMA regional office, or the State office responsible for coordinating the program's activities.

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
MITIGATION								
			mudflow), or flood-related erosion, thereby reducing Federal disaster assistance payments, and to promote wise floodplain management practices in the Nation's flood-prone and mudflow- prone areas.	adopt and enforce floodplain management measures for the areas within its jurisdiction) that submits a properly completed application to FEMA.		floodplain management measures meeting the minimum standards of 44 CFR Section 60.3(a), 60.3(b), 60.3(c), 60.3(d), and/or 60.3(e), as appropriate for the type of flood hazards identified; a list of any incorporated communities within the applicant's boundaries; and estimates of population and, by kind, of buildings situated in the known flood-prone areas of the community. Such Applications should be submitted to the Mitigation Directorate, FEMA, Washington, DC 20472. This program is excluded from coverage under OMB Circular No. A-110.	identification of those areas or else prohibitions against Federally related financial assistance for acquisition or construction purposes in identified special flood hazard areas take force. Once the community does qualify, after the prescribed date, these prohibitions are removed. Adequate floodplain management measures must be in effect within 6 months of the date that the special flood hazard area is identified and within 6 months of the date flood water surface elevations are provided.	
DHS	Public Assistance Program	Grants to States and Communities.	To provide supplemental assistance to States, local governments, and certain private nonprofit organizations to	State and local governments and any political subdivision of a State, Indian tribes, and Alaskan Native	An applicant should consult the office or official designated as the point-of-contact in the State for more information.	Application for Public Assistance (PA) is made through the Governor's Authorized Representative	A Request for Public Assistance is normally submitted by the applicant within 30 days	Public Assistance Branch, Recovery Division, FEMA, DHS, 500 C Street SW., Washington, DC 20472; or the State Emergency office. Additional information is available on FEMA's web site, http://www.fema.gov/rrr/pa/

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
MITIGATION								
			alleviate suffering and hardship resulting from major disasters or emergencies declared by the President.	villages are eligible. Also eligible are private nonprofit organizations that operate educational, utility, emergency, or medical facilities, or that provide custodial care or other essential services of governmental nature to the general public. As a condition of grants under the Stafford Act, applicants are encouraged to mitigate natural hazards.		to the FEMA Regional Director in accordance with FEMA Disaster Assistance Regulations, 44 CFR 206, except as provided in Part 206.35(d) for emergency declarations involving primarily Federal responsibility.	of a declaration.	
DOC; NOAA; NWS	Automated Flood Warning Systems	Funding for creating, renovating, or enhancing Automated Flood Warning Systems.	To provide funding to communities with flood or flash flood problems that affect safety of life and property for warning systems.	Counties, municipalities, educational institutions and non-profit organizations.	http://www.ofa.noaa.gov %7Egrants/appkit.html. Applicants must also provide statement of work, project description and detailed budget narrative and justification.	Submit to: NOAA/NWS, 1325 East-West Highway, AFWS Program Manager, W/OS31, Room 13396, Silver Spring, MD. 20910.	Check with local NWS Office.	AFWS Operations Manager (631) 224-0112.
DOC; Census Bureau	Census Geography	Provide Computer generated set of maps for use in conducting surveys.	Showing results of surveys geographically, determine names and current boundaries of selected statistical areas.	Interested persons, organizations and government agencies.	Written request.	None.	None.	Regional or Local Census Bureau Office http://www.census.gov/field/www/

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
MITIGATION								
DOC; NOAA	Geodetic Surveys and Services	To provide national, coordinated spatial reference system at various specified intervals which provide scale, orientation, coordinated positions and elevation of specific points for use in surveying, boundary delineations and demarcation, mapping, planning, and development.	To provide assistance to State local and regional agencies in the development and implementation of Multipurpose Land Information Systems/Geographic Information Systems pilot projects and spatial reference system development and/or enhancement and height modernization.	Local, municipal, universities and regional agencies.	NOAA Grants Management Division (301) 713-3228.	45-90 day review time after submittal of all documents.	Must be submitted at least 90 days in advance of desired effective date.	NOAA Grants Management Division http://www.ago.noaa.gov/grants/ (301) 713-3228.
DOD; USACE	Flood Control Projects	Design and construction of projects.	To reduce flood damages through projects not specifically authorized by Congress.	Political subdivisions of States, or other responsible agencies established under state law. Project must be engineering feasible, complete within itself and economically justified. Non-federal sponsor will share equally in feasibility study, project cost,	Formal Letter to District Engineer From A Prospective Sponsoring Agency.	Consult with the District Office.	None.	District Office. http://www.usace.army.mil/howdoi/where.html

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
MITIGATION								
				provide a cash contribution for land enhancement benefits and for features other than flood control, prevent future encroachments which might interfere with function and maintain the project.				
DOD; USACE	Flood Plain Management Services	Advisory Services and Counseling; Dissemination of Technical Information.	To promote appropriate recognition of flood hazards in land and water us planning and development through the provision of flood and floodplain related data, technical services and guidance.	Political subdivisions of States, other non-public organizations and the public.	None needed. A letter should be sent to the District Engineer of the Corps of Engineers.	Send letter of Request.	None.	District Office. http://www.usace.army.mil/howdoi/where.html
DOD; USACE	Snagging and Clearing for Flood Control	Design and construction of projects. Non-federal sponsor must provide land, easement, right-of-way; provide costs in excess of the Federal limit; maintain project; Hold US free from damages; cost share for land enhancement or special benefits; prevent future	To reduce flood damages.	Political subdivisions of States, or other responsible agencies established under state law.	Formal Letter to District Engineer From A Prospective Sponsoring Agency.	Consult with the District Office.	None.	District Office. http://www.usace.army.mil/howdoi/where.html

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
MITIGATION								
		encroachments which will interfere with proper functioning of project.						
DOI	National Fire Plan - Wildland Urban Interface Community Fire Assistance	Project Grants; Use of Property, Facilities, and Equipment; Provision of Specialized Services; Advisory Services and Counseling; Dissemination of Technical Information; Training.	To implement the National Fire Plan and assist communities at risk from catastrophic wildland fires by providing assistance in the following areas: Provide community programs that develop local capability including; assessment and planning, mitigation activities, and community and homeowner education and action; plan and implement hazardous fuels reduction activities, including the training, monitoring or maintenance associated with such hazardous fuels reduction activities, on federal land, or on adjacent nonfederal land for activities that mitigate the threat of catastrophic fire to communities and natural resources in high risk areas; enhance local and small business employment opportunities for rural communities; enhance the knowledge and fire protection capability of	States and local governments at risk as published in the Federal Register, Indian Tribes, public and private education institutions, nonprofit organizations, and rural fire departments serving a community with a population of 10,000 or less in the wildland/urban interface.	Contact the appropriate State Office or the National Interagency Fire Center's web site at: http://www.nifc.gov.	Wildland Urban Interface Community Assistance is coordinated by Bureau State and Field Offices. No specific application forms apply, except for grants awarded, the standard application forms furnished by the Federal agency and required by 43 CFR Part 12, Subpart C, "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments," and 43 CFR Part 12, Subpart F, "Uniform Administrative Requirements for Grants and Agreements With Institutions of Higher Education, Hospitals, and	None.	Regional or Local Office. http://www.blm.gov/nhp/index.htm http://www.nifc.gov

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
MITIGATION								
			rural fire districts by providing assistance in education and training, protective clothing and equipment purchase, and mitigation methods on a cost share basis.			Other Nonprofit Organizations", must be used by this program.		
DOI; National Park Service	Technical Preservation Services	Advisory Services, Technical Information, Specialized Services.	Technical information is provided to assist local governments and owners to preserve and maintain historic properties.	Local governments and individuals.	State historic Preservation Office.	Apply through appropriate state official or NPS Regional Office.	None.	Regional or local office.
USDA; Natural Resources Conservation Service	Soil Survey	Dissemination of Technical Information.	Soil surveys for planners, environmentalists, engineers, zoning commissions, tax commissions, homeowners, farmers, ranchers, developers, landowners and operators.	Individuals and Groups that have a need for soil survey.	Contact Natural Resources conservation Service Office.	Request from Natural Resources Conservation Service District Office	None	Natural Resources Conservation Service District Office http://www.nrcs.usda.gov/
USDA; Natural Resources Conservation Service	Watershed Protection and Flood Prevention	Project Grants sharing the cost of watershed protection measures, flood prevention, agricultural water management, sediment control, wildlife, recreation and in extending long term credit for these projects. Advisory Services and Counseling in	Project Grants sharing the cost of watershed protection measures, flood prevention, agricultural water management, sediment control, wildlife, recreation and in extending long term credit for these projects. Advisory Services and Counseling in designing and installing watershed works of improvement.	Counties, groups of counties, municipalities, towns or townships, soil and water conservation districts, flood prevention or flood control districts, Indian tribes or tribal organizations, and non-profit agencies with authority under state law to carry out,	Standard Application obtained from NRCS.	Details available in State and field offices of NRCS.	None.	Natural Resources Conservation Service District Office http://www.nrcs.usda.gov/

Table 4-4: Federal Technical Assistance and Funding								
Agency	Program	Type of Assistance/ Projects Funded	Purpose	Eligible Applicants	Where To Obtain Application	Application Process	Application Deadline	For More Information
MITIGATION								
		designing and installing watershed works of improvement.		maintain and operate watershed works of improvement.				
USDA; Natural Resources Conservation Service	Watershed Surveys and Planning	Technical assistance for planning activities to help solve water and land related resource problems.	To help solve problems of upstream rural community flooding, water quality improvement, wetland preservation and drought management.	Local water resource agency concerned with water and related land resource development, counties, municipalities, towns or townships, Indian Tribe and Tribal Organizations, and non-profit organizations.	NCRS Offices and Letter of request Addressed to State Conservationist.	NCRS Offices and Letter of request Addressed to State Conservationist.	None.	Natural Resources Conservation Service District Office http://www.nrcs.usda.gov/

SECTION 3b - RISK ASSESSMENT: IDENTIFICATION AND CHARACTERIZATION OF ASSETS

Overview

An inventory of geo-referenced assets in Atlantic County has been created in order to identify and characterize property and persons potentially at risk from the identified hazards. Understanding the type and number of hazards that exist in relation to known hazard areas is an important step in the process of formulating the risk assessment and quantifying the vulnerability of the municipalities that make up the planning area. For this plan, six key categories of assets have been mapped and analyzed using GIS data provided by the Atlantic County Department of Regional Planning and Development (Office of GIS), with some additional data drawn from other public sources:

1. Improved property: This category includes all developed properties according to parcel data provided by Atlantic County between July and November of 2008. Impacts to improved properties are presented as a percentage of each community's total value of improvements that may be exposed to the identified hazards.
2. Emergency facilities: This category covers all facilities dedicated to the management and response of emergency or disaster situations, and includes emergency operations centers (EOCs), fire stations, police stations, ambulance stations, and hospitals. Impacts to these assets are presented by tabulating the number of each type of facility present in areas that may be exposed to the identified hazards. Atlantic County GIS data (provided in the Fall of 2008 with updates in May 2009 was used as a primary source, and supplemented with data sets within HAZUS.
3. Critical infrastructure and utilities: This category covers facilities and structures vital to the maintenance of basic living conditions in the county, and includes power generating stations, potable water treatment plants, wastewater treatment plants, significant public works buildings, airports, and ferry ports. Impacts to these assets are presented by tabulating the number of each type of facility present in areas that may be exposed to the identified hazards. Atlantic County GIS data (provided in the Fall of 2008 with updates in May 2009 was used as a primary source, and supplemented with data sets within HAZUS.
4. Other key facilities: This category covers facilities which may be capable of providing refuge and limited medical care and hence may be utilized as emergency shelters, and those which routinely house more vulnerable sectors of the county population, making them potentially especially vulnerable to identified hazards. Included in this category are schools and senior care facilities and impacts to these assets are presented by tabulating the number of each type of facility present in areas that may be exposed to the identified hazards. Atlantic County GIS data (provided in the Fall of 2008 with updates in May 2009 was used as a primary source, and supplemented with data sets within HAZUS.
5. Historic and cultural resources: This category includes those historic structures, landmarks and sites that are included in the New Jersey State or National Register of Historic Places. Impacts to these assets are presented by tabulating the number of each type of facility present in areas exposed to each identified hazard. Any other structure, landmark or asset identified during the course of general research for this section that has been judged by the CPG to be potentially of local historical or cultural significance has also been included in this category.
6. Population: This category covers the number of people residing in the 23 municipalities in the County as measured by the 2000 U.S. Census. Impacts to population can be presented as

a percentage of each municipality's total population exposed to the identified hazards, with the exposed population collated by census block.

Improved Property

Improved property covers all development in the form of structures for residential, commercial, industrial, municipal, recreational, and utility uses. The analysis was based on parcel data provided by Atlantic County at the project outset (in the fall of 2008)[1]. The total value of property improvements in the 23 component municipalities has been estimated at just under $21.3 billion, based on total assessed values converted to 2008 true/market values using equalization rates supplied for each jurisdiction by Atlantic County (where the assessed value of improvements was calculated by subtracting the assessed value of the land from the total assessed value of the parcel).

While this methodology does not provide an estimation of the actual replacement cost of buildings in the County's municipalities, the consistent application of this calculation for all municipalities provides a figure to be used for comparison of exposure across the different municipalities and for different hazards within each municipality. The estimated value of improved property in hazard areas in any municipality is intended as a tool to aid in conceptualizing and prioritizing risk for mitigation planning purposes. It is in no way binding, it is not presented on a property-by-property basis, and it will not be used by FEMA to calculate or influence payments for future disaster losses under such programs as the National Flood Insurance Program (NFIP), Public Assistance or Individual Assistance Programs.

Table 3b.1 summarizes the improved properties in each jurisdiction, in terms of total parcels, percentage of improved parcels, and the total value of improvements in each, based on GIS data from the County Office of GIS.

A summary table of the estimated improved property values within each delineated hazard area by jurisdiction, expressed as a percentage of the total improved property value in each jurisdiction, is presented in Table 3b.2.

[1] Updated parcel data became available at the end of the planning process (in April and May of 2009). However, the updated data was not comprehensive, county-wide coverage. In addition, there were some issues with the data that would need to be addressed prior to incorporation into the plan. One of the primary tasks to be completed in the first plan update should be: (1) addressing issues and gaps in the 2009 parcel data, and (2) conduct a comprehensive revision of all analyses and tables involving parcel/assessed value information.

Table 3b.1
Improved Property by Jurisdiction

Jurisdiction	Total Number of Parcels	Number of Improved Parcels	Percentage of Improved Parcels	Total Value of Improvements*
Absecon, City of	3,732	2,743	73%	$263,139,927
Atlantic City, City of	16,819	12,586	75%	$5,847,037,300
Brigantine, City of	9,145	5,811	64%	$513,295,303
Buena, Borough of	1,776	1,397	79%	$132,115,107
Buena Vista, Township of	9,629	2,490	26%	$479,119,804
Corbin City, City of	411	215	52%	$28,793,922
Egg Harbor City, City of	26,207	926	4%	$80,098,041
Egg Harbor, Township of	18,601	11,753	63%	$3,470,834,305
Estell Manor, City of	6,738	683	10%	$102,859,729
Folsom, Borough of	1,808	718	40%	$148,509,885
Galloway, Township of	18,623	10,853	58%	$2,285,757,329
Hamilton, Township of	28,599	7,079	25%	$1,728,805,249
Hammonton, Town of	6,126	4,265	70%	$936,333,112
Linwood, City of	2,790	2,459	88%	$498,008,251
Longport, Borough of	1,323	1,096	83%	$165,551,868
Margate City, City of	5,906	4,931	83%	$662,149,894
Mullica, Township of	6,224	2,173	35%	$402,224,021
Northfield, City of	4,262	3,070	72%	$800,316,450
Pleasantville, City of	7,619	4,780	63%	$1,134,689,566
Port Republic, City of	907	442	49%	$92,347,407
Somers Point, City of	4,512	3,897	86%	$1,034,500,500
Ventnor City, City of	4,915	4,321	88%	$380,608,771
Weymouth, Township of	1,774	642	36%	$111,684,498
Total	*188,446*	*89,330*	*47%*	*$21,298,780,238*

*Not including some public buildings and other tax-exempt structures.

Table 3b.2
Percentage of Improved Property in Delineated Hazard Areas by Jurisdiction

Jurisdiction	Total Assessed Value of Improvements	Waves: V, VE Zones	Flood: 100 Yr	Flood: 500-Yr	Storm Surge: Cat. 1	Storm Surge: Cat. 2	Storm Surge: Cat. 3	Storm Surge: Cat. 4	Erosion	Wildfire: Extreme Risk	Wildfire: High Risk	Earthquake
Absecon, City of	$263,139,927	0%	11.3%	11.4%	3%	16%	32%	48%	0%	1%	3%	5%
Atlantic City, City of	$5,847,037,300	1.3%	95.1%	3.6%	38%	95%	97%	97%	4.2%	0%	0%	0%
Brigantine, City of	$513,295,303	4.6%	95.4%	0%	50%	99%	100%	100%	8.7%	0%	0%	0%
Buena, Borough of	$132,115,107	0%	0.4%	0%	0%	0%	0%	0%	0%	1%	2%	100%
Buena Vista, Township of	$479,119,804	0%	3.2%	0%	0%	0%	0%	0%	0%	4%	9%	100%
Corbin City, City of	$28,793,922	0%	31.8%	17.3%	12%	39%	52%	71%	0%	12%	8%	0%
Egg Harbor City, City of	$80,098,041	0%	1.5%	1.6%	0%	0%	0.3%	1%	0%	1%	2%	100%
Egg Harbor, Township of	$3,470,834,305	0%	7.6%	3.6%	4%	5%	8%	15%	0%	6%	25%	30%
Estell Manor, City of	$102,859,729	0%	1.8%	0%	0.1%	1%	2%	5%	0%	6%	23%	94%
Folsom, Borough of	$148,509,885	0%	9.0%	8.9%	0%	0%	0%	0%	0%	9%	7%	100%
Galloway, Township of	$2,285,757,329	0%	2.1%	0.6%	0%	1%	3%	5%	0%	7%	16%	92%
Hamilton, Township of	$1,728,805,249	0%	5.0%	3.6%	1%	1%	3%	14%	0%	4%	20%	100%
Hammonton, Town of	$936,333,112	0%	4.4%	0.5%	0%	0%	0%	0%	0%	2%	4%	100%
Linwood, City of	$498,008,251	0%	13.1%	15.0%	2%	12%	34%	67%	0%	0%	1%	0%
Longport, Borough of	$165,551,868	0.04%	99.96%	0%	99.7%	99.7%	99.7%	99.7%	0%	0%	0%	0%
Margate City, City of	$662,149,894	0.03%	98.1%	1.8%	71%	99%	99%	99%	0.6%	0%	0%	0%

Table 3b.2
Percentage of Improved Property in Delineated Hazard Areas by Jurisdiction

Jurisdiction	Total Assessed Value of Improvements	Waves: V, VE Zones	Flood: 100 Yr	Flood: 500-Yr	Storm Surge: Cat. 1	Storm Surge: Cat. 2	Storm Surge: Cat. 3	Storm Surge: Cat. 4	Erosion	Wildfire: Extreme Risk	Wildfire: High Risk	Earthquake
Mullica, Township of	$402,224,021	0%	15.1%	7.7%	5%	8%	19%	27%	0%	8%	13%	100%
Northfield, City of	$800,316,450	0%	0.9%	2.3%	0.5%	4%	7%	34%	0%	0%	2%	0%
Pleasantville, City of	$1,134,689,566	0%	3.7%	4.4%	3%	9%	17%	28%	0%	1%	2%	0%
Port Republic, City of	$92,347,407	0%	18.1%	21.3%	6%	33%	71%	77%	0%	8%	12%	100%
Somers Point, City of	$1,034,500,500	0%	21.8%	23.5%	5%	25%	58%	69%	0%	0%	0%	0%
Ventnor City, City of	$380,608,771	0.2%	75.2%	24.6%	49%	99%	100%	100%	5.2%	0%	0%	0%
Weymouth, Township of	$111,684,498	0%	12.1%	0%	1%	9%	30%	30%	0%	5%	18%	100%
Total	*$21,298,780,238*	*0.48%*	*38.0%*	*4.7%*	*17%*	*38%*	*43%*	*48%*	*1.5%*	*3%*	*9%*	*35%*

Note: The delineated earthquake hazard area has been taken to include only the zone in which an earthquake of PGA 3% or more has a 10% chance of being exceeded in a 50-year period.

"Delineated" hazards are those which only affect specific identifiable areas as opposed to those assumed to have a uniform risk across the entire planning area; i.e. hurricanes, nor'easters and all other extreme wind events, winter storms, extreme temperatures, and lightning. While droughts are considered to affect only specific delineable areas, they are assumed not to impact improved property (i.e. structures) and drought are therefore not included in Table 3b.2. Detailed tables presenting the improved property values broken down by land use and development type within delineated hazard areas are included in Appendix A.

Emergency Facilities

Emergency facilities were included in the asset identification and characterization to determine jurisdictions with particularly high numbers of key facilities located in hazard areas, which may guide the focus of individual mitigation activities in the mitigation goals and strategy stage of the plan. Emergency facilities by jurisdiction are presented in Table 3b.3. According to County GIS records and databases embedded in HAZUS-MH, there are a total of 140 emergency facilities in the 23 municipalities in Atlantic County of which 135 are geo-referenced. According to the available records and feedback provided by CPG members, there is at least one type of emergency facility located in every municipality except for Corbin City.

Table 3b.3
Emergency Facilities by Jurisdiction

Jurisdiction	Fire Stations	Police Stations	Ambulance Stations	Hospitals	Emergency Operations Centers	Emergency Shelters
Absecon, City of	1	1	1	0	0	2
Atlantic City, City of	6	2	1	1	1	0
Brigantine, City of	1	1	1	0	1	0
Buena, Borough of	2	1	1	0	0	0
Buena Vista, Township of	5	0	1	0	0	1
Corbin City, City of	0	0	0	0	0	0
Egg Harbor City, City of	1	1	1	0	0	1
Egg Harbor, Township of	12	1	2	0	0	0
Estell Manor, City of	1	0	0	0	0	0
Folsom, Borough of	1	0	0	0	0	1
Galloway, Township of	6	2	2	1	0	5
Hamilton, Township of	5	2	1	0	1	4
Hammonton, Town of	2	2	1	1	0	4
Linwood, City of	1	1	1	0	1	1
Longport, Borough of	1	1	1	0	1	1
Margate City, City of	2	1	1	0	1	4
Mullica, Township of	4	1	1	0	0	0
Northfield, City of	2	1	1	0	0	0
Pleasantville, City of	1	1	1	0	1	0
Port Republic, City of	1	0	0	0	1	0
Somers Point, City of	2	1	1	1	1	0
Ventnor City, City of	2	1	1	0	1	0
Weymouth, Township of	1	0	2	0	0	0
Total	***60***	***21***	***22***	***4***	***10***	***23***

Critical Infrastructure and Utilities

Critical infrastructure and utilities were included in the asset identification and characterization to determine jurisdictions with particularly high numbers of key facilities located in hazard areas, which may guide the focus of individual mitigation activities in the mitigation goals and strategy stage of the plan. Critical infrastructure and utilities by jurisdiction are presented in Table 3b.4. According to County GIS records, information from New York State Department of Environmental Conservation, databases embedded in HAZUS-MH and feedback provided by CPG members there are a total of 74 identified critical infrastructure and utility facilities in the planning area, of which 70 are georeferenced.

Table 3b.4
Critical Infrastructure and Utilities by Jurisdiction

Jurisdiction	Water Treatment Facilities	Wastewater Treatment Facilities	Electrical Power Facilities	Airports	Passenger Railroad Stations	Public Works Facilities	Communications Facilities
Absecon, City of	0	0	0	0	1	1	0
Atlantic City, City of	0	2	2	0	1	0	9
Brigantine, City of	0	0	0	0	0	1	0
Buena Vista, Township of	0	0	0	0	0	1	0
Buena, Borough of	0	1	0	0	0	1	0
Corbin City, City of	0	0	0	0	0	1	2
Egg Harbor City, City of	0	0	0	0	1	1	1
Egg Harbor, Township of	0	0	0	1	0	2	0
Estell Manor, City of	0	0	0	0	0	1	0
Folsom, Borough of	0	1	0	0	0	1	0
Galloway, Township of	0	0	0	0	0	2	1
Hamilton, Township of	0	0	0	0	0	3	1
Hammonton, Town of	0	1	0	1	1	2	1
Linwood, City of	0	0	0	0	0	1	0
Longport, Borough of	2	1	0	0	0	1	0
Margate City, City of	2	1	1	0	0	1	0
Mullica, Township of	0	0	0	0	0	1	0
Northfield, City of	0	0	0	0	0	1	0
Pleasantville, City of	0	0	1	0	0	1	3
Port Republic, City of	0	0	0	0	0	2	0
Somers Point, City of	0	0	0	0	0	2	0
Ventnor City, City of	3	0	0	0	0	1	0
Weymouth, Township of	0	1	0	0	0	1	0
Total	***7***	***8***	***4***	***2***	***4***	***31***	***18***

Water treatment facilities include any community potable water supply facility serving 15 or more properties and identified by the County as a treatment plant or as some other supply facility which incorporates at least one treatment process.

Public works facilities include buildings for the storage and maintenance of vehicles and other equipment used to respond to emergency situations, apart from police, fire and ambulance stations, such as municipal highway departments.

Passenger railroad stations are those with regularly scheduled train services and significant facilities for passenger embarkation/disembarkation, such as permanent raised platforms and shelters. All passenger stations in the County are located on the Atlantic City line, on which New Jersey Transit operates services between Atlantic City and Philadelphia.

Airports has been taken to mean substantial airfields with paved runways operating scheduled services or suitable for the operation of fixed-wing aircraft for the transporting of emergency response personnel and equipment. Communications facilities are transmitting stations for radio and/or television stations licensed by the Federal Communications Commission.

Other Key Facilities

Other key facilities were included in the asset identification and characterization to determine jurisdictions with particularly high numbers of such facilities located in hazard areas, which may guide the focus of individual mitigation activities in the mitigation goals and strategy stage of the plan. Schools and senior care facilities by jurisdiction are presented in Table 3b.5.

Table 3b.5
Other Key Facilities by Jurisdiction

Jurisdiction	Schools	Senior Care Facilities
Absecon, City of	4	0
Atlantic City, City of	14	1
Brigantine, City of	3	0
Buena Vista, Township of	4	0
Buena, Borough of	5	0
Corbin City, City of	2	0
Egg Harbor City, City of	3	0
Egg Harbor, Township of	10	1
Estell Manor, City of	1	0
Folsom, Borough of	1	0
Galloway, Township of	20	4
Hamilton, Township of	12	1
Hammonton, Town of	5	1
Linwood, City of	5	1
Longport, Borough of	0	0
Margate City, City of	3	0
Mullica, Township of	4	0
Northfield, City of	2	1
Pleasantville, City of	10	1
Port Republic, City of	1	0
Somers Point, City of	5	0
Ventnor City, City of	3	0
Weymouth, Township of	1	0
Total	***118***	***11***

According to County GIS records, databases embedded in HAZUS-MH and local sources, there are a total of 129 such geo-referenced key facilities in the planning area.

The exposure of identified emergency services, critical facilities, and infrastructure assets to hazards with discrete delineable hazard impact areas (flooding, storm surge categories 1 to 4, and wildfire) is presented in **Appendix B**.

Historical and Cultural Resources

Historical and cultural resources were included in the asset identification and characterization to determine jurisdictions with particularly high numbers of culturally or historically valuable assets located in hazard areas, which may influence the focus of individual mitigation activities in the mitigation goals and strategy stage of the plan. At the State and Federal levels, official listings of historic resources are established and maintained to foster the preservation of particular cultural resources. The State and National Registers of Historic Places are the official listings of buildings, structures, districts, objects, and sites significant in the history, architecture, archaeology, engineering, and culture of the State and the nation. Cultural and historic resources are defined as follows:

Cultural Resources: As defined by the National Park Service in its "Cultural Resources Management Guidelines," cultural resources are: "*Those tangible and intangible aspects of cultural systems, both living and dead, that are valued by or representative of a given culture or that contain information about a culture . . . and [they] include but are not limited to sites, structures, districts, objects and artifacts, and historic documents associated with or representative of peoples, cultures, and human activities and events, either in the present or in the past. Cultural resources also can include the primary written and verbal data for interpreting and understanding those tangible resources.*"

Historic Resources: Historic resources are any cultural resource dating from the period between the onset of written records (which in New Jersey is typically placed around the time of first European contact in the sixteenth century) and 50 years ago.

In the State of New Jersey, the State Historic Preservation Office (HPO) – within the New Jersey Department of Environmental Protection (NJDEP), Natural and Historic Resources (NHR) – helps communities identify, evaluate, preserve, and revitalize their historic and cultural resources. One way that they accomplish this objective is by maintaining GIS databases of all sites listed on the State and National Registers.

To identify which historic and cultural resources may be located in hazard areas, GIS files (NJDEP Merged Inventory Historic Properties of New Jersey, Edition: 2004, "Historic Sites") were downloaded from the New Jersey Department of Environmental Protection (NJDEP), Office of Information Resources Management (OIRM), Bureau of Geographic Information Systems (BGIS) web site (http://www.state.nj.us/dep/gis/). This data is a graphical representation of the Merged Inventory Historic Properties of New Jersey. It includes only those historic properties and sites that are included in the New Jersey or National Registers of Historic Places, or that have been determined Eligible for inclusion through federal or state processes as administered by the New Jersey Historic Preservation Office (HPO). Inclusion in this data set does not preclude the existence of other historic properties or sites not within this category or as yet unidentified.

All identified historical and cultural assets located in the County are presented in Table 3b.6. According to the State HPO and National Register of Historic Places data there are more than 160 such assets registered in the planning area. According to the available records, State and Federally listed historical assets are located in all but one of the 23 municipalities covered by this hazard mitigation plan. In addition to assets identified via the State and Federal registers of historic places, Table 3b.5 also includes other significant cultural and historical assets such as museums of local history, which have been identified via general internet research. The subset of identified historical and cultural resources exposed to hazards with discrete delineable impact areas is presented in **Appendix C**.

Table 3b.6
Historic and Cultural Resources by Jurisdiction

Jurisdiction	Asset Name/Description	Location
Absecon, City of	Captain Francis Babcock House	324 South Shore Road
Absecon, City of	Dr. Jonathan Pitney House	57 North Shore Road
Absecon, City of	John Doughty House	40 North Shore Road
Absecon, City of	North Shore Road Historic District	North Shore Road
Absecon, City of	South Shore Road Historic District	South Shore Road
Atlantic City, City of	1315 Pacific Avenue	1315 Pacific Avenue
Atlantic City, City of	2-6 South Virginia Avenue	2-6 South Virginia Avenue
Atlantic City, City of	Absecon Lighthouse and Museum	Rhode Island & Pacific, Atlantic City
Atlantic City, City of	Atlantic City Armory	Atlantic Boulevard and New York Avenue
Atlantic City, City of	Atlantic City Convention Hall	Pacific Ave. (b/n Florida & Mississippi)
Atlantic City, City of	Atlantic City High School	Pacific and Ohio Avenues
Atlantic City, City of	Atlantic City Post Office	1701 Pacific Ave.
Atlantic City, City of	Beth Israel Synagogue	34 S. Pennsylvania Ave.
Atlantic City, City of	Beth Kehillah Synagogue Building (H.G. Rosin Senior Center)	901 Pacific Avenue
Atlantic City, City of	Church of the Ascension	1601 Pacific Ave.
Atlantic City, City of	Equitable Trust Bank Building	2030 Atlantic Avenue
Atlantic City, City of	Fire Station #8	140 North Indiana Avenue
Atlantic City, City of	Fire Station #9	734 North Indiana Avenue
Atlantic City, City of	Friends Meeting House	Pacific and South Carolina Avenues
Atlantic City, City of	Madison Hotel	123 S Illinois (Martin Luther King Blvd)
Atlantic City, City of	Raphael-Gordon House	118 South Newton Street
Atlantic City, City of	Santa Rita Apartments	66 South Carolina Ave.
Atlantic City, City of	Segal Building	1200 Atlantic Ave.
Atlantic City, City of	Shelburne Hotel	Michigan Avenue and the Boardwalk
Atlantic City, City of	St. Nicholas of Tolentine Church	1409-1421 Pacific Avenue
Atlantic City, City of	USCG Station Atlantic City	900 Beach Thorofare
Atlantic City, City of	Warner Theatre	Atlantic City Boardwalk between Michigan and Arkansas Avenues
Atlantic City, City of	Westside All Wars Memorial Building	1510 Adriatic Ave
Atlantic City, City of	World War I Memorial	Albany & Ventnor Ave & O Donnell Parkway
Atlantic City, Egg Harbor Township, Galloway Township, Mullica Township, Hammonton Town, Pleasantville City	Camden and Atlantic Railroad Historic District	Parallel NJ Transit Atlantic City Line

Table 3b.6
Historic and Cultural Resources by Jurisdiction

Jurisdiction	Asset Name/Description	Location
Buena, Borough of	Hebron Button Factory	Weymouth Malaga Road/Aberdeen Avenue
Buena Vista, Township of	Richland Hotel	1302 Harding Way
Buena Vista, Township of	Richland Presbyterian Church	Main Ave. at Sewell Ave.
Buena Vista, Township of	Wood Estate	Cedar Ave
Corbin City, City of	NJ Route 50 Bridge	NJ Route 50 over Tuckahoe River
Corbin City, City of	North and South Tuckahoe Historic District	NJ Route 50/Tuckahoe-Mount Pleasant Road
Egg Harbor City, City of	Dr. Smiths Sanatorium	Claudius & London Aves.
Egg Harbor City, City of	Fire House (Senior Nutrition Center)	351 Cincinnati Avenue
Egg Harbor City, City of	Lower Bank Road Bridge	Lower Bank (Route 542) over Mullica River
Egg Harbor City, City of	Old Commercial Bank	134 Philadelphia Avenue
Egg Harbor City , City of	Egg Harbor City Historic District	Philadelphia Avenue
Egg Harbor City, City of	Mullica River/Chestnut Neck Archaeological District	North and South of the Mullica River
Egg Harbor, Township of	Andrew B. Scull House	1647 Mays-Landing-Somers Point Road
Egg Harbor, Township of	Cannon Court Roadside Cabins	6124 Black Horse Pike
Egg Harbor, Township of	Ocean City-Longport Bridge	Ocean Drive over Great Egg Harbor
Estell Manor, City of	Estellville Glassworks District	Estell Manor County Park, Rt.50
Estell Manor, City of	Estellville Glassworks Industrial Historic District	Estell Manor Park, Stevens Creek, Maple Avenue, Walkers Forge Road, and NJ Rt. 50
Estell Manor, City of	Bethlehem Loading Company Mays Landing Plant Archaeological Historic District	109 NJ Route 50
Estell Manor, City of	Head of River Church	Rt. 49 & Aetna Dr.
Folsom, Borough of	Jacobus Evangelical Lutheran Church	Mays Landing Rd. (near Rt. 54)
Galloway, Township of	Anonymous Roadside Cabins	US Route 30 and Taylor Avenue
Galloway, Township of	Oceanville / Leeds Point / Moss Mill Historic District	Bounded by New York Road, Somers Town Lane, Leeds Point Road, and Moss Mill Road
Galloway, Township of	Old US Coast Guard Station	Little Beach Island, Brigantine National Wildlife Refuge
Galloway, Township of	Renault Winery	72 N. Bremen Ave., Egg Harbor
Galloway, Township of	Roadside Cabins	US Route 30 and 5th Avenue
Galloway, Township of	Smithville Apothecary	Rt. 9 & Moss Mill Rd., Smithville
Galloway, Township of	Smithville Inn	1 North New York Road
Galloway, Township of	The Country Motel Roadside Cabins	201 White Horse Pike
Galloway , Township of	Conovertown Historic District	Along New York Road between Brook Lane and the border with Absecon City, west on Biscayne Avenue to the Lutheran Church
Galloway , Township of	Frankfurt Avenue Bridge	Frankfurt Avenue over New Jersey Transit Atlantic City Line
Galloway Township, Egg	Garden State Parkway Historic	Entire Garden State Parkway Right-

Table 3b.6
Historic and Cultural Resources by Jurisdiction

Jurisdiction	Asset Name/Description	Location
Harbor Township, Port Republic City, Somers Point City	District (Atlantic)	of-Way
Hamilton, Township of	Abbott's Modern Cabins	217 NJ Route 40
Hamilton, Township of	Mays Landing Presbyterian Church	Main St. & Cape May Ave.
Hamilton, Township of	Richards American Hotel	Main St. & Farragut Ave.
Hamilton, Township of	Samuel Richards Hotel	106 East Main Street
Hamilton, Township of	Weymouth Furnace	Rt. 322, Rt. 559 & Sand Rd. #2
Hamilton, Township of	Weymouth Road Bridge	Weymouth Road Bridge over Great Egg Harbor River
Hamilton, Township of	West Jersey and Atlantic Railroad Historic District	Mays Landing, Hamilton Township to Pleasantville City
Hamilton Township and Pleasantville City	Mays Landing Historic District	Main Street and Cape May Avenue
Hammonton, Town of	Hammonton Commercial Historic District	Roughly bounded by Third, Washington, Orchard, and Vine Streets
Hammonton, Town of	William L. Black House	458 Bellevue Ave.
Linwood, City of	Borough School & Historical Society	No.1, 16 W. Poplar, Linwood
Linwood, City of	Linwood Historic District	Maple and Poplar Avenues, and Shore Road
Longport, Borough of	Church of the Redeemer	20th St. & Atlantic Ave.
Longport, Borough of	Great Egg Coast Guard Station Building	31st and Pacific Avenues
Margate City, City of	Lucy the Elephant *(pictured above)*	Decatur & Atlantic Ave.
Margate City, City of	Marven Gardens Historic District	Between Ventnor, Fredericksburg, Winchester and Brunswick Avenues
Mullica, Township of	Green Bank Road Bridge over Mullica River	Green Bank Road Bridge over Mullica River
Mullica, Township of	Pleasant Mills	Elwood-Pleasant Mills Road
Northfield, City of	1715 Tilton Road	1715 Tilton Road
Northfield, City of	Risley Homestead	8 Virginia Ave.
Pleasantville, City of	213 Verona Avenue	213 Verona Avenue
Pleasantville, City of	Studebaker Showroom	North West Corner Verona and Toulon Avenues
Port Republic, City of	Amanda Blake Store	104 Main St., Port Republic
Port Republic, City of	Chestnut Neck Battle Monument	US Route 9 and Old York Road
Port Republic, City of	Gulf Service Station	758 Old New York Road
Port Republic, City of	Modern Boat Works	US Route 9 at Nacote Creek
Port Republic, City of	Port Republic Historic District	Central and Pomona Avenues, Riverside Drive, St. Johns Lane, Chestnut Neck, Clarks Landing, and Port Republic-Smithville Roads
Port Republic, City of	Smithville-Port Republic Road Bridge over Nacote Creek	Smithville-Port Republic Road over Nacote Creek
Somers Point, City of	Bay Front Historic District	Parts of Anna, Bay, Decatur, Delaware, Gibbs, Higbee, New Jersey, and Somers Avenues
Somers Point, City of	Somers Mansion	Shore Rd., Somers Point

Table 3b.6 Historic and Cultural Resources by Jurisdiction		
Jurisdiction	**Asset Name/Description**	**Location**
Ventnor City, City of	John Stafford Historic District	Portions of Atlantic, Austen, Baton Rouge, Marion, and Vassar Avenues
Ventnor City, City of	Saint Leonard's Tract Historic District	Bounded by Ventnor Ave, Fredericksburg Ave, Ventnor Gardens Plaza, and Derby Place
Ventnor City, City of	Ventnor City Hall	6201 Atlantic Avenue
Weymouth, Township of	Belcoville Post Office	1201 Madden Avenue

Population

According to the U.S. Census Bureau 2000 Census, the total population of Atlantic County was 252,552, in 95,024 households. Current projections by the U.S. Census estimate that the 2007 population of the 23 component municipalities was 270,664, an increase of approximately 7% over the 2000 Census. More information regarding likely future population trends can be found in the discussion of Land Use and Development Trends in a later section of the Plan report. Table 3b.7 presents the breakdown of the county population and household totals in 2000 by participating jurisdiction, as well as year 2007 population estimates; while Table 3b.8 presents a summary of vulnerable sectors of the population by participating jurisdiction.

For the purposes of this plan, "vulnerable" has been taken to mean residents of the county aged under five or over 65 years. Compared to the majority of the county population, people of these ages are assumed to require extra medical care and additional resources, particularly in the event of emergency evacuation. When viewed in combination with the data in Table 3b.5 and subsequent assessments of assets in individual hazard areas, this data may be used to highlight areas which may benefit from increased focus in the development of mitigation goals and strategies.

Table 3b.7 Population and Households by Jurisdiction (US Census 2000)						
Jurisdiction	**Population, 2000**		**Households, 2000**		**Estimated Population, 2007**	
	Total	**% of County**	**Total**	**% of County**	**% of County**	**Total**
Absecon	7,638	3%	2,773	3%	8,074	3%
Atlantic City	40,517	16%	15,848	17%	39,684	15%
Brigantine	12,594	5%	5,473	6%	12,739	5%
Buena Vista	7,436	3%	2,648	3%	7,359	3%
Buena	3,873	2%	1,454	2%	3,747	1%
Corbin City	468	0.2%	172	0.2%	520	0.2%
Egg Harbor City	4,545	2%	1,658	2%	4,398	2%
Egg Harbor	30,726	12%	11,199	12%	39,493	15%
Estell Manor	1,585	1%	528	1%	1,714	1%
Folsom	1,972	1%	671	1%	1,918	1%
Galloway	31,209	12%	10,772	11%	36,105	13%

Table 3b.7
Population and Households by Jurisdiction (US Census 2000)

Jurisdiction	Population, 2000		Households, 2000		Estimated Population, 2007	
	Total	% of County	Total	% of County	% of County	Total
Hamilton	20,499	8%	7,148	8%	24,553	9%
Hammonton	12,604	5%	4,619	5%	13,500	5%
Linwood	7,172	3%	2,647	3%	7,250	3%
Longport	1,054	0%	544	1%	1,081	0%
Margate City	8,193	3%	3,984	4%	8,537	3%
Mullica	5,912	2%	2,044	2%	6,034	2%
Northfield	7,725	3%	2,824	3%	7,911	3%
Pleasantville	19,012	8%	6,402	7%	18,814	7%
Port Republic	1,037	0%	365	0.4%	1,220	0%
Somers Point	11,614	5%	4,920	5%	11,420	4%
Ventnor City	12,910	5%	5,480	6%	12,316	5%
Weymouth	2,257	1%	851	1%	2,257	1%
Total	***252,552***	***100%***	***95,024***	***100%***	***270,644***	***100%***

US Census Bureau projections for populations have been included in this table to give an idea of current population trends. Breakdowns for households and by age groups are not yet available for most municipalities in the county. While projections for 2007 indicate an overall growth in the county population of seven per cent, two large municipalities (Egg Harbor Township and Hamilton) are expected to show population increases of 205 and greater. Several other municipalities are projected to see small (up to five per cent) decreases in population from 2000 to 2007.

Table 3b.8 indicates that about 20% of the population of the County can be termed “vulnerable”, and that the municipality with the highest proportion of vulnerable residents is the Borough of Longport, with 38% of the population classed as vulnerable, 35% of them over the age of 65. The adjacent City of Margate City is the only other municipality in the County to have more than 30% of its population classed as vulnerable. The Borough of Folsom has the lowest proportion of vulnerable residents, with 15% classed as vulnerable. Within the vulnerable sector of the population, seniors generally outnumber small children by a ratio of approximately 3 to 1.

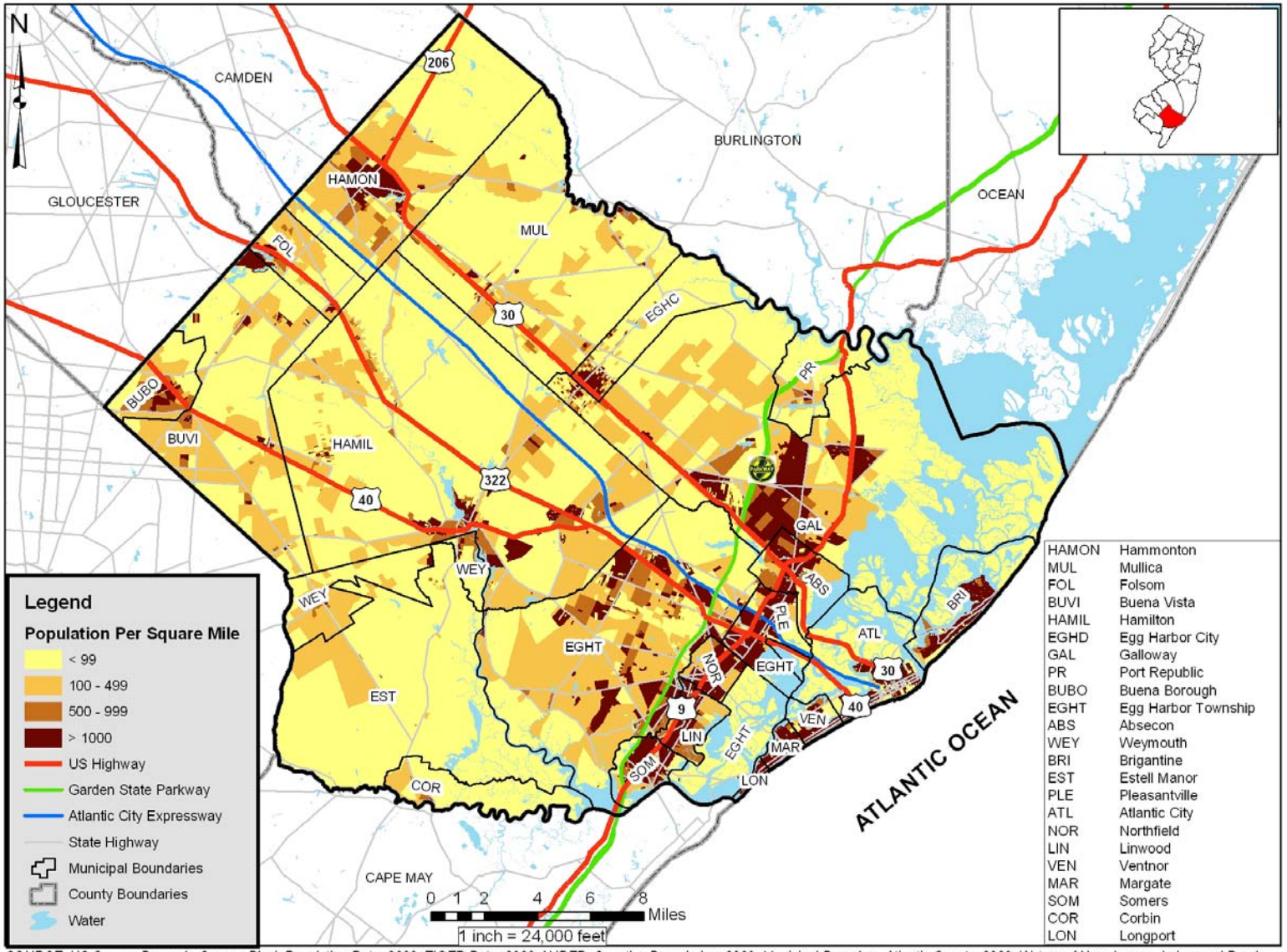
According to the US Census of 2000, the population density for Atlantic County overall is 451 people per square mile. As shown in Figure 3b.1, the density varies greatly across the county, with densities in excess of 1,000 people per square mile in the Garden State Parkway/Route 9 corridor and the oceanfront communities, and densities less than 100 people per square mile common in may inland areas.

Note: similar breakdown data for years later than 2000 is not yet available.

Table 3b.8
Vulnerable Sectors of the Population by Jurisdiction (US Census 2000)

Jurisdiction	Total Population	Under 5 Years	% of Municipal Total	65 Years and over	% of Municipal Total	Total Vulnerable Population	% of Municipal Total
Absecon, City of	7,638	460	6%	1,231	16%	1,691	22%
Atlantic City, City of	40,517	3,041	8%	5,734	14%	8,775	22%
Brigantine, City of	12,594	701	6%	2,090	17%	2,791	22%
Buena Vista, Township of	7,436	409	6%	1,138	15%	1,547	21%
Buena, Borough of	3,873	245	6%	613	16%	858	22%
Corbin City, City of	468	38	8%	49	10%	87	19%
Egg Harbor City, City of	4,545	305	7%	633	14%	938	21%
Egg Harbor, Township of	30,726	2,278	7%	2,815	9%	5,093	17%
Estell Manor, City of	1,585	111	7%	153	10%	264	17%
Folsom, Borough of	1,972	102	5%	193	10%	295	15%
Galloway, Township of	31,209	2,030	7%	2,830	9%	4,860	16%
Hamilton, Township of	20,499	1,431	7%	1,683	8%	3,114	15%
Hammonton, Town of	12,604	754	6%	2,265	18%	3,019	24%
Linwood, City of	7,172	375	5%	1,345	19%	1,720	24%
Longport, Borough of	1,054	34	3%	364	35%	398	38%
Margate City, City of	8,193	298	4%	2,365	29%	2,663	33%
Mullica, Township of	5,912	354	6%	630	11%	984	17%
Northfield, City of	7,725	417	5%	1,373	18%	1,790	23%
Pleasantville, City of	19,012	1,481	8%	2,124	11%	3,605	19%
Port Republic, City of	1,037	58	6%	124	12%	182	18%
Somers Point, City of	11,614	699	6%	1,748	15%	2,447	21%
Ventnor City, City of	12,910	721	6%	2,550	20%	3,271	25%
Weymouth, Township of	2,257	141	6%	387	17%	528	23%
Total	*252,552*	*16,483*	7%	*34,437*	14%	*50,920*	20%

Figure 3b.1: Atlantic County Population Density



SOURCE: US Census Borough: Census Block Population Data, 2000; TIGER Data, 2000; NJDEP: Counties Boundaries, 2003; Municipal Boundary, Atlantic County, 2003; Waters of New Jersey - Lakes and Ponds, 2002

SECTION 3c - RISK ASSESSMENT: *ESTIMATED DAMAGES IN HAZARD AREAS*

44 CFR Part 201.6 (c)(2)(ii)(B) states, "[The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare this estimate…" This section of the Plan is intended to satisfy this requirement.

Methodology

The team attempted to assess vulnerability to various hazards within the limitations of the available data, where generally accepted measures of vulnerability are established. Parcel data included assessed values for land and total assessed values; assessed values for improvements were calculated by subtracting the land value from the total value. Expanding upon the parcel data in the county's GIS to include such information as building square footage, year built, type, main floor elevation, foundation type, and condition, would allow for a more accurate assessment of vulnerability in terms of building replacement value. However, assessments at this level of detail are generally beyond the scope and budget of the initial planning process, and more typically carried out for specific projects for which grant funds are being applied for. Therefore, the Planning Committee has considered actions in this regard. Please see further sections of this plan for additional information on actions considered and ultimately selected.

Estimated Damages – Extreme Temperatures

While all of Atlantic County is exposed to extreme temperatures, existing buildings, infrastructure and critical facilities are not considered directly vulnerable to significant damage caused by extreme heat or cold events. Therefore any estimated property losses associated with these hazards are anticipated to be minimal across the area. Extreme temperatures do however present a significant life and safety threat to the planning area's population.

Heat casualties are usually caused by lack of adequate air conditioning or heat exhaustion. The most vulnerable population to heat casualties are the elderly or infirmed, who frequently live on low fixed incomes and cannot afford to run air-conditioning on a regular basis. This population is sometimes isolated, with no immediate family or friends to look out for their well being.

Casualties resulting from extreme cold may result from a lack of adequate heat, carbon monoxide poisoning from unsafe heat sources and frostbite. The most vulnerable populations to cold casualties are the elderly or infirmed as well as low income households, as they may not be able to afford to operate a heat source on a regular basis and may not have immediate family or friends to look out for their well being.

Given the lack of historical data and limited likelihood for structural losses (even accounting for damage to utilities such as frozen pipes) resulting from extreme heat or cold occurrences in the planning area, annualizing potential structural losses over a long period of time would most likely yield a negligible (i.e. less than $5,000 per year per municipality) annual loss estimate for the entire planning area.

Estimated Damages – Extreme Winds

Sufficient data was not available at the time of the study to estimate detailed damages due to extreme winds. At this time, vulnerability is being expressed as the value of improvements exposed to the hazard

as defined in the "Hazard Profiles" section. Because it cannot be predicted where extreme winds may occur, all existing and future buildings, facilities and populations are considered to be exposed to this hazard and could potentially be impacted.

First, while FEMA methodologies do exist to estimate damages due to extreme wind, specific information is required for buildings in order to employ these methodologies, such as type of construction and details on any existing protective features. At the time of plan preparation, this data was not available as part of GIS datasets within Atlantic County and was not readily available from other sources.

Second, having even the year built data for each structure, one would be able to highlight structures built before codes and standards were adopted to make buildings more resistant to wind damage, thus being better candidates for mitigation. Without the year-built data, this can not be done.

Sufficient historical data regarding events and associated losses was not available to make even the roughest of estimates of potential future losses. While NCDC records for the period July 1957 through November 2008 included 75 extreme wind events affecting Atlantic County, the records did not specifically list dollar damage amounts for the County as a whole or for individual municipalities within the County. In addition, the period between 1957 and 1987 contains only spotty event records with only seven reported events, and no information regarding deaths, injuries, or damages. It appears as if NOAA's record of events only becomes a somewhat robust data set beginning in 1987, where several events are documented per year. For the 22 year period of record between September 1987 and November 2008 the NCDC data set includes 67 event records, resulting in a total of 1 death, 18 injuries, and $16,136,000 in damages county-wide. Over the 22 year period of record this is equivalent to $733,455 per year county-wide, and $31,889 per year in each municipality (assuming an equal distribution).

While the NCDC does attribute the roughly $16M in damages to Atlantic County, further research into the event records behind this total reveals three key limitations in the data.

First, it is apparent that the NCDC data set (and the $16M in damages, in particular) includes a significant amount of damages that were incurred in affected areas outside of Atlantic County, thus overestimating the damages incurred within Atlantic County itself. Making some rough estimates using best available data for each event record for which damages were recorded, the total damages reported was divided by the number of impacted counties to generate a lower bound estimate of losses which might be attributable to damages incurred solely within Atlantic County. Doing so yields total damages in Atlantic County over the 22 period of record to be only $1,834,568 countywide. Over the 22 year period of record this is equivalent to $83,389 per year countywide, and $3,626 per year in each municipality (assuming an equal distribution).

Second, and in contrast to the overestimation just discussed, it is also apparent that the NCDC data set (and the $16M in damages, in particular) in some ways underestimates damages by failing to include all losses actually incurred in affected areas within Atlantic County itself. Many event records describe damages within Atlantic County qualitatively; however, the record itself tallies zero dollars in damages to property/crops. For these records, there is no way to accurately quantify the damages per event.
Third, for the vast majority of event records, dollar damages are not tied to specific municipalities within the County.

Given the lack of historical data and documented structural losses resulting from extreme wind occurrences in the planning area, it is not possible to extract from the data set an accurate quantification of the potential annual structural losses over a long period of time. However, while unquantifiable, these losses are potentially significant for the entire planning area.

If more detailed information should become available in the future, it should be utilized for loss estimates incorporated into future updates of the plan. While one could make some blanket assumptions at this time to enable the use of various tools for loss estimation, this would be unlikely to yield meaningful results.

Estimated Damages – Earthquakes

As stated previously in the plan in the Hazard Profile section, according to the Earthquake Hazard Map of Atlantic County, there is a 10 percent chance over 50 years that an earthquake with a PGA of greater than 2 to 3%g will be centered within the County. This earthquake, if it were to occur, would likely have associated with it light to moderate perceived shaking and little to no damage. PGAs of between 8 and 10%g would most often be required to cause appreciable damage, say, to unreinforced masonry buildings. While it is true that earthquakes are possible in this region of the USA, they are not particularly likely, or likely to be particularly intense, and have a greater likelihood of occurring further north, in the New York City area. Therefore, a full earthquake loss estimation was not conducted at this time for individual jurisdictions. However, countywide data included in the State Plan has been evaluated and is presented later in this section.

Examples of the types of damages that could be observed during an earthquake with a PGA of 2 to 3%g include:

- ⇒ Felt indoors by many, outdoors by few during the day
- ⇒ At night, some awakened.
- ⇒ Dishes, windows, doors disturbed and possibly broken
- ⇒ Walls make cracking sounds
- ⇒ Unstable objects could be overturned
- ⇒ Standing automobiles rocked noticeably

For earthquakes, the hazard area encompasses the entire study area and therefore all assets could be impacted. FEMA's How-To #2 suggests that for earthquake loss estimation, data regarding building type, type of foundation, building code design level, and date of construction, is required for a quality analysis. This is because certain structures are more susceptible to earthquake damage than others. In the State of New Jersey, regulations accounting for earthquake risk exist for new construction. Older buildings, built before these standard building codes went into effect, are more susceptible to earthquake damage. Similarly, unreinforced masonry buildings are more likely to sustain earthquake damage. While extensive damage to even these structures is unlikely, based on the mapped hazard areas, identifying this subset of buildings is important, particularly with regard to critical facilities that may meet these criteria. This information was not readily available at the time of the study for the planning area.

The New Jersey State Hazard Mitigation Plan includes HAZUS-MH analyses for earthquake losses in the seven counties in the State which are judged to be the most vulnerable to damaging earthquakes. All seven counties are in the northeastern part of the state, and they do not include Atlantic County. However, the State Plan has used the HAZUS results for these seven counties to extrapolate potential loss figures for all 21 counties in the state for certain earthquake events. Based on HAZUS analyses, the total economic loss for an earthquake of Magnitude 5.5 (for which the return period is estimated to be greater than 2,500 years – in other words the chance of it occurring in a 50-year period is less than 2 percent) is expected to be approximately 3 percent of the total exposure (i.e. the total value of assets). Extrapolating this percentage to all municipalities in the County gives the estimated event damages per municipality in Table 3c.1. This data should be regarded as relevant for planning purposes only, and does not account for local variations in the numerous factors that may influence earthquake losses.

Table 3c.1 Estimated Event Losses from Earthquake of Magnitude M5.5		
Municipality	**Total Improved Value**	**Losses**
Absecon, City of	$263,139,927	$7,631,056
Atlantic City, City of	$5,847,037,300	$169,564,047
Brigantine, City of	$513,295,303	$14,885,561
Buena, Borough of	$132,115,107	$3,831,337
Buena Vista, Township of	$479,119,804	$13,894,472
Corbin City, City of	$28,793,922	$835,024
Egg Harbor City, City of	$80,098,041	$2,322,843
Egg Harbor, Township of	$3,470,834,305	$100,654,174
Estell Manor, City of	$102,859,729	$2,982,932
Folsom, Borough of	$148,509,885	$4,306,786
Galloway, Township of	$2,285,757,329	$66,286,949
Hamilton, Township of	$1,728,805,249	$50,135,342
Hammonton, Town of	$936,333,112	$27,153,655
Linwood, City of	$498,008,251	$14,442,236
Longport, Borough of	$165,551,868	$4,801,003
Margate City, City of	$662,149,894	$19,202,343
Mullica, Township of	$402,224,021	$11,664,494
Northfield, City of	$800,316,450	$23,209,172
Pleasantville, City of	$1,134,689,566	$32,905,991
Port Republic, City of	$92,347,407	$2,678,074
Somers Point, City of	$1,034,500,500	$30,000,508
Ventnor City, City of	$380,608,771	$11,037,652
Weymouth, Township of	$111,684,498	$3,238,850
Total	*$21,298,780,238*	*$617,664,502*

In order to calculate annualized losses, a series of events are required for which both the estimated damage and frequency are known. An estimate of the potential annual losses for Atlantic County has been provided as part of the study "HAZUS-MH Estimated Annualized Earthquake Losses for the United States" (FEMA-366, April 2008). According to the analyses in this study, the potential annual losses due to earthquakes in Atlantic County are $151,670. In the absence of a more detailed breakdown of this loss estimate, potential annual losses in each municipality have been estimated by distributing the total County loss estimate among the municipalities according to their proportion of the total improved property value in the County. The results of this exercise are presented in Table 3c.2.

Table 3c.2 Annual Loss Estimates – Earthquake Source: HAZUS-MH Analyses for FEMA-366		
Municipality	**Total Improved Value**	**Losses**
Absecon, City of	$263,139,927	$1,874
Atlantic City, City of	$5,847,037,300	$41,637
Brigantine, City of	$513,295,303	$3,655
Buena, Borough of	$132,115,107	$941
Buena Vista, Township of	$479,119,804	$3,412
Corbin City, City of	$28,793,922	$205
Egg Harbor City, City of	$80,098,041	$570
Egg Harbor, Township of	$3,470,834,305	$24,716
Estell Manor, City of	$102,859,729	$732

Table 3c.2
Annual Loss Estimates – Earthquake
Source: HAZUS-MH Analyses for FEMA-366

Municipality	Total Improved Value	Losses
Folsom, Borough of	$148,509,885	$1,058
Galloway, Township of	$2,285,757,329	$16,277
Hamilton, Township of	$1,728,805,249	$12,311
Hammonton, Town of	$936,333,112	$6,668
Linwood, City of	$498,008,251	$3,546
Longport, Borough of	$165,551,868	$1,179
Margate City, City of	$662,149,894	$4,715
Mullica, Township of	$402,224,021	$2,864
Northfield, City of	$800,316,450	$5,699
Pleasantville, City of	$1,134,689,566	$8,080
Port Republic, City of	$92,347,407	$658
Somers Point, City of	$1,034,500,500	$7,367
Ventnor City, City of	$380,608,771	$2,710
Weymouth, Township of	$111,684,498	$795
Total	*$21,298,780,238*	*$151,670*

Estimated Damages – Flood

Sufficient data was not available at the time of the study to undertake detailed estimates of damages due to flooding. At this time, vulnerability is being expressed as the value of improvements in the current mapped flood hazard areas as presented in the "Hazard Profiles" section of this plan. First, while standard methodologies do exist to estimate damages due to flooding, specific information is required for buildings in order to employ these methodologies, such as first floor elevation, type of construction, foundation type, and details on any existing protective features. At the time of plan preparation, this data was not available as part of GIS datasets within Atlantic County and was not readily available from other sources.

Second, having even the year built data for each structure, one would be able to highlight structures built before codes and standards were adopted to make buildings more resistant to flood damage, thus being better candidates for mitigation. Without the year-built data, this can not be done. If this information should become available in the future, it could be incorporated into future updates of the plan. While one could make some blanket assumptions at this time to use various tools for loss estimation, this would likely yield erroneous data. Acting upon such rough estimates could result in an unwise use of limited resources.

For the purpose of estimating annual flood damages at this time, we have examined the NOAA NCDC database for flood events that have affected Atlantic County in the last fifteen years (1993-2008: the period for which detailed events are recorded) and have determined that these events have caused a total of approximately $88 million in property damages (or $5,862,000 per year county-wide over this 15 year period of record). Because the flood hazard is not uniform across the county, we have scaled this total annual damage to the subset of improved property in the high risk flood hazard area (Zones A, AE) in each municipality in the planning area to estimate annual flood losses presented in the table below. The total value of improved property in the high risk flood zone over the whole county has been estimated to be $8,093,732,500. Thus, based on recent historical data, the flood damage experienced over the whole county per year represents 0.07 percent of the value of property in the county's 100-year-floodplains. The

total annual damage has been distributed across all the municipalities in the County according to the value of improved property in the 100-year floodplain in each town as a percentage of the total improved property in the 100-year floodplain in the whole county. The estimated annual damages that result from this process are presented in Table 3c.3. Since the NCDC flood loss data on which this estimate is based does not capture damages from every flood event to have been recorded in the county (and may not capture all the damage for events for which damages are recorded – it is unclear if the figures include damages to infrastructure and emergency response costs, for example), these estimated annual damages must be regarded as very conservative.

Note: NFIP losses were considered for use, but were not selected due to their limitations in not including: unpaid claims, damages to uninsured properties, crop losses, or damages to roads/bridges/etc. When annualized, losses defined solely by the total recorded NFIP payments county-wide amount to approximately $1.86 million per year (based on total paid NFIP losses of $58,589,916 county-wide, annualized for each municipality over the jurisdiction's unique period of record from entry into the NFIP to the end of FY 2008).

Table 3c.3
Annual Loss Estimates – Flood
(Period of Record 1993 – 2008)

Jurisdiction	Total Value of Improvements	Total Value of Improvements in the High Risk Flood Hazard Area*	Annual Loss Estimates, Flood
Absecon, City of	$263,139,927	$29,724,892	$21,529
Atlantic City, City of	$5,847,037,300	$5,560,144,493	$4,027,013
Brigantine, City of	$513,295,303	$489,890,073	$354,810
Buena Vista, Township of	$132,115,107	$566,522	$410
Buena, Borough of	$479,119,804	$15,307,091	$11,086
Corbin City, City of	$28,793,922	$9,166,217	$6,639
Egg Harbor City, City of	$80,098,041	$1,202,802	$871
Egg Harbor, Township of	$3,470,834,305	$265,355,808	$192,188
Estell Manor, City of	$102,859,729	$1,864,380	$1,350
Folsom, Borough of	$148,509,885	$13,363,424	$9,679
Galloway, Township of	$2,285,757,329	$47,483,423	$34,391
Hamilton, Township of	$1,728,805,249	$86,078,691	$62,344
Hammonton, Town of	$936,333,112	$41,515,877	$30,068
Linwood, City of	$498,008,251	$65,208,322	$47,228
Longport, Borough of	$165,551,868	$165,487,576	$119,857
Margate City, City of	$662,149,894	$649,879,825	$470,685
Mullica, Township of	$402,224,021	$60,891,985	$44,102
Northfield, City of	$800,316,450	$7,142,473	$5,173
Pleasantville, City of	$1,134,689,566	$41,540,030	$30,086
Port Republic, City of	$92,347,407	$16,728,898	$12,116
Somers Point, City of	$1,034,500,500	$225,320,851	$163,192
Ventnor City, City of	$380,608,771	$286,374,593	$207,411
Weymouth, Township of	$111,684,498	$13,494,252	$9,773
Total:	*$21,298,780,239*	*$8,093,732,498*	*$5,862,000*

*Zones A, AE, only (includes V/VE Zones)

Estimated Damages – Dam Failure

Sufficient data was not available at the time of the study to estimate damages due to dam failure. Since inundation mapping was not readily available for any of the dams in Atlantic County, it has not been possible to estimate vulnerability in terms of improved values within inundation areas for this plan. It is recommended that efforts associated with future updates of the plan include formally obtaining detailed inundation mapping or studies which result in same, at least for the designated high hazard dams in the county for use in emergency response and mitigation planning.

Given the lack of historical data for significant dam failure occurrences and data related to the current condition and integrity of dam structures, and that it would be inappropriate to make assumptions regarding the effectiveness of future dam inspection and maintenance activities, it is assumed that major dam failures are a considerably rare event. Therefore, while one major event may result in significant losses, annualizing such losses over a long period of time would most likely yield a negligible annual loss estimate for jurisdictions exposed to this hazard.

Estimated Damages – Coastal Erosion

The coastal erosion hazard is a relatively slow natural process occurring over the long term, with occasional major impacts from episodic natural events such as hurricanes and nor'easters. As mentioned in the Hazard Profiles section, most oceanfront areas that have historically exhibited significant erosion are currently subject to mitigation action in the form of beach nourishment programs funded jointly by local/state government and Federal agencies such as the US Army Corps of Engineers. Since these actions have effectively transformed an eroding shoreline into one that is generally accreting, it could be assumed that over the long term, potential damages due to erosion are effectively zero. However, this assumes that the current renourishment programs continue for the foreseeable future.

Potential erosion damages have been estimated assuming the cessation of all current mitigation activities and a return to the pre-mitigation erosion rate at all locations in the county for which detailed data is available. Of the nine locations which have been monitored by the NJBPN, four were exhibiting significant long-term erosion prior to intervention. Of these four, one is in the Edwin B. Forsythe National Wildlife Refuge, where natural processes have been allowed to continue, and for which no damages are expected due to the undeveloped nature of this area. The remaining three are all in heavily developed areas, in which significant damages could be expected to be incurred if the shoreline were allowed to revert to historical behavior.

These three areas are centered on 4th Street in Brigantine, North Carolina Avenue in Atlantic City, and Dorset Avenue in Ventnor (although the affected area is assumed to continue into Margate City). According to the New Jersey Coastal Zone Management Rules (NJAC 7:7E), erosion hazard areas are defined as extending inland from the edge of a stabilized upland area to the limit of the area likely to be eroded in 30 years for one to four unit dwelling structures, and 60 years for all other structures, including developed and undeveloped areas. The extent of an erosion hazard area is calculated by multiplying the projected annual erosion rate at a site by 30 for the development of one to four unit dwelling structures and by 60 for all other developments. In the absence of more detailed information regarding current and likely future development types along potentially erodable oceanfront areas, erosion hazard areas have been calculated for this by multiplying the historic erosion rate by 60 at each location. The figures presented in Table 3c.4 were developed by capturing the total improved property values in the assumed erosion hazard area at each location and dividing by 60 years to derive an annualized loss. This methodology assumes that once lost to erosion, an area of land is not subsequently restored and returned to developable condition.

Table 3c.4 Annual Loss Estimates – Coastal Erosion, Absent Current Renourishment Actions		
Jurisdiction	**Total Value of Improvements in Potential Erosion Hazard Areas**	**Annual Loss Estimate, Coastal Erosion**
Atlantic City, City of	$246,316,577	$3,421,064
Brigantine, City of	$44,912,482	$623,784
Margate City, City of	$3,896,428	$54,117
Ventnor City, City of	$19,840,428	$275,561
Total	$314,965,914	$4,374,527

Notes: Table 3c.4 does not include municipalities assumed to be at no significant risk from coastal erosion for the purposes of hazard mitigation planning. This estimate is based on current/ongoing observed erosion rates rather than specific losses or damages over a defined period of record.

Estimated Damages – Storm Surge

Sufficient data was not readily available at the time of the study to estimate in detail damages specifically due to storm surges. Although SLOSH model results allow estimates to be made of the total improved value potentially exposed to various categories of storm surge-causing hurricanes in each municipality, as presented in the Hazard Profiles section, and the expected return periods (and hence probabilities) of hurricanes have been quantified, an estimation of annual damages is not currently possible because data regarding the impacts of storm events (expressed as a proportion of the exposed value, for example,) is not currently available.

In the absence of detailed data for structures in the SLOSH zones such as construction type and main floor elevation (i.e. similar to that required for detailed flood damage estimations), no meaningful determination of event damages can be made, and since NCDC damage reports for storm events with which storm surges are usually associated do not provide enough detail to isolate storm surge damages from the overall event damage totals, annual damages due to storm surges are, for the purposes of this plan, considered to be unquantifiable but potentially significant in those municipalities which have substantial proportions of their improved value located in mapped SLOSH zones.

Estimated Damages – Wave Action

Sufficient data was not readily available at the time of the study to estimate in detail damages specifically due to wave action. Areas identified as Velocity Hazard Zones (V/VE Zones on Flood Insurance Rate Maps), in which computed wave heights for the base (i.e. 1 percent annual chance of occurrence) flood are three feet or more have been mapped in the Hazard Profiles section, which also includes tabulated estimates of the exposed improved values located in these areas. Only the five municipalities directly adjacent to the ocean contain any structures located in V zones, and of them only two (Atlantic City and Brigantine) contained more than $1 million in improved property in V zones.

NCDC damage reports for storm events with which aggressive wave action is usually associated do not provide enough detail to isolate direct wave action damages from the overall event damage totals, and development of meaningful event damages from scratch would require detailed structure inventory data not readily available and sophisticated computer modeling applications usually deemed beyond the scope of the typical hazard mitigation planning process. Hence although there is the possibility that occasional individual events (such as a hurricane or nor'easter) may result in significant losses due to wave action, annualized losses due to wave action are currently unquantifiable, and potentially significant only in the cities of Atlantic City and Brigantine.

Estimated Damages – Lightning

Sufficient data was not available at the time of the study to estimate damages due to lightning in comprehensive detail, but it has been assumed that the risk of lightning strikes is uniform across the whole of Atlantic County, therefore 100 percent of the total improved value throughout the county is assumed to be exposed to this risk.

Standard loss estimation methodologies are not currently available for estimating lightning damages, but if the year built data was available for each structure, it would be possible to highlight structures built before codes and standards were adopted to make buildings more resistant to lightning damage, thus being better candidates for mitigation. Without the year-built data, this can not be done.

If this information should become available in the future, it could be incorporated into future updates of the plan. While one could make some blanket assumptions at this time to use various tools for loss estimation, this would likely yield erroneous data given the high degree of variation in type and density of development in the study area. Acting upon such rough estimates could result in an unwise use of limited resources. In general terms, estimated damages due to a single lightning event could be severe in any one location, however no one location or municipality in the county is any more vulnerable than another, and annual damages from lightning in the study area are estimated to be generally low.

For the purpose of estimating annual lightning damages at this time, we have evaluated the NOAA NCDC database for lightning events in the last fourteen years (1994-2008: the period for which events are recorded in any detail) and have determined that these events have caused an estimated $1.058 million in property damages in Atlantic County (or around $75,600 per year). The total value of all improvements in the county is estimated to be approximately $21.3 billion. Thus, based on recent historical data, annual lightning damage represents roughly 0.00035 percent of the total improved property value in Atlantic County. Applying this same percentage to each of the County's municipalities (since the lightning hazard is uniform across the county) yields the following estimated annual damages to improved property for lightning events.

Table 3c.5
Annual Loss Estimates – Lightning
(Period of Record 1994 – 2008)

Jurisdiction	Total Value of Improvements	Annual Loss Estimate, Lightning
Absecon, City of	$263,139,927	$934
Atlantic City, City of	$5,847,037,300	$20,746
Brigantine, City of	$513,295,303	$1,821
Buena Vista, Township fo	$132,115,107	$469
Buena, Borough of	$479,119,804	$1,700
Corbin City, City of	$28,793,922	$102
Egg Harbor City, City of	$80,098,041	$284
Egg Harbor, Township of	$3,470,834,305	$12,315
Estell Manor, City of	$102,859,729	$365
Folsom, Borough of	$148,509,885	$527
Galloway, Township of	$2,285,757,329	$8,110
Hamilton, Township of	$1,728,805,249	$6,134
Hammonton, Town of	$936,333,112	$3,322
Linwood, City of	$498,008,251	$1,767
Longport, Borough of	$165,551,868	$587
Margate City, City of	$662,149,894	$2,349

Table 3c.5 Annual Loss Estimates – Lightning (Period of Record 1994 – 2008)		
Jurisdiction	**Total Value of Improvements**	**Annual Loss Estimate, Lightning**
Mullica, Township of	$402,224,021	$1,427
Northfield, City of	$800,316,450	$2,840
Pleasantville, City of	$1,134,689,566	$4,026
Port Republic, City of	$92,347,407	$328
Somers Point, City of	$1,034,500,500	$3,671
Ventnor City, City of	$380,608,771	$1,350
Weymouth, Township of	$111,684,498	$396
Totals:	*$21,298,780,239*	*$75,571*

Estimated Damages – Drought

According to FEMA's How-To #2, standard loss estimation methodologies are not currently available for estimating drought damages. If this information should become available in the future, it could be incorporated into future updates of the plan. While one could make some blanket assumptions at this time to use various tools for loss estimation, this would likely yield erroneous data given the high degree of variation in type and density of development. Acting upon such rough estimates could result in an unwise use of limited resources.

In general estimated damages due to future droughts in Atlantic County are potentially significant in the northern and western areas of the County. Because drought impacts large areas and crosses jurisdictional boundaries, all existing and future buildings, facilities and populations are considered to be exposed to this hazard and could potentially be impacted. However, drought impacts are mostly experienced in water shortages and crop losses on agricultural lands and have no impact on buildings.

Reduction in crop yield is likely to be the most significant quantifiable affect of drought. According to the 2007 USDA Agriculture Census, Atlantic County has 499 farms totaling 30,372 acres, of which 18,616 acres (61 percent) are cropland. The market value of production on Atlantic County farms in 2007 was $128.3 million, with $125.8 million (98 percent) generated from crop sales and $2.5 million generated from livestock sales. Atlantic County ranks second out of 21 counties in the State of New Jersey based on the value of agricultural crop sales, and 12th in the State based on livestock sales. By far the largest commodity group within Atlantic County crop sales in 2007 consisted of fruit, tree nuts and berry produce, with 66 percent of the crop sales. A more detailed breakdown of the County crop sales for 2007 is presented in Table 3c.6.

Table 3c.6 Breakdown of Atlantic County Agricultural Commodity Sales, 2007		
Crop/Produce Category	**Total Sales by Crop/Produce Category**	**Crop/Produce Category Sales as Percent of Total**
Fruits, tree nuts and berries	$83,247,000	66.16%
Vegetables, melons, potatoes and sweet potatoes	$24,601,000	19.55%
Nursery, greenhouse, floriculture and sod	$17,521,000	13.93%
Grains, oilseeds, dry beans and dry peas	$185,000	0.15%
Other crops and hay	$148,000	0.12%
Christmas trees and woody crops	$118,000	0.09%
Total	*$125,820,000*	*100.00%*

Agricultural losses, specifically losses to crops and produce, could significantly impact the economy of Atlantic County during a drought. When drought begins, the agricultural sector is usually the first to be impacted because of its heavy reliance on stored soil water, which can rapidly be depleted during extended dry periods. When precipitation returns to normal, impacts on the agricultural sector are quick to diminish again due to the reliance on stored soil moisture.

Water supply shortages are a secondary affect of drought. Atlantic County's total withdrawal of fresh water for public supply is 28.97 million gallons per day, with 96 percent from groundwater sources and four percent from surface water sources. Groundwater is fairly resistant to drought conditions, while surface water is more immediately susceptible to the effects of drought. The extent to which crops in the participating communities are vulnerable to drought conditions will depend to a great extent on from where they draw their water supply.

A third common affect of drought is fish and wildlife mortality. Atlantic County has diverse populations of fish and wildlife, and abundant rivers, lakes, and wetlands providing essential water resources. Seven different threatened and endangered species reside in Atlantic County, including water-based species such as the bog turtle (*Clemmys Muhlenbergii*), swamp pink (*Helonias Bullata*), Knieskern's beaked-rush (*Rhynchospora Knieskernii*), and Sensitive joint-vetch (*Aeschynomene Virginica*). Because much of the land area in Atlantic County is undeveloped, aquatic and other wildlife habitat is fairly significant and therefore losses to fish and wildlife could likely be high.

A fourth common affect of drought is wildfires. Due to Atlantic County's largely undeveloped nature (only 17 percent of the planning area is classified as "developed" in some form), fuel is plentiful for wildfires (40 percent of the planning area is woodland or other areas at risk from wildfire). In the undeveloped inland parts of the County, fuel tends to be most plentiful in areas where development densities are lowest; this works to reduce possible property damages and loss of life; however, the wildland-urban interface would be particularly vulnerable as well as transportation routes. Wildfires are a unique hazard addressed separately in this plan.

For the purpose of estimating annual drought damages at this time, we have evaluated the NOAA NCDC database for drought events in the last fourteen years (1995-2009: the period for which events are recorded in any detail). While the database includes a number of drought events which affected Atlantic County in this period, crop damages are recorded for only one event (in September 1999). The database records that $80 million in crop losses was realized across southern and central New Jersey for that particular event. Since these damages are not broken out by County, and there is no other readily available source of dollar damage amounts due to drought, annualized losses due to drought cannot currently be definitively quantified.

However, using the information available and making a number of assumptions it is possible to develop rough estimations of drought losses: NCDC reports that there have been at least three drought events to have significantly affected Atlantic County agriculture since 1995, with the most recent (in 2002) causing crop damages varying from total losses to 30-50 percent of yield, depending on the crop. If we project that a significant crop-damaging drought occurs once every five years, during which the average reduction in crop yield is 25 percent, a total annualized damage of almost $6.3 million results for the whole County. This total can be distributed among the county's municipalities according to the total acreage of agricultural land in each, to give the estimated annual losses by municipality presented in Table 3c.7.

Note that in the absence of more detailed agricultural data this estimate assumes that crops of different type and sale value are distributed equally across the various municipalities.

Table 3c.7
Annual Loss Estimates – Drought
(Period of Record 1995 – 2009)

Jurisdiction	Total Acres Cultivated Crop Land (Acres)	Percent of Total Cultivated Crop Land in Atlantic County	Annual Loss Estimate, Drought
Absecon, City of	6	0.2%	$1,577
Atlantic City, City of	0	0.0%	$0
Brigantine, City of	0	0.0%	$0
Buena, Borough of	2,361	48.6%	$607,539
Buena Vista, Township of	4,079	15.3%	$1,049,317
Corbin City, City of	182	3.5%	$46,832
Egg Harbor, Township of	810	11.4%	$208,272
Egg Harbor City, City of	44	0.1%	$11,441
Estell Manor, City of	774	2.2%	$199,137
Folsom, Borough of	379	7.1%	$97,425
Galloway, Township of	3,307	5.8%	$850,758
Hamilton, Township of	2,579	3.6%	$663,578
Hammonton, Town of	6,726	25.3%	$1,730,337
Linwood, City of	15	0.6%	$3,885
Longport, Borough of	0	0.0%	$0
Margate City, City of	0	0.0%	$0
Mullica, Township of	2,858	7.9%	$735,198
Northfield, City of	10	0.5%	$2,692
Pleasantville, City of	0	0.0%	$0
Port Republic, City of	114	2.3%	$29,221
Somers Point, City of	0	0.0%	$0
Ventnor City, City of	0	0.0%	$0
Weymouth, Township of	209	2.7%	$53,791
Totals	*24,452*	*6.8%*	*$6,291,000*

Restrictions on water use that are imposed as a result of drought conditions will affect industrial and economic activities other than agriculture. The financial impacts of water use restrictions on such businesses may be significant, depending on the type and size of the businesses concerned, but quantifying these effects is beyond the scope of this current plan.

Estimated Damages – Tornados

The only readily available source of data for historic damages due to tornados in the planning area is the NCDC database, which records seven tornados in the county with recorded damages since 1970, each affecting a different municipality, and causing a recorded total of $1.025 million in property damage. This represents an annualized loss of approximately $27,000 over the whole county, or an average of $1,170 per municipality per year. Since the risk of tornados is assumed to be uniform over the county, the total annual loss can be distributed among the 23 municipalities to give individual annual loss estimates as presented in Table 3c.8.

Table 3c.8
Annual Loss Estimates – Tornado
(Period of Record 1970 – 2008)

Jurisdiction	Total Value of Improvements	Annual Loss Estimate, Tornado
Absecon, City of	$263,139,927	$333
Atlantic City , City of	$5,847,037,300	$7,405
Brigantine, City of	$513,295,303	$650
Buena Vista, Township of	$132,115,107	$167
Buena, Borough of	$479,119,804	$607
Corbin City, City of	$28,793,922	$36
Egg Harbor City, City of	$80,098,041	$101
Egg Harbor, Township of	$3,470,834,305	$4,396
Estell Manor, City of	$102,859,729	$130
Folsom, Borough of	$148,509,885	$188
Galloway, Township of	$2,285,757,329	$2,895
Hamilton, Township of	$1,728,805,249	$2,189
Hammonton, Town of	$936,333,112	$1,186
Linwood, City of	$498,008,251	$631
Longport, Borough of	$165,551,868	$210
Margate City, City of	$662,149,894	$839
Mullica, Township of	$402,224,021	$509
Northfield, City of	$800,316,450	$1,014
Pleasantville, City of	$1,134,689,566	$1,437
Port Republic, City of	$92,347,407	$117
Somers Point, City of	$1,034,500,500	$1,310
Ventnor City, City of	$380,608,771	$482
Weymouth, Township of	$111,684,498	$141
Totals:	*$21,298,780,239*	*$26,974*

Estimated Damages – Wildfires

Sufficient data such as the numbers and locations of wildfires and damages attributed to them was not available at the time of the study to estimate damages due to wildfires comprehensively. At this time, vulnerability is initially being expressed as the value of improvements exposed to the hazard, as presented in the "Hazard Profiles" section of this plan.

First, according to FEMA's How-To #2, standard loss estimation methodologies are not currently available for estimating wildfire damages. In addition, specific information would be required for buildings in order to develop alternate methodologies, such as type of construction, and details on any existing protective features. This data was not included in the County GIS data made available during this study.

Second, having even the year built data for each structure, one would be able to highlight structures built before codes and standards were adopted to make buildings more resistant to wildfire damage, thus being better candidates for mitigation. Without the year-built data, this can not be done.

If this information should become available in the future, it could be incorporated into future updates of the plan. While one could make some blanket assumptions at this time to use various tools for loss

estimation, this would likely yield erroneous data given the high degree of variation in type and density of development. Acting upon such rough estimates could result in an unwise use of limited resources.

Loss estimation methodologies are not currently available for estimating wildfire damages. Sufficient historical data regarding events and associated losses was not available to quantify here. For the purpose of this analysis, we have determined that annual losses are unquantifiable at this time, and likely to be negligible, given the lack of historical records indicating that wildfires in Atlantic County frequently cause widespread property damage and threats to life.

Estimated Damages – Winter Storms

Detailed data regarding the damages attributed to the numerous winter storms recorded specifically in Atlantic County was not available at the time of the study to meaningfully estimate damages due to winter storms. While the NCDC database records that more than $30 million in property damages have been caused by winter storms in the Atlantic County area since 1993, these damages apply to a wide region covering multiple counties and further breakdowns giving damages by individual counties are not readily available.

While it is assumed that all 23 municipalities are essentially equally vulnerable to winter storms, since neither standard loss estimating methodologies for winter storms or the required data are readily available, we have determined that annual losses due to winter/ice storms are currently unquantifiable.

Estimated Damages – Severe Weather Events: Hurricanes/Tropical Storms and Nor'easters

Sufficient data to enable estimates of the potential annual losses experienced by the municipalities in the planning area due to severe storms such as hurricanes and nor'easters was not readily available. While the NCDC database contains numerous events of this nature for which significant property damages were recorded, they generally take the form of broad brush damage estimates covering multiple counties or the entire region, rather than breakdowns of damage by individual counties. Alternative data that became available during the planning process from public sources was generally found to be of the same level of detail. Therefore, since the detailed data required for an analysis is not readily available, we have determined that annual losses due to severe weather events are potentially significant but currently unquantifiable.

Estimated Damages - Summary

The following table (Table 3c.9) is a useful tool to summarize vulnerability in terms of annual damages estimated for various hazards in communities across the 23 component municipalities that form Atlantic County. For mitigation planning purposes only, municipalities are encouraged to consider this information in their evaluation and prioritization of mitigation options, and development of a mitigation strategy, as municipalities may wish to stress mitigation of those hazards for which annual loss estimates are the highest. These estimated damages are not intended for use in any more formal benefit-cost analyses.

Table 3c.9
Summary of Estimated Annual Damages

Jurisdiction	Total Value of Improvements	Extreme Temperatures	Extreme Wind	Winter Storms	Earthquake	Flood	Coastal Erosion	Storm Surge	Wave Action	Dam Failure	Lightning	Drought	Tornado	Wildfires	Severe Weather Events
Absecon, City of	$263,139,927	U	U	U	$1,874	$21,529	$0	U*	U	U	$934	$1,577	$333	U	U*
Atlantic City, City of	$5,847,037,300	U	U	U	$41,637	$4,027,013	$3,421,064	U*	U*	U	$20,746	$0	$7,405	U	U*
Brigantine, City of	$513,295,303	U	U	U	$3,655	$354,810	$623,784	U*	U*	U	$1,821	$0	$650	U	U*
Buena Vista, Township of	$132,115,107	U	U	U	$941	$410	$0	U	U	U	$469	$607,539	$167	U	U*
Buena, Borough of	$479,119,804	U	U	U	$3,412	$11,086	$0	U	U	U	$1,700	$1,049,317	$607	U	U*
Corbin City, City of	$28,793,922	U	U	U	$205	$6,639	$0	U*	U	U	$102	$46,832	$36	U	U*
Egg Harbor City, City of	$80,098,041	U	U	U	$570	$871	$0	U	U	U	$284	$208,272	$101	U	U*
Egg Harbor, Township of	$3,470,834,305	U	U	U	$24,716	$192,188	$0	U	U	U	$12,315	$11,441	$4,396	U	U*
Estell Manor, City of	$102,859,729	U	U	U	$732	$1,350	$0	U	U	U	$365	$199,137	$130	U	U*
Folsom, Borough of	$148,509,885	U	U	U	$1,058	$9,679	$0	U	U	U	$527	$97,425	$188	U	U*
Galloway, Township of	$2,285,757,329	U	U	U	$16,277	$34,391	$0	U	U	U	$8,110	$850,758	$2,895	U	U*
Hamilton, Township of	$1,728,805,249	U	U	U	$12,311	$62,344	$0	U	U	U	$6,134	$663,578	$2,189	U	U*
Hammonton, Town of	$936,333,112	U	U	U	$6,668	$30,068	$0	U	U	U	$3,322	$1,730,337	$1,186	U	U*
Linwood, City of	$498,008,251	U	U	U	$3,546	$47,228	$0	U*	U	U	$1,767	$3,885	$631	U	U*
Longport, Borough of	$165,551,868	U	U	U	$1,179	$119,857	$0	U*	U	U	$587	$0	$210	U	U*
Margate City, City of	$662,149,894	U	U	U	$4,715	$470,685	$54,117	U*	U	U	$2,349	$0	$839	U	U*
Mullica, Township of	$402,224,021	U	U	U	$2,864	$44,102	$0	U	U	U	$1,427	$735,198	$509	U	U*
Northfield, City of	$800,316,450	U	U	U	$5,699	$5,173	$0	U*	U	U	$2,840	$2,692	$1,014	U	U*
Pleasantville, City of	$1,134,689,566	U	U	U	$8,080	$30,086	$0	U	U	U	$4,026	$0	$1,437	U	U*
Port Republic, City of	$92,347,407	U	U	U	$658	$12,116	$0	U*	U	U	$328	$29,221	$117	U	U*
Somers Point, City of	$1,034,500,500	U	U	U	$7,367	$163,192	$0	U*	U	U	$3,671	$0	$1,310	U	U*
Ventnor City, City of	$380,608,771	U	U	U	$2,710	$207,411	$275,561	U*	U	U	$1,350	$0	$482	U	U*
Weymouth, Township of	$111,684,498	U	U	U	$795	$9,773	$0	U	U	U	$396	$53,791	$141	U	U*
Totals	$21,298,780,238	U	U	U	*$151,670*	$5,852,228	$4,374,526	U*	U	U	$75,174	$6,237,209	$26,832	U	U*

U = Currently Unquantifiable and assumed negligible, U* = Currently Unquantifiable but potentially significant

SECTION 5 - MITIGATION GOALS

Goals were developed by taking into consideration both state and jurisdictional goals for mitigation. None of the goals or actions in this County plan contradicts the goals of the State Hazard Mitigation Plan. In fact, the Atlantic County Multi-Jurisdictional Hazard Mitigation Plan Goals are in support of furthering the State's goals in many ways.

New Jersey State Hazard Mitigation Plan Goals

As outlined in the New Jersey State Hazard Mitigation Plan, the State's goals are:

1. Protect life
2. Protect property
3. Promote a sustainable economy
4. Protect the environment
5. Increase public preparedness

Atlantic County Multi-Jurisdictional Hazard Mitigation Plan Goals

The Atlantic County Multi-Jurisdictional Hazard Mitigation Plan Goals are long-term statements of what the participating jurisdictions hope to achieve over time through implementation of the plan. They are based on the findings of the risk assessment, and will apply to each jurisdiction adopting this plan.

1. Promote disaster-resistant development.
2. Build and support local capacity to enable the public to prepare for, respond to, and recover from disasters.
3. Reduce the possibility of damage and losses due to flooding caused by floods, hurricanes and nor'easters (including storm surges).
4. Reduce the possibility of damage and losses due to earthquakes.
5. Reduce the possibility of damage and losses due to lightning strikes.
6. Reduce the possibility of damage and losses due to droughts.
7. Reduce the possibility of damage and losses due to coastal erosion and wave action.
8. Reduce the possibility of damage and losses due to dam failure.
9. Reduce the possibility of damage and losses due to wildfires.
10. Reduce the possibility of damage and losses due to winter storms.
11. Reduce the possibility of damage and losses due to extreme temperatures.
12. Reduce the possibility of damage and losses due to tornadoes and high winds caused by windstorms, hurricanes and nor'easters.
13. Reduce the possibility of damages to emergency and critical facilities from damage due to flooding, storm surge, wildfires, and extreme winds.

SECTION 6 - RANGE OF ALTERNATIVE MITIGATION ACTIONS CONSIDERED

For this hazard mitigation plan to be approved by FEMA, each participating jurisdiction was required to identify and analyze a comprehensive range of specific mitigation actions and projects being *considered* to reduce the effects of each hazard (as per Part 201.6(c)(3)(ii)). The plan must include a list of *potential* loss reduction actions (including a comprehensive range of specific mitigation actions for each profiled hazard), and document that each jurisdiction has *analyzed* these various actions to achieve the community's goals and objectives for reducing and/or avoiding the effects of the identified hazards. FEMA's guidance states that the plan *should* (though is not required to) describe the process by which the community decided on particular mitigation actions, and points out that some of the mitigation actions initially identified may ultimately be eliminated in the community's action plan after analysis. FEMA's guidance is clear that a comprehensive range of actions should be *considered* for each identified hazard (Part 201.6(c)(3)(ii). FEMA Region 2 requires that actions addressing each identified hazard (regardless of the degree of risk) shall be included in local municipal mitigation strategy / action plan for each municipality requesting approval of the plan. *(For more information, see FEMA's Local Multi-Hazard Mitigation Planning Guidance, July 2008).*

The following table (Table 6-1) represents a range of types of mitigation actions that were considered by the Core Planning Group to address each of the hazards identified in this plan. This table served as a launching point for the discussion and development of specific mitigation actions for each municipality, in conjunction with a mitigation action items "Tip Sheet", which was also distributed to members of the Core Planning Group. In addition to listing examples of mitigation actions, the Tip Sheet also provided background information regarding the selection of mitigation actions and information regarding the eligibility of mitigation actions under the various FEMA grant programs.

At a working session of the Core Planning Group on May 11, 2009, participating jurisdictions considered this range of actions and developed a mitigation strategy for their jurisdiction. Each jurisdiction has identified and analyzed a comprehensive range of mitigation actions and projects for each hazard, and address reducing the effects of hazards on both new and existing buildings and infrastructure.

Range of Actions and Projects That Were Considered

As required by FEMA, the Core Planning Group began by ***identifying*** a comprehensive range of potential loss reduction actions and projects for each hazard. The range of potential actions that was considered is listed and described in Table 6-1, and is organized according to the Mitigation Goal the action is intended to help achieve. In addition to these general types of mitigation actions, the Core Planning Group and JATs also considered a series of more specific mitigation actions that had been identified throughout the course of the planning process as specific problems and/or problem areas were brought to light in their community.

Note: After considering this range of actions, some of the actions initially considered were ultimately eliminated from community action plans based on existing local conditions. Others were carried over for detailed analysis and prioritization (see page 6-7). The community and County action plans that were ultimately developed, together with action items spearheaded at the County level with local participation, include action items to address every hazard profiled in this mitigation plan (as further detailed in Sections 7, 8 and associated Appendices). Communities will consider widening the scope of their implementation strategies at each update to encompass a greater range of hazards, following progress or completion of the actions in their initial strategies.

Table 6-1
Types of Actions Considered to Achieve Mitigation Goals

Goals		Actions	
Goal Number	**Description**	**Action Number**	**Description**
1	Promote disaster-resistant development.	1.A	Join the National Flood Insurance Program (for non-participating or suspended communities).
		1.B	Ensure that local comprehensive plans incorporate natural disaster mitigation techniques by requiring a courtesy- review of draft plans by the County Emergency Management Agency.
		1.C	Explore the need for hazard zoning, high-risk hazard land use ordinances, subdivision regulations, and development density controls.
		1.D	Organize an annual event / fair for homeowners, builders and county and local jurisdictions that includes sale of NOAA weather radios, dissemination of information brochures about disasters and building retrofits, demonstration of "defensible-space" concept and fire resistant construction materials (for roofs/exterior finishes and inflammable coverings for openings like chimneys and attics) etc.
		1.E	Develop a stormwater management plan that includes subdivision regulations to control run-off; both for flood reduction and to minimize saturated soils on steep slopes that can cause landslides. If such a plan is already in place, consider ways to expand/improve with an eye toward promoting disaster-resistant development.
2	Build and support local capacity to enable the public to prepare for, respond to, and recover from disasters.	2.A	Expand and disseminate GIS and other hazard information on the internet.
		2.B	Develop a plan and seek funding for backup electric and telecommunications systems in local government-owned critical facilities.
		2.C	Support and fund Community Emergency Response Team (CERT) programs that also include a mitigation component.
		2.D	Create a Hazard Information Center – a virtual and physical library that contains all technical studies, particularly natural resources.
		2.E	Implement public awareness, education, and outreach programs for all or targeted hazards.
		2.F	Expand GIS to collect and develop more sophisticated hazard mapping. Use information to update plan. Ensure information will be available to the public and to relevant communities and agencies.
		2.G	Provide training for inspection and enforcement of adopted codes and ordinances.

Table 6-1
Types of Actions Considered to Achieve Mitigation Goals

Goals		Actions	
Goal Number	**Description**	**Action Number**	**Description**
3	Reduce the possibility of damage and losses due to flooding caused by floods, hurricanes, and nor'easters.	3.A	Join the National Flood Insurance Program (NFIP). As a participant, floodplains within the participating community will be identified and mapped. In return, the participating community will become eligible for flood insurance as long as the local governing body adopts and enforces a floodplain ordinance.
		3.B	Join the NFIP Community Rating System (CRS), under which communities implementing actions that go beyond the specified NFIP minimum are eligible for discounted flood insurance premiums.
		3.C	Obtain specialist training and certification (e.g. Certified Floodplain Manager) for local staff tasked with enforcement of relevant codes and flood-related ordinances.
		3.D	Limit uses in floodways to those tolerant of occasional flooding, including but not limited to agriculture, outdoor recreation, and natural resource areas.
		3.E	Develop a Countywide gauging and warning system for flash and riverine flooding.
		3.F	Continue to implement best management practices for floodplain areas.
		3.G	Identify and document repetitively flooded properties. Explore mitigation opportunities for repetitively flooded properties, and if necessary, carry out acquisition, relocation, elevation, and flood-proofing measures to protect these properties.
		3.H	Identify locations/structures suitable for construction of floodwalls and other barriers such as raised roads.
		3.I	Conduct a routine stream maintenance program (for currently non-participating communities) and seek financial assistance to clean out stream segments with heavy sediment deposits.
		3.J	Develop specific mitigation solutions for flood-prone roadways and intersections (particularly where such roadways/intersections are part of evacuation routes). This can include, but is not limited to, actions such as culvert upgrades, drainage improvements, road raisings, etc.) Develop a work plan for when sites will be surveyed and what role can the local government play in selection and implementation of mitigation activities (e.g. any monetary or contextual support through the local capital improvement plan).
		3.K	Implement wetlands development regulations and restoration programs.
		3.L	Implement identified stormwater recharge, rate or volume projects identified in Regional Stormwater Management Plans to decrease "flash" in streams during/after storm events.
		3.M	Implement and enforce open space preservation programs.
		3.N	Implement specific actions to enhance/improve participation in/compliance with National Flood Insurance Program (NFIP).
		3.O	Implement the specific actions/projects identified in the County's existing Flood Hazard Management Plan.

Table 6-1
Types of Actions Considered to Achieve Mitigation Goals

Goals		Actions	
Goal Number	**Description**	**Action Number**	**Description**
4	Reduce the possibility of damage and losses due to earthquakes.	4.A	Retrofit/Reconstruct old critical facilities.
		4.B	Acquire dilapidated vulnerable structures.
		4.C	Public awareness through video/brochures about simple steps homeowners can take to mitigate damage.
		4.D	Examine provisions for earthquake resistant retrofits for existing structures and infrastructure, paying particular attention to unreinforced masonry structures built prior to the adoption of building codes requiring earthquake resistant design for new construction.
		4.E	Implement hillside and steep slope development regulations.
5	Reduce the possibility of damage due to lightning strikes	5.A	Carry out inventory of compliance with existing local codes/standards, especially for critical facilities.
		5.B	Adopt building safety codes such as National Fire Protection Association (NFPA) -780 Standard for the Installation of Lightning Protection Systems (1997).
		5.C	Public awareness/outreach regarding use of ground outlets and surge protectors in homes and businesses.
6	Reduce the possibility of damage and losses due to drought.	6.A	Encourage citizens to implement water conservation measures by distributing water saving kits which include replacement shower heads, flow restrictors, and educational pamphlets which describe water saving techniques. Also encourage conservation by offering rebates for ultra-low-flow toilets.
		6.B	Modify rate structure to influence consumer water use including: increasing rates during summer months and imposing excess use charges during times of water shortage.
		6.C	Reduce water use for landscaping by imposing mandatory water-use restrictions during times of water shortage. Also, develop a demonstration garden to exhibit water conservation techniques.
		6.D	Publish and distribute pamphlets on water conservation techniques and drought management strategies.
		6.E	Develop and adopt an emergency water allocation strategy to be implemented during severe drought.
		6.F	Implement water metering and leak detection programs followed by water main repair/replacement to reduce losses.
		6.G	Encourage beneficial re-use of treated wastewater effluent through cooperative projects with dischargers, agriculture and other major water users to distribute or provide this alternative source of water.

Table 6-1
Types of Actions Considered to Achieve Mitigation Goals

Goals		Actions	
Goal Number	**Description**	**Action Number**	**Description**
7	Reduce the possibility of damage and losses due to coastal erosion and wave action	7.A	Establish erosion setback lines which located landward of the first stable natural vegetation at a specified distance based on the long-term rate of erosion.
		7.B	Protect erosion-prone shorelines and banks using structural measures such as beach renourishment, bulkhead construction, groins, revetments, and rock placement.
		7.C	Implement V Zone construction requirements for new development located in Coastal A Zones (for communities not currently implementing these requirements).
		7.D	Conduct compliance audits of previously raised/mitigated structures in V-Zones.
8	Reduce the possibility of damage and losses due to dam failures.	8.A	Enforce participation in/compliance with National and NJDEP / NJOEM Dam Safety Programs. Compliance includes, but is by no means limited to: (a) preparation of emergency action plans as required for all Class I and II (high and significant hazard potential dams, respectively) to help save lives and reduce property damage in the event of a dam failure including: potential emergency conditions and pre-planned responses, early notification to local, county and State OEM officials, and inundation mapping of potentially flooded ; (b) proper maintenance of existing dams; (c) repair/rehabilitation/improvement of existing dams to ensure their continued safe functioning and protection of life and property; (d) etc.
		8.B	Investigate sources of funding to assist dam owners in their completion of required repairs/maintenance. Investigate low interest loans to owners and/or jurisdiction acting as guarantor of private owners' loans.
		8.C	Notify owners of property in dam break inundation areas of risks, implement restrictions for new development in these areas.
9	Reduce the possibility of damage and losses due to wildfires	9.A	In consultation with NJDEP Forest Protection & Fire Management and local forest rangers, develop detailed mapping of wildland/urban interface areas.
		9.B	Develop inventory of addresses for route alerting during wildfire emergencies that require public warning and information.
		9.C	In consultation with NJDEP Forest Protection & Fire Management and local forest rangers, review local EOPs for possible wildfire components regarding Fire-Rescue, Alert Warning Communications, and Evacuation.
		9.D	Implement and enforce open space preservation programs.
		9.E	Prescribed burning for hazard reduction.
		9.F	Initiate a public outreach program for homeowners.
		9.G	Retrofit buildings with fire resistant materials, especially roofing.
		9.H	Relocate structures (in particular critical facilities) out of hazard areas.
		9.I	Community brush and debris removal and hazard fuels reduction.
		9.J	Firewise landscaping in higher risk areas.
		9.K	Mitigation for streets, highways, and roads that provide key fire access and fuelbreaks.
		9.L	Implement hillside and steep slope development regulations.

Table 6-1
Types of Actions Considered to Achieve Mitigation Goals

Goals		Actions	
Goal Number	**Description**	**Action Number**	**Description**
10	Reduce the possibility of damage and losses due to winter storms.	10.A	Promote (or purchase, for critical facilities) NOAA weather radios.
		10.B	Educate residents about driving in winter storms and handling winter-related health effects
		10.C	Planting ice and windstorm-resistant trees and implementing landscaping practices to reduce tree-related hazards and public education to encourage these practices
		10.D	Bury or otherwise protect utility lines to avoid power outage due to winter storms (if risk is very high then only this action might be cost-effective)
11	Reduce the possibility of damage and losses due to extreme temperatures.	11.A	Develop and distribute outreach tools for homeowners and building permit applicants on protection of structures against cold weather damage and proper maintenance of heating/cooling systems.
		11.B	Review existing emergency response plans for enhancement opportunities: work with social support agencies, homeowners associations and general public to develop and implement monitoring and warning systems focused on vulnerable populations and provision of adequate shelter facilities.
12	Reduce the possibility of damage and losses due to tornadoes and high winds caused by windstorms, hurricanes and nor'easters.	12.A	Adopt an ordinance to require safe rooms in mobile home parks
		12.B	Provide low interest loans (or other form of financial assistance) for building safe rooms.
		12.C	Provide technical assistance for building safe rooms.
		12.D	Adopt an ordinance to require hurricane clips on new construction.
		12.E	Install hurricane clips and wind shutters on existing development-particularly emergency facilities and shelters built before existing codes were adopted to offer some degree of wind protection.
13	Reduce the possibility of damages to emergency facilities from flooding, wind damage and wildfire damage.	13.A	Conduct a study to determine the year-built and level of protection (flood, wind) for each emergency facility.
		13.B	On completion of 13.A, seek funding for mitigation projects for emergency facilities not currently designed for protection from flooding, high wind, or wildfire damage.

CPG members were asked to consider the following four sources of additional information on types of hazard mitigation actions as reference sources when developing jurisdiction-specific mitigation strategies:

- Mitigation Action Items Tip Sheet
- Mitigation Job Aid (from FEMA's How-To #3 Appendix D)
- Mitigation Glossary of Terms (from FEMA's How-To #3 Appendix A)
- Atlantic County Flood Hazard Management Plan

Community Analysis of Possible Mitigation Actions

Core Planning Group members next ***analyzed*** the full range of possible actions identified in Table 6-1. Their analysis involved a three step process for deciding upon particular mitigation actions:

1. First, CPG members evaluated the actions in Table 6-1 against the hazards identified in their community (as presented in Section 3 Table 3-1). FEMA Region 2 requires that actions addressing each identified hazard (regardless of the degree of risk) shall be included in each local municipal mitigation strategy / action plan for each municipality.
2. Next, Core Planning Group Members conducted a **preliminary analysis** of each action item in Table 6-1, considering the action item in relation to the results of the risk assessment and unique local considerations to identify a subset of preferred action items that would be analyzed in more detail. The results of this preliminary analysis are presented in Table 6-2. (Note: FEMA requires that the plan identify and analyze a range of actions considered to reduce the effects of each hazard. Some actions initially identified in Table 6-1 were ultimately eliminated in local community action plans. FEMA's Guidance document is clear that the plan text can, though is not required to, explain the rationale behind why some of the actions considered were ultimately eliminated in the community's action plan after the analysis.
3. For the subset of preferred action items, Core Planning Group Members conducted a **detailed analysis** and prioritization using FEMA's STAPLEE approach as described in further detail in Section 7 of this plan. Implementation strategies ("action plans", addressing how the actions will be implemented and administered) for the subset of preferred action items are discussed in greater detail in Section 8 of this plan.

In the first draft of this plan (2009) municipal implementation strategies typically included action items to reduce the risks posed by the jurisdictions highest hazards. Based on FEMA review comments, implementation strategies were expanded to include action items for every identified hazard for every community through the addition of several County-led initiatives involving direct participation by each jurisdiction. Municipalities were advised via email in August 2010 regarding the County's interests in this regard, and were given a period of seven days to provide comments. An Addendum to Appendix D of this plan includes Prioritization Worksheets for the added action items for every participating jurisdiction. An Addendum to Appendix E of this plan includes Implementation Strategy Worksheets for the added action items for every participating jurisdiction.

In addition to the range of initial actions listed in Table 6.1, each participating jurisdiction was required to identify, evaluate, and prioritize actions related to continued/enhanced compliance with the National Flood Insurance Program. These actions and the individual municipalities' analyses of them are included in Appendix F, which also includes recent supplementary guidance ("Hazard Mitigation – NFIP Requirements") which should be consulted by the individual municipalities for future plan updates. The participating jurisdictions were urged to consider mitigation actions for Repetitive Loss Properties within their boundaries, and were advised as to how municipal governments may coordinate with owners of private property to work towards mitigation measures for RLPs (or any other hazard-vulnerable assets) which are not publicly-owned.

During the planning process, the question arose as to how individual municipalities were to proceed with their development of mitigation strategies and actions in situations where other agencies such as the U.S. Army Corps of Engineers are known to be considering the implementation of (possibly large-scale) mitigation measures in the same area.

The Planning Group was advised that the full implementation of such proposed projects is not guaranteed, and that even if such projects are approved and funded, it can be many years before they are initiated. With that in mind, the communities were advised to decide whether they would be willing to risk the chance of damage over that interim period between the current planning process and the assumed completion date of studies and subsequent projects; particularly where implementation is not guaranteed.

However, if a community decides to defer mitigation actions pending studies for projects by other agencies, it is recommended that the study be visited during the five year update to ensure that sufficient progress is being made towards completion of a project, or to determine if another strategy is needed. It is also recommended that each community include at least one mitigation project regardless of hazard or whether there are any other plans or proposals, in order to receive credit from FEMA for having a mitigation plan which may be used to aid applications for grants to reduce risks from hazards not affected by the proposed plans.

SECTION 7 - ACTION ITEM EVALUATION AND PRIORITIZATION

This section includes information regarding the methodology and process followed by participating jurisdictions to evaluate and prioritize unique hazard mitigation actions for their particular communities. The guidance states that after considering a wide range of actions and projects for reducing the effects of each hazard (Part 201.6(c)(3)(ii), the plan must describe the subset of mitigation actions to be included in the mitigation strategy/action plan including how they will be prioritized, implemented and administered by the local jurisdictions (Part 201.6(c)(3)(iii). And for multi-jurisdictional plans such as this plan for Atlantic County, that there must be identifiable action items specific to each jurisdiction requesting FEMA approval or credit of the plan (Part 201.6(c)(3)(iv). *It states that the "STAPLEE" method (considering each project's social, technical, administrative, political, legal, economic and environmental aspects) can be used to evaluate potential actions for the mitigation strategy/action plan,* ***and*** *to prioritize those actions that the community selects as its mitigation actions.*

As stated in Section 6, Core Planning Group members ***analyzed*** the full range of possible actions identified in Table 6-1 according to this three-step process:

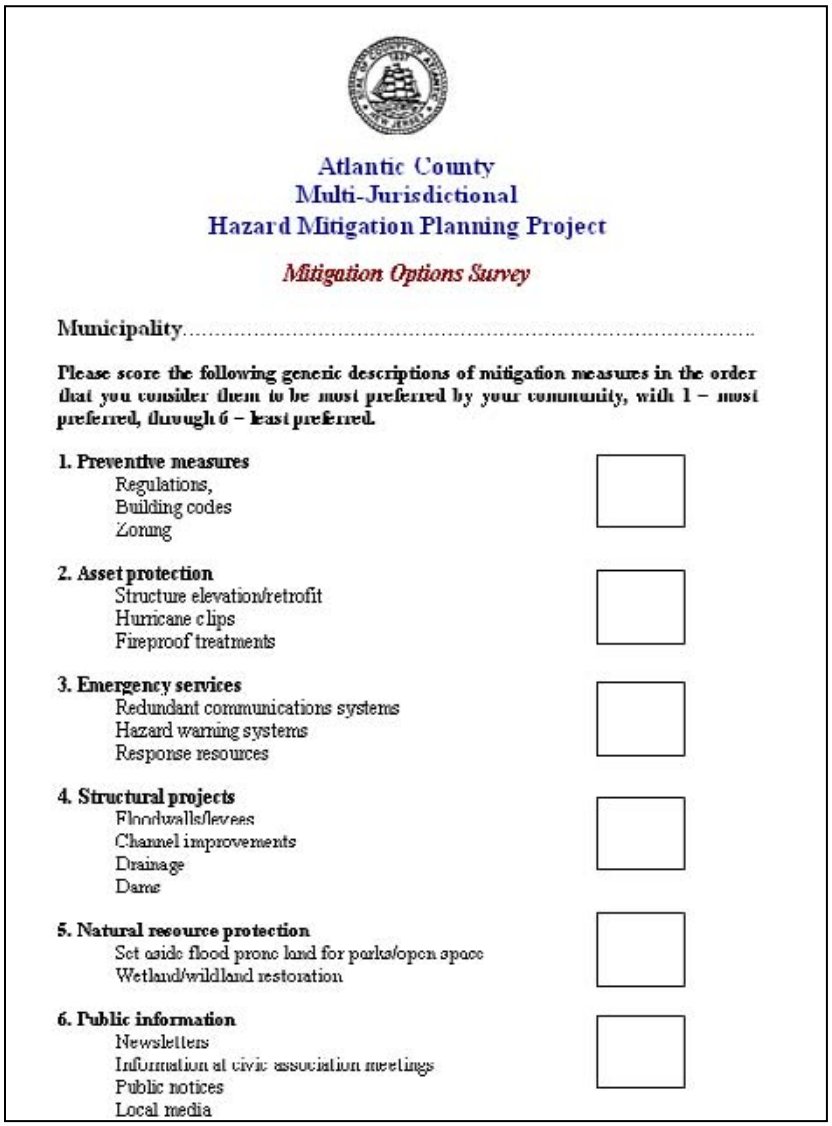
1. First, CPG members evaluated the actions in Table 6-1 against the hazards identified in their community (as presented in Section 3 Table 3-1). FEMA Region 2 requires that actions addressing each identified hazard (regardless of the degree of risk) shall be included in each local municipal mitigation strategy / action plan for each municipality.
2. Next, Core Planning Group Members conducted a **preliminary analysis** of each action item in Table 6-1, considering the action item in relation to the results of the risk assessment and unique local considerations to identify a subset of preferred action items that would be analyzed in more detail. The results of this preliminary analysis are presented in Table 6-2.
3. Finally, for the subset of preferred action items, Core Planning Group Members conducted a **detailed analysis and prioritization** using FEMA's STAPLEE approach.

This plan section speaks to Step 3 of the process outlined above, documenting the detailed analysis of preferred potential actions and their prioritization as undertaken during a working session of the Core Planning Group on May 11, 2009 and by individual JATs.

Working Session Warm-Up Activity

To initiate the evaluation and prioritization of potential mitigation actions, jurisdictional representatives who attended the working session were asked to complete a brief survey ranking six generic types of mitigation actions according to how they perceived each type of action would be preferred or appropriate to their community. The six categories of action types were taken from FEMA 386-3 "Developing the Mitigation Plan – Identifying Mitigation Actions and Implementation Strategies." At the working session, the consultant reminded CPG members that FEMA's mitigation planning guidance specifically states that any emergency services actions that are response, preparedness, or recovery (instead of true mitigation) can be included in the plan; however, they do not substitute for the mitigation action requirements of a Local Mitigation Plan and may not meet eligibility requirements for FEMA's mitigation grant programs. Mitigation option surveys were completed at the working session or returned shortly after by 18 jurisdictions, representatives of which ranked the measures in the order that they were considered to be most preferred by the community, with a score of "1" being most preferred, and a score of "6" being the least preferred. The Mitigation Options Survey form is reproduced on the next page.

**Note: This group warm-up activity was not intended to address any FEMA plan review criterion. It merely served to initiate the day's discussion, and paint a broad-brush picture of where local preferences may tend to lie on a county-wide basis in the area of hazard mitigation.*



Atlantic County
Multi-Jurisdictional
Hazard Mitigation Planning Project

Mitigation Options Survey

Municipality.....

Please score the following generic descriptions of mitigation measures in the order that you consider them to be most preferred by your community, with 1 – most preferred, through 6 – least preferred.

1. Preventive measures
Regulations,
Building codes
Zoning

2. Asset protection
Structure elevation/retrofit
Hurricane clips
Fireproof treatments

3. Emergency services
Redundant communications systems
Hazard warning systems
Response resources

4. Structural projects
Floodwalls/levees
Channel improvements
Drainage
Dams

5. Natural resource protection
Set aside flood prone land for parks/open space
Wetland/wildland restoration

6. Public information
Newsletters
Information at civic association meetings
Public notices
Local media

The overall results of this survey indicated that the most favored type of actions across the planning area were likely to be those related to enhancement of emergency services, while the least favored types of actions were likely to be those related to natural resource protection.

Mitigation Activity	Rank
Most preferred / appropriate:	
Emergency Services (e.g. Communication systems, response resources)	1
Structural Projects (e.g. Floodwalls/Levees, drainage, dams)	2
Preventive Measures (e.g. Regulations, building codes, and zoning)	3
Asset Protection (e.g. Structure retrofits for flood, wind and fireproofing)	4
Least preferred / appropriate:	
Public Information (e.g. education and outreach	5
Natural Resource Protection (e.g. Open space, wetlands preservation)	6

Detailed Analysis of Preferred Potential Actions and their Prioritization

The working session continued with a **detailed analysis** and prioritization of the subset of preferred action items. In order to further evaluate and ultimately prioritize the subset of preferred mitigation actions that were identified in the last step (that is, identified after the preliminary analysis discussed in Section 6), participants identified the ***benefits*** and ***costs*** of each preferred action using a planning concept called "STAPLEE". FEMA Guidance recommends that their "STAPLEE" method (considering each project's social, technical, administrative, political, legal, economic and environmental aspects) can be used to evaluate potential actions for the mitigation strategy/action plan, and also to prioritize those actions that the community selects as its mitigation actions. STAPLEE criteria are presented below in Table 7-1. FEMA breaks these criteria down into a series of 23 detailed considerations. These considerations were discussed at the working session as part of the explanation of how to complete the prioritization exercise.

Table 7-1
STAPLEE Criteria

Criteria	Detailed Considerations	Sample Benefit and Cost Scenarios
S Social	• Community acceptance • Affect on segment of population	Is the action unfair to one section of the community over others? If yes, it is a social cost associated with the action. If the implementation of the action helps achieve a social goal of the community, it is a social ***benefit*** associated with the action.
T Technical	• Technical feasibility • Long-term solution • Secondary impacts	Is the action a good technical solution to the problem? If yes, it is a ***benefit*** associated with the action. The better the solution, the higher the ***benefits***.
A Administrative	• Staffing • Funding allocation • Maintenance/operations	Is the action difficult to implement because of the administrative problems associated? If yes, it is an administrative ***cost***.
P Political	• Political support • Local champion • Public support	Is the action politically favored? If yes, it is a ***benefit.*** If the action is likely to be politically unacceptable, it is a ***cost*** associated with the action.
L Legal	• State authority • Existing local authority • Potential legal challenge	Are there perceived legal problems in implementing the action? If yes, it is a ***cost*** associated with the action.
E Economic	• Benefit of action • Cost of action • Contributes to economic goals • Outside funding required	Does implementing the action make economic sense? Are the ***costs*** too prohibitive? If yes, it is a cost associated with the action.
E Environmental	• Effect on land/water • Effect on endangered species • Effect on HAZMAT/waste sites • Consistent with community environmental goals • Consistent with federal laws	Does the action have adverse environmental effects? If yes, it is a ***cost*** associated with the action.

Jurisdictions conducted a ***detailed analysis of their preferred action items*** by rating the overall benefits and costs of each action against the STAPLEE criteria identified above according to FEMA How-To # 386-5 STAPLEE Method B. Using this methodology, to determine overall "*benefits*" for a certain action,

each jurisdiction considered qualitatively the individual social, technical, administrative, political, legal, economic, and environmental benefits for the action and then indicated whether the net benefits, overall, could be characterized as high, medium, or low. To determine overall "*costs*" for a certain action, each jurisdiction considered qualitatively individual social, technical, administrative, political, legal, economic, and environmental costs for that action and then indicated whether the net costs, overall, could be characterized as high, medium, or low. These overall '*benefits'* and '*costs'* were noted on the worksheet, and the jurisdictions concluded by prioritizing each preferred action based on its overall benefits and costs.

It is important to note that a modified version of FEMA How-To #386-5 STAPLEE Method B was used. Because FEMA 386-5 included sample methodologies for applying a weighted score for only the two most complex STAPLEE methodologies (Methods C and D) but not for the more straightforward Method B, the consultant guided the CPG through a slightly modified Method B which used the methodology as presented in FEMA 386-5, but with a special weight placed on three factors: ease of implementation, achievement of multiple mitigation objectives, and how quickly the action can be implemented. During future plan updates, the CPG will reevaluate FEMA How-To #5 to determine if the currently selected modified Method B continues to be deemed most appropriate for this planning project, or if a collective desire exists amongst CPG members to switch to one of the more complex Methods C or D.

Since a qualitative approach was taken for the evaluation and prioritization of mitigation actions, jurisdictions were permitted to apply their own internal weightings to the costs and benefits of actions under each category, hence on the completed worksheets the overall priority of an action may not reflect a straightforward arithmetic comparison of its total "benefits" and total "costs".

All action items not selected for prioritization by a given community after considering the STAPLEE factors received a low priority. In the future, communities may still seek to pursue other actions which they evaluated but did not select for prioritization at this time, including but not limited to those discussed in Section 6 (and associated studies, funding, etc. for these actions).

The qualitative methodology described above and employed during this planning process is sufficient to meet FEMA requirements for the evaluating the benefits and costs of selected mitigation actions in a multi-jurisdictional hazard mitigation plan. However, it should be noted that for each individual action which becomes the subject of a grant application in the future, a formal and robust *quantitative* benefit-cost analysis will be required.

In addition to hazard mitigation projects, FEMA requires that each jurisdiction evaluate a set of actions specifically aimed at continuing participation in and compliance with FEMA's National Flood Insurance Program (per FEMA's new guidance released in July 2008, Part 201.6(c)(3)(ii)). These actions include updating floodplain management ordinances to comply with the latest FEMA regulations and adopted flood maps, additional employment/training of staff to enforce the ordinances, and participation in FEMA's Community Rating System (CRS).

Appendix D and its addendum contain a detailed analysis and prioritization worksheets (STAPLEE) completed by each participant for their selected actions. Each participant identified at least two action items for implementation. The action items ultimately selected address every profiled hazard, for every participating jurisdiction.

Appendix F contains prioritization and implementation strategy worksheets for those actions specifically related to continued and/or enhanced compliance with FEMA's National Flood Insurance Program. During subsequent plan updates, jurisdictions should consider FEMA's new Toolkit file, A Guide to NFIP Requirements ("4-strat-3-nfip-requirements"), provided herein at the

end of Appendix F. Jurisdictions with questions about the NFIP, or who are seeking information about the procedure to join or rejoin the NFIP, should contact NJDEP State NFIP Coordinators, John Moyle or Joseph Ruggeri at 609-984-0859/663-7297and/or FEMA Region 2, Chief of Floodplain Management & Flood Insurance Branch, Mary Colvin at 212-680-3622.

Note to the reviewer: The next section in this plan, entitled "Implementation Strategy," will expand upon the prioritization step by identifying the hazard addressed, if the action applies to new and/or existing assets, the primary agency responsible for action item completion, any existing local planning mechanisms through which the action item will be implemented, target date for completion, estimated cost, and funding source.

SECTION 8 - IMPLEMENTATION STRATEGY ("ACTION PLAN")

This section includes information regarding the process followed by participating jurisdictions to implement and administer their selected mitigation actions. FEMA's guidance states that after considering a wide range of actions and projects for reducing the effects of each hazard (Part 201.6(c)(3)(ii), the plan must describe the subset of mitigation actions to be included in the mitigation strategy/action plan including how they will be prioritized, implemented and administered by the local jurisdictions (Part 201.6(c)(3)(iii). And for multi-jurisdictional plans such as this plan for Atlantic County, that there must be identifiable action items specific to each jurisdiction requesting FEMA approval or credit of the plan (Part 201.6(c)(3)(iv).

The implementation strategy ("action plan") developed by participants at the May 11, 2009 Working Session for selected and prioritized action items is community-specific for each jurisdiction. Participants were asked to develop an implementation strategy for preferred action items they selected and prioritized (in Sections 6 and 7) for their respective communities using worksheets developed specifically for this task. The implementation strategy developed by each participant was based on each participant's qualitative analysis of social, technical, administrative, political, legal, economic, and environmental benefits and costs associated with each selected action.

Each community addressed how their preferred actions will be implemented and administered. For each selected and prioritized action item, participants identified the hazard addressed, if the action applies to new and/or existing assets, the primary agency responsible for action item completion, any existing local planning mechanisms through which the action item will be implemented, target date for completion, estimated cost, and funding source. For jurisdictions which provided qualitative project costs ("high/medium/low"), a range of dollar values for these designations will be provided at the first plan update (or more detailed, quantitative cost estimates if possible).
All action items not selected for prioritization by a given community after considering the STAPLEE factors received a low priority. In the future, communities may still seek to pursue other actions which they evaluated but did not select for prioritization at this time, including but not limited to those discussed in Section 6 (and associated studies, funding, etc. for these actions).

All participating jurisdictions who will be adopting this plan will undertake the following high priority public outreach actions at a minimum, as part of their plan maintenance obligation:

- Each participating jurisdiction will add a link on their jurisdiction's web page to the County mitigation planning website, if they have not already done so as part of the plan development process.
- Participating jurisdictions will conduct annual interviews and/or smaller meetings with civic groups, the public and other stakeholders. This will be accomplished through incorporating discussion of the mitigation plan into other regularly attended meetings.
- Participating jurisdictions will consider annual flyers, newsletters, newspaper advertisements, and Radio/TV announcements, and will implement some or all of the above at the discretion of the jurisdiction.

Appendix E and its addendum contain completed worksheets for community-specific implementation strategies. The action items ultimately selected address every profiled hazard, for every participating jurisdiction.

Appendix F and its addendum contain prioritization and implementation strategy worksheets for those actions specifically related to continued and/or enhanced compliance with FEMA's National Flood Insurance Program.

SECTION 9 - PLAN MAINTENANCE

It is required by FEMA (as per 44 CFR Part 201.6(c)(4)(i) that, "*[The plan maintenance process shall include a section describing the] method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle."* A formal plan maintenance process must take place to ensure that the Hazard Mitigation Plan remains an active and pertinent document. Regularly scheduled evaluations during the five-year cycle are important to assess the effectiveness of the program and to reflect changes that may affect mitigation priorities.

URS Corporation (URS), as the consulting company, was able to provide the Core Planning Group with guidance on potential means to satisfy the requirement for plan maintenance procedures. However, it was the members of the Core Planning Group who were in the best position to define the process. URS submitted a Guidance Memorandum (Guidance Memorandum #2 – Plan Maintenance Procedures) to summarize FEMA requirements for plan monitoring, evaluation, and updates to the Atlantic County Office of Emergency Preparedness (ACOEP) on January 6, 2009. It was also posted to the mitigation planning website for review by Core Planning Group members, the public, and other stakeholders.

Team members were asked to provide feedback regarding their desires for plan maintenance to ACOEP. ACOEP, in turn, worked with the Consultant to develop this mitigation strategy to best reflect expressed preferences. The information presented below represents these decisions, as provided to URS through ACOEP. These methods will ensure that regular review and updating of the Hazard Mitigation Plan will occur.

Mr. Edward Conover of the ACOEP, who was identified as Coordinator for this mitigation planning project, will oversee the overall plan maintenance process. ACOEP will take the lead on plan monitoring and evaluation steps, and any required plan updates, with help from the rest of the County Mitigation Planning Jurisdictional Assessment Team.

Monitoring the Plan

An important step in any mitigation planning process is to document the method by which the Core Planning Group will monitor the Hazard Mitigation Plan throughout the five-year period of record. To accomplish this objective, the Core Planning Group has elected to prepare **Annual Work Progress Monitoring Reports**, prepared by entities responsible for implementing mitigation actions (as identified in the Mitigation Strategy). Progress Monitoring Reports shall be submitted on an annual basis to ACOEP, beginning one year from the date of FEMA's approval of the Final plan. Work progress reports shall be the FEMA How-To #4 (FEMA 386-4), Worksheet #1, Progress Report. Using the FEMA Progress Reports will answer the following questions:

- the hazard mitigation action(s) that the agency is responsible for
- the supporting agencies/entities responsible for implementation;
- a delineation of the various stages of work along with timelines (milestones should be included);
- whether the resources needed for implementation, funding, staff time and technical assistance are available, or if other arrangements must be made to obtain them;
- the types of permits or approvals necessary to implement the action;
- details on the ways the actions will be accomplished within the organization;
- whether the duties will be assigned to agency staff or contracted out;
- the current status of the project; and
- identifying any issues that may hinder implementation.

On a case-by-case basis, ACOEP will determine if site visits, phone calls, and/or meetings would be beneficial to supplement Annual Work Progress Monitoring Reports. If so, ACOEP will initiate the site visits/calls/meetings as applicable.

Evaluating the Plan

Post adoption, a mitigation plan should be evaluated on a regular basis in order to assess the effectiveness of the plan's implementation and to reflect changes that may affect the mitigation priorities.

To accomplish this objective, the Core Planning Group will convene once per year for an **Annual Plan Evaluation Meeting**. Plan Evaluation Meetings will be conducted within three months after each annual batch of Progress Reports are due (see "Monitoring", above). At each Plan Evaluation Meeting, the Planning Group will review Progress Reports, and use the following criteria to evaluate the plan:

- do the goals and objectives address current and expected conditions?
- has the nature and magnitude of risks changed?
- are the current resources appropriate for implementing the plan?
- are there any implementation problems (such as technical, political and/or legal), or coordination issues with the other agencies and/or Committee members?
- have the outcomes occurred as expected?
- have the agencies and other Committee partners participated as proposed?; and
- where shortcomings are identified, what can be done to bring things back on track?

Following each Annual Plan Evaluation Meeting, the ACOEP will prepare meeting minutes summarizing the outcome of the evaluation meeting. ACOEP will distribute meeting minutes to all Core Planning Group members via email, and will post meeting minutes on the web site.

Updating the Plan

As part of the process to maintain FEMA mitigation funding eligibility, a plan update must always be submitted to NJOEM/FEMA for their review. This must occur within five years of the plan's approval by FEMA (and during subsequent five-year cycles thereafter).

To accomplish this objective, ACOEP will take the lead on Plan updates, with support from the Core Planning Group members. ACOEP will conduct Update Appraisals. During the Update Appraisal, the ACOEP will evaluate the current Plan, Annual Progress Reports, and Annual Plan Evaluation Meeting Minutes. ACOEP will conduct the Update Appraisals at 3.5 years from the date of FEMA's approval of the Final plan, and at the same point in time during subsequent five-year windows (i.e., from the date of FEMA's approval of the final plan, Update Appraisals will occur at Year 3.5, Year 8.5, Year 13.5, etc.). The Planning Group has selected Year 3.5 as the point for the Update Appraisals to ensure that sufficient time (18 months) will be available to update the document within the five year cycle, receive FEMA's re-approval, and for local jurisdictions to formally adopt the updated plan.

The plan update will not only involve a comprehensive review and evaluation of each section of the plan, but also a discussion of the results of evaluation and monitoring activities detailed in the Plan Maintenance section of the previously approved plan. Plan updates may validate the information in the previously approved plan, or may involve a major plan rewrite. A plan update cannot be an annex referring to the previously approved plan; it must stand on its own as a complete and current plan.

Other criteria that will be considered during the update include:

- if changing situations have modified goals/objectives/actions and/or hazards;
- if additional information is available to perform more accurate vulnerability assessments;
- if it is determined that participating jurisdictions wish to be added to and/or removed from the Plan; or
- if it is determined that the Plan no longer addresses current and expected future conditions.

At the time of the update, ACOEP shall consult with FEMA for the latest Guidance in place regarding plan updates to ensure that the latest criteria are addressed in the update process.

ACOEP will prepare an updated plan, and circulate it to Core Planning Group members via email for their review and comment. Comments will be due back to ACOEP within 14 days; lack of response will be assumed to indicate concurrence with the ACOEP appraisal. Comments received which cannot be resolved remotely will trigger an Update Resolution Meeting of the Core Planning Group to resolve differences and develop a joint determination on how to modify the document.

Any plan updates will be released for public review and comment. The updated plan will be posted on the County web site, and made available in hard copy at the ACOEP offices. Notification to the public will also be issued to this same effect, and interested parties will be given 30 days to provide comments to ACOEP.

Public Participation in Plan Maintenance

As per 44 CFR Part 201.6 (c)(4)(iii) states, *"[The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process."* To meet this requirement, the new Hazard Mitigation Plan should describe what opportunities the public will have during the plan's periodic review to comment on the progress made to date and on any proposed plan revisions.

The following array of activities was selected by selected by the ACOEP based on feedback received from Core Planning Group members. It has been developed in consideration of not only the regulations but also with an aim to invoke additional public participation, since limited public response was received during the plan development process despite opportunities that were presented. It has also been developed with an aim to build upon outreach activities to other stakeholders that was undertaken as part of the plan development process.

- ACOEP will continue to maintain the mitigation planning website and document repositories.
- Each participating jurisdiction will add a link on their jurisdiction's web page to the County mitigation planning website, if they have not already done so as part of the plan development process.
- ACOEP will lead efforts to prepare an annual fact sheet on the plan. This fact sheet will be submitted via email to Planning Group members for posting on community notice boards, at a minimum, and preferable supplemented with distribution at meetings as applicable. ACOEP will post the fact sheet on the county mitigation plan web site.
- ACOEP will lead efforts to prepare a survey for the public and other stake holders which will be posted on the County mitigation planning web site and in document repositories. Survey forms will be shared with participating jurisdictions for their

use, as well. All feedback will be directed to ACOEP as a central location. Survey feedback will be a topic of discussion at Annual Plan Evaluation Meetings

- Participating jurisdictions will conduct annual interviews and/or smaller meetings with civic groups, the public and other stakeholders. This will be accomplished through incorporating discussion of the mitigation plan into other regularly attended meetings.
- Participating jurisdictions will consider annual flyers, newsletters, newspaper advertisements, and Radio/TV announcements to maintain public awareness of the plan, and will implement some or all of the above at the discretion of the jurisdiction. Each jurisdiction will make copies of any written materials used for this purpose, to be held in a central file by ACOEP.
- ACOEP will establish a telephone hotline service (preferably a toll-free number) for interested parties to ask questions or submit feedback regarding the plan.
- ACOEP will maintain a detailed record of all communications between ACOEP and interested parties subsequent to plan approval and adoption.
- Participating jurisdictions will consider offering working groups by topic area (such as land use, hazard, mitigation action, etc.) if deemed necessary based upon feedback obtained during the plan maintenance cycles.
- Participating jurisdictions will each conduct an annual town hall meeting on the progress of the mitigation plan.
- Since there was limited response to the initial outreach efforts, CPG members will consider more targeted outreach to other stakeholders during the plan update, and will document these efforts in Section 1 of any plan updates. This will include consideration of direct outreach to inform and involve additional stakeholders in the plan development process, including (a) academia (such as local school districts, colleges and universities); (b) non-profit interests (such as the American Red Cross, hospitals, nursing homes, or other community associations); and (c) neighboring jurisdictions that do not have mitigation plans.

Plan Integration

As per 44 CFR Part 201.6(c)(4)(ii), *"[The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate."*

To meet this requirement, the new Hazard Mitigation Plan should indicate how mitigation recommendations will be integrated into job descriptions, or existing planning mechanisms such as comprehensive plans, capital improvement plans, zoning and building codes, site reviews, permitting and other planning tools, where such tools are appropriate. In other words, "plan integration" can be thought of as the process whereby each local government will incorporate the plan findings and projects into their governing systems.

URS Corporation (URS), as the consulting company, was able to provide the Planning Group with guidance on potential means to satisfy the requirement for plan integration procedures. However, it was the members of the Core Planning Group who were in the best position to define the process. URS submitted a Guidance Memorandum (Guidance Memorandum #3 – Plan Integration) to ACOEP on January 6 2009, to summarize FEMA requirements for integrating the plan into other local planning mechanisms. It was also posted to the mitigation planning web site soon after for review by Core Planning Group members, the public, and other stakeholders.

Team members were asked to provide feedback regarding their desires for plan integration to ACOEP. ACOEP, in turn, worked with the Consultant to develop this mitigation strategy to best reflect expressed preferences. The information presented below represents these decisions, as provided to URS through ACOEP. These methods will ensure that regular integration of the Hazard Mitigation Plan will occur.

ACOEP, with input from URS and the Core Planning Group member feedback, noted the following capabilities in relation to mitigation planning and opportunities to integrate the mitigation plan into daily activities. Progress with regard to Plan Integration will be on the agenda for each Annual Plan Evaluation Meetings.

Participating jurisdictions currently use comprehensive land use planning, capital improvements planning and building codes to guide and control development. After the Hazard Mitigation Plan is formally adopted, these existing mechanisms will have hazard mitigation strategies integrated into them, as follows:

- Within six months after adoption of the Hazard Mitigation Plan, Core Planning Group members for each participating jurisdiction will issue a letter to each of its community's department heads to solicit their support and explore opportunities for integrating hazard mitigation planning objectives into their daily activities. Specifically, letters can include:

    - Many participating jurisdictions have Master Plans, General or Comprehensive Plans. In participating jurisdictions where Master Plans, General or Comprehensive Plans exist, Core Planning Group members will work with their respective planning departments to educate them on the Hazard Mitigation Plan and encourage that on the next updates of such plans, hazard mitigation for natural hazards is addressed.
    - Many participating jurisdictions have local building departments responsible for building code enforcement and review of site plans. Local jurisdictions enforce the state-adopted IBC. In these communities, Core Planning Group Members can coordinate with their respective building departments to ensure that they have adopted and are enforcing the minimum standards established in the State-adopted IBC.
    - Many participating jurisdictions participate in FEMA's National Flood Insurance Program and as such have local floodplain management ordinances. In these communities, Core Planning Group Members can coordinate with their respective Floodplain Administrator to determine if enforcement beyond FEMA minimum requirements would be prudent for the community.
    - In participating jurisdictions with local zoning ordinances, Core Planning Group members can work with their zoning boards to educate them on the Hazard Mitigation Plan and encourage consideration of low occupancy, low-density zoning in hazard areas, when practicable.

- Participating jurisdictions will consider working with their department or agency heads to revise job descriptions of government staff to include mitigation-related duties to further institutionalize hazard mitigation. This change would not necessarily result in great financial expenditures or programmatic changes. For example, the How-To presents the following language which could be considered for adding into job descriptions for a community planner, floodplain manager, emergency manager, building code official, or water resources engineer in the Public Works Department, or Town Engineer:

Knowledge, Skills and Abilities

Knowledge. Knowledge of the principles of emergency management, specifically hazard mitigation. Knowledge of the principles and practices of sustainable development and how it is incorporated into hazard mitigation planning. Knowledge of FEMA's pre- and post-disaster mitigation programs, as well as other federal agency programs (HUD, EPA, SBA) that provide technical and/or financial assistance for implementing pre- or post-disaster mitigation planning. Knowledge of private/non-governmental programs that can support reconstruction and mitigation strategies.

Skills. Consensus building and team building, communication (verbal and written), and interpersonal skills.

Abilities. Ability to apply planning principles and tools to the goals of hazard loss reduction.

- Instead of solely relying on funding from hazard mitigation programs or other external sources of grant monies, participating jurisdictions may consider a line item for mitigation project funding in their capital or operational budgets. Having a line item in these budgets may not guarantee funding every year, but it is certainly easier to get the money allocated if it is already there. Examples include:
  - A revolving fund to finance a buyout program.
  - A low-interest loan program to fund retrofits.

- Participating jurisdictions with comprehensive/master plans will add hazard components to the plan as one of the most effective mechanisms to institutionalize hazard mitigation for new construction. Municipalities should consider all natural hazards which have been identified in this Hazard Mitigation Plan as hazards of significance for their particular municipality. In New Jersey, natural hazards are often addressed in a master plan's Land Use and/or Conservation Elements (some of the more common examples which many municipalities are most familiar with are discussions regarding development within floodplains or on steep slopes). A primary benefit of combining these processes is that they both influence the location, type, and characteristics of physical growth, specifically buildings and infrastructure. While planning in and of itself may not be regulatory, it uses regulatory mechanisms (zoning, development ordinances, etc.) for implementing goals and objectives. The New Jersey Municipal Land Use Law provides the legal framework for a local jurisdiction to adopt a master plan and regulate land use through enacting zoning and land use ordinances that are consistent with their master plan. Additionally, in many parts of the country, the comprehensive planning process is an established activity that is already familiar to the public, and it usually generates a great deal of interest and public participation. Two jurisdictions feel that existing rules, regulations and/or ordinances can adequately address plan integration without modifying their comprehensive plan:

  - Egg Harbor Township's Deputy Administrator has expressed the position that adding hazard components to the master plan is not necessary due to the presence of other existing rules, regulations and zoning. They have instead indicated that in the future, if the Township should wish to incorporate standards above the existing rules and regulations then they will do so through zoning, not a section in the Master Plan.
  - Brigantine's Director of Emergency Management also indicated that due to existing codes, modification to the Master Plan itself may be unnecessary.

Examples of using existing resources to accomplish mitigation include:

- Core Planning Group members will work with their local Department of Public Works to adopt more rigorous procedures for inspecting and cleaning debris from streams, ditches, and storm drain systems. For example, instead of cleaning only after storms or complaints from citizens, or on an annual basis, the Department could require inspections of streams and ditches at least twice per year and after a significant rain event.
- Participating jurisdictions will seek to add hazard vulnerability to subdivision and site plan review criteria and incorporate any necessary actions at the planning stage.
- ACOEP will seek to identify a community conservation society or other interested voluntary organization that could perform inventories of historic sites in hazard areas that might require special treatment to protect them from specific hazards.
- Partners and nonprofit organizations and businesses can assist the planning team in a number of ways, by including lending expertise, discounted materials, staff or volunteer time, or meeting space. The planning team can in response offer these entities opportunities for greater public exposure and thus, greater recognition. The planning team can inform partners about the hazards they potentially face, the ways they can mitigate these hazards, and how their staff can mitigate hazards at home. Participating jurisdictions will reach out to partner groups in their communities to identify those who may be willing to donate goods or services and create a database of contact information and indicated goods/services.
- Citizens have an ongoing role to play in project implementation. The planning team should actively seek volunteers to help implement programs and activities. Knowledgeable citizens, including those from the emergency services, can also be recruited to provide expertise in specific subject areas. The more the team involves members of the community in implementing the plan, the greater the support it will receive.
- State agencies can lend their time, expertise and funds to the implementation of hazard mitigation projects. ACOEP will make sure the planning team's list of state contacts is very broad, as the resources of one state agency may be unknown to another. ACOEP will assist participating jurisdictions in reaching out to state agencies for support.
- Colleges and universities can provide technical expertise to projects that may require Geographic Information System (GIS), engineering, planning or other expertise and technical assistance. They can also provide meeting space, laboratories and other logistical support. ACOEP will assist participating jurisdictions in reaching out to educational institutions for support.
- Community libraries are an excellent source of information and services, including volunteers. Participating jurisdictions will meet once each five years with their local library staff members to discuss the mitigation plan so they are well-versed in its purpose and understand where to direct interested parties for more information, to provide feedback, or to become involved.

SECTION 10 - FOR MORE INFORMATION

If you have any questions or comments on the Atlantic County Multi-Jurisdictional Hazard Mitigation Plan, additional information can be obtained by contacting your local municipality or:

Edward Conover
Coordinator
Atlantic County Office of Emergency Preparedness
5033 English Creek Avenue
Egg Harbor Township, New Jersey 08234
Phone: (609) 407-6742
Fax: (609) 407-6745
E-Mail: conover_edward@aclink.org

APPENDIX A –

DETAILED TABLES: ASSET VALUES IN IDENTIFIED HAZARD AREAS

Appendix A contains detailed tables presenting the numbers of parcels wholly or partially within delineated hazard areas (i.e. for those identified hazards for which the occurrence or impact is not considered to apply uniformly across the whole county) and associated improved property values broken down by land use and development type.

Affected improvement values have been calculated on a pro-rata basis: the value of improvements exposed to a hazard on any parcel is assumed to be proportional to the percentage of the parcel area covered by the hazard zone. It should be noted that this method will result in inflated parcel counts where a parcel is covered by more than one unique hazard zone. Therefore a parcel that has portions covered by both VE and A flood zones will appear once in the VE row and once in the A row accompanied by the adjusted pro-rata values.

Delineated hazards presented in this Appendix:

Wildfire
Flood (including wave action zones)
Storm Surge
Coastal Erosion

Wildfire: Improved Property Values and Parcels in High/Extreme Risk Areas

Municipality	Risk Zone	Residential		Non Residential (Commercial / Industrial)		Non Residential (Institutional / Utility / Other)		Developed Open Space		Agriculture		Shrub / Grass / Forest / Wetlands / Barren		Summary	
		Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels
Absecon, City of	Extreme	$517,406	44	$686,928	11	$75,415	4					$255,065	176	$1,534,814	235
	High	$2,615,750	166	$1,254,508	20	$89,940	7	$3,246,410	18			$212,927	221	$7,419,535	432
Atlantic City, City of	Extreme							$20,029,399	4					$20,029,399	4
	High											$61,028	24	$61,028	24
Brigantine, City of	Extreme													$0	0
	High													$0	0
Buena, Borough of	Extreme	$235,546	25	$89,722	3	$0	3	$12,625	2	$84,558	36	$470,426	72	$892,877	141
	High	$403,191	26	$646,120	8	$0	3	$73,685	5	$140,173	36	$956,660	56	$2,219,829	134
Buena Vista, Township of	Extreme	$4,899,120	124	$2,975,347	15	$601,511	33	$107,858	14	$876,963	71	$9,940,354	2,038	$19,401,153	2,295
	High	$10,524,556	289	$2,747,643	26	$511,250	28	$2,697,963	21	$1,688,846	122	$26,054,840	4,595	$44,225,098	5,081
Corbin City, City of	Extreme	$724,242	17	$24,124	5	$42,054	5			$78,293	8	$2,651,838	107	$3,520,551	142
	High	$1,012,124	28	$191,719	4	$0	3			$45,193	6	$891,096	100	$2,140,131	141
Egg Harbor City, City of	Extreme	$59,516	37	$64,800	38	$0	28	$69,191	1	$0	13	$814,787	4,956	$1,008,294	5,073
	High	$325,103	119	$12,427	59	$2,582	75	$153,039	8	$0	38	$1,078,975	6,951	$1,572,125	7,250
Egg Harbor, Township of	Extreme	$62,396,091	775	$28,563,936	106	$754,207	36	$22,105,227	133	$843,580	51	$81,181,716	2,286	$195,844,757	3,387
	High	$289,017,653	2,619	$48,075,435	156	$11,225,606	43	$89,683,064	447	$2,642,950	79	$422,431,244	5,488	$863,075,951	8,832
Estell Manor, City of	Extreme	$1,357,701	50	$4,143	2	$0	2	$21,940	8	$349,763	16	$4,747,042	615	$6,480,589	693
	High	$6,620,485	141	$47,979	2	$1,433	4	$1,132,347	24	$634,051	24	$15,153,568	3,758	$23,589,861	3,953
Folsom, Borough of	Extreme	$2,977,910	127	$4,150,029	30	$291,109	15	$130,910	8	$68,645	13	$5,731,037	651	$13,349,640	844
	High	$6,006,303	137	$255,150	12	$154,503	9	$193,913	8	$121,827	11	$4,207,737	344	$10,939,433	521
Galloway, Township of	Extreme	$37,069,631	673	$6,557,477	60	$717,643	35	$4,467,289	49	$2,791,379	162	$102,732,342	2,209	$154,335,762	3,188
	High	$166,439,045	2,313	$26,783,150	82	$752,753	61	$12,279,047	96	$3,889,087	212	$154,105,278	4,740	$364,248,360	7,504
Hamilton, Township of	Extreme	$13,970,142	410	$15,234,352	34	$2,303,369	25	$11,826,131	55	$1,383,256	80	$32,357,698	7,648	$77,074,948	8,252
	High	$82,393,364	1,289	$126,849,940	72	$4,015,582	45	$24,513,905	144	$2,026,865	96	$108,278,607	13,302	$348,078,264	14,948
Hammonton, Town of	Extreme	$4,751,643	105	$1,127,949	17	$3,132,777	20	$168,960	13	$881,781	75	$6,404,238	286	$16,467,347	516
	High	$11,304,606	236	$2,056,955	34	$5,659,808	27	$122,770	23	$1,202,819	112	$13,942,001	498	$34,288,960	930
Linwood, City of	Extreme	$174,394	11	$14,507	2					$23,176	1	$391,035	9	$603,111	23
	High	$3,132,111	91	$2,117,973	4	$1,901	3					$302,050	18	$5,554,034	116
Longport, City of	Extreme													$0	0
	High													$0	0
Margate City, City of	Extreme												57	$0	57
	High												405	$0	405
Mullica, Township of	Extreme	$9,524,064	261	$630,929	12	$1,393,568	15	$769,282	15	$1,128,380	102	$19,579,453	1,913	$33,025,675	2,318
	High	$19,601,687	468	$1,118,332	18	$171,011	14	$178,534	27	$2,089,897	128	$30,651,600	3,002	$53,811,061	3,657
Northfield, City of	Extreme	$672,419	30	$2,528,197	16	$181,375	3	$155	5	$3,123	1	$421,286	25	$3,806,554	80
	High	$2,327,487	112	$13,052,523	28	$3,743	5	$1,463	4	$57,422	2	$1,160,116	42	$16,602,754	193
Pleasantville, City of	Extreme	$1,736,749	77	$2,775,253	12	$667,234	16	$529,733	13			$401,332	67	$6,110,301	185
	High	$5,594,839	136	$8,089,969	23	$560,607	10	$4,553,304	26			$9,179,283	320	$27,978,002	515
Port Republic, City of	Extreme	$3,428,455	74					$903,903	8	$209,388	8	$3,204,661	246	$7,746,408	336
	High	$5,161,557	111	$379	1	$25,611	1	$383,731	9	$493,392	19	$5,294,670	269	$11,359,341	410
Somers Point, City of	Extreme	$550,264	17	$694,170	2	$247,154	3	$138,081	2			$118,116	17	$1,747,784	41
	High	$1,300,517	52	$1,396,706	27			$189,914	5			$228,382	29	$3,115,520	113
Ventnor, City of	Extreme												10	$0	10
	High												56	$0	56
Weymouth, City of	Extreme	$2,176,879	63	$788	1	$75,582	4			$225,898	19	$2,892,496	476	$5,371,644	563
	High	$4,338,595	103	$69,767	6	$21,470	2	$2,147,388	16	$493,995	36	$13,088,684	880	$20,159,899	1,043
	Total	$765,341,145	11,356	$300,889,325	948	$33,680,799	587	$202,831,161	1,211	$24,474,700	1,577	$1,081,573,666	68,962	$2,408,790,796	84,641

Flood: Improved Property Values and Parcels in Mapped Flood Risk Zones

Municipality	Flood Risk Zone	Residential		Non Residential (Commercial / Industrial)		Non Residential (Institutional / Utility / Other)		Developed Open Space		Agriculture		Shrub / Grass / Forest / Wetlands / Barren		Summary	
		Value of Improvements	Parcels	Value of Improvements	Parcels	Value of Improvements	Parcels	Value of Improvements	Parcels	Value of Improvements	Parcels	Value of Improvements	Parcels	Value of Impr.	Parcels
Absecon, City of	A	$1,441	2	$19,788	1									$21,229	3
	AE	$19,951,819	379	$2,175,114	33	$134,890	19	$44,080	24	$0	1	$7,393,821	311	$29,699,725	767
	D					$0	1							$0	1
	X	$146,670,561	2,244	$41,053,968	190	$448,210	17	$11,394,585	34	$90,630	3	$639,756	208	$200,297,710	2,696
	X500	$26,932,596	550	$2,300,210	43	$387,515	25	$0	9	$0	2	$390,833	231	$30,011,154	860
Atlantic City, City of	AE	$384,736,823	9,421	$4,657,640,807	6,343	$20,671,264	1338	$456,209,727	270			$29,013,873	324	$5,548,272,493	17,696
	VE	$1,634,988	4	$53,822,172	17	$890,336	36	$7,499,616	9			$10,286,827	117	$74,133,939	183
	X500	$79,992,391	1,391	$128,793,239	669	$115,401	34	$5,457	9					$208,906,487	2,103
Brigantine, City of	AE	$438,211,632	7,631	$40,113,803	748	$3,139,502	51	$1,354,217	31			$821,888	47	$483,641,042	8,508
	VE	$22,373,773	491	$822,720	117	$0	2	$0	46			$208,737	21	$23,405,230	677
Buena, Borough of	A	$216,865	7			$237,709	1			$48,324	17	$63,625	11	$566,522	36
	X	$82,005,655	1,172	$21,711,896	105	$7,753,843	93	$4,150,589	12	$11,343,855	237	$4,213,602	151	$131,179,439	1,770
Buena Vista, Township of	A	$10,421,010	123	$448,271	6	$0	3	$453,258	10	$144,216	20	$3,524,304	227	$14,991,059	389
	AE	$9,726	1							$3,434	1			$13,160	2
	X	$240,759,927	1,831	$45,261,625	96	$6,669,341	92	$27,467,567	43	$50,934,588	451	$92,184,530	7,006	$463,277,579	9,519
	X500	$14,019	3											$14,019	3
Corbin City, City of	A	$70,977	3	$0	1	$79,184	1			$967	2	$307,733	27	$458,861	34
	AE	$5,294,613	55	$530,394	1	$0	3			$96,194	4	$2,526,731	55	$8,447,932	118
	D													$0	0
	X	$7,043,294	82	$1,387,697	11	$100,722	5			$812,065	13	$5,291,349	164	$14,635,126	275
	X500	$1,842,540	33	$1,175,222	6	$0	2			$395,110	13	$1,579,707	48	$4,992,579	102
Egg Harbor City, City of	A	$102,227	16			$0	7	$177,099	1			$12,348	1,274	$291,674	1,298
	AE	$627,803	98	$0	13	$8,224	152	$29,637	10	$4,587	32	$240,877	9,802	$911,128	10,107
	X	$50,629,851	2,123	$20,432,511	527	$3,318,543	195	$262,320	81	$7,243	83	$2,934,457	10,543	$77,584,923	13,552
	X500	$758,762	133	$26,064	25	$392,645	84	$42,215	29	$1,238	80	$89,391	3,535	$1,310,315	3,886
Egg Harbor, Township of	A	$1,178,737	16	$2,377,580	6	$442,208	1	$3,179,591	11	$858	1	$17,273,359	252	$24,452,333	287
	AE	$133,987,982	873	$35,764,550	64	$1,894,017	31	$9,671,109	52	$4,364,520	38	$46,273,394	681	$231,955,573	1,739
	X	$1,372,492,055	7,626	$541,054,152	422	$143,132,153	147	$262,462,375	671	$36,895,509	226	$717,446,804	7,420	$3,073,483,048	16,512
	X500	$95,469,139	726	$5,075,908	17	$793,889	18	$5,011,842	38	$2,718,423	40	$15,938,438	579	$125,007,638	1,418
Estell Manor, City of	A	$488,295	11					$352,204	46	$176,759	10	$626,087	207	$1,643,345	274
	AE	$52,066	1											$52,066	1
	D													$0	0
	X	$36,139,328	338	$866,780	6	$529,150	10	$6,464,996	97	$5,948,081	65	$50,874,362	6,191	$100,822,697	6,707
Folsom, Borough of	A	$1,410,796	15	$145,691	6	$72,586	2	$49,273	1	$239,291	12	$6,871,664	123	$8,789,301	159
	AE	$4,265,513	187	$185,787	10	$0	2							$4,451,300	199
	X	$76,767,442	706	$19,360,267	78	$3,198,710	21	$1,031,303	25	$2,717,317	42	$18,645,526	728	$121,720,565	1,600
	X500	$12,627,810	296	$402,975	17							$179,130	124	$13,209,915	437
Galloway, Township of	A	$270,421	8			$50,096	3	$17,491	5	$674,217	16	$31,432,478	456	$32,444,704	488
	AE	$5,563,898	125	$300,289	7	$114,549	5	$118,876	6	$32,091	4	$8,909,017	717	$15,038,719	864
	VE											$933	3	$933	3
	X	$1,374,451,177	9,610	$197,886,913	341	$50,005,034	531	$91,972,855	137	$43,233,076	412	$460,468,778	6,555	$2,218,017,833	17,586
	X500	$8,501,598	135	$227,070	6	$26,764	5	$53,692	5	$132,775	5	$3,745,453	387	$12,687,353	543
Hamilton, Township of	A	$15,901,044	216	$1,708,252	10	$205,535	6	$5,883,882	18	$4,092,011	39	$18,037,646	3,387	$45,828,370	3,676
	AE	$22,523,950	280	$5,345,403	28	$1,774,869	10	$1,333,825	24	$33,330	6	$8,559,406	531	$39,570,784	879
	X	$639,818,419	5,803	$511,046,401	217	$35,197,883	70	$128,528,589	317	$20,738,919	208	$241,021,870	18,628	$1,576,352,082	25,243
	X500	$38,323,425	526	$14,373,268	58	$4,296,286	15	$495,571	10	$3,596	2	$5,362,347	964	$62,854,493	1,575

Municipality	Flood Risk Zone	Residential		Non Residential (Commercial / Industrial)		Non Residential (Institutional / Utility / Other)		Developed Open Space		Agriculture		Shrub / Grass / Forest / Wetlands / Barren		Summary	
		Value of Improvements	Parcels	Value of Improvements	Parcels	Value of Improvements	Parcels	Value of Improvements	Parcels	Value of Improvements	Parcels	Value of Improvements	Parcels	Value of Impr.	Parcels
Hammonton, Town of	A	$12,988,879	206	$2,938,743	12	$503,372	8	$616,630	10	$5,278,942	166	$7,170,329	245	$29,496,894	647
	AE	$3,324,848	38	$3,176,833	6			$2,694,651	2	$766,724	29	$509,038	19	$10,472,094	94
	D	$2,060	1	$295,815	6			$751,082	3	$176,675	12	$752,411	58	$1,978,044	80
	X	$481,536,999	3,506	$186,546,580	462	$56,008,949	260	$33,079,335	64	$63,028,685	708	$67,341,348	970	$887,541,896	5,970
	X500	$1,731,296	42	$1,323,482	9			$400,723	3	$474,238	36	$946,005	24	$4,875,744	114
Linwood, City of	AE	$44,717,666	369	$11,189,474	15	$1,406,919	12	$235,642	4			$7,055,118	82	$64,604,819	482
	X	$275,066,139	1,948	$74,541,832	91	$1,005,820	9	$4,003,245	13	$1,539,838	6	$1,915,066	42	$358,071,941	2,109
	X500	$62,490,675	619	$8,418,072	12	$784,817	8	$114,862	3	$112,724	2	$2,715,848	58	$74,636,998	702
Longport, City of	AE	$159,750,104	1,225	$5,000,832	16	$662,272	4							$165,413,208	1,245
	VE	$64,292	4											$64,292	4
Margate City, City of	AE	$592,651,069	4,964	$50,314,585	236	$3,145,879	33	$2,332,386	50					$648,443,918	5,283
	VE	$119,731	7					$61,841	22					$181,572	29
	X500	$12,088,497	85											$12,088,497	85
Mullica, Township of	A	$10,897,721	146	$186,934	3	$174,515	7	$79,818	4	$1,271,147	57	$8,684,596	952	$21,294,731	1,169
	AE	$27,387,106	217	$140,815	2			$3,591,594	3			$7,799,236	117	$38,918,751	339
	D							$0	1			$8,965	32	$8,965	33
	X	$168,863,521	1,310	$16,307,522	77	$12,261,680	34	$1,875,106	58	$27,751,284	323	$83,335,988	3,740	$310,395,101	5,542
	X500	$23,419,078	135	$3,377,730	1					$4,059	3	$4,088,385	139	$30,889,251	278
Northfield, City of	AE	$5,976,983	72					$1,027,928	2	$113,660	1	$23,901	66	$7,142,473	141
	X	$503,480,631	3,615	$249,164,550	339	$14,223,600	16	$736,802	24	$1,887,493	7	$5,081,422	76	$774,574,498	4,077
	X500	$18,425,011	188					$120,545	3	$50,172	1	$3,751	27	$18,599,479	219
Pleasantville, City of	AE	$23,433,527	314	$8,207,964	26	$1,631,675	28	$2,419,485	22			$5,847,378	456	$41,540,030	846
	X	$629,713,901	5,039	$276,942,424	670	$29,191,435	151	$88,935,478	120			$18,591,379	585	$1,043,374,617	6,565
	X500	$40,083,368	483	$6,666,706	44	$2,114,039	49	$263,695	23			$647,112	152	$49,774,919	751
Port Republic, City of	A													$0	0
	AE	$8,941,618	91			$284,430	1	$1,566,813	16	$165,997	5	$5,681,964	123	$16,640,822	236
	X	$39,277,679	292	$1,821,830	4			$1,907,117	10	$2,960,655	28	$9,890,892	369	$55,858,175	703
	X500	$9,458,904	107	$155,281	1	$22,546	1	$1,909,385	9	$702,916	15	$7,357,063	164	$19,606,094	297
Somers Point, City of	AE	$171,964,406	1,215	$34,143,444	194	$207,467	1	$4,255,824	16			$1,348,852	129	$211,919,993	1,555
	X	$307,141,863	2,018	$246,475,335	326	$4,321,662	22	$8,139,553	7			$2,916	21	$566,081,329	2,394
	X500	$161,025,256	1,290	$76,575,246	167	$2,218,621	10	$1,228,148	5			$1,342,831	48	$242,390,102	1,520
Ventnor, City of	AE	$248,528,960	3,586	$31,423,927	168	$5,191,994	18	$409,050	7			$567,543	179	$286,121,474	3,958
	VE	$103,357	16	$79,341	2			$960	1					$183,658	19
	X500	$88,705,057	1,019	$4,682,843	30	$155,098	2	$111,290	1					$93,654,289	1,052
Weymouth, City of	A	$11,715,112	86	$41,842	2			$0	1	$28,007	6	$1,709,291	140	$13,494,252	235
	AE													$0	0
	X	$39,516,458	414	$2,386,493	24	$950,625	14	$5,389,800	21	$4,609,874	69	$45,291,584	1,155	$98,144,835	1,697
	X500													$0	0
		$9,545,128,157	89,958	$7,656,363,260	13,190	$422,548,472	3,726	$1,193,976,633	2,609	$296,806,312	3,559	$2,109,101,295	92,203	$21,223,924,130	205,245

Storm Surge: Improved Property Values and Parcels in Modeled SLOSH Zones

Storm Surges Associated with Hurricane Categories 1-4

Municipality	Storm Surge Category	Residential		Non Residential (Commercial / Industrial)		Non Residential (Institutional / Utility / Other)		Developed Open Space		Agriculture		Shrub / Grass / Forest / Wetlands / Barren		Summary	
		Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels
Absecon, City of	1	$3,252,709	111	$344,298	15	$234,910	11	$35,387	22			$5,002,080	203	$8,869,384	362
	2	$30,773,067	586	$4,055,182	61	$474,070	28	$192,564	31	$0	2	$7,771,886	405	$43,266,769	1,113
	3	$56,500,679	914	$17,775,418	169	$593,608	31	$659,097	36	$0	2	$8,241,696	435	$83,770,498	1,587
	4	$81,051,972	1309	$32,247,973	214	$638,612	31	$879,176	36	$0	2	$8,300,147	450	$123,117,880	2,042
Atlantic City, City of	1	$219,833,902	5776	$1,975,520,621	3513	$9,528,062	829	$4,634,039	154			$14,007,797	357	$2,223,524,422	10,629
	2	$462,794,719	10078	$4,739,870,868	6664	$20,535,135	1349	$297,771,724	274			$38,586,319	404	$5,559,558,765	18,769
	3	$463,060,859	10078	$4,791,797,270	6666	$20,732,010	1354	$333,359,853	274			$38,693,940	404	$5,647,643,933	18,776
	4	$463,060,859	10078	$4,792,040,528	6666	$20,779,446	1354	$348,637,059	274			$38,703,493	404	$5,663,221,385	18,776
Brigantine, City of	1	$231,093,690	3767	$23,774,566	157	$2,199,631	41	$773,188	49			$141,614	45	$257,982,688	4,059
	2	$457,480,100	7792	$40,724,929	807	$3,115,513	51	$1,323,758	70			$959,466	52	$503,603,767	8,772
	3	$459,104,323	7828	$40,933,834	818	$3,138,357	51	$1,323,758	72			$959,466	52	$505,459,739	8,821
	4	$459,104,323	7828	$40,933,834	818	$3,138,357	51	$1,323,758	72			$959,466	52	$505,459,739	8,821
Buena, Borough of	1													$0	0
	2													$0	0
	3													$0	0
	4													$0	0
Buena Vista, Township of	1													$0	0
	2													$0	0
	3													$0	0
	4													$0	0
Corbin City, City of	1	$1,989,964	32			$0	2	$0	3	$54,760	3	$1,284,212	41	$3,328,935	81
	2	$6,309,780	66	$1,346,029	5	$0	4	$0	3	$339,910	13	$3,091,432	64	$11,087,151	155
	3	$7,309,830	74	$1,716,154	7	$0	4	$0	3	$619,727	16	$5,037,498	88	$14,683,209	192
	4	$9,608,701	92	$2,178,796	9	$0	4	$0	3	$1,035,292	20	$7,340,406	143	$20,163,195	271
Egg Harbor City, City of	1	$0	12			$0	123			$0	10	$0	7736	$0	7,881
	2	$0	17			$0	176			$0	54	$0	10928	$0	11,175
	3	$120,096	48			$0	189	$48,027	1	$0	109	$44,928	14454	$213,051	14,801
	4	$205,847	58	$0	12	$0	193	$235,458	1	$0	109	$44,928	16484	$486,232	16,857
Egg Harbor, Township of	1	$67,523,231	462	$32,344,866	56	$1,260,372	22	$2,026,382	21	$1,517,087	17	$21,456,529	359	$126,128,467	937
	2	$93,706,386	673	$35,781,977	68	$1,555,272	23	$3,846,575	33	$4,239,538	32	$42,314,106	615	$181,443,854	1,444
	3	$173,057,350	1221	$36,960,323	76	$2,001,466	37	$7,127,633	58	$6,260,621	37	$58,287,315	915	$283,694,707	2,344
	4	$335,592,261	1960	$50,817,052	103	$9,798,041	49	$30,281,680	135	$12,910,332	69	$85,882,220	1441	$525,281,587	3,757
Estell Manor, City of	1	$283	1					$0	1	$13,360	2	$106,714	20	$120,357	24
	2	$320,082	3					$0	2	$194,742	6	$195,914	42	$710,738	53
	3	$514,824	5	$81,320	1			$61	3	$571,223	6	$525,109	82	$1,692,538	97
	4	$1,473,028	18	$81,320	1	$0	1	$241,171	5	$603,820	6	$2,799,006	136	$5,198,345	167
Galloway, Township of	1	$3,326,324	79	$68,544	2			$52,706	4	$774	2	$5,898,500	562	$9,346,848	649
	2	$14,367,690	189	$1,149,343	8	$0	2	$175,136	5	$77,356	4	$11,621,940	1066	$27,391,465	1,274
	3	$40,399,703	378	$2,105,940	24	$467,506	11	$267,925	8	$255,700	5	$16,298,716	1224	$59,795,489	1,650
	4	$64,334,226	644	$31,236,938	65	$1,626,872	21	$506,076	14	$331,721	8	$21,636,435	1374	$119,672,268	2,126
Hamilton, Township of	1	$2,782,161	66	$2,259,596	11	$1,584,484	9	$63,003	5			$1,708,410	143	$8,397,653	234
	2	$9,410,224	122	$6,019,418	28	$2,564,276	8	$1,444,137	9			$3,222,650	272	$22,660,705	439
	3	$25,330,238	358	$12,466,475	48	$4,780,267	16	$1,576,539	10	$7	2	$7,810,034	750	$51,963,560	1,184
	4	$146,870,169	1426	$44,049,325	152	$8,363,726	23	$2,620,855	40	$186,578	9	$37,447,267	2250	$239,537,920	3,900

Municipality	Storm Surge Category	Residential		Non Residential (Commercial / Industrial)		Non Residential (Institutional / Utility / Other)		Developed Open Space		Agriculture		Shrub / Grass / Forest / Wetlands / Barren		Summary	
		Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels
Hammonton, Town of	1													$0	0
	2													$0	0
	3													$0	0
	4													$0	0
Linwood, City of	1	$5,096,917	70	$992,543	1	$334,145	9	$109,462	2			$5,244,634	69	$11,777,702	151
	2	$48,349,430	349	$1,621,472	6	$992,575	9	$162,000	3	$249	1	$8,335,189	92	$59,460,914	460
	3	$129,102,862	949	$25,762,367	26	$2,899,098	13	$269,926	6	$141,301	3	$10,210,116	97	$168,385,670	1,094
	4	$259,679,701	1885	$54,003,084	71	$3,109,986	13	$3,402,939	12	$616,263	6	$11,140,679	106	$331,952,653	2,093
Longport, City of	1	$159,584,352	1225	$4,751,831	16	$662,272	4	$0	10			$0	1	$164,998,455	1,256
	2	$159,422,645	1225	$4,913,026	16	$662,272	4	$0	10			$0	1	$164,997,942	1,256
	3	$159,422,645	1225	$4,913,026	16	$662,272	4	$0	10			$0	1	$164,997,942	1,256
	4	$159,422,645	1225	$4,913,026	16	$662,272	4	$0	10			$0	1	$164,997,942	1,256
Margate City, City of	1	$421,704,880	3916	$46,822,454	236	$3,124,820	30	$939,731	36			$0	261	$472,591,884	4,479
	2	$598,910,109	5021	$50,197,553	236	$3,145,879	33	$1,002,727	48			$0	416	$653,256,267	5,754
	3	$598,957,815	5021	$50,197,553	236	$3,145,879	33	$1,002,727	50			$0	416	$653,303,974	5,756
	4	$598,957,815	5021	$50,197,553	236	$3,145,879	33	$1,002,727	50			$0	416	$653,303,974	5,756
Mullica, Township of	1	$16,543,213	143	$76,904	2	$0	5	$826,743	3	$0	1	$4,013,294	97	$21,460,154	251
	2	$24,564,234	141	$1,817,417	1	$0	5	$1,845,238	2	$0	1	$4,683,922	116	$32,910,811	266
	3	$53,172,829	324	$3,587,054	2	$0	6	$3,118,650	4	$576,420	15	$16,669,845	325	$77,124,797	676
	4	$70,830,801	478	$3,587,054	2	$0	6	$3,118,650	5	$4,081,813	41	$24,544,753	627	$106,163,071	1,159
Northfield, City of	1	$2,939,837	37					$948,573	2			$0	53	$3,888,411	92
	2	$34,408,515	284					$1,239,487	3			$0	56	$35,648,002	343
	3	$53,523,379	404					$1,421,838	4	$64,770	1	$0	65	$55,009,986	474
	4	$213,541,830	1403	$51,370,611	56	$1,873,532	6	$1,492,416	10	$1,636,650	4	$2,618,929	94	$272,533,969	1,573
Pleasantville, City of	1	$17,708,324	241	$4,719,447	22	$814,664	32	$1,760,946	20			$5,128,290	445	$30,131,670	760
	2	$72,386,217	777	$17,803,030	80	$4,179,415	57	$2,683,180	32			$7,020,616	567	$104,072,459	1,513
	3	$140,597,213	1224	$37,087,214	123	$5,689,882	71	$3,643,982	37			$8,337,510	702	$195,355,802	2,157
	4	$215,596,599	1727	$58,347,701	182	$7,326,338	84	$20,988,505	50			$11,585,212	743	$313,844,355	2,786
Port Republic, City of	1	$2,776,083	41			$286,074	1	$695,308	15	$85,307	1	$1,245,828	66	$5,088,599	124
	2	$15,819,486	157	$82,037	1	$306,976	1	$3,198,784	18	$734,341	14	$10,227,196	162	$30,368,820	353
	3	$38,427,276	265	$1,753,966	3	$306,976	1	$4,548,145	21	$2,818,308	23	$17,533,619	210	$65,388,290	523
	4	$42,523,388	283	$1,857,877	4	$306,976	1	$4,564,422	21	$3,291,709	26	$18,728,313	281	$71,272,685	616
Somers Point, City of	1	$34,800,423	260	$11,927,016	63			$3,092,538	16			$55,214	116	$49,875,191	455
	2	$157,092,933	990	$88,649,356	250	$0	3	$4,568,749	16			$1,009,802	134	$251,320,841	1,393
	3	$398,542,417	2277	$185,989,674	356	$2,784,585	11	$7,374,221	19			$2,490,432	143	$597,181,330	2,806
	4	$455,235,100	2649	$237,545,855	386	$3,443,494	19	$9,118,436	21			$2,694,600	150	$708,037,486	3,225
Ventnor, City of	1	$166,708,658	2744	$14,093,577	91	$4,355,973	3	$321,008	6			$567,443	177	$186,046,659	3,021
	2	$335,797,034	4440	$36,000,148	192	$5,347,092	18	$471,196	7			$565,898	179	$378,181,369	4,836
	3	$336,111,588	4440	$36,000,148	192	$5,347,092	18	$471,196	7			$565,898	179	$378,495,923	4,836
	4	$336,111,588	4440	$36,000,148	192	$5,347,092	18	$471,196	7			$565,898	179	$378,495,923	4,836
Weymouth, City of	1	$1,062,186	18	$1,320	1							$267,116	29	$1,330,622	48
	2	$8,874,300	75	$75,660	1							$906,565	37	$9,856,525	113
	3	$27,682,698	231	$983,263	4	$0	1	$385,125	1			$4,104,343	173	$33,155,429	410
	4	$27,899,959	231	$983,385	4	$0	1	$385,125	1			$4,181,558	172	$33,450,027	409
	Total	$10,991,553,522	132,005	$17,890,308,089	30,566	$189,373,503	6,655	$1,132,072,625	2,326	$43,259,676	682	$681,624,351	72,606	$30,928,191,766	244,840

Coastal Erosion: Improved Property Values and Parcels in Areas Assumed Vulnerable to Coastal Erosion

See Sections 3a and 3c for definition of areas subject to erosion hazard

Municipality	Beaches		Developed Open Space		Non Residential (Commercial / Industrial)		Non Residential (Institutional / Utility / Other)		Residential		Shrub / Grass / Forest / Wetlands / Barren		Water		Summary	
	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels	Value of Impr.	Parcels
Atlantic City	$4,617	5	$747,486	1	$241,065,222	378	$296,599	2	$4,155,308	7	$0	0	$47,345	19	$246,316,577	412
Brigantine City, City of	$20,467	1	$0	0	$3,162,352	13	$324,368	3	$41,328,180	669	$77,115	1	$0	0	$44,912,482	687
Margate City, City of	$0	0	$0	0	$0	0	$0	0	$3,896,428	19	$0	0	$0	0	$3,896,428	19
Ventnor City, City of	$134,396	1	$94,412	1	$1,511,546	2	$0	0	$18,100,073	177	$0	0	$0	0	$19,840,428	181
Total	$159,480	7	$841,898	2	$245,739,103	393	$620,967	5	$67,479,989	872	$77,115	1	$47,345	19	$314,965,914	1,299

Municipalities considered not vulnerbale to erosion under current conditions are not included

APPENDIX B –

CRITICAL FACILITIES IN IDENTIFIED HAZARD AREAS

Includes only georeferenced facilities identified as located in at least one of the delineable hazard areas pertaining to flooding, storm surge, and wildfires. All facilities are assumed exposed to county-wide hazards (extreme temperatures and wind, severe storms such as hurricanes and nor'easters, lightning, tornados, winter storms, and drought). All other hazards have insufficient readily available data to enable delineated hazard areas to be plotted, or do not currently threaten any of the listed facilities.

Municipality	Facility Type	Facility Name/Location	Flood		Wildfire		Storm Surge			
			1% Annual Chance of Flood	0.2% Annual Chance of Flood	Low to Moderate Risk	High to Extreme Risk	Cat. 1	Cat. 2	Cat. 3	Cat. 4
Absecon, City of	Fire Station	Absecon Fire Dept.								■
Absecon, City of	Police	Absecon PD								■
Absecon, City of	School	Jarrets Run Academy	■					■	■	■
Absecon, City of	School	Absecon Campus								■
Absecon, City of	Rescue	Absecon VFW Vol Ambulance SQ						■	■	■
Absecon, City of	Public Works (Municipal)	Absecon Public Works							■	■
Atlantic City, City of	Assisted Living	Ocean View Facility					■	■	■	■
Atlantic City, City of	Fire/Rescue/Police/ Emergency Operations Center	2715 Atlantic Ave	■					■	■	■
Atlantic City, City of	Police	Atlantic Co Sheriff	■					■	■	■
Atlantic City, City of	Hospitals	Atlanticare Regional Medical Center City	■					■	■	■
Atlantic City, City of	Fire Station	Atlantic City - Station #1 - 900 Atlantic Avenue	■		■		■	■	■	■
Atlantic City, City of	Fire Station	Atlantic City - Station #3 - 734 North Indiana Avenue	■					■	■	■
Atlantic City, City of	Fire Station	Atlantic City - Station #2 - 130 North Indiana Avenue	■				■	■	■	■
Atlantic City, City of	Fire Station	Atlantic City - Station #4 - 2700 Atlantic Avenue	■					■	■	■
Atlantic City, City of	Fire Station	Atlantic City - Station #6 - 4031 Atlantic Avenue		■				■	■	■
Atlantic City, City of	Fire Station	Atlantic City - Station #5 - 565	■				■	■	■	■

Municipality	Facility Type	Facility Name/Location	Flood		Wildfire		Storm Surge			
			1% Annual Chance of Flood	0.2% Annual Chance of Flood	Low to Moderate Risk	High to Extreme Risk	Cat. 1	Cat. 2	Cat. 3	Cat. 4
		North Annapolis Avenue								
Atlantic City, City of	Electrical Power Facility	Conectiv Atlantic Generation LLC	■					■	■	■
Atlantic City, City of	Electrical Power Facility	Atlantic Electric AC Operation	■				■	■	■	■
Atlantic City, City of	Communications Facility	WTTH CH 241	■					■	■	■
Atlantic City, City of	Communications Facility	WPUR CH 297	■				■	■	■	■
Atlantic City, City of	Communications Facility	WAJM CH 205	■					■	■	■
Atlantic City, City of	Communications Facility	WMID 1340	■					■	■	■
Atlantic City, City of	Communications Facility	WZBZ CH 257	■					■	■	■
Atlantic City, City of	Communications Facility	WFPG 1450	■		■		■	■	■	■
Atlantic City, City of	Communications Facility	WFPG-FM CH 245	■		■		■	■	■	■
Atlantic City, City of	Communications Facility	WAYV CH 236	■							■
Atlantic City, City of	Communications Facility	WWAC-TV CH 53	■					■	■	■
Atlantic City, City of	Waste Water Treatment Plant	Atlantic County Sewage Authority	■					■	■	■
Atlantic City, City of	Waste Water Treatment Plant	Atlantic County Utilities Authority	■					■	■	■
Atlantic City, City of	School	Oceanside CS	■					■	■	■
Atlantic City, City of	School	Dr..Martin Luther King, Jr. Complex	■					■	■	■
Atlantic City, City of	School	Indiana Avenue School	■				■	■	■	■
Atlantic City, City of	School	New Jersey Avenue School	■					■	■	■
Atlantic City, City of	School	Uptown School Complex	■					■	■	■

Municipality	Facility Type	Facility Name/Location	Flood		Wildfire		Storm Surge			
			1% Annual Chance of Flood	0.2% Annual Chance of Flood	Low to Moderate Risk	High to Extreme Risk	Cat. 1	Cat. 2	Cat. 3	Cat. 4
Atlantic City, City of	School	Texas Avenue School	■					■	■	■
Atlantic City, City of	School	Brighton Avenue School	■					■	■	■
Atlantic City, City of	School	Richmond Avenue School	■				■	■	■	■
Atlantic City, City of	School	Chelsea Heights	■				■	■	■	■
Atlantic City, City of	School	Venice Park School	■					■	■	■
Atlantic City, City of	School	Our Lady Star of the Sea	■					■	■	■
Atlantic City, City of	School	Atlantic City High School	■					■	■	■
Atlantic City, City of	School	Ohio Avenue School	■					■	■	■
Atlantic City, City of	School	ACCC City Center Campus	■				■	■	■	■
Brigantine, City of	Fire/Rescue	Brigantine FD & EMS - 1417 W Brigantine Ave	■					■	■	■
Brigantine, City of	Police	Brigantine PD	■					■	■	■
Brigantine, City of	Emergency Operations Center	Brigantine Emergency Mgmt - 1417 W Brigantine Ave	■					■	■	■
Brigantine, City of	Fire Station	Brigantine Fire Dept. - 1417 West Brigantine Avenue	■					■	■	■
Brigantine, City of	School	Brigantine Elementary School	■				■	■	■	■
Brigantine, City of	School	Brigantine North School	■				■	■	■	■
Brigantine, City of	School	St. Philip the Apostle	■					■	■	■
Brigantine, City of	Public Works (Municipal)	Brigantine Public Works					■	■	■	■
Buena, Borough of	Fire Station	Buena Borough #2 Minotola - Station 11-2			■					
Buena, Borough of	Police	Buena Borough PD				■				
Corbin City, City of	Communications Facility	WRTQ CH 217	■							
Corbin City , City of	Communications Facility	WBSS-FM CH 247	■							
Corbin City , City of	Public Works (Municipal)	Corbin City Public Works						■	■	■

Municipality	Facility Type	Facility Name/Location	Flood		Wildfire		Storm Surge			
			1% Annual Chance of Flood	0.2% Annual Chance of Flood	Low to Moderate Risk	High to Extreme Risk	Cat. 1	Cat. 2	Cat. 3	Cat. 4
Egg Harbor, Township of	Airport	Atlantic City International			■					
Egg Harbor, Township of	Fire Station	Egg Harbor Twp. #5 - West Atlantic City - 7004 US Route 322/40 Black Horse Pike	■				■	■	■	■
Egg Harbor, Township of	Fire Station	Egg Harbor Twp. #3a - Scullville # 1								■
Egg Harbor, Township of	Fire Station	Egg Harbor Twp. #3b - Scullville #2 - 1403 Somers Point - Mays Landing Road	■					■	■	■
Egg Harbor, Township of	Fire Station	Egg Harbor Twp. - Bargaintown #2								■
Egg Harbor, Township of	Airport	Dix Field	■		■			■	■	■
Egg Harbor, Township of	Assisted Living	Mey House			■					
Galloway, Township of	Assisted Living	Hebrew Old Age Center				■				
Galloway, Township of	Assisted Living	Sunrise of Galloway				■				
Galloway, Township of	Assisted Living	Senior Care of Galloway			■					
Galloway, Township of	Police	Galloway Township PD			■					
Galloway, Township of	Child Care	Busy Body			■					
Galloway, Township of	School	Bethel Christian			■					
Galloway, Township of	School	Galloway Charter School			■					
Galloway, Township of	School	Galloway Township Middle School				■				
Hamilton, Township of	Rescue	Weymouth Vol Rescue Squad	■							
Hamilton, Township of	Rescue	Mays Landing Volunteer Rescue Squad				■			■	■
Hamilton, Township of	Fire Station	Hamilton Twp. #1 - Mays Landing - 6081 Reliance Avenue		■						■
Hamilton, Township of	Fire Station	New Jersey Forest Fire Service								■
Hamilton, Township of	Police	AC Sheriff's Office								■
Hamilton, Township of	Police	Hamilton Twp. PD			■					■

Municipality	Facility Type	Facility Name/Location	Flood		Wildfire		Storm Surge			
			1% Annual Chance of Flood	0.2% Annual Chance of Flood	Low to Moderate Risk	High to Extreme Risk	Cat. 1	Cat. 2	Cat. 3	Cat. 4
Hamilton, Township of	Assisted Living	Wood View Estates				■				
Hamilton, Township of	School	Joseph C. Shaner Memorial School								■
Hamilton, Township of	School	Atlantic Cape Community College				■				
Hamilton, Township of	School	Special Services School - 1450 19 th street			■					
Hamilton, Township of	School	St. Vincent de Paul		■					■	■
Hamilton, Township of	School	Duberson School		■						■
Hamilton, Township of	School	Mill Road Uptown School		■						■
Hamilton, Township of	Communications Facility	WNJN-FM CH 209				■				
Hamilton, Township of	Emergency Operations Center	6101 13th St #212								■
Hamilton, Township of	Public Works (Municipal)	Hamilton Public Works								■
Hamilton, Township of	Public Works (Municipal)	Hamilton Public Works								■
Hamilton, Township of	Public Works (County)	Bearshed Yard				■				
Hammonton, Town of	Assisted Living	Heritage Assisted Living			■					
Hammonton, Town of	School	Hammonton High School			■					
Hammonton, Town of	Fire Station	Hammonton #2 - US Route 30 White Horse Pike	■							
Hammonton, Town of	Communications Facility	WGYM 1580			■					
Linwood, City of	Fire Station	Linwood FD								■
Linwood, City of	Police	Linwood PD			■					■
Linwood, City of	Rescue	Linwood Rescue Squad	■						■	■
Linwood, City of	School	Creative Learning Pre-School	■						■	■
Linwood, City of	School	Poplar Ave School								■

Municipality	Facility Type	Facility Name/Location	Flood		Wildfire		Storm Surge			
			1% Annual Chance of Flood	0.2% Annual Chance of Flood	Low to Moderate Risk	High to Extreme Risk	Cat. 1	Cat. 2	Cat. 3	Cat. 4
Linwood, City of	School	Seaview School		■						■
Linwood, City of	School	Bellhaven Avenue School								■
Linwood, City of	School	Mainland Assembly of God School		■						■
Linwood, City of	School	Mainland Regional High School							■	■
Linwood, City of	Emergency Operations Center	715 Lincoln Ave								■
Linwood, City of	Public Works (Municipal)	Linwood City Public Works								■
Longport, Borough of	Fire/Rescue	2301 Atlantic Avenue	■				■	■	■	■
Longport, Borough of	Police/EOC	2305 Atlantic Ave	■				■	■	■	■
Longport, Borough of	Water Treatment Facility	31st & Devon	■				■	■	■	■
Longport, Borough of	Water Treatment Facility	31st & Winchester	■				■	■	■	■
Longport, Borough of	Waste Water Treatment Plant	35th St	■				■	■	■	■
Longport, Borough of	Public Works (Municipal)	Longport Public Works					■	■	■	■
Margate City, City of	Fire/Rescue	Margate City FD	■				■	■	■	■
Margate City, City of	Police	Margate City PD	■				■	■	■	■
Margate City, City of	Fire Station	Margate City Fire Dept Headquarters	■				■	■	■	■
Margate City, City of	Fire Station	Margate City Fire Dept. Station #2 - 405 Brunswick Drive	■					■	■	■
Margate City, City of	School	Galloway Kindergarten CS	■					■	■	■
Margate City, City of	School	Union Avenue School	■				■	■	■	■
Margate City, City of	School	Eugene A. Tighe Middle School	■				■	■	■	■
Margate City, City of	School	William H. Ross Int. School	■		■		■	■	■	■

Municipality	Facility Type	Facility Name/Location	Flood		Wildfire		Storm Surge			
			1% Annual Chance of Flood	0.2% Annual Chance of Flood	Low to Moderate Risk	High to Extreme Risk	Cat. 1	Cat. 2	Cat. 3	Cat. 4
Margate City, City of	Public Works (Municipal)	Municipal Public Works					■	■	■	■
Mullica, Township of	School (Pre K)	Hilda Frame School			■					
Mullica, Township of	Fire Station	Mullica Twp. - Weekstown - Station 16			■					■
Mullica, Township of	Fire Station	Mullica Twp. - Sweetwater - Station 163							■	■
Mullica, Township of	Public Works (Municipal)	Mullica Public Works				■				
Northfield, City of	School	Northfield Middle School			■					
Pleasantville, City of	School	South Main Street School								■
Pleasantville, City of	School	Pleasantville Middle School			■					
Pleasantville, City of	School	Leeds Avenue School								■
Pleasantville, City of	School	St. Peter's School							■	■
Pleasantville, City of	School	Pleasantville High School								■
Pleasantville, City of	Assisted Living	Villa Raffaella Assisted Living Community			■					
Pleasantville, City of	Communications Facility	WUSS 1490	■		■		■	■	■	■
Pleasantville, City of	Communications Facility	WOND 1400	■		■		■	■	■	■
Pleasantville, City of	Communications Facility	WMGM CH 279	■		■		■	■	■	■
Pleasantville, City of	Emergency Operations Center	Port Republic Emergency Mgmt - 143 Main St		■				■	■	■
Pleasantville, City of	School	Port Republic School							■	
Pleasantville, City of	Fire Station	116 Blakes Lane							■	
Pleasantville, City of	Public Works (Municipal)	Port Republic Public Works							■	■
Somers Point, City of	Hospitals	Shore Memorial Hospital							■	■
Somers Point, City of	School	Dawes Ave School			■					

Municipality	Facility Type	Facility Name/Location	Flood		Wildfire		Storm Surge			
			1% Annual Chance of Flood	0.2% Annual Chance of Flood	Low to Moderate Risk	High to Extreme Risk	Cat. 1	Cat. 2	Cat. 3	Cat. 4
Somers Point, City of	School	Charter Tech School		■	■				■	■
Ventnor City, City of	Fire/Rescue	Ventnor City Fire Dept	■					■	■	■
Ventnor City, City of	Police	Ventnor City PD		■				■	■	■
Ventnor City, City of	Emergency Operations Center	Emergency Management - 6201 Atlantic Ave		■				■	■	■
Ventnor City, City of	Fire Station	Ventnor City Fire Dept.	■					■	■	■
Ventnor City, City of	Fire Station	Ventnor Heights - Little Rock and Wellington	■					■	■	■
Ventnor City, City of	School	Ventnor Educational Community	■					■	■	■
Ventnor City, City of	School	St. James School		■				■	■	■
Ventnor City, City of	Public Works (Municipal)	Ventnor Public Works						■	■	■
Weymouth, Township	Fire/Rescue	1201 Loretto Avenue							■	■

APPENDIX C –

HISTORIC AND CULTURAL RESOURCES IN IDENTIFIED HAZARD AREAS

Includes only georeferenced resources identified as located in at least one of the delineable hazard areas pertaining to flooding, storm surge, and wildfires.

Municipality	Historic/Cultural Resource Name/Location	Flood		Wildfire		Storm Surge			
		1% Annual Chance of Flood	0.2% Annual Chance of Flood	Low to Moderate Risk	High to Extreme Risk	Cat. 1	Cat. 2	Cat. 3	Cat. 4
Absecon, City of	John Doughty House		■					■	■
Absecon, City of	Captain Francis Babcock House	■		■				■	■
Absecon, City of	Dr. Jonathan Pitney House			■				■	■
Absecon, City of	South Shore Road Historic District	■	■	■	■	■	■	■	■
Absecon, City of	North Shore Road Historic District	■	■	■	■	■	■	■	■
Atlantic City, City of	Warner Theatre	■				■	■	■	■
Atlantic City, City of	Beth Kehillah Synagogue Building (H.G. Rosin Senior Center)	■				■	■	■	■
Atlantic City, City of	Equitable Trust Bank Building		■				■	■	■
Atlantic City, City of	Federal Building and Post Office		■			■	■	■	■
Atlantic City, City of	Fire Station #8	■				■	■	■	■
Atlantic City, City of	Fire Station #9	■					■	■	■
Atlantic City, City of	Friends Meeting House		■				■	■	■
Atlantic City, City of	2-6 South Virginia Avenue	■					■	■	■
Atlantic City, City of	Union Railroad Station (Bus Station)	■				■	■	■	■
Atlantic City, City of	1315 Pacific Avenue		■				■	■	■
Atlantic City, City of	Blenheim Hotel	■					■	■	■
Atlantic City, City of	Holmhurst Hotel	■				■	■	■	■
Atlantic City, City of	Morton Hotel		■				■	■	■
Atlantic City, City of	Shelburne Hotel	■		■		■	■	■	■
Atlantic City, City of	Traymore Hotel	■					■	■	■
Atlantic City, City of	St. Nicholas of Tolentine Church	■					■	■	■
Atlantic City, City of	Atlantic City Armory	■					■	■	■
Atlantic City, City of	South Maine Avenue Streetscape	■		■		■	■	■	■
Atlantic City, City of	Absecon Lighthouse and Museum	■				■	■	■	■

Municipality	Historic/Cultural Resource Name/Location	Flood		Wildfire		Storm Surge			
		1% Annual Chance of Flood	0.2% Annual Chance of Flood	Low to Moderate Risk	High to Extreme Risk	Cat. 1	Cat. 2	Cat. 3	Cat. 4
Atlantic City, City of	Barclay Court	■					■	■	■
Atlantic City, City of	Segal Building	■					■	■	■
Atlantic City, City of	Beth Israel Synagogue	■					■	■	■
Atlantic City, City of	Santa Rita Apartments		■				■	■	■
Atlantic City, City of	Church of the Ascension	■				■	■	■	■
Atlantic City, City of	Atlantic City Post Office	■					■	■	■
Atlantic City, City of	Madison Hotel	■					■	■	■
Atlantic City, City of	Atlantic City Convention Hall	■				■	■	■	■
Atlantic City, City of	World War I Memorial	■		■			■	■	■
Atlantic City, City of	Atlantic City High School	■				■	■	■	■
Atlantic City, City of	USCG Station Atlantic City	■		■		■	■	■	■
Atlantic City, City of	Westside All Wars Memorial Building	■		■		■	■	■	■
Atlantic City, City of	South Maine Avenue Streetscape	■							
Buena Vista, Township of	Wood Estate				■				
Corbin City, City of	NJ Route 50 Bridge (SI&A #0510152)	■							
Egg Harbor City, City of	Egg Harbor City Historic District			■					
Egg Harbor City, City of	Lower Bank Road Bridge (Route 542) over Mullica River	■							
Egg Harbor ,Township of	Ocean City-Longport Bridge (SI&A #3100001)	■							
Egg Harbor, Township of	Captain Jeffreys Burial Marker	■		■		■	■	■	■
Egg Harbor, Township of	Andrew B. Scull House		■	■				■	■
Egg Harbor, Township of	Garden State Parkway Historic District (Atlantic)	■	■	■	■	■	■	■	■
Estell Manor, City of	Estellville Glassworks Industrial Historic District	■		■	■		■	■	■
Estell Manor, City of	Head of River Church			■					■
Folsom, Borough of	Jacobs Evangelical Lutheran Church			■					
Galloway, Township of	Anonymous Roadside Cabins				■				
Galloway, Township of	Egg Harbor City Historic District			■					
Galloway, Township of	Old US Coast Guard Station	■		■		■	■	■	■

Municipality	Historic/Cultural Resource Name/Location	Flood		Wildfire		Storm Surge			
		1% Annual Chance of Flood	0.2% Annual Chance of Flood	Low to Moderate Risk	High to Extreme Risk	Cat. 1	Cat. 2	Cat. 3	Cat. 4
Galloway, Township of	Renault Winery	■		■					
Galloway, Township of	Roadside Cabins			■					■
Galloway, Township of	Garden State Parkway Historic District (Atlantic)	■	■	■	■	■	■	■	■
Galloway, Township of	Conovertown Historic District	■	■	■	■		■	■	■
Galloway, Township of	Oceanville / Leeds Point / Moss Mill Historic District	■	■	■	■		■	■	■
Hamilton, Township of	Abbot's Modern Cabins			■					
Hamilton, Township of	Weymouth Road Bridge over Great Egg Harbor River (SI&A #01HML22)	■							
Hamilton, Township of	Samuel Richards Hotel		■					■	■
Hamilton, Township of	Weymouth Furnace	■			■				
Hamilton, Township of	Richards American Hotel		■					■	■
Hamilton, Township of	Cloverleaf Intersection of US Route 322 and NJ Route 50	■							
Hamilton, Township of	West Jersey and Atlantic Railroad Historic District	■	■	■	■				
Hamilton, Township of	Mays Landing Historic District	■	■	■	■	■	■	■	■
Linwood, City of	Borough School & Historical Society								■
Linwood, City of	Linwood Historic District	■	■	■	■		■	■	■
Longport, Borough of	Great Egg Coast Guard Station Building	■				■	■	■	■
Longport, Borough of	Church of the Redeemer	■				■	■	■	■
Margate City, City of	Lucy the Elephant	■				■	■	■	■
Margate City, City of	Marven Gardens Historic District	■				■	■	■	■
Mullica, Township of	Green Bank Road Bridge over Mullica River (SI&A #01M0001)								
Mullica, Township of	Pleasant Mills	■		■				■	■
Pleasantville, City of	Amanda Blake Store							■	■
Pleasantville, City of	Studebaker Showroom	■				■	■	■	■
Pleasantville, City of	213 Verona Avenue		■				■	■	■
Pleasantville, City of	West Jersey and Atlantic Railroad Historic District	■	■	■	■	■	■	■	■
Port Republic, City of	Modern Boat Works	■				■	■	■	■

Municipality	Historic/Cultural Resource Name/Location	Flood		Wildfire		Storm Surge			
		1% Annual Chance of Flood	0.2% Annual Chance of Flood	Low to Moderate Risk	High to Extreme Risk	Cat. 1	Cat. 2	Cat. 3	Cat. 4
Port Republic, City of	Smithville-Port Republic Road Bridge over Nacote Creek (SI&A #01PR007)	■					■	■	■
Port Republic, City of	Chestnut Neck Battle Monument	■		■		■	■	■	■
Port Republic, City of	Gulf Service Station	■		■		■	■	■	■
Port Republic, City of	Garden State Parkway Historic District (Atlantic)	■	■	■	■	■	■	■	■
Port Republic, City of	Port Republic Historic District	■	■	■	■	■	■	■	■
Somers Point, City of	Somers Mansion		■				■	■	■
Somers Point, City of	Garden State Parkway Historic District (Atlantic)	■	■	■	■	■	■	■	■
Somers Point, City of	Bay Front Historic District	■	■	■		■	■	■	■
Ventnor City, City of	Raphael-Gordon House		■				■	■	■
Ventnor City, City of	Ventnor City Hall		■	■			■	■	■
Ventnor City, City of	Marven Gardens Historic District	■				■	■	■	■
Ventnor City, City of	Saint Leonard's Tract Historic District	■	■			■	■	■	■
Ventnor City, City of	John Stafford Historic District	■	■			■	■	■	■
Weymouth, Township of	Schooner Weymouth Wreck	■							
Weymouth, Township of	Belcoville Post Office							■	■

APPENDIX D –

PARTICIPATING JURISDICTIONS MITIGATION ACTION EVALUATION AND PRIORITIZATION

County and Municipal action items from the November 2009 Draft remain in Appendix D.

The following items have been added as an Addendum:

- Additional County action items – a series of County-led initiatives with direct involvement and participation from each of the municipalities.

- Additional Municipal action items – documenting municipal buy-in on a series of County-led initiatives that will have direct involvement and participation from each of the municipalities.

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) ATLANTIC COUNTY

Action	"-" = cost (unfavorable) "0"=neutral or not applicable "+" = benefit (favorable)										(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
MILL ROAD, ABSECON, NJ $3million approx. Mill Road (Co. Route 651) Is subject to frequent flooding during low intensity storm events. Mill Road is one of three primary north/south emergency evacuation routes in the eastern part of Atlantic County (Route 651, US Route 9 and County Route 157). All three are inundated during these relatively low intensity events, severely hindering north south emergency evacuation in this highly populated area of the County. Raising the elevation of County Route 651 is deemed the most effective and efficient pre disaster mitigation application in the County. Due to proximity of Tidal wetlands and water areas, the roadway will be contained by vertical bulkhead in order to avoid adverse impacts upon wetlands and water quality of the Absecon Creek ecosystem.	+	+	+	+	+	+	+	+	+	+	high	medium	high
TILTON ROAD, NORTHFIELD, NJ $1 million Tilton Road (County Route 563) is an emergency evacuation route servicing SE to NW evacuation from areas of high density populations to points north and west. This section of Tilton has a history of severe flooding and subsequent impairment of emergency evacuation functions. Approximately five years ago, Atlantic County, in conjunction with the State of New Jersey (NJDEP) developed a large multi phase regional storm water management system to address this flooding. The first phase consisted of land acquisition, development of a large storm water basin and infrastructure within the immediate contributing area and was constructed at a cost of approximately $4million. The second phase of this system will extend the contributing drainage system further west on Tilton at a cost of approximately $1million. This extension will complete the elimination of flooding on the emergency evacuation route.	+	+	+	+	+	+	+	+	+	+	high	medium	high
ALBANY/WELLINGTON, ATLANTIC CITY $5- $10million The intersection of Wellington Avenue (County Route 629) and Albany Avenue (US Route 40/322) is a critical junction in emergency evacuation for the high density populations of the southern portions of Atlantic City, Ventnor and Margate as well as an additional large seasonal population. This low lying area is subject to extreme tidal flooding that is worsened by rainfall events. Improvements to this problem will involve substantial elevation increase, bulk heading and likely mechanical techniques in order to prevent flooding and resultant damages to residences and commercial establishment.	+	+	+	+	+	+	+	+	+	+	high	medium	medium
VENTNOR, NEW BRUNSWICK AND WINCHESTER AVENUES, MARGATE AND VENTNOR $5 million Ventnor Avenue (County Route 629), New Brunswick Avenue, and Winchester Avenue (Municipal Roadways) contain an antiquated storm water system that is subject to frequent failure during low level storm events, resulting in flooding to county and municipal roadways of Ventnor and Margate as well as surrounding properties. Discussions have commenced between Atlantic County, the Cities of Margate and Ventnor, and the Atlantic County Utility Authority on design and replacement of this regional systems. Replacement of the entire drainage system is anticipated.	+	+	+	+	+	+	+	+	+	+	high	medium	medium

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) ATLANTIC COUNTY

Action	"-" = cost (unfavorable)				"0"=neutral or not applicable			"+" = benefit (favorable)			(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
JIM LEEDS ROAD, NEW LEAF COURT, GALLOWAY $2million. Both Jim Leeds Road (County Route 561) and New Leaf Court (municipal Roadway) are subject to frequent flooding during storms of low intensity. County Route 561 is an emergency evacuation route and New Leaf Court is a low lying municipal cul de sac that frequently floods. There is an existing inter local agreement between Atlantic County and The Galloway Township Municipal Governments. Accordingly, is underway. The Project will incorporate raising the elevation of Jim Leeds Road, acquisition of nearby lands for the construction of a storm water management basin to accent a 100 vear event. as well as required infrastructure.	+	+	+	+	+	+	+	+	+	+	high	low	medium

Flood Hazard Inventory
Projects Listed by Score

Project ID	Mun	Route	Road Name	Road Type	Problem Source	Problem Description	Problem Solution	Cost	Trip Cost	Score
128	**Ven**		**Dudley Avenue**	**M**	**Tidal**	**The bay goes over the County pipe end behind to old Bradlees. The water goes down the pipe and up through the grate at Dudley Avenue (lowest point). The water then runs on the surface of the streets shown**	**Install check valve at Victoria & Fulton Avenue**	**$3,750.00**	**0.20**	**81**
135	Atc		Bella Terrace	A	Structural		Install bulkhead, check valves & pumping station. (1450ft new bulkhead, 2 check valves, 16 inlets, 2000ft of pipe, 1 pump station)	$2,068,100.00	45.22	81
133	Ven		Calvert Avenue	C	Tidal	Pipe size not big enough to allow for enough back pressure at Monmouth & Derby. Need to increase size of pipe under persons house and install check valve	Install check valve at Monmouth & Derby, increase pipe size	$165,000.00	8.66	77
145	Brg	638	Atlantic - Brigantine Boulevard	C	Weather	Critical in the case of catastrophic weather event	Unusual weather events not enough data for estimated resolution	$22,000,000.00	920.12	75
13	**Brg**		**Evans Boulevard**	**M**	**Maintenance**	**Storm drain not adequate**	**Clean storm drains (assuming 18 storm drains)**	**$1,350.00**	**1.31**	**68**
1	Abs	30	Absecon Boulevard	C	Elevation	Roadways too low. Flooding occurs when water 6ft above MLW.	Raise roadway elevation	$1,455,604.58	36.75	67
2	Abs	9	New Road	S	Elevation	Roadways too low. Flooding occurs when water 6ft above MLW.	Raise roadway elevation	$1,473,394.94	93.03	66
80	**Eht**		**Tilton Road**	**C**	**Structural**	**Pump station needs to be replaced**	**Replace pump station**	**$50,000.00**	**4.57**	**65**
132	**Ven**		**Derby Avenue**	**M**	**Tidal**		**Install check valve**	**$3,750.00**	**1.61**	**65**
3	Abs	585	Ohio Avenue	C	Elevation	Roadways too low. Flooding occurs when water 6ft above MLW.	Raise roadway elevation	$1,047,336.67	92.25	64
12	**Brg**		**Hackney Place**	**M**	**Tidal**		**Install pipe end check valve**	**$3,750.00**	**3.62**	**64**

Flood Hazard Inventory
Projects Listed by Score

Project ID	Mun	Route	Road Name	Road Type	Problem Source	Problem Description	Problem Solution	Cost	Trip Cost	Score
93	**Som**			**A**	**Tidal**	**Roadways, elevation, and poor drainage**	**Install 30 check valves**	**$112,500.00**	**25.62**	**64**
111	**Ple**		**Bay Drive/ Tunis Ave**	**M**	**Tidal**	**Inadequate Drainage**	**Install 3 check valves**	**$11,250.00**	**2.75**	**64**
102	Nor		Cedar Bridge Road	M	Storm Drain	The intersections are too low, however, existing development limits the extent of changes to the intersection elevations. Most of the infrastructure does not have sufficient capacity to carry the volume of runoff associated with large rainfall even*	Retrofit 250ft @ $600/ft	$150,000.00	9.51	63
83	Eht		Ocean Heights Avenue	C	Tidal	High tide with heavy rain	Install check valve	$3,750.00	0.20	62
124	Mar	629	Ventnor Avenue	C	Structural	Roadway is too low. But entire area also too low	5 blocks or ~1500ft @ 600/ft	$900,000.00	123.34	62
100	Lin		Barr Avenue	M	Maintenance	Some (in Linwood) due to elevation, others to undersized drainage lines	Clean or repair 4 drains @ $75	$300.00	1.09	61
103	Nor		Pasadena Drive	M	Maintenance	The intersections are too low, however, existing development limits the extent of changes to the intersection elevations. Most of the infrastructure does not have sufficient capacity to carry the volume of runoff associated with large rainfall even*	Clean 2 drains at $75 each	$150.00	0.12	61
25	Ham		Route 54	M	Structural	All of intersection, lack of drainage	Retrofit ~200ft @ $600/ft	$120,000.00	7.76	60
108	Ple			M	Structural	Inadequate Drainage	Install siphon system (~100ft cross drain)	$30,000.00	5.12	60
109	Ple			A	Tidal	Inadequate Drainage	Install 4 check valves at street ends	$15,000.00	3.67	60
126	Ven		Balfour Avenue	M	Maintenance		Clean 56 drains @ $75 each	$4,200.00	3.21	60
68	Est		Cape May Avenue	C	Maintenance	Culverts and basins are in need of repair.	Begin by cleaning culverts, then observe severity of flooding in the future	$66.00	0.03	59

Flood Hazard Inventory
Projects Listed by Score

Project ID	Mun	Route	Road Name	Road Type	Problem Source	Problem Description	Problem Solution	Cost	Trip Cost	Score
97	Lin		Meadow View Avenue	M	Maintenance	Some (in Linwood) due to elevation, others to undersized drainage lines	Clean or repair 4 drains @ $75	$300.00	0.27	59
106	Ple			M	Maintenance	Inadequate Drainage	Clean 2 drains @ $75 each	$150.00	0.06	59
37	Hal				Elevation	Runoff from adjacent areas and poor drainage on each jug handle	Raise roadway elevation	$1,490,774.55	40.48	58
104	Nor		New Road	M	Structural	The intersections are too low, however, existing development limits the extent of changes to the intersection elevations. Most of the infrastructure does not have sufficient capacity to carry the volume of runoff associated with large rainfall even*	Install inlets & piping	$180,000.00	11.41	58
130	Ven		Calvert Avenue	M	Tidal		Install 2 check valves & clean 8 drains at $75 each	$8,100.00	14.16	58
36	Ehc	30	White Horse Pike	S	Maintenance	Poor drainage - State Road	Install 30in wide concrete gutter with 6in high curb plus asphalt patch. Maintain existing piping, clean culverts.	$200,000.00	10.42	57
96	Lin		Frances Avenue	M	Maintenance	Some (in Linwood) due to elevation, others to undersized drainage lines	Clean or repair 4 drains @ $75	$300.00	0.77	57
99	Lin		Edgewood Avenue	M	Maintenance	Some (in Linwood) due to elevation, others to undersized drainage lines	Clean or repair 2 drains @ $75	$150.00	0.54	57

Flood Hazard Inventory
Projects Listed by Score

Project ID	Mun	Route	Road Name	Road Type	Problem Source	Problem Description	Problem Solution	Cost	Trip Cost	Score
105	Nor		Broad Street	M	Maintenance	The intersections are too low, however, existing development limits the extent of changes to the intersection elevations. Most of the infrastructure does not have sufficient capacity to carry the volume of runoff associated with large rainfall even*	Clean 2 drains at $75 each	$150.00	0.37	57
131	Ven		Cambridge Avenue	M	Tidal		Install 7 check valves	$26,250.00	11.30	57
7	Brg		Bay Shore Avenue	M	Elevation	Elevation	Raise roadway elevation	$439,717.21	428.16	55
127	Ven		Cambridge Avenue	M	Tidal		Install 2 check valves	$7,500.00	13.11	55
147	Lon		Atlantic Avenue	M	Structural	Wave action at the point. 11th Street causing ocean water to flow towards Atlantic Avenue, flooding 11th to 16th. Bay water goes over the roads at 16th to 22nd causing Atlantic to flood.	Install seawall ~ 1550 LF	$940,000.00	694.24	55
148	Ven		Oxford Avenue	M	Tidal		Install 4 check valves	$15,000.00	37.97	55
8	Brg		12th Street North	M	Elevation	Elevation	Raise roadway elevation	$1,195,430.88	2061.09	54
9	Brg		Sheridan Boulevard	M	Structural	We need a pump (permanent) at Caverly Drive and Sheridan Blvd.	Drainage resolutions included with scheduled roadway improvements: permanent pump to be installed	$300,000.00	292.11	54
17	Bub	619	Wheat Road	C	Elevation		Raise roadway elevation	$3,710,621.19	917.11	54
110	Ple		Franklin Avenue	M	Structural	Inadequate Drainage	Install inlets & piping	$180,000.00	44.01	54
134	Ven			A	Tidal		Install check valves	$37,500.00	94.94	54
6	Abs	30	Absecon Boulevard	S	Elevation	Roadways too low. Flooding occurs when water 6ft above MLW.	Raise roadway elevation	$1,284,635.88	32.43	53
26	Ham	206	Route 206	S	Structural	Private drive & culvert; pipe too small or requires additional pipe next to it	Retrofit ~250ft @ $600/ft	$150,000.00	14.40	53

Flood Hazard Inventory
Projects Listed by Score

Project ID	Mun	Route	Road Name	Road Type	Problem Source	Problem Description	Problem Solution	Cost	Trip Cost	Score
75	Eht	615	Zion Road	C	Structural	County road and county needs to address. Basin can't handle the flow.	Clean or retrofit existing system (assume siphon system install, 500 LF @ $100 per LF)	$120,000.00	11.66	52
87	Som		Cliveden Avenue	C	Tidal	Roadways, elevation, and poor drainage	Install each kind of check valve	$119,250.00	12.92	52
114	Gal		Breaker Drive	C	Maintenance		Drainage resolutions included with scheduled roadway improvements	$350,000.00	42.59	52
142	Hal	322	Black Horse Pike	C	Elevation	Much of this area shut down and some were evacuated with large amount of rain 6/2007	Raise roadway elevation	$7,142,630.59	414.50	52
137	Atc		Arizona Avenue	M	Structural		1 Vaulted and 1 outfall check valve	$119,250.00	130.61	51
140	Atc		Oriental Avenue	M	Elevation		Raise roadway elevation	$27,967.79	53.37	51
120	Por		Central Avenue	C	Maintenance	Heavy rains come downhill on county road, ClarkÆs Landing and go down city rdùCentral Ave.__County is aware of this problem and iw working on plans to correct this.	Drainage resolutions included with scheduled roadway improvements (siphon system County labor & design)	$30,000.00	33.15	50
18	Bub	40	Central Avenue	C	Structural		Raise roadway elevation and/or construct drainage basin	$129,054.26	15.93	49
23	Buv		Cain's Mill Road	M	Maintenance	Road too low near lake & dam.	Clean drains & culverts (assume 12 drains & 2 culverts)	$1,032.00	0.79	49
69	Est	649	Head of River Road	C	Elevation	Elevation of roadway is too low	Raise roadway elevation	$375,968.44	292.13	49
116	Gal		Oyster Creek Road	C	Elevation	Roadways are too low and run through marshes. High tide makes the situation worse.	Raise roadway elevation	$3,197,392.87	6090.27	49
141	Atc		Conneticut Avenue	M	Maintenance		Fix underground drainage system	$1,087,383.16	560.22	49

Flood Hazard Inventory
Projects Listed by Score

Project ID	Mun	Route	Road Name	Road Type	Problem Source	Problem Description	Problem Solution	Cost	Trip Cost	Score
63	Wey		Tenth Avenue	M	Maintenance	Needs larger culvert pipe. Will flood during extreme storms.	Clean & clear culvert	$66.00	0.49	48
98	Lin		Hemlock Drive	M	Structural	Some (in Linwood) due to elevation, others to undersized drainage lines	Retrofit ~1375ft @ $600	$825,000.00	739.91	48
122	Por	575	English Creek - Port Republic Road	C	Structural	Problems with the culvert. Either increase size of pipe or lower the pipe	Retrofit 1400ft @ $600/ft	$840,000.00	663.51	48
129	Bub	40	Harding Highway	S	Elevation		Raise roadway elevation	$1,499,592.27	185.16	48
15	Brg		Evans Boulevard	M	Structural	Storm drain not adequate	~1800L.F. to bay at 12th St North	$1,080,000.00	1051.61	47
16	Bub	40	Harding Highway	S	Elevation		Raise roadway elevation	$1,861,637.27	198.19	47
44	Wey		South Jersey Ave	C	Structural	Half of the N/B lane of roadway and part of the east side of intersection on tenth will flood during and after rain storms	Install inlets & piping	$180,000.00	70.09	47
81	Eht		Delancy Avenue	M	Structural	Grade issues and need an inlet to existing basin	Install 4 inlets and 1000ft of pipe	$180,000.00	146.58	47
84	Cor	649	Aetna Drive	C	Tidal	Tidal/Rain events on Tuckahoe River	Install check valve at each area of flooding (3)	$11,250.00	193.97	47
138	Atc		Beach Avenue	M	Structural		Install 2 inlets, outfalls and check valves, 1000' of pipe. Reconnect inlet to outfall as per 1997 Citywide Storm Flooding Engineering Study, Pennoni	$112,500.00	845.86	47
144	Atc		E. Riverside Drive	M	Structural		Install vaulted check valve. As per Citywide Storm Flooding Engineering Study.	$115,500.00	868.42	47
14	Brg		Layfayette Blvd	M	Structural		~1900L.F. to bay at 6th St South street end	$1,140,000.00	1110.03	46

Flood Hazard Inventory
Projects Listed by Score

Project ID	Mun	Route	Road Name	Road Type	Problem Source	Problem Description	Problem Solution	Cost	Trip Cost	Score
49	Wey		Grace Avenue	M	Maintenance	Prone to flooding during periodic combination of extreme storms and tidal events. Roadway is low and culvert pipe is too small and exit path needs to be opened up.	Begin with culvert maintenance and observe future occurances of flooding	$66.00	0.49	46
51	Wey		Burnett Avenue	C	Structural	W/B lane of 11th floods and the north side of Burnett floods during and after normal rain. Needs catch basin/ storm drain and laterals.	Install 4 inlets and piping	$180,000.00	34.58	46
56	Wey	666	Cape May Avenue	C	Structural	Needs catch basin / storm drain and roadway shoulder is too low.	Install inlets & piping	$180,000.00	70.09	46
57	Wey	669	Eleventh Avenue	C	Structural	W/B lane of 11th floods during normal rain. Needs catch basin / storm drain and laterals.	Install inlets and piping	$180,000.00	36.85	46
59	Wey		Fourteenth Avenue	C	Structural	Half of the S/B lane of roadway and all o the West side of intersection on 14th , floods during & after rain. Block 5 Lot 10 needs catch basin/ storm drain and laterals.	Install inlets & piping	$180,000.00	33.96	46
65	Wey	557	Tuckahoe Road	C	Structural	Half of the S/B lane of roadway floods during & after rain. Block 5 lots 7 & 8 need catch basin/ storm drain and laterals.	Install 4 inlets and piping	$180,000.00	33.96	46
85	Cor		Griscom Mill Road	M	Structural	Tidal/Rain events on Tuckahoe River	Install 4 inlets and 1000ft of pipe	$180,000.00	1343.28	46
95	Lin		Brighton Drive	M	Structural	Some (in Linwood) due to elevation, others to undersized drainage lines	Install 2 inlets and 100ft of pipe. Assumption: connect to existing drainage system.	$18,000.00	46.27	46
119	Por		Pitney Road	C	Elevation	High tide only; Roadway is too low.	Raise roadway elevation 350ft	$188,920.45	72.91	46

Flood Hazard Inventory
Projects Listed by Score

Project ID	Mun	Route	Road Name	Road Type	Problem Source	Problem Description	Problem Solution	Cost	Trip Cost	Score
21	Buv	557	Tuckahoe Road	C	Structural	Poor drainage on West Side. No drain pits.	Install 4 inlets and 1000ft of pipe	$180,000.00	22.50	45
38	Hal	559	Mill Street	C	Structural	Problem identified as inadequate sewers	Retro fit existing drainage ~630ft * $600.00/ft	$378,000.00	48.83	45
45	Wey		Grant Street	M	Structural	Block 91 Lot 66 needs catch basin/ storm drain	Install 1 Inlet and piping	$45,000.00	335.82	45
70	Est	557	Tuckahoe Road	C	Elevation	Elevation of roadway is too low	Raise roadway elevation	$592,997.56	230.92	45
101	Nor		Cedar Bridge Road	M	Structural	The intersections are too low, however, existing development limits the extent of changes to the intersection elevations. Most of the infrastructure does not have sufficient capacity to carry the volume of runoff associated with large rainfall even*	Install inlets & piping extending 800ft to US Rt 9's system (retrofit 800ft * $600/L.F.	$480,000.00	390.88	45
118	Por	575	Old New York Road	C	Maintenance	Need basin/engineering. Old New York Rd. Mile # 19.-county fixed problem but just moved flooding northward	Install inlets, piping & flappers	$187,500.00	207.18	44
136	Atc		Annapolis Avenue	M	Structural		2 Street end bulkheads, 3 check valves	$221,250.00	1089.90	44
11	Brg		Sarazan Drive	M	Structural		(800ft * $600) Connect to pumped section along Sheridan Blvd.	$480,000.00	3779.53	43
123	Lon		Atlantic Avenue	M	Structural	Wave action at the point. 11th Street causing ocean water to flow towards Atlantic Avenue, flooding 11th to 16th. Bay water goes over the roads at 16th to 22nd causing Atlantic to flood.	Dunes and beach fill (Beach lengths = Ven: 8800ft, Mar: 8700ft, Lon: 7400ft)	$5,718,182.00	4223.18	43
143	Atc		Aberdeen Avenue	M	Structural		Replace 1500 LF of bulkhead on both sides of bay and install 7 pipe end check valves.	$1,486,250.00	7321.43	43

Flood Hazard Inventory
Projects Listed by Score

Project ID	Mun	Route	Road Name	Road Type	Problem Source	Problem Description	Problem Solution	Cost	Trip Cost	Score
19	Bub	627	Central Avenue	C	Elevation		Raise roadway elevation	$61,379.72	12.81	42
66	Est		Maple Avenue	M	Elevation	Roadway elevation is too low	Raise roadway elevation	$676,195.43	5046.23	42
5	Abs		Faunce Landing Road	M	Elevation	Roadways too low. Flooding occurs when water 6ft above MLW.	Raise roadway elevation	$479,267.44	5266.68	41
24	Fol		Fourteenth Street	C	Structural	Southbound side low and no storm drain. North bound: water comes down roadway missing storm drain and into yard. Curb would solve problem.	Drainage basin at corner of 14th and conrail. Possible environmental constraints	$509,641.58	92.61	41
27	Ham	680	Broadway	C	Structural		Retrofit ~350ft @ $600/ft	$210,000.00	51.72	40
146	Fol		Fourteenth Street	C	Structural	Southbound side low and no storm drain. North bound: water comes down roadway missing storm drain and into yard. Curb would solve problem.	Drainage basin at corner of 14th and conrail, assume 9450 sf = total road area. Possible environmental constraints	$343,035.00	62.34	40
20	Bub	672	Brewster Road	C	Elevation	A pond is located adjacent to Co. Rt 672, which causes flooding	Raise roadway elevation	$2,237,156.08	466.85	39
28	Ham		Lakeview Avenue	M	Structural	Wet ares to start then when it rains, water collects on lakeview and prevents traffic to/from 30.	Retrofit drainage structures back to Hammonton Lake ~1800ft @ $600/ft	$1,080,000.00	944.88	38
41	Wey		Clement	M	Elevation	Prone to flooding during extreme storms and tidal events, lot needs catch basin/ storm drain and roadway shoulder is too low.	Raise roadway elevation	$24,173.18	180.40	38
58	Wey		Estelle Avenue	M	Structural	Needs catch basin/ storm drain and roadway shoulder is too low.	2 Inlets, 100ft of piping, 2 drainage pits	$42,000.00	313.43	38
74	Eht		Somers Avenue	M	Elevation	Low elevation	Raise roadway elevation	$301,126.79	614.54	38
86	Cor	611	Main Street	C	Tidal	Tidal/Rain events on Tuckahoe River	Raise roadway elevation	$892,648.61	15390.49	38

Flood Hazard Inventory
Projects Listed by Score

Project ID	Mun	Route	Road Name	Road Type	Problem Source	Problem Description	Problem Solution	Cost	Trip Cost	Score
115	Gal	657	Motts Creek Road	C	Elevation	Roadways are too low and run through marshes. High tide makes the situation worse.	Raise roadway elevation	$3,612,090.00	6880.17	38
121	Por	575	English Creek - Port Republic Road	C	Structural	Problems with the culvert. Either increase size of pipe or lower the pipe	Retrofit 2000ft @ $600/ft	$1,200,000.00	1589.40	38
4	Abs		Euclid Drive	M	Elevation	Roadways too low. Flooding occurs when water 6ft above MLW.	Raise roadway elevation	$609,646.84	6699.42	37
48	Wey		Pennsylvania Avenue	M	Structural	N/E corner of intersection holds water during rain. Roadway is too low.	Install 1 drain and piping	$45,000.00	335.82	37
47	Wey		Grace Avenue	M	Elevation	Prone to flooding during periodic combination of extreme storms and tidal events. Roadway is too low.	Raise roadway elevation	$301,699.48	2251.49	36
54	Wey			M	Elevation	Intersection holds water during heavy rains heading east on 9th	Raise roadway elevation	$70,592.56	526.81	36
22	Buv		Main Avenue	M	Elevation	Water spills over road during big storms. Removes board or two during storm.	Construct and implement a spillway structure and replace bridge. Field checked and no overflow during rain on 7/30/2007	$2,000,000.00	3502.63	35
40	Wey		Blake Drive	M	Structural	Intersection floods during heavy rains. Lots need catch basin/ storm drain.	Retrofit 100ft @ 600/ft	$60,000.00	447.76	35
90	Som		Ambler Road	M	Tidal	Roadways, elevation, and poor drainage	Retrofit ~1100ft of roadway @ 600/ft	$660,000.00	1346.94	35
91	Som		Groveland Avenue	M	Tidal	Roadways, elevation, and poor drainage	Retrofit ~1200ft of roadway	$720,000.00	1469.39	35
42	Wey		Darlington Street	M	Elevation	Prone to flooding during periodic combination of extreme storms and tidal events. Roadway is too low.	Raise roadway elevation	$177,760.65	1326.57	34
61	Wey		Pennsylvania Avenue	M	Structural	Entire roadway holds water during & after rain. Roadway is too low, need catch basin / storm drain and laterals.	Install inlets & piping	$180,000.00	1343.28	34

Flood Hazard Inventory
Projects Listed by Score

Project ID	Mun	Route	Road Name	Road Type	Problem Source	Problem Description	Problem Solution	Cost	Trip Cost	Score
64	Wey		South Jersey Ave	R	Structural	South Jersey Ave S/B lane holds water during heavy rains. Block 30 Lot 3 needs catch basin/ storm drain laterals installed.	Install siphon system with pits, 4 inlets & piping	$180,000.00	1343.28	34
34	Mul	563	Green Bank Road	C	Elevation	Elevation of roadway	Raise roadway elevation	$4,674,044.25	5210.75	33
62	Wey		South Jersey Ave	M	Structural	South Jersey Ave S/B lane holds water after rains. Block 23 Lot 3, 19, 20 needs catch basin/ storm drain.	Install inlets and piping	$180,000.00	1343.28	33
71	Eht		Harbor Drive	M	Elevation	Low elevation	Raise roadway elevation	$643,416.65	4801.62	33
39	Wey		Danenhauer Lane	M	Structural	Intersection will flood during and after heavy rain. Danenhauer Lane in Hamilton Twp floods regularly.	Install inlets, piping & 2 check valves	$187,500.00	1399.25	31
50	Wey		Twelfth Avenue	M	Elevation	Dirt road; will hold water during and after rains. Roadway is too low.	Raise roadway elevation	$253,389.83	1890.97	30
53	Wey		Atlantic Avenue	M	Elevation	Roadway is too low	Raise roadway elevation	$228,316.85	1703.86	30
55	Wey		Atlantic Avenue	M	Structural	Roadway is too low between paved roadway and 13th Ave	Install inlets & piping	$180,000.00	1343.28	30
117	Por		Cologne - Port Republic Road	M	Elevation	Need engineering	Raise roadway elevation 800ft	$431,818.18	6643.36	30
46	Wey		Grace Avenue	M	Structural	Prone to flooding during extreme storms and tidal events. Needs catch basin/ storm drain.	Install inlets & piping	$180,000.00	1343.28	29
31	Mul		McCormick Avenue	M	Tidal		Install 4 inlets and 1000ft of pipe	$180,000.00	636.04	28
30	Mul		Thurston Avenue	M	Structural		Install 4 inlets and 1000ft of pipe	$180,000.00	636.04	27
32	Mul		Cedar Lane	M	Tidal	Proximity to the Mullica River	Install 4 inlets and 1000ft of pipe	$180,000.00	636.04	27
33	Mul		River Drive	M	Tidal		Install 4 inlets and 1000ft of pipe	$180,000.00	636.04	27
72	Eht		Wharf Road	M	Elevation	Low elevation	Raise roadway elevation	$3,221,430.57	24040.53	26

Flood Hazard Inventory
Projects Listed by Score

Project ID	Mun	Route	Road Name	Road Type	Problem Source	Problem Description	Problem Solution	Cost	Trip Cost	Score
73	Eht		Morris Avenue (Jobs Point)	M	Elevation	Low elevation	Raise roadway elevation	$2,852,506.16	21287.36	26
52	Wey		Maple Avenue	M	Elevation	Dirt road; roadway is too low.	Raise roadway elevation	$2,427,198.71	18113.42	24
10	Brg		Bay Shore Avenue	C	Weather	Elevation ---- 10 year storm	Unusual weather events not enough data for estimated resolution	$0.00	0.00	0
29	Mul	623	Elwood-Pleasant Mills Road	C	Maintenance	Mullica river embankment. Installing bulkhead and drainage system.	Drainage resolutions included with scheduled roadway improvements	$0.00	0.00	0
35	Ehc	652	Lower Bank Road	C	Weather	Elevation--roadway is too low.	Unusual weather events not enough data for estimated resolution. Field checked and dry during rain storm on 7/30/07 (roadside phragmites)	$0.00	0.00	0
43	Wey	669	Eleventh Avenue	C	Weather	Prone to flooding during periodic combination of extreme storms and tidal events. Road is low.	Unusual weather events not enough data for estimated resolution, surrounding projects may reduce reoccurance of flooding along this section	$0.00	0.00	0
60	Hal	559	Mill Street	C	Maintenance	Lake Lenape dam	Drainage resolutions included with scheduled roadway improvements	$0.00	0.00	0
67	Wey		Maple Avenue	M	Weather	Prone to flooding during periodic combination of extreme storms and tidal events.	Unusual weather events not enough data for estimated resolution	$0.00	0.00	0
76	Eht	662	Mill Road	C	Structural	Low spot. Should be resolved during intersection improvement.	Drainage resolutions included with scheduled roadway improvements	$0.00	0.00	0

Flood Hazard Inventory
Projects Listed by Score

Project ID	Mun	Route	Road Name	Road Type	Problem Source	Problem Description	Problem Solution	Cost	Trip Cost	Score
77	Eht		Tremont Avenue	M	Weather	Minor flooding after 3-4 inches downpour, not much can be done	Unusual weather events not enough data for estimated resolution	$0.00	0.00	0
78	Eht		Bates Drive	M	Weather	Minor flooding after 3-4 inches downpour, not much can be done	Unusual weather events not enough data for estimated resolution	$0.00	0.00	0
79	Eht		Lincoln Avenue	M	Weather	Minor, no real issues	Unusual weather events not enough data for estimated resolution	$0.00	0.00	0
82	Eht	563	Delilah Road	C	Maintenance	Should be fixed with intersection improvement	Drainage resolutions included with scheduled roadway improvements	$0.00	0.00	0
88	Som		Broadway (South Pointe)	M	Weather	Roadways, elevation, and poor drainage	Sporadic and unusual weather events. Not enough data for estimated resolution.	$0.00	0.00	0
89	Som			M	Weather	Roadways, elevation, and poor drainage	Sporadic and unusual weather events. Not enough data for estimated resolution.	$0.00	0.00	0
92	Som		Bethel Road	M	Weather	Roadways, elevation, and poor drainage	Sporadic and unusual weather events. Not enough data for estimated resolution.	$0.00	0.00	0
94	Eht		O'Byrne Drive	M	Weather	Low elevation	Sporadic and unusual weather events, not enough data for estimated resolution	$0.00	0.00	0
107	Ple		New Road	M	Weather	Inadequate drainage	Sporadic and unusual weather events, not enough data for estimated resolution	$0.00	0.00	0
112	Eht		Bay Drive	M	Maintenance	Ongoing project should improve West Atlantic City	Drainage resolutions included with scheduled roadway improvements	$0.00	0.00	0

Flood Hazard Inventory
Projects Listed by Score

Project ID	Mun	Route	Road Name	Road Type	Problem Source	Problem Description	Problem Solution	Cost	Trip Cost	Score
113	Gal			G	Maintenance	Caused by construction project. Never flooded prior to clearing vegetation on the sides of the road.	Solution in progress. Correct & maintain current drainage system.	$0.00	0.00	0
125	Mar	563	Jerome Avenue	C	Maintenance	Sinking drainage manhole at NW corner of intersection	Drainage resolutions included with scheduled roadway improvements	$0.00	0.00	0
139	Atc		Adriatic Avenue	M	Maintenance		Drainage resolutions included with scheduled roadway improvements and redevelopment of area near and around Carson & Massachusetts Avenues	$0.00	0.00	0

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) City of Absecon

Action	"-" = cost (unfavorable)			"0"=neutral or not applicable				"+" = benefit (favorable)		(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Flood control S. Shore Rd between the US Route 30 and Illinois Ave. Elevate roadway, install inlets, pipes etc to eliminate roadway flooding	+	+	-	0	-	+	-	-	+	-	high	high	
Flood control Euclid Dr. between Natale Terr. and Church St. Elevate roadway, install inlets, pipes etc. to eliminate roadway flooding	+	+	-	0	-	+	-	-	+	-	high	high	
Flood control Faunce Landing Rd between Weber's Lane and Lisbon Ave. Elevate roadway, install inlets, pipes etc to eliminate roadway flooding	+	+	-	0	-	+	-	-	+	-	high	high.	

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) **City of Atlantic City**

Action	"-" = cost (unfavorable)						"0"=neutral or not applicable		"+" = benefit (favorable)	(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Storm Water Control and Flood Mitigation	+	+	+	+	+	+	+	no	yes	3yrs	High	High	High
Public Works Equipment	+	-	+	+	-	+	+	No	Yes	4yrs	High	High	HIGH
Street Improvements	+	+	+	+	+	+	+	No	Yes	5 yrs Ongoing	High	High	high
High Rise Development	+	+	+	+	+	+	+	No	Yes	On Going	High	High	High
Education Facilities	+	+	+	+	+	+	+	No	Yes	Passed referendum	High	High	High

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) Brigantine

Action	"-" = cost (unfavorable)						"0"=neutral or not applicable		"+" = benefit (favorable)	(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Barrier project for municipal boat ramp.	0	+	0	0	0	0	+	YES	YES	NO	H	M	M
Permanent Flood pump station Hackney Place.	0	+	0	0	0	+	+	YES	YES	NO	H	M	H

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) Buena, Borough of

Action	"-" = cost (unfavorable)				"0"=neutral or not applicable			"+" = benefit (favorable)			(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Flooding problem located at the corner of Laurel St. and Flower in the Boro of Buena. Outdated drain system should be updated due to flooding after heavy rain due to hurricane, nor' easter.	+	+	–	+	–	–	+	–	+	–	High	High	med
The Borough of Buena will plan to educate the public through pamphlets and information available through Borough resources explaining how the public can conserve water during time of drought. Also to restrict water use when necessary by initiating ordinances	+	+	–	+	–	–	–	–	+	–	Med	Low	Low

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) Corbin City

Action	"-" = cost (unfavorable)				"0" = neutral or not applicable			"+" = benefit (favorable)			(High, medium, or low)		
	S	T	A	P	L	E	R	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
RAISE THE LEVEL OF MAIN ST.	+	+	−	+	+	+	+	—	+	—	High	MED	High
RAISE STREET LEVEL OF GRASON MILL RD. AT RT. 50 INTERSECTION	+	+	−	+	+	+	+	—	+	—	MED	Low	MED
RETRENCH EXISTING STORM WATER RUNOFF DITCHS	+	+	+	+	+	+	+	+	+	+	High	Low	MED

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) **Township of Egg Harbor**

Action	"-" = cost (unfavorable)				"0"=neutral or not applicable				"+" = benefit (favorable)		(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Replace Flood Control Pump, Windsor Avenue, Block 1316 Lot 18	+	+	+	+	+	+	0	+	+	+	High	Med	High
Replace Flood Control Pump, West Avenue, Block 1207 Lot 1	+	+	+	+	+	+	0	+	+	+	High	Med	High
Install additional culvert for stream flood control on Tremont Avenue	+	+	-	+	-	+	-	-	+	-	High	High	Med

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) ESTELL MANOR

Action	"-" = cost (unfavorable)				"0"=neutral or not applicable			"+" = benefit (favorable)			(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
#3 INSTALL DRY HYDRANT'S AT APPROPRIATE LOCATIONS TO PREVENT WILDFIRES	+	+	+	0	0	+	+	+	+	+	High	med	High
UPGRADE + INSTALL STORM WATER DRAINS + RETENSION PONDS	+	+	+	+	0	+	-	+	+	+	med	med	med

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) Folsom Borough

Action	"-" = cost (unfavorable) "0"=neutral or not applicable "+" = benefit (favorable)										(high, medium, or low)	
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs
The upgrade of storm water drainage systems, raise of locally-owned road ways in the flood plain area. and redredge out fall pipe trenches to the river.	+	+	0	0	0	+	0	0	+	−	high	high
To provide the school with storm shelters, back up power and communications for temporary shelter due to disaster.	+	+	-	+	0	+	0	−	+	−	high	high

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) Galloway Township

Action	"-" = cost (unfavorable)				"0"=neutral or not applicable			"+" = benefit (favorable)			(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Develop specific mitigation solutions for flood prone road systems, bridges, intersections along the local and county hurricane evacuation routes	+	+	+	+	O	-	+	-	+	-	* HIGH *	High	HIGH
Repair drainage at various locations though the township to mitigate road flooding	+	+	+	+	-	+	+	+	+	-	High	Medium	HIGH
Retrofit the Municipal Complex to withstand hurricane force winds to provide shelter and maintain essential emergency services. Retrofit the Municipal with a generator and communication system.	+	+	+	+	+	+	+	+	+	+	Medium	Medium	Medium
Retrofit all fire houses to withstand hurricane force winds and retrofit with back-up generator to provide shelter for strike teams though out the township.	+	+	+	+	+	+	+	+	+	+	Medium	Medium	Medium
Nor'easter, Winter Storms, and Hurricanes: Mitigation will include coordinating with Federal, State and County agencies including the local jurisdiction to implement a readiness plan to address the various hazards, support local highway department with training equipment and technical information also offer public education and materials.	+	-	-	-	-	+	+	-	+	-	Medium	Medium	Low

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) **Township of Hamilton**

Action	"-" = cost (unfavorable)				"0"=neutral or not applicable			"+" = benefit (favorable)			(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Lenape Dam repairs: Immediate and long term repairs to Lenape Dam	+	+	+	+	+	-	+	-	+	-	* HIGH *	High	* HIGH *
Upgrade and clean retention basins to reduce flooding along the local-County Hurricane evacuation route.	+	+	+	+	-	+	+	+	+	-	High	Low	HIGH
Replace culverts, raise road beds along hurricane evacuation route to prevent road flooding.	+	+	+	+	+	+	+	-	+	-	Medium	Medium	Medium
Retrofit Town Hall to withstand hurricane force winds to provide shelter and maintain essential emergency services.	+	+	+	+	+	+	+	+	+	+	Medium	Medium	Medium
Nor'easter, Winter Storms, and Hurricanes: Mitigation will include coordinating with Federal, State and County agencies including the local jurisdiction to implement a readiness plan to address the various hazards, support local highway department with training equipment and technical information also offer public education and materials.	+	-	-	-	-	+	+	-	+	-	Medium	Medium	Low

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) Town of Hammonton

Action	"-" = cost (unfavorable)							"0"=neutral or not applicable		"+" = benefit (favorable)	(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Lakeview Drive at US Route 30 flooding	+	+	+	+	+	-	+	+	+	-	*HIGH*	High	High
Upgrade and clean retention basins to reduce flooding along the County hurricane evacuation route	+	+	+	+	-	+	+	+	+	-	High	Low	High
Jacobs Street and First Road flooding	+	+	+	+	+	+	+	+	+	-	Medium	Medium	Medium

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) City of Linwood

Action	"-" = cost (unfavorable)						"0"=neutral or not applicable	"+" = benefit (favorable)			(high, medium, or low)	
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Frances Avenue and Grammercy Avenue Flood Mitigation	+	+	0	+	+	0	+	0	+	0	HIGH	HIGH	HIGH
Hemlock Avenue Drainage Improvements	+	+	0	+	+	+	+	+	+	+	HIGH	MED	HIGH
Edgewood Avenue Drainage Improvements	+	0	+	+	+	+	+	+	+	+	MED	LOW	MED
Poplar Avenue Drainage Improvements	+	+	+	+	+	+	+	+	+	+	HIGH	MED	MED
Woodlynne Blvd. Drainage Improvements	−	+	+	+	+	+	+	+	−	+	LOW	LOW	LOW

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) Longport New Jersey

Pg #1

Action	"-" = cost (unfavorable)				"0"=neutral or not applicable			"+" = benefit (favorable)			(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Flood Protection Plan completed 9/08	+	+	+	+	-	+	+	+	+	+	high	0	high
Revised Flood Hazard ordinance completed 9/08	+	+	+	+	-	+	+	+	+	+	high	0	high
72 hr. Emergency Kit For All Residents	+	+	+	+	0	+	+	-	+	-	high	-	Low
Emergency evacuation Bags all resident	+	+	+	+	0	+	+	-	+	-	high	-	Low
Storm Road designation	+	+	+	+	0	+	+	+	+	+	high	+	high

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) Longport New Jersey

Pg #2

Action	"-" = cost (unfavorable) "0"=neutral or not applicable "+" = benefit (favorable)										(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Post disaster Recovery ordinance	+	+	+	+	−	+	+	−	+	−	+	+	Low
Brough Utils like have ability to Banner Info Before/during/after Hazard events	+	+	+	+	+	+	+	+	+	+	+	+	High
Establish higher Regulatory standard for high impact Resistant glass	+	+	+	+	−	+	+	+	+	−	+	+	Med
Establish higher Regulatory standard for storm shutters	+	+	+	+	−	+	+	+	+	−	+	+	Med C
Elevate 35 RLP	+	+	+	+	−	+	+	−	+	−	+	−	high

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) Long port New Jersey pg #3

Action	"-" = cost (unfavorable) "0"=neutral or not applicable "+" = benefit (favorable)										(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Prepare/Protect Public water supply from disruption — obtain Port Gen.	+	+	+	+	+	+	+	+	+	+	+	+	high
Repare/Protect Public water system from disruption prepare Portable gen	+	+	+	+	+	+	+	+	+	+	+	+	high
Install Flood gates at critical facilities	+	+	+	+	+	+	+	—	+	—	+	—	Med
Install storm shutters critical facilities	+	+	+	+	+	+	+	—	+	—	+	—	Med
Prepare flood (pre) plans for all critical facilities	+	+	+	+	+	+	+	+	+	+	+	+	High

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) Longport New Jersey #4

Action	"-" = cost (unfavorable)							"0"=neutral or not applicable		"+" = benefit (favorable)	(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Develope 25 to 50 yr Plan to Put all over-head util underground	+	+	+	+	−	+	+	−	+	−	+	−	Med
Develope ord. mandating high bulkhead + SEAWALL hts	+	+	+	+	−	+	+	+	+	+	+	+	Med
Develope Add'l +/or engineered Dunes	−	+	−	−	−	+	+	−	+	−	+	−	Low
Develope ord. creating Further SET back − Beach Front Prop.	−	+	−	−	−	+	+	−	+	−	+	−	Low

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) Margate City

Action	"-" = cost (unfavorable)				"0"=neutral or not applicable			"+" = benefit (favorable)			(high, medium, or low)			
	S	T	A	P	I.	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority	
Storm sewer pump station upgrade	+	+	−	−	+	−	+	−	+	−	HIGH	HIGH	HIGH	M
Amherst & Kenyon storm sewer	+	+	0	+	0	−	+	0	0	0	MED	MED	MED	M
Amherst & Delavan storm sewer	+	+	+	+	0	0	+	+	0	+	MED	MED	MED	M
Adams Avenue storm sewer	+	+	+	+	0	+	0	0	0	0	MED	MED	MED	M
Amherst between Coolidge & Madison STORM SEWER AND BULKHEADS	+	+	+	+	+	+	+	−	0	−	MED	MED	MED	M

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) Margate City

Action	"-" = cost (unfavorable)							"0"=neutral or not applicable		"+" = benefit (favorable)	(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Increase ocean front bulkheads to 13' and add beach access	+	+	+	+	+	+	+	+	+	+	HIGH	MED	H

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) Township of MULLICA

Action	"-" = cost (unfavorable)				"0"=neutral or not applicable				"+" = benefit (favorable)		(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Mitigation #1 Replace/ Repair Dam Lake Nescochsuge	+	+	+	+	+	+	-	+	+	-	High	High	High
Mitigation # 2 Install Drainage North side of Rt. 643 Thurston Ave to 5th Ave	+	+	+	+	+	+	-	+	+	-	High	High	High

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) NORTHFIELD

Action	"-" = cost (unfavorable)				"0" = neutral or not applicable			"+" = benefit (favorable)			(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
UPGRADE STORM SYSTEM	0	+	−	+	−	+	−	+	+	0	HIGH	MEDIUM	MEDIUM
BACKUP GENERATOR PUBLIC WORKS BUILDING	0	+	−	0	−	−	0	0	0	0	LOW	MEDIUM	LOW
INCREASE PUBLIC AWARENESS	−	+	−	+	−	+	−	+	+	0	HIGH	LOW	MEDIUM

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) Pleasantville

Action	"-" = cost (unfavorable)				"0"=neutral or not applicable				"+" = benefit (favorable)		(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Research and surveying to install new culvert	+	+	-	+	-	0	-	-	+	-	HIGH	MEDIUM	HIGH
Installation additional of stormwater outfalls	+	+	-	+	-	-	0	-	+	-	HIGH	HIGH	HIGH
Stormwater management regulations and working with the NJ State since they own the rode	+	+	-	+	-	+	0	+	+	-	HIGH	LOW	MEDIUM

PRIORITIZATION OF ACTIONS

VENTNOR CITY, NEW JERSEY

(Name of Jurisdiction)

Action	"-" = cost (unfavorable)				"0"=neutral or not applicable			"+" = benefit (favorable)			(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
Installation of Stormwater Drainage system pumping station at Ventnor Gardens Plaza.	+	+	0	+	0	+	+	+	+	+	HIGH	HIGH	HIGH
Installation of Duck Bill Valves in various location to prevent backups in storm drainage system during periods of minor to moderate tidal flooding.	+	+	0	+	0	+	+	+	+	+	MEDIUM	MEDIUM	MEDIUM
Demolition, Elevating and Reconstruction of water pumping and treatment station in the floodplain. Project to include addition of Emergency Generator	+	+	-	0	0	+	+	-	+	-	MEDIUM	HIGH	HIGH
Installation of emergency generators to water & sewer pumping stations at various locations.	+	+	0	0	0	+	+	-	+	+	HIGH	MEDIUM	HIGH
Installation of Citywide Warning Siren System for emergencies.	+	+	-	-	-	+	0	-	+	-	MEDIUM	MEDIUM	MEDIUM

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) Township of Weymouth.-

Action	"-" = cost (unfavorable) "0"=neutral or not applicable "+" = benefit (favorable)										(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
9.E Prescribed burning for hazard reduction.	0	+	0	0	+	0	+	+	+	+	high	med.	high
9.F Initiate public outreach program for homeowners.	+	+	+	0	0	+	0	+	+	+	high	low	high
9.I Community brush & debris removal + hazard fules reduction.-	0	+	0	0	0	+	+	+	+	0	high	high.	med
10.A Promote or purchase NOAA weather radios for Critical Facilities.	0	-	0	0	0	-	0	+	+	+	high.	med.	high
10.C Ice & windstorm resistant trees & landscaping practices to reduce tree-related hazards	0	+	0	0	0	+	+	0	+	0	med.	med.	med.

APPENDIX D – ADDENDUM

PARTICIPATING JURISDICTIONS MITIGATION ACTION EVALUATION AND PRIORITIZATION

The following items have been added as an Addendum:

- Additional County action items – a series of County-led initiatives with direct involvement and participation from each of the municipalities.

- Additional Municipal action items – documenting municipal buy-in on a series of County-led initiatives that will have direct involvement and participation from each of the municipalities.

Prioritization Table – SUPPLEMENT (JUNE 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Atlantic County, New Jersey

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	**High**
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	**Med**
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	**Med**
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department	All	t	t	t	t	t	t	t	t	t	t	High	Low	**Med**
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site.	All	t	t	t	t	t	t	t	t	t	t	High	Low	**High**

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation.	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies.	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prepared by:

Name Don Weger

Title Atlantic County OEM

Telephone 609-407-6764

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Absecon, City of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Atlantic City, City of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Brigantine, City of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Buena, Borough of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Corbin City, City of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Egg Harbor, Township of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Estell Manor, City of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Folsom, Borough of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Galloway, Township of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Hamilton, Township of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Hammonton, Town of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Linwood, City of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Longport, Borough of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Margate City, City of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Mullica, Township of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Northfield, City of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Pleasantville, City of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Ventnor, City of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

Prioritization Table – SUPPLEMENT (AUGUST 2010)

(based FEMA Region 2 "ToolKit" file "4-strat-4b-STAPLEE-table-sample.doc" and FEMA 386-5 Staplee Method B)

(Name of Jurisdiction) Weymouth, Township of

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

Mitigation action, program or project *(project type: prevention, property protection, public education, natural resource protection, emergency services or structural projects)*	Hazard(s) addressed	S – Social	T – Technical	A – Administrative	P – Political	L – Legal	E – Economic	E - Environmental	Can be implemented easily	Achieves Multiple Objectives	Can be implemented quickly	Overall Benefits (High/ Med/ Low)	Overall Costs (High/ Med/ Low)	Priority (High/ Med/ Low)
Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	t	t	0	t	0	t	t	t	t	t	Med	Low	Med
Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	t	t	0	t	t	t	t	t	t	t	High	Low	Med
1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	Med
2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High
Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Med	Low
Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	t	t	t	t	t	t	t	t	t	t	High	Low	High

APPENDIX E–

PARTICIPATING JURISDICTIONS MITIGATION ACTION IMPLEMENTATION STRATEGY

County and Municipal action items from the November 2009 Draft remain in Appendix E.

The following items have been added as an Addendum:

- Additional County action items – a series of County-led initiatives with direct involvement and participation from each of the municipalities.

- Additional Municipal action items – documenting municipal buy-in on a series of County-led initiatives that will have direct involvement and participation from each of the municipalities.

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) Atlantic County

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row.

PRIORITY*	Mitigation Action	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)*	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
H	Mill Road	Flooding	Existing and Future	County Engineer	County Engineer	2 years after approval	$3million	*FEMA*, with County match (time) and NJDEP match of $160,000.
H	Tilton Road	Flooding	Existing and Future	County Engineer	County Engineer	1 Year after approval	$1million	FEMA, with County Match (Time)
M	Albany and Wellington	Flooding	Existing and Future	Consultant under County and State Engineer	State(NJDOT) and County Engineer	2 years after approval	$10million	FEMA, with County match (time)
M	Ventnor, New Brunswick, Winchester	Flooding	Existing and Future	Atlantic County Utility Authority in conjunction with Atlantic County, Ventnor City and Margate City	Atlantic County Utility Authority under County and Municipal Engineers	2 years after approval	$5million	FEMA, with match from County, Margate and Ventnor
M	Jim Leeds and New Leaf	Flooding	Existing and Future	Township of Galloway, in conjunction with Atlantic County	County and Municipal Governments	1 year after approval	$2million	FEMA with match from County and Galloway Township

** "Priority" to be carried over from the STAPLEE worksheet*

see prioritization worksheet for detailed project descriptions

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) ABSECON

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

Mitigation Action	Please list the hazards that the action will address	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)*	What funding source do you anticipate? *(i.e. local staff time, local budget, grant funding, etc.)*
Flood control S. Shore Rd.	Flooding	Both	Administration	City Council Public Works Committee	2015	high	Federal + State DOT
Flood control Euclid Dr.	Flooding	Both	Administration	City Council Public Works Committee	2020	high	Federal + State DOT
Flood Control Faunce Landing Rd.	Flooding	Both	Administration	City Council Public Works Committee	2025	high	Federal + State DOT

** "Priority" to be carried over from the STAPLEE worksheet*

see prioritization worksheet for detailed project descriptions

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) City of Atlantic City

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)*	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
1	Storm Water Control and Flood Mitigation Projects Phase 1	Tidal and storm Flooding	Both	Engineering	City Council/ Mayor	2012	$3 million	FEMA/City
2	Storm Water Control and Flood Mitigation Projects Phase 2	Tidal and storm Flooding	Both	Engineering	City Council/ Mayor	2012	$1.8 million	FEMA/City
3	Storm Water Control and Flood Mitigation Projects Phase 3	Tidal and storm Flooding	Both	Engineering	City Council/ Mayor	2012	high	FEMA/City

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) City of Brigantine

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)*	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
HIGH	Permanent Flood Pumping Station, Hackney Place	Flooding	BOTH	Engineering	Planning Board, and Engineering	FY 2011	$300,000	Grant Funding and/or Capital Improvement Bond
HIGH	Permanent Flood Pumping Station, 34th St and Lighthouse Circle	Flooding	BOTH	Engineering	Planning Board and Engineering	FY 2011	$300,000	Grant Funding and/or Capital Improvement Bond
MEDIUM	Floodgate, Brigantine Municipal Boat Ramp	Flooding	BOTH	Engineering	Planning Board and Engineering	FY 2011	$35,000	Local Budget

** "Priority" to be carried over from the STAPLEE worksheet*

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) Borough of Buena

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)*	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
Med	Flooding problem located at the corner of Laurel St. and Flower in the Boro of Buena. Outdated drain system should be updated due to flooding after heavy rain due to hurricane, nor;easter.	Flooding	Both future assets and current assets	Boro engineer with road supervisor	Boro Council	Within the next five-seven years	High	FEMA / Federal grants
Low	The Borough of Buena will plan to educate the public through pamphlets and information available through Borough resources explaining how the public can conserve water during time of drought. Also to restrict water use when necessary by initiating ordinances	Drought issues	Both existing and future assets	Boro Clerk's office/ Tax office	Boro Council	Within the next five - ten years.	Med	Grants

**** "Priority" to be carried over from the STAPLEE worksheet***

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) Corbin City

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

Priority*	Mitigation Action	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? (order of magnitude dollars, or qualitative high/medium/low)	What funding sources do you anticipate? (i.e., local staff time, local budget, grant funding, etc.)
1	RAISE The Level of MAIN ST.	STREET FLOODING	both	MAYOR & COUNCIL	MAYOR & COUNCIL	ASAP	$1.000.000 $ 80 0.000 $ 500.000	GRANT FUNDING
2	RETRench Existing STORM WATER RUNOFF DITCHES	STREET FLOODING	both	MAYOR & COUNCIL	MAYOR & Council	ASAP	$300'000 $ 100.000 $ 50.000	GRANT FUNDING
3	RAISE ST. LEAVEL of GIBSON MILL RD. AT. RT. 50 INTERSECTION	STREET FLOODING	both	MAYOR & COUNCIL	MAYOR & COUNCIL	ASAP	$75000 $ 50.000 $ 25.000	GRANT FUNDING

* *"Priority" to be carried over from the STAPLEE worksheet*

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) Township of Egg Harbor

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

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High	Replace Flood Control Pump, Windsor Avenue, Block 1316 Lot 18	Flood, Hurricane, Tropical Storm, Nor'Easter	Both	Public Works	Township Government	June 2010	$50,000	Grant
High	Replace Flood Control Pump, West Avenue, Block 1207 Lot 1	Flood, Hurricane, Tropical Storm, Nor'Easter	Both	Public Works	Township Government	June 2010	$50,000	Grant
Med	Install additional culvert for stream flood control on Tremont Avenue	Flood, Hurricane, Tropical Storm, Nor'Easter	Both	Atlantic County	County Government	June 2011	$500,000	Grant

* ***"Priority" to be carried over from the STAPLEE worksheet***

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) ESTELL MANOR

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

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High	INSTALL DRY HYDRANTS	WILDLAND FIRES	BOTH	LOCAL FIRE DEPT	PLANNING BOARD STATE	JUNE 2010	MED	GRANT FUNDING
MED	UPGRADE AND INSTALL STORM WATER DRAINS AND RETENSION PONDS	ROAD FLOODING ON EGAUTION ROUTE	EXISTING	PUBLIC WORKS DEPT	LOCAL PLANNING BOARD	AUG 2011	MED	GRANT FUNDING

** "Priority" to be carried over from the STAPLEE worksheet*

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) Folsom Borough

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement AND filled out the "Prioritization Worksheet". Now on this page translate from the "Prioritization Worksheet" each action and its priority rank, then fill in the remainder of the form.

[illegible]	Mitigation Action	Please list the hazards that the action will address	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date the project should be accomplished?	What is the estimated cost of the project? (order of magnitude dollars, or high/medium/low)	What funding source do you anticipate? (i.e. local staff time, local budget, grant funding, other)
	The upgrade of storm sewers and Trenches	minor flooding	both	engineering	Road Dept. Stormwater Program	contingent on receipt of grant funding	high	grant
	Provide town with emergency shelter by adding storm shutters and back up power to school	all	both	Town Council	emergency management	contingent on receipt of grant funding	high	grant

* "Priority" to be carried over from the STAPLEE worksheet

see prioritization worksheet for detailed project descriptions

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) Galloway Township

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

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* HIGH *	Develop specific mitigation solutions for flood prone road systems, bridges, intersections along the local and county hurricane evacuation routes	Flooding	Both	Public Works	County and Township	Based on grants / Funding 2015	2.5 million	Grant Funding
HIGH	Repair drainage at various locations though the township to mitigate road flooding	Flooding	Both	Public Works	Township DPW	Based on grants / Funding 2014	$500,000.	Grant Funding
Medium	Retrofit the Municipal Complex to withstand hurricane force winds to provide shelter and maintain essential emergency services Retrofit the Municipal with a generator and communication system.	Flooding	Future	Public Works	DPW	Based on grants / Funding 2011	$450,000.	Grant Funding
Medium	Retrofit all fire house to withstand hurricane force winds and retrofit with back-up generator to provide shelter for strike teams though out the township.	Nor'easter Flooding Winter Storms	Future	Public Works	OEM	Based on grants / Funding 2011	$350.000.	Grant Funding
Low	Nor'easter, Winter Storms, and Hurricanes: Mitigation will include coordinating with Federal, State and County agencies including the local jurisdiction to implement a readiness plan to address the various hazards, support local highway department with training equipment and technical information also offer public education and materials.	Flooding	Both	Public Works	OEM	Based on grants / Funding 2013	(Medium)	Grant Funding

**** "Priority" to be carried over from the STAPLEE worksheet***

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) Town of Hammonton

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HIGH	Lakeview Drive at Route U.S. 30 Flooding.	Flooding	Both	Public Works	DPW & propety owners	Based on grants / Funding 2012	$75,000	Grant Funding
HIGH	Upgrade and clean retention basins to reduce flooding along the local-County Hurricane evacuation route.	Flooding	Both	Public Works	Work with private property owners	Based on grants / Funding 2012	$65,000.	Grant Funding
Medium	Jacobs Street and First Road flooding	Flooding	Both	Public Works	DPW	Based on grants / Funding 2012	$50,000.	Grant Funding

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IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) Township of Hamilton

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

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* HIGH *	Lenape Dam repairs: Immediate and long term repairs to Lenape Dam	Flooding	Both	Public Works	County and Township	Based on grants / Funding 2014	1.6 million	Grant Funding
HIGH	Upgrade and clean retention basins to reduce flooding along the local-County Hurricane evacuation route.	Flooding	Both	Public Works	Work with private property owners	Based on grants / Funding 2012	$750,000.	Grant Funding
Medium	Replace culverts, raise road beds along hurricane evacuation route to prevent road flooding.	Flooding	Both	Public Works	DPW	Based on grants / Funding 2012	$500,000.	Grant Funding
Medium	Retrofit Town Hall to withstand hurricane force winds to provide shelter and maintain essential emergency services.	Nor'easter Flooding Winter Storms	Existing	Public Works	DPW	Based on grants / Funding 2012	$450.000.	Grant Funding
Low	Nor'easter, Winter Storms, and Hurricanes: Mitigation will include coordinating with Federal, State and County agencies including the local jurisdiction to implement a readiness plan to address the various hazards, support local highway department with training equipment and technical information also offer public education and materials.	Flooding	Both	Public Works	OEM	Based on grants / Funding 2015	(Medium)	Grant Funding

**** "Priority" to be carried over from the STAPLEE worksheet***

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) Linwood

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HIGH	Frances Avenue and Grammercy Avenue Flood Mitigation	Flooding	both	Engineering	City Council	TBD contingent on funding	High	Grant funding
MED	Hemlock Avenue Drainage Improvements	Flooding	"	"	"	Fall 2009	MED	Local Capital Budget
MED	Edgewood Avenue Drainage Improvements	Flooding	"	"	"	TBD contingent on funding	Low	Grant Funding/ Loan
MED	Poplar Avenue Drainage Improvements	flooding	"	"	"	TBD contingent on funding	MED	Grant Funding
LOW	Woodhynne Blvd. Drainage Improvements	flooding	"	"	"	TBD contingent on funding	Low	Local Capital Budget

** "Priority" to be carried over from the STAPLEE worksheet*

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) Longport New Jersey Pg #1

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high	Flood Protection Plan completed 9/08	Flood	Future Assets	Bldg dept.	Stand Alone Plan	completed	$1500.	Muni Funding
high	Flood Prevention ordinance	Flood	Future Assets	Bldg Zoning	ordinance	completed	—	—
high	All Hazard Mitigation Plan County Proj	All Hazards	↓	↓	County	Sept 2009	?	grants fed + state
Low	72 hr. Emergency Sustainable Kits All Residents	Floods wind Power out winter storm	current Assets	Emergency Management	Via Board Resolution	Spring 2010	$24,000. @ 15. per	Private Donations
Low	Emergency evac. grab + go bags w/ instructions	Flood Power out Any Evac Hazard	↓	↓	↓	↓	$8,000 5 per	↓

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IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) Longport New Jersey pg. # 2

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high	designation "storm Ready committee"	Flood winter wind	All Assets	Emergency management C	Resolution C	summer 2009	NA	NA
Low	Post disaster Recovery Plan	Flood wind Hurricane Nor Easter	↓	Planning Dept C	New ord.	summer 2010	$2500.	Muni Funding C
high	Borough Web site update/ Add emergency Banners	All HAZard	↓	Bldging Zoning Planning Em. Mang	Resolution C	summer 2009	$10,000	↓
Med C	Est. higher Reg. Standards New + Sub. Imp. High Impact glass	Flood Wind	All Assets	Bldging	ord	summer 2010	NA	NA
Med	est. high Reg. Standard storm shutters mandatory	Flood wind	New + sub. Imp Sub DAM Asset	Bldg ↓	ord	summer 2010	↓	↓

** "Priority" to be carried over from the STAPLEE worksheet*

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) Longport, New Jersey pg. #3

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high	Elev. 35 Repetitive Loss properties C	Flood Hurricane NorEast	Existing Assets C	Bldg C	Resol of ord	2012	$875,000 @ 25K per unit	fed grants C
high	Purchase generator (Portable) for sewer outages - water + sewage	All Hazards C	↓	Public works	Resolution	Fall 2009	$100K	↓
med	Install flood gate critical facilities C	Flood C	↓	↓	↓	summer 2010	$25K	↓
med	Install storm shutters critical facilities	unid	↓	↓	Resol	↓	15K	↓
High	Prepare pre flood + HAZARD Plan All critical facilities	All Hazards	↓	Fire dept Police dept Rwork City Hall	Resolut.	↓	NA	NA

* *"Priority" to be carried over from the STAPLEE worksheet*

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) Longport New Jersey

pg. # 4

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

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Med	Prepare 25, 50 yr flow to Rpl all overhead Utl. Underground	All Hazards	Existing + Future	Planning C	ord → Resol.	2034 to 2059	40 to 50 million c.	federal + state grants
Med	Dev. ordinance mandating higher SEAWALL/Bulkhead.	Flood	↓	↓	ord	2010 Fall	NA	NA
Low	Develope Add'l engineered Dunes	Flood	↓	↓	ord.	2012	$800,000	Fed + /or State grants
Low	Dev. ord mandating greater SEtback Bench	Flood	↓	↓	↓	2011	NA	NA

** "Priority" to be carried over from the STAPLEE worksheet*

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) MARGATE CITY

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MED	STORM SEWER PUMP STATION UPGRADE	STREET FLOODING	BOTH	PUBLIC WORKS	INTERLOCAL AGREEMENT	2012	HIGH	LOCAL & COUNTY
MED	AMHERST & KENYON STORM SEWER	STREET FLOODING	BOTH	PUBLIC WORKS	LOCAL AUTHORITY	2011	MED	LOCAL
MED	AMHERST & DELAVAN STORM SEWER	STREET FLOODING	BOTH	PUBLIC WORKS	LOCAL AUTHORITY	2011	MED	LOCAL
MED	ADAMS AVENUE STORM SEWER	STREET FLOODING	BOTH	PUBLIC WORKS	LOCAL AUTHORITY	2011	MED	LOCAL
MED	AMHERST BETWEEN COOLIDGE & MADISON	STREET FLOODING	BOTH	PUBLIC WORKS	LOCAL AUTHORITY	2010	MED	LOCAL & STATE

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IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) MARGATE CITY

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HIGH	INCREASE OCEAN FRONT BULKHEADS TO 13' AND ADD BEACH ACCESS	OCEAN FRONT FLOODING AND HANDICAP ACCESS	EXISTING	PUBLIC WORKS	LOCAL AUTHORITY	2009 2010	LOW	LOCAL + COMMUNITY DEVELOPMENT BLOCK GRANT

* *"Priority" to be carried over from the ST.APLEE worksheet*

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) _____Township of Mullica

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High	#1 Replace or repair dam Lake Nescochauge at Rt. 643.	Flooding Hazard Pleasant Mills area of the Township	Existing assets	Public Works	Engineer	2012	High	Grant Funding
High	#2 Drainage on the north side of Rt. 643 from Thurston Ave to 5th Ave.	Relieve area of some tidal flooding issues.	Existing and future assets	Public Works	Engineer	2014	High	Grant Funding

**** "Priority" to be carried over from the STAPLEE worksheet***

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) : NORTHFIELD

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1	UPGRADE STORM SYSTEM	FLOODING	BOTH	PUBLIC WORKS	ENGINEER	11/09	MED	CAPITAL
3	BACK UP GENERATOR PW	all	BOTH	BUILDINGS & GROUNDS	ENGINEER / COUNCIL	N/A	MED	CAPITAL
2	INCREASE RESIDENTS AWARENESS	all	BOTH	CLERK	CLERK / COUNCIL	12/09	LOW	BUDGET

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) CITY OF PLEASANTVILLE

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HIGH	Research and surveying to install new culvert	Flooding	Both	Planning and Development	City Council	2014	High	Grant funding
HIGH	Installation additional of stormwater outfalls.	Flooding	Both	Planning and Development	City Council	2014	High	Grant funding
MEDIUM	Stormwater management regulations and working with the NJ State since they own the rode.	Flooding	Both	Planning and Development	City Council	2011	Medium	State

**** "Priority" to be carried over from the STAPLEE worksheet***

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) Ventnor

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HIGH	Installation of Storm Water Pumping Station at Ventnor Garden Plaza and the Bay. Project includes Emergency Generator.	Protection of Critical Facilities & Flooding	BOTH	Engineering	CRS Floodplain Management Protection of Critical Facilities	2012	HIGH	HMGP Grant
HIGH	Installation of Emergency Generators to water & Sewer Pumping Station at various locations.	Loss of power due to Tropical Storms, Hurricanes, Snow Storms, High Winds, or other hazards.	BOTH	Water & Sewer Utility	Emergency Management Planning	2011	MEDIUM	Local Bonds
HIGH	Demolition, Elevating and Reconstruction of water pumping and treatment station in the floodplain. Project to include addition of Emergency Generator.	Protection of Critical Facilities & Flooding	BOTH	Engineering	CRS Floodplain Management Protection of Critical Facilities	2012	HIGH	HMGP Grant &/or Local Bonds
MEDIUM	Installation of Duck Bill Valves in various location to prevent backups in storm drainage system during periods of minor to moderate tidal flooding.	Flooding	BOTH	Public Works	CRS Floodplain Management Repetitive Loss Prevention	2011	MEDIUM	HMGP Grant, Budget, Local Bonds
MEDIUM	Installation of Citywide Warning Siren System for emergencies.	Public Warning for all hazards	BOTH	Emergency Management	Emergency Management Planning	2012	MEDIUM	HMGP Grant, Budget, Local Bonds

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IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) Township of Weymouth -

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PRIORITY*	Mitigation Action	Please list the hazards that the action will address	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? (order of magnitude dollars, or qualitative: high/med/low)	What funding source do you anticipate? (i.e., local staff time, local budget, grant funding, etc.)
	9.E	wildfires	Both.	Environmental Commission.	Vol. Fire Department.	12 mos after start.	Med.	Grant Funding. Vol. Time.
	9.F	wildfires	existing.	Environmental Commission.	Township Clerks office -	3 mos after start.	low.	local Budget.
	10.A	winter storms	existing.	Public works Dept.	Township Committee.	3 mos after start.	low.	local Budget.
	9.I	wildfires	existing.	Environmental Commission.	Public works	12 mos after start.	high.	grant Funding.
	10.C	winter storms	both	Environmental Commission.	Environmental Commission.	12 mos after start.	Med.	grant Funding.

* "Priority" to be carried over from the STAPLEE worksheet

APPENDIX E – ADDENDUM

PARTICIPATING JURISDICTIONS MITIGATION ACTION IMPLEMENTATION STRATEGY

The following items have been added as an Addendum:

- Additional County action items – a series of County-led initiatives with direct involvement and participation from each of the municipalities.

- Additional Municipal action items – documenting municipal buy-in on a series of County-led initiatives that will have direct involvement and participation from each of the municipalities.

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (JUNE 2010)

(Name of Jurisdiction) Atlantic County, New Jersey

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	ACOEP and Municipal Agencies	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	ACOEP and Municipal Agencies	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	ACOEP and Municipal Agencies	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	County Planning (with support from ACOEP) and Municipal Agencies	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	ACOEP	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	ACOEP, County Planning Department and Municipal Agencies	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	County Planning	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Absecon, City of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Atlantic City, City of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Brigantine, City of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Buena, Borough of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Corbin City, City of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Egg Harbor, Township of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
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Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
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Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Estell Manor, City of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

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IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Folsom, Borough of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Galloway, Township of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

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IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Hamilton, Township of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Hammonton, Town of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

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IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Linwood, City of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

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IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Longport, Borough of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Margate City, City of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

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IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Mullica, Township of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

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IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Northfield, City of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Pleasantville, City of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Ventnor, City of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	NA	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

ADDENDUM ADDENDUM ADDENDUM ADDENDUM

IMPLEMENTATION STRATEGY WORKSHEET - SUPPLEMENT (AUGUST 2010)

(Name of Jurisdiction) Weymouth, Township of

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action * For Atlantic County	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)***	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*
High	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (*public education)*	All	The education itself doesn't directly apply to either existing or new structures, but any subsequent activities undertaken by those educated could impact both existing and new structures as well as other types of assets such as the population itself	CPG Member Mayor	ACOEP and Municipal Agencies	Ongoing	Low	Local budget
Med	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/amend the codes/ordinances as applicable. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	Code enforcement: Enforcement of State and Local Building Codes with Continual CEO training. *(prevention)*	All	Primarily applies to new structures (though would also apply to improvements made to existing structures in some circumstances)	CPG Member Mayor	Existing local codes and ordinances	Ongoing	Staff time	Local budget
Med	1.B. Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department *(prevention)*	All	Both	CPG Member Mayor	Maintenance of CEMP	Ongoing	Low	County Budget, local staff time
High	2E. Update information on the ACOEP web site regarding preparing for emergencies to incorporate profiled hazards not already discussed in these documents, and ensure that the information continues to be maintained on the web site. *(public education)*	All	Both	CPG Member Mayor	ACOEP	Ongoing	Low	County Budget, local staff time
Low	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. *(prevention)*	All	Both	CPG Member Mayor	CEMP, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time
High	Ensure that the principles of this hazard mitigation plan are integrated into the new and updated development plans/strategies. *(prevention)*	All	Both	CPG Member Mayor	Existing Plans, Hazard Mitigation Plan	Ongoing	Low	County Budget, local staff time

**** "Priority" and "Mitigation Action" carried over from the STAPLEE worksheet***

***** The County cost structure is as follows: Low cost = less than $10,000; Medium = $10,001-$50,000; High = $50,000 and above***

APPENDIX F –

NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE ACTIONS

Note that Pages F-2 through F-3 and Pages F-61 through F-64 have been added since the previous draft in order to address FEMA comments.

Federal Emergency Management
Community Listing of CEO and FPA
Region: 02

CID	Community	Status	Firm Status	Map Date	Contact Type	Name	Phone	Ext	Email
	*** NEW JERSEY ***								
	**** ATLANTIC COUNTY ****								
340001	ABSECON, CITY OF	PARTICIPATING	REVISED	08/23/99	FPA	PAT NATICCHIONE			
					CEO	PETER C ELCO	6096410663		
345278	ATLANTIC CITY, CITY OF	PARTICIPATING	REVISED	02/01/85	FPA	STEPHEN E FRAME	6093475660		
					CEO	JAMES WHALAN	6093475300		
345286	BRIGANTINE, CITY OF	PARTICIPATING	REVISED	07/15/92	FPA	MATTHEW F DORAN	6092667600		
					CEO	PHILIP J GUENTHER	6092667600		
340525	BUENA VISTA, TOWNSHIP OF	PARTICIPATING	ALL ZONE A, C AND X - NO ELEVATION DETERMINED	06/22/79	FPA	AL PELLEGRINI	6096972100		
					CEO	CHARLES CHIARELLO	6096972100		
340004	BUENA, BOROUGH OF	PARTICIPATING	ALL ZONE A, C AND X - NO ELEVATION DETERMINED	03/04/83	FPA	ANTHONY CASADIA	8566970450		
					CEO	GENE IANNETTE	8566970450		
340005	CORBIN CITY, CITY OF	PARTICIPATING	ORIGINAL	09/30/81	FPA	JANET MCCROSSON	6096282673		CORBINCITY@PLEXI.COM
					CEO	RONALD R MANZI	6096282673		
340006	EGG HARBOR, CITY OF	PARTICIPATING	ORIGINAL	08/02/82	FPA	Robert F Lemur	6099651616		
					CEO	JAMES E McGEARY	6099650081		
340007	EGG HARBOR, TOWNSHIP OF	PARTICIPATING	ORIGINAL	02/16/83	FPA	THOMAS S LEONARDIS	6099264071		TLEONARDIS@EHTGOV.ORG
					CEO	JAMES J MCCOLLOUGH	6099264071		
340573	ESTELL MANOR, CITY OF	PARTICIPATING	REVISED	07/02/03	FPA	DCA DCA	6094762692		
					CEO	MICHAEL BILLE	6094762692		
340568	FOLSOM, BOROUGH OF	PARTICIPATING	ORIGINAL	01/06/82	FPA	JOHN F ALOISIO	6095613507		
					CEO	TOM N BALLISTRERI	6095613178		
340008	GALLOWAY, TOWNSHIP OF	PARTICIPATING	REVISED	06/30/99	FPA	RICHARD ROESCH	6096523700		RROESCH@GALLOWAYTWP-
					CEO	THERESA CONOVER	6096523700		
340009	HAMILTON, TOWNSHIP OF	PARTICIPATING	ORIGINAL	03/15/77	FPA	GLENN FRANZOI	6096251591		
					CEO	STANLEY R KALSKY	6096251511		
340010	HAMMONTON, TOWN OF	PARTICIPATING	ORIGINAL	01/06/82	FPA	ADAMS REHMAN	6095674326		
					CEO	BARBARA BERENATO	6095674300		
340011	LINWOOD, CITY OF	PARTICIPATING	ORIGINAL	01/19/83	FPA	James Galantino	6099263031		
					CEO	DONALD B VASS	6099274108		
345302	LONGPORT, BOROUGH OF	PARTICIPATING	REVISED	08/15/83	FPA	BRUCE A TUNE	6098220563		
					CEO	WILLIAM A FIORE	6098226503		
345304	MARGATE CITY, CITY OF	PARTICIPATING	REVISED	10/18/83	FPA	JAMES GALANTINO	6098221974		GALANTINO-JIM@MARGATE-
					CEO	WILLIAM H ROSS, III	6096538868		

Federal Emergency Management
Community Listing of CEO and FPA
Region: 02

CID	Community	Status	Firm Status	Map Date	Contact Type	Name	Phone	Ext	Email
340517	MULLICA, TOWNSHIP OF	PARTICIPATING	ORIGINAL	03/01/82	FPA	RICHARD	6095617070		
					CEO	KATHY CHASEY	6095610064		
340014	NORTHFIELD, CITY OF	PARTICIPATING	ALL ZONE A, C AND X - NO ELEVATION DETERMINED	02/19/83	FPA	Richard E Stevens	6096412832		rstevens@cityofnorthfield
					CEO	Frank Perri Jr.	6096460617		frankperri@cityofnorthfield.org
340015	PLEASANTVILLE, CITY OF	PARTICIPATING	ORIGINAL	01/19/83	FPA	PAT J NATICCHIONE	6096467303		
					CEO	GEORGE W DIX	6094843614		
340016	PORT REPUBLIC, CITY OF	PARTICIPATING	REVISED	07/15/92	FPA		6096463111		
					CEO		6096463111		
340017	SOMERS POINT, CITY OF	PARTICIPATING	ORIGINAL	11/17/82	FPA	Burton Federman	6099271644		
					CEO	CHARLES PARKER	6099271644		
345326	VENTNOR, CITY OF	PARTICIPATING	REVISED	09/15/83	FPA	JAMES AGNESINO	6098237920		oem@ventnorcity.org
					CEO	CHARLES BEIRNE	6098237905		
340536	WEYMOUTH, TOWNSHIP OF	PARTICIPATING	REVISED	01/16/03	FPA	BONNIE S YEARSTEY	6094762633		
					CEO	ROLAND L MARSH, SR.	6094762633		
	~~ BERGEN COUNTY **~~**								
~~340019~~	~~ALLENDALE, BOROUGH OF~~	~~PARTICIPATING~~	~~REVISED~~	~~09/30/05~~	~~FPA~~	~~Leslie M Shenkler, AIA~~			
					~~CEO~~	~~Vince Barra~~			
~~340581~~	~~ALPINE, BOROUGH OF~~	~~NOT~~	~~ALL ZONE C&X PUBLISHED FIRM~~	~~09/30/05~~	~~FPA~~	~~WALTER A DUKE~~	~~2017686865~~	—	
					~~CEO~~	~~WALTER A DUKE~~	~~2017686865~~		
~~340020~~	~~BERGENFIELD, BOROUGH OF~~	~~PARTICIPATING~~	~~REVISED~~	~~09/30/05~~	~~FPA~~	~~ROBERT E BYRNES, SR~~	~~2013874055~~		
					~~CEO~~	~~Richard Bohan~~	~~2013874055~~		
~~340021~~	~~BOGOTA, BOROUGH OF~~	~~PARTICIPATING~~	~~REVISED~~	~~09/30/05~~	~~FPA~~	~~DANIEL D HOWELL~~	~~2013420954~~		
					~~CEO~~	~~STEVEN M LONEGAN~~	~~2013421736~~		
~~340022~~	~~CARLSTADT, BOROUGH OF~~	~~PARTICIPATING~~	~~REVISED~~	~~09/30/05~~	~~FPA~~	~~Frank Recanati~~	~~2019391777~~		
					~~CEO~~	~~WILLIAM ROSEMAN~~	~~2019392850~~		
~~340582~~	~~CLIFFSIDE PARK, BOROUGH~~	~~NOT~~	~~ALL ZONE C&X PUBLISHED FIRM~~	~~09/30/05~~	~~FPA~~	~~GERALD A CALABRESE~~	~~2019453456~~	—	
					~~CEO~~	~~GERALD A CALABRESE~~	~~2019453456~~		
~~340023~~	~~CLOSTER, BOROUGH OF~~	~~PARTICIPATING~~	~~REVISED~~	~~09/30/05~~	~~FPA~~	~~KEITH R SAGER~~	~~2017840759~~		
					~~CEO~~	~~STEVEN B HARZ~~	~~2017840756~~		
~~340024~~	~~CRESSKILL, BOROUGH OF~~	~~PARTICIPATING~~	~~REVISED~~	~~09/30/05~~	~~FPA~~	~~EDWARD M ROSSI~~	~~2015695400~~		
					~~CEO~~	~~Benedict Romeo~~	~~2015695400~~		
~~340025~~	~~DEMAREST, BOROUGH OF~~	~~PARTICIPATING~~	~~REVISED~~	~~09/30/05~~	~~FPA~~	~~EDWARD M ROSSI~~	~~2017683398~~		
					~~CEO~~	~~James Carroll~~	~~2017680167~~		
~~340026~~	~~DUMONT, BOROUGH OF~~	~~PARTICIPATING~~	~~REVISED~~	~~09/30/05~~	~~FPA~~	~~DOUGLAS F BAKER~~	~~2013875034~~		
					~~CEO~~	~~MARY PRICE.~~	~~2016410770~~		

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) City of Absecon

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
Cityof Absecon	1999	N/A	1 - Construction Official

Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance:

All development permits are reviewed.
Use Base flood + floodway data as required.
Review Alteration of watercourses

Interpret flood insurance rating maps.

Next:

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*
6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*
7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*
8. If you consider there to be additional activities that could be undertaken to enforce your municipality's floodplain management ordinance beyond what your municipality is already doing, please list these actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can leave Rows 7 and 8 blank.)* * Feel free to attach additional pages if you need more space.

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Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) City of Absecon

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable) "0"=neutral or not applicable "+" = benefit (favorable)										(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations													
2. Designate/install a specific person to be your municipality's Floodplain Administrator	+	+	+	0	0	+	0	+	+	+	Med	Low	
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	+	+	+	0	0	+	0	+	+	+	Med	Low	
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	+	+	-	0	0	-	0	-	+	-	Med	High	
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	+	+	+	0	0	+	0	+	+	+	Med	Low	
6. Join the Community Rating System (CRS)	+	+	+	0	0	+	0	+	+	+	Med	Low	
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) City of Absecon

IMPLEMENTATION STRATEGY

NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations						
2. Designate/install a specific person to be your municipality's Floodplain Administrator	Both	Construction	City Administration	1/1/2011	N/A	N/A
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	Both	Construction	City Administration	1/1/2011	N/A	N/A
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	Both	Construction/ Administration	City Administration	1/1/2011	$500.00	City
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	Both	Construction	City Administration	1/1/2011	$500.00	City
6. Join the Community Rating System (CRS)	Both	Construction	City Administration	1/1/2011	N/A	N/A
7.						
8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction)_____City of Atlantic City

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
City of Atlantic City	**October 1, 1993**	**Wally Shields** construction official	**20**
Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance: **Working on Storm Water Control and Flood Mitigation Projects. Services two ends of Baltic Drainage Canal (Site A Atlantis Ave and Bulkhead, Site B Fisherman's Park and Bulkhead) controls 30 % of Flood control for City.**			

Next:

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*
6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*
7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*
8. If you consider there to be additional activities that could be undertaken to enforce your municipality's floodplain management ordinance beyond what your municipality is already doing, please list these actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can leave Rows 7 and 8 blank.)* * Feel free to attach additional pages if you need more space.

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction)_____City of Atlantic City

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable)					"0"=neutral or not applicable	"+" = benefit (favorable)			(high, medium, or low)		
	S	**T**	**A**	**P**	**L**	**E**	**E**	**Can be implemented easily**	**Achieves multiple objectives**	**Can be implemented quickly**	**Overall Benefits**	**Overall Costs**	**Priority**
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations													
2. Designate/install a specific person to be your municipality's Floodplain Administrator													
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	+	+	+	+	+	+	+	**No**	**Yes**	**No**	**High**	**Medium**	**High**
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	+	+	+	+	+	+	+	**Yes**	**Yes**	**No**	**High**	**Medium**	**High**
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	+	+	+	+	+	+	+	**No**	**Yes**	**No**	**High**	**Medium**	**High**
6. Join the Community Rating System (CRS)													
7.Modify Storm Water Management Ordinances on Flooding	+	+	+	+	+	+	+	**Yes**	**Yes**	**No**	**High**	**Low**	**High**
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction)_____City of Atlantic City

IMPLEMENTATION STRATEGY

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations						
	2. Designate/install a specific person to be your municipality's Floodplain Administrator						
	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	Both	Engineering/ Construction	Administration	2010	$80,000	City/ FEMA
	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	New	Engineering	Engineering	2011	$60,000	City
	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	New	Construction	Construction	2011	$25,000	City/ FEMA
	6. Join the Community Rating System (CRS)						
	7. Modify Storm Water Management Ordinances on Flooding	New	Engineering	Engineering	2011	$5,000	City
	8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction)_____City Of Brigantine_____

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
City of Brigantine	**2008**	**City Solicitor/Floodplain Manager**	**4**
Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance: **All building, renovation and engineering projects are carefully enforced according to local, state and federal government mandates. Enforcement is handled primarily by the Planning and Zoning Officials, as well as the Building and Code enforcement officials**			

Next:

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*
6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*
7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*
8. If you consider there to be additional activities that could be undertaken to enforce your municipality's floodplain management ordinance beyond what your municipality is already doing, please list these actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can leave Rows 7 and 8 blank.)* * Feel free to attach additional pages if you need more space.

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction)_____City Of Brigantine_____

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable)					"0"=neutral or not applicable	"+" = benefit (favorable)			(high, medium, or low)		
	S T A P L E E							Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	+	+	+	+	+	+	+	+	+	0	M	M	M
2. Designate/install a specific person to be your municipality's Floodplain Administrator	O	O	O	O	O	O	O	+	+	+	M	M	M
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	O	O	O	O	O	O	O	+	+	+	M	M	M
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	+	+	+	+	+	+	+	O	O	O	H	L	M
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	-	-	-	-	-	-	-	-	-	-	L	L	L
6. Join the Community Rating System (CRS)	O	O	O	O	O	O	O	O	O	O	H	L	H
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction)_____City Of Brigantine_____

IMPLEMENTATION STRATEGY

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations						
	2. Designate/install a specific person to be your municipality's Floodplain Administrator						
	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances						
	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	Both	Floodplain Committee	Flood Plain Ordinance			
	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)		Floodplain Committee	Flood Plain Ordinance			
	6. Join the Community Rating System (CRS)						
	7.						
	8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project

NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) BOROUGH OF BUENA

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
Borough Of Buena	**10-25-1982**	**Borough Engineer**	**+- 3**
Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance: **Boro engineer reviews all Land Use Board decisions for building projects to ensure all ordinances and building regulations are followed**			

***Next*:**

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*
6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*
7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*
8. If you consider there to be additional activities that could be undertaken to enforce your municipality's floodplain management ordinance beyond what your municipality is already doing, please list these actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can leave Rows 7 and 8 blank.)* * Feel free to attach additional pages if you need more space.

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction)_____Borough of Buena_____

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable)					"0"=neutral or not applicable	"+" = benefit (favorable)			(high, medium, or low)		
	S	**T**	**A**	**P**	**L**	**E**	**E**	**Can be implemented easily**	**Achieves multiple objectives**	**Can be implemented quickly**	**Overall Benefits**	**Overall Costs**	**Priority**
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	+	+	+	+	-	-	+	**0**	**0**	**0**	**low**	**high**	**low**
2. Designate/install a specific person to be your municipality's Floodplain Administrator													
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances													
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	+	+	+	+	-	-	+	**0**	**0**	**0**	**Low**	**High**	**low**
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)													
6. Join the Community Rating System (CRS)	+	+	+	+	-	-	+	-	-	-	**Low**	**High**	**low**
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction)_____Borough of Buena_____

IMPLEMENTATION STRATEGY

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
Low	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	Both	Clerk's office/ Boro Engineer	Land Use Board	Within new 2 years	Few thousand +/-	Grant monies/ cap. impv.
	2. Designate/install a specific person to be your municipality's Floodplain Administrator						
	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances						
Low	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	Both	Clerk's office/ Boro Engineer	Land Use Board	When maps are updated	Few thousand +/-	Grant $ / cap. Imrv.
	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)						
Low	6. Join the Community Rating System (CRS)	Both	Clerk's Office Boro Engineer	Boro Council members	Within 2-3 yrs.	Few thousand +/-	Grant $/ cap. Exp.
	7.						
	8.						

Atlantic County Multi-Jurisdictional Hazard Mitig
NFIP COMPLIANCE ACTIONS WOR

ard Mitigation Planning Project
ONS WORKSHEET

(Name of Jurisdiction) Corbin City

7

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the management ordinance AND a Floodplain Administrator on the books).*

ticipate in the NFIP; therefore, your municipality DOES have a floodplain oks).

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Juris Designated Floodplain Admi
Corbin City	7/13/08	John Petreason

f Your Jurisdiction's dplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
ETTERSON	1

Please give a brief description of activities currently undertaken by your municipality to enforce

lity to enforce your floodplain management ordinance:

Next:

2. If your current floodplain management ordinance was adopted before 1996 and h 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or late*

re 1996 and has not been subsequently revised, then fill in Row 1 on Pages *of 1996 or later.)*

3. If your jurisdiction does not have a specific person designated to act as your position is unaware of their role as Floodplain Administrator, then fill in Row 2 o

o act as your local Floodplain Administrator, or if the person filling this fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*

4. If you consider the present level of staffing insufficient to adequately enforce y Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are a*

tely enforce your floodplain management ordinance, then fill in Row 3 on *g levels are adequate.)*

5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your fl Flood Insurance Rate Maps that may at some point become available in the fu *Atlantic County as part of its Map Modernization study; thus, no new mapping still fill in Row 4.)*

pdate your floodplain management ordinance to be consistent with revised able in the future for Atlantic County. *(Note that FEMA has not included new mapping is anticipated in the near future. However, everyone should*

6. If floodplain management staff members in your municipality are not Certified Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are alread*

not Certified Floodplain Managers (CFMs), then please fill in Row 5 on *ers are already CFMs.)*

7. If your municipality is not already a participant in FEMA's Community Rating *jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilto Row 6.)*

unity Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six ntine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in*

8. If you consider there to be additional activities that could be undertaken to en beyond what your municipality is already doing, please list these actions in the *leave Rows 7 and 8 blank.)* * Feel free to attach additional pages if you need mo

lertaken to enforce your municipality's floodplain management ordinance actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can* you need more space.

1

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Corbin City

IMPLEMENTATION STRATEGY

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations						
	2. Designate/install a specific person to be your municipality's Floodplain Administrator						
	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances						
	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs		PLANNING BD.	PLANNING BD	NA	NA.	GRANT
	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)		PLANNING BD	PLANNING BD	NA	NA	GRANT
	6. Join the Community Rating System (CRS)		PLANNING BD	PLANNING BD	NA	NA	GRANT
	7.						
	8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Corbin City

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable) "0"=neutral or not applicable "+" = benefit (favorable)										(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations													
2. Designate/install a specific person to be your municipality's Floodplain Administrator													
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances													
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	—	—	—	—	—	—	—	—	0	—	0	—	Low
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	—	—	—	—	—	—	—	—	0	—	0	—	Low
6. Join the Community Rating System (CRS)	—	—	—	—	—	—	—	—	—	—	—	—	Low
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project

NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Township of Egg Harbor

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
Township of Egg Harbor	**Jan 26, 1983**	**Construction Official**	**2**
Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance: **New construction, repair and renovation plans are checked for conformance with FEMA and New Jersey Building Codes. Letters provided to owners stating zone and elevation of existing properties when plans are approved. File copy maintained in construction permit file.**			

Next:

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*
6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*
7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*
8. If you consider there to be additional activities that could be undertaken to enforce your municipality's floodplain management ordinance beyond what your municipality is already doing, please list these actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can leave Rows 7 and 8 blank.)* * Feel free to attach additional pages if you need more space.

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Township of Egg Harbor

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable)					"0"=neutral or not applicable		"+" = benefit (favorable)			(high, medium, or low)		
	S	**T**	**A**	**P**	**L**	**E**	**E**	**Can be implemented easily**	**Achieves multiple objectives**	**Can be implemented quickly**	**Overall Benefits**	**Overall Costs**	**Priority**
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	**0**	**0**	**0**	**0**	**0**	**0**	**0**	+	**0**	+	**Low**	**Low**	**Low**
2. Designate/install a specific person to be your municipality's Floodplain Administrator													
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances													
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	**0**	**0**	**0**	**0**	**0**	**0**	**0**	+	**0**	+	**Low**	**Low**	**Low**
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	+	+	+	+	+	+	+	+	+	+	**High**	**High**	**High**
6. Join the Community Rating System (CRS)	+	+	+	+	+	+	+	+	+	+	**High**	**Med**	**High**
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Township of Egg Harbor

IMPLEMENTATION STRATEGY

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
Low	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	Yes	Construction	Administration	June 2010	$5,000	Local
	2. Designate/install a specific person to be your municipality's Floodplain Administrator						Local
	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances						
Low	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	Yes	Construction	Administration	Unknown	Unknown	Grant
High	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	Yes	Construction	Administration	June 2010	$3,000	Local
High	6. Join the Community Rating System (CRS)	Yes	Construction	Administration	June 2010	$3,000	Grant
	7.						
	8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Estell Manor

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
Estell Manor			

Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance:

CAFRA Pinelands

Next:

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*
6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*
7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*
8. If you consider there to be additional activities that could be undertaken to enforce your municipality's floodplain management ordinance beyond what your municipality is already doing, please list these actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can leave Rows 7 and 8 blank.)* * Feel free to attach additional pages if you need more space.

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project

NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Estell Manor

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable) "0"=neutral or not applicable "+" = benefit (favorable)										(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations													
2. Designate/install a specific person to be your municipality's Floodplain Administrator	+	+	-	+	+	-	-	+	+	+	med	med	Low
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances													
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	+	+	-	+	+	+	+	+	-	+	med	med	Low
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)													
6. Join the Community Rating System (CRS)	+	+	+	+	-	+	+	+	+	+	med	Med	Med
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Estell Manor

IMPLEMENTATION STRATEGY

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations						
Low	2. Designate/install a specific person to be your municipality's Floodplain Administrator	Both	Local Planning Board City Engineer	Planning Board City Council	Nov 2009	Mel	Local
	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances						
	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	Both	City Engineer	Planning Board City Council Emergency (mayor)	March 2010	Mel	Local
	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)						
	6. Join the Community Rating System (CRS)	Both	City Council	City Council		Mel	Local
	7.						
	8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Folsom Borough

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Folsom Borough	12/29/81 Amd 5/14/87	Code enforcement	2

Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance:

review of plans with respect to construction. Folsom is small municipality little development occurs here, when appropriate plans are reviewed with consideration to all possible concerns for development.

Next:

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. *(Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*
6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*
7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*
8. If you consider there to be additional activities that could be undertaken to enforce your municipality's floodplain management ordinance beyond what your municipality is already doing, please list these actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can leave Rows 7 and 8 blank)* * Feel free to attach additional pages if you need more space.

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Folsom Borough

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable) "0"=neutral or not applicable "+" = benefit (favorable)										(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	+	+	+	0	+	-	+	+	0	0	medium	medium	
2. Designate/install a specific person to be your municipality's Floodplain Administrator	+	-	+	0	+	0	0	+	0	+			
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	+	+	+	+	+	+	+	0	0	0			
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	+	+	+	0	+	0	0	0	0	0			
5. Require staff involved in floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	+	+	+	0	+	+	+	0	0	0			
6. Join the Community Rating System (CRS)	0	0	0	0	0	0	0	0	0	0			
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Folsom Borough

IMPLEMENTATION STRATEGY

NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	Both	Legal	Code enforcmt	UNKNOWN AT THIS TIME	UNKNOWN	grant
2. Designate/install a specific person to be your municipality's Floodplain Administrator	new	CONSTRUCTION	Code enforcmt	UNKNOWN	UNKNOWN	grant
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	Both	CONSTRUCTION	Code enforcmt	UNKNOWN	UNKNOWN	grant
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	Both	Legal	governing Body	UNKNOWN	UNKNOWN	grant
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	Both	CONSTRUCTION	governing Body	UNKNOWN	UNKNOWN	grant
6. Join the Community Rating System (CRS)	N/A	N/A	N/A	N/A	N/A	N/A
7.						
8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) **Galloway Township**

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
Galloway Township	Chapter 203, Flood Damage Prevention, was adopted by Township Consol on 6/22/1999 by Ordinance # 1395	The ordinance appoints the Construction Officer to administer its provisions	This ordinance is jointly enforced by the Zoning and Construction Code divisions of the Township.
Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance: The Zoning office requires all applicants to identify whether or not a development is located within a Flood Hazard area as identified on the FEMA Flood Hazard Maps. If any development is to occur in a Flood Hazard, the Construction Department would then require all improvements to be in compliance with appropriate provisions of Ch 203			

Next:

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*
6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*
7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) **Galloway Township**

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable)					"0"=neutral or not applicable	"+" = benefit (favorable)			(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	-	-	-	+	-	+	+	-	+	-	**Low**	**Medium**	**Low**
2. Designate/install a specific person to be your municipality's Floodplain Administrator	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	+	+	–	+	-	+	+	-	+	-	**Medium**	**Medium**	**Medium**
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	+	-	-	+	-	+	+	-	+	-	**Low**	**Medium**	**Low**
6. Join the Community Rating System (CRS)	+	+	-	+	-	+	+	-	+	-	**Medium**	**Medium**	**Medium**
7.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project

NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) **Galloway Township**

IMPLEMENTATION STRATEGY

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	BOTH	Zoning		2011	Medium	Grant
	2. Designate/install a specific person to be your municipality's Floodplain Administrator	n/a	n/a	n/a	n/a	n/a	n/a
	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	n/a	n/a	n/a	n/a	n/a	n/a
	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	Both	Zoning	Floodplain Management Ordinance	if new FIRMs released	Low	Budget
	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	n/a	Construction	Floodplain Management Ordinance	2014	Low	Budget
	6. Join the Community Rating System (CRS)	Both	Zoning		Unknown	Unknown	Towsp. Budget
	7.						
	8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Township of Hamilton

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
Township of Hamilton	Chapter 173, Flood Damage Prevention, was adopted by Township Committee on 5/4/87 as Ordinance # 943-87.	The ordinance appoints the Code Enforcement Officer to administer its provisions	This ordinance is jointly enforced by the Zoning and Construction Code divisions of the Township.

Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance:

The Zoning office requires all applicants to identify whether or not a development is located within a Flood Hazard area as identified on the FEMA Flood Hazard Maps.

If any development is to occur in a Flood Hazard, the Construction Department would then require all improvements to be in compliance with appropriate provisions of Ch 173.

***Next*:**

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Township of Hamilton

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable)					"0"=neutral or not applicable	"+" = benefit (favorable)			(high, medium, or low)		
	S	**T**	**A**	**P**	**L**	**E**	**E**	**Can be implemented easily**	**Achieves multiple objectives**	**Can be implemented quickly**	**Overall Benefits**	**Overall Costs**	**Priority**
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	-	-	-	+	-	+	+	-	+	-	**Low**	**Medium**	**Low**
2. Designate/install a specific person to be your municipality's Floodplain Administrator	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	+	+	–	+	-	+	+	-	+	-	**Medium**	**Medium**	**Medium**
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	+	-	-	+	-	+	+	-	+	-	**Low**	**Medium**	**Low**
6. Join the Community Rating System (CRS)	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**						
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Township of Hamilton

IMPLEMENTATION STRATEGY

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	BOTH	Zoning		2011	Medium	Grant
	2. Designate/install a specific person to be your municipality's Floodplain Administrator	n/a					
	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	n/a					
	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	Both	Zoning	Floodplain Management Ordinance	if new FIRMs released	Low	Budget
	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	n/a	Code Enforcement Officer	Floodplain Management Ordinance	2014	Low	Budget
	6. Join the Community Rating System (CRS)	n/a					
	7.						
	8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Town of Hammonton

First:

1. **Please fill in the following table.** ***(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).***

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
Town of Hammonton	Chapter 147, Flood Damage Prevention, was adopted by Mayor and common commitee 7/25/88 as Ordinance # 16-1988.	The ordinance appoints the Code Enforcement Officer to administer its provisions	This ordinance is jointly enforced by the Zoning and Construction Code divisions of the Town.

Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance:

The Zoning office requires all applicants to identify whether or not a development is located within a Flood Hazard area as identified on the FEMA Flood Hazard Maps.

If any development is to occur in a Flood Hazard, the Construction Department would then require all improvements to be in compliance with appropriate provisions of Ch 147.

Next:

2. **If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3.** ***(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)***
3. **If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3.** ***(Otherwise please leave Row 2 blank).***
4. **If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3.** ***(Please leave Row 3 blank if you feel current staffing levels are adequate.)***
5. **Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)***

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Hammonton, Town of

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable)			"0"=neutral or not applicable			"+" = benefit (favorable)			(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	-	-	-	+	-	+	+	-	+	-	Low	Medium	Low
2. Designate/install a specific person to be your municipality's Floodplain Administrator	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	+	+	–	+	-	+	+	-	+	-	Medium	Medium	Medium
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	+	-	-	+	-	+	+	-	+	-	Low	Medium	Low
6. Join the Community Rating System (CRS)	+	+	-	+	-	+	+	-	+	-	Medium	Medium	Medium
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Hammonton, Town of

IMPLEMENTATION STRATEGY

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	BOTH	Zoning		2011	Medium	Grant
	2. Designate/install a specific person to be your municipality's Floodplain Administrator	n/a					
	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	n/a					
	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	Both	Zoning			Low	Budget
	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	Both	Construction + Zoning	Code Enforcement	2012	Low	Budget
	6. Join the Community Rating System (CRS)	Both	Construction + Zoning	Mayor & Council	2012	Medium	Grant
	7.						
	8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Linwood

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
Linwood	2002	Construction official	2
Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance: FEMA maps & strict enforcement in all floodways for any Construction			

Next:

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*
6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*
7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*
8. If you consider there to be additional activities that could be undertaken to enforce your municipality's floodplain management ordinance beyond what your municipality is already doing, please list these actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can leave Rows 7 and 8 blank.)* * Feel free to attach additional pages if you need more space.

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Linwood

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable)					"0"=neutral or not applicable		"+" = benefit (favorable)			(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations								+ yes					
2. Designate/install a specific person to be your municipality's Floodplain Administrator								done					
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances								done					
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs								+ yes					
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)								done					
6. Join the Community Rating System (CRS)								+ future			+ yes	gov't	yes
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Linwood

IMPLEMENTATION STRATEGY

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	n/a					
	2. Designate/install a specific person to be your municipality's Floodplain Administrator	C.O.					
	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	cont.					
	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	n/a					
	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	cont.					
	6. Join the Community Rating System (CRS)	applying			2010		
	7.						
	8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Borough of Longport

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
Longport	Flood Haz Plan 9/08 Flood Haz ORD. 9/08	Bruce A. Funk / CFM CRS Director Zoning Officer	two

Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance:

An All Hazard Mitigation Committee was formed fall of 2007. They met Approx 10 times. Developed + Had Adopted by Borough a Flood Haz. Plan + Flood Haz ord fall 2008. The ordinance is currently inforced by the Floodplain Manager B. A. Funk. The Plan calls for annual review of the flood ordinance + is currently being rev. for adding additional higher Regulatory standards that may include mandatory storm shutters +/or impact glass for Beach Block + Bay front prop.

Next:

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*
6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*
7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*
8. If you consider there to be additional activities that could be undertaken to enforce your municipality's floodplain management ordinance beyond what your municipality is already doing, please list these actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can leave Rows 7 and 8 blank.)* * Feel free to attach additional pages if you need more space.

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Longport

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable) "0"=neutral or not applicable "+" = benefit (favorable)										(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	Ordinance as 9/2008							→	→				
2. Designate/install a specific person to be your municipality's Floodplain Administrator	Done & current B.A. Funk							is the floodplain Administrator					
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	+	+	+	0	+	+	+	+	+	0	high C.	high C.	MED C.
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	+	+	+	+	+	+	+	+	+	+	med C	med C.	med C.
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)													
6. Join the Community Rating System (CRS)													
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project

NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Borough of Longport

IMPLEMENTATION STRATEGY

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	Done Fall 2008					
	2. Designate/install a specific person to be your municipality's Floodplain Administrator	Done Fall 2008					
	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances				Fall 2009	$ 500. training	Existing 2009 Budget
	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs						
	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	Done					
	6. Join the Community Rating System (CRS)	Done					
	7.						
	8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) MARGATE CITY

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
MARGATE CITY	JAN 15, 2001	EMERGENCY MANAGEMENT COORDINATOR	6

Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance:

CLOSE INSPECTION AND ENFORCEMENT OF MINIMUM ELEVATION REQUIREMENTS

Next:

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*
6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*
7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*
8. If you consider there to be additional activities that could be undertaken to enforce your municipality's floodplain management ordinance beyond what your municipality is already doing, please list these actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can leave Rows 7 and 8 blank.)* –*Feel free to attach additional pages if you need more space.

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) MARGATE CITY

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable) "0"=neutral or not applicable "+" = benefit (favorable)										(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations													
2. Designate/install a specific person to be your municipality's Floodplain Administrator													
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances													
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	+	+	+	+	+	+	+	+	+	+	H	L	H
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	+	+	0	0	+	+	+	0	+	0	0	L	0
6. Join the Community Rating System (CRS)													
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) MARGATE CITY

IMPLEMENTATION STRATEGY

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations						
	2. Designate/install a specific person to be your municipality's Floodplain Administrator						
	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances						
H	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	BOTH	PUBLIC SAFETY	CITY PLANNER	WHEN NEW FIRMS ARE ISSUED	MINIMAL	CITY
O	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	BOTH	PUBLIC SAFETY	CITY PLANNER	2010	$1,000.-	CITY
	6. Join the Community Rating System (CRS)						
	7.						
	8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project

NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Township of Mullica

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
Township of Mullica	**July 2004**	**Dsgt John Thompson**	**5**
Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance: **Information is obtained and maintained by Zoning Official**			

***Next*:**

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*
6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*
7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*
8. If you consider there to be additional activities that could be undertaken to enforce your municipality's floodplain management ordinance beyond what your municipality is already doing, please list these actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can leave Rows 7 and 8 blank.)* * Feel free to attach additional pages if you need more space.

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Township of Mullica

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable)					"0"=neutral or not applicable	"+" = benefit (favorable)				(high, medium, or low)		
	S	**T**	**A**	**P**	**L**	**E**	**E**	**Can be implemented easily**	**Achieves multiple objectives**	**Can be implemented quickly**	**Overall Benefits**	**Overall Costs**	**Priority**
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations													
2. Designate/install a specific person to be your municipality's Floodplain Administrator													
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances													
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	+	+	-	+	+	**o**	+	+	+	+	**High**	**High**	**Medium**
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	+	+	-	+	+	**o**	+	+	+	+	**High**	**High**	**Medium**
6. Join the Community Rating System (CRS)	+	+	-	+	+	**o**	+	+	+	+	**High**	**High**	**Medium**
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Township of Mullica

IMPLEMENTATION STRATEGY

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations						
	2. Designate/install a specific person to be your municipality's Floodplain Administrator						
	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances						
Medium	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	Both	Zoning	Flood Mgt Ordinance	2012	unknown	local
Medium	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	Both	Zoning	Flood Mgt. Ordinance	2012	unknown	local
Medium	6. Join the Community Rating System (CRS)	Both	Zoning	Flood Mgt Ordinance	2012	unknown	local
	7.						
	8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project

(Name of Jurisdiction) CITY OF NORTHFIELD

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
NORTHFIELD	N/A REVISED 6/17/08	N/A	2
Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance: PROHIBIT ANYONE TO BUILD IN FLOOD PLAIN ZONE.			

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. *(Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*
6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*
7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*
8. If you consider there to be additional activities that could be undertaken to enforce your municipality's floodplain management ordinance beyond what your municipality is already doing, please list these actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can leave Rows 7 and 8 blank.)* * Feel free to attach additional pages if you need more space.

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project

(Name of Jurisdiction) NORTHFIELD

NFIP Compliance Action	"-" = cost (unfavorable) "0"=neutral or not applicable "+" = benefit (favorable)										(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations													
2. Designate/install a specific person to be your municipality's Floodplain Administrator													
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances													
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	0	0	0	+	0	0	0	0	0	0	MEDIUM	LOW	LOW
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	0	+	0	0	+	0	0	-	0	-	MEDIUM	MEDIUM	LOW
6. Join the Community Rating System (CRS)	0	+	0	0	-	0	-	-	0	-	MEDIUM	LOW	LOW
7.													
8.													

F-50

(Name of Jurisdiction) NORTHFIELD

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations						
	2. Designate/install a specific person to be your municipality's Floodplain Administrator						
	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances						
	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	BOTH	ENGINEER	CODE ENFORCEMENT	N/A	N/A	BUDGET
	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	BOTH	ZONING		N/A	N/A	BUDGET
	6. Join the Community Rating System (CRS)	BOTH	ZONING		N/A	N/A	BUDGET
	7.						
	8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project

NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) City of Pleasantville

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
City of Pleasantville	**1982**	**City Clerk**	**5**
Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance: **City of Pleasantville actively takes preventive and corrective actions to minimize future flooding. Permits are required for any building or upgrade on existing structures. Our Building department also uses the 25% rule that if it increases the value the structure will have to be elevated. Property has been brought out of the Flood Plain area. Public Works department does maintenance for Storm drains and retention ponds. Maintenance work also is done on out falls for streams, etc. All of this is kept on file.**			

Next:

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*
6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*
7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*
8. If you consider there to be additional activities that could be undertaken to enforce your municipality's floodplain management ordinance beyond what your municipality is already doing, please list these actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can leave Rows 7 and 8 blank.)* * Feel free to attach additional pages if you need more space.

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) City of Pleasantville

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable)					"0"=neutral or not applicable	"+" = benefit (favorable)			(high, medium, or low)		
	S	**T**	**A**	**P**	**L**	**E**	**E**	**Can be implemented easily**	**Achieves multiple objectives**	**Can be implemented quickly**	**Overall Benefits**	**Overall Costs**	**Priority**
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	+	+	-	+	**O**	+	+	-	+	-	**HIGH**	**HIGH**	**High**
2. Designate/install a specific person to be your municipality's Floodplain Administrator	+	+	-	**O**	**O**	+	+	-	+	-	**HIGH**	**MEDIUM**	**HIGH**
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	+	+	-	**O**	**O**	+	+	-	+	-	**HIGH**	**HIGH**	**MEDIUM**
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	**O**	+	-	**O**	-	+	+	-	+	-	**HIGH**	**HIGH**	**HIGH**
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	+	+	+	-	+	-	+	-	+	-	**MEDIUM**	**HIGH**	**MEDIUM**
6. Join the Community Rating System (CRS)	+	+	-	+	+	+	+	-	+	-	**HIGH**	**LOW**	**HIGH**
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) CITY OF PLEASANTVILLE

IMPLEMENTATION STRATEGY

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
HIGH	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations	BOTH	CITY CLERK	Flood Plain Manager	2010	Low	Local
HIGH	2. Designate/install a specific person to be your municipality's Floodplain Administrator	BOTH	City Administrator	City Council	2010	Low	Local
MEDIUM	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances	BOTH	City Administrator	City Administrator	2010	Low	Local
HIGH	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	BOTH	City Engineers	Planning Board & City Council	2011	Low	Grant
MEDIUM	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	BOTH	City Clerk	Planning Board & City Council	2012	Medium	Local
HIGH	6. Join the Community Rating System (CRS)	BOTH	Emergency Management	City Council	2011	Low	Local
	7.						
	8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction)_____Ventnor City, New Jersey_____

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
Ventnor City	**February 19, 2009**	**Emergency Management Coordinator/CRS Coordinator**	**5**
Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance: **Code Enforcement review plans & specifications for new and substantially improved buildings. Verify Floodplain Ordinances requirements are met and check Elevation Certificates for correctness.** **Violations are issued to those property owners not in compliance.**			

Next:

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*
6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*
7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*
8. If you consider there to be additional activities that could be undertaken to enforce your municipality's floodplain management ordinance beyond what your municipality is already doing, please list these actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can leave Rows 7 and 8 blank.)* * Feel free to attach additional pages if you need more space.

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction)_____Ventnor City, New Jersey_____

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable)					"0"=neutral or not applicable		"+" = benefit (favorable)			(high, medium, or low)		
	S	**T**	**A**	**P**	**L**	**E**	**E**	**Can be implemented easily**	**Achieves multiple objectives**	**Can be implemented quickly**	**Overall Benefits**	**Overall Costs**	**Priority**
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations													
2. Designate/install a specific person to be your municipality's Floodplain Administrator													
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances													
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	+	+	**0**	-	-	+	+	-	+	-	**HIGH**	**HIGH**	**HIGH**
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	**0**	+	**0**	**0**	**0**	+	+	+	+	+	**Medium**	**Medium**	**Medium**
6. Join the Community Rating System (CRS)													
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction)_____Ventnor City, New Jersey_____

IMPLEMENTATION STRATEGY

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations						
	2. Designate/install a specific person to be your municipality's Floodplain Administrator						
	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances						
	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	BOTH	Emergency Management	LEPC	2014	Unknown	Budget
	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	BOTH	Code Enforcement	CRS Coordinator	2012	Unknown	Budget
	6. Join the Community Rating System (CRS)						
	7.						
	8.						

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Township of Weymouth

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
Township of Weymouth	1/1/1987-original 10/16/2007 updated.	Township Engineer	ONE

Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance:
Review by Zoning officer of all Zoning Applications prior to issuance of any permit for Floodplain concerns and Compliance with Ordinance standards-
Also Ord. standards would be considered as part of any Planning Bd or Zoning Bd. review.

Next:

N/A If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*

N/A If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*

N/A If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*

5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*

6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*

7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*

N/A If you consider there to be additional activities that could be undertaken to enforce your municipality's floodplain management ordinance beyond what your municipality is already doing, please list these actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can leave Rows 7 and 8 blank.)* * Feel free to attach additional pages if you need more space.

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Township of Weymouth.

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable) "0"=neutral or not applicable "+" = benefit (favorable)							Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	(high, medium, or low)		
	S	T	A	P	L	E	E				Overall Benefits	Overall Costs	[illegible]
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations													
2. Designate/install a specific person to be your municipality's Floodplain Administrator													
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances													
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs													
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	0	+	0	+	0	+	0	+	+	+	high	low	high
6. Join the Community Rating System (CRS)	0	+	−	0	−	−	0	−	+	−	high	high	low
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction) Township of Weymouth.

IMPLEMENTATION STRATEGY

NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations						
2. Designate/install a specific person to be your municipality's Floodplain Administrator						
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances						
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs	+ Both.	Planning Bd.-	Planning Bd.	When new updates are required.-	minimal	Budget.
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	—	Zoning officer.	Zoning Bd. & Twp Committee.	As Classes and Funding are available	high.	grant.-
6. Join the Community Rating System (CRS)	& Both	Twp Engineer	Planning Bd.	As funding is available.	high	grant.
7.						
8.						

Hazard Mitigation Plan – NFIP Requirements

As of October 1, 2008, Flood Mitigation Assistance (FMA) Plan requirements were added to 44 CFR §201.6, which applies to Local Hazard Mitigation Plans (LHMPs.) These changes result in new requirements for NFIP-related information to be included in LHMPs and create a single planning requirement that applies to FMA, as well as HMGP and PDM, grant eligibility. This document explains the new requirements and provides suggestions to assist communities in meeting them.

1. Assessing Vulnerability: Addressing Repetitive Loss Properties

Requirement §201.6(c)(2)(ii): *[The risk assessment] must also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged by floods.*

As part of the Risk Assessment, LHMPs must discuss repetitive loss and severe repetitive loss properties as defined by the National Flood Insurance Program (NFIP).

A Repetitive Loss Property is defined in the Flood Insurance Manual as "an NFIP insured structure that has had at least two paid flood losses of more than $1,000 each in any 10-year period since 1978."

Severe Repetitive Loss Properties are defined in 44 CFR §79.2(g) as follows:

> Severe Repetitive Loss Properties are defined as single or multifamily residential properties that are covered under an NFIP flood insurance policy and:
>
> (1) That have incurred flood-related damage for which 4 or more separate claims payments have been made, with the amount of each claim (including building and contents payments) exceeding $5,000, and with the cumulative amount of such claims payments exceeding $20,000; or
>
> (2) For which at least 2 separate claims payments (building payments only) have been made under such coverage, with cumulative amount of such claims exceeding the market value of the building.
>
> (3) In both instances, at least 2 of the claims must be within 10 years of each other, and claims made within 10 days of each other will be counted as 1 claim.

The plan should include the following information about repetitive loss and severe repetitive loss properties:

- Number of properties in the community.
- Number, dates, and amounts of claims paid.
- Maps showing areas of repetitive loss concentration.
- If and how these properties will be mitigated or addressed in the future.

Use of flood insurance claim information is subject to The Privacy Act of 1974, as amended, which prohibits public release of the names of policy holders and the amount of the claim payment or assistance. Do not identify specific parcel, address, or ownership information; however, summary information and maps can be made public.

The best resources for repetitive loss information are the State NFIP Coordinator and FEMA Insurance Specialist.

2. Identification and Analysis of Mitigation Actions: National Flood Insurance Program (NFIP) Compliance
Requirement: §201.6(c)(3)(ii): *[The mitigation strategy] must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.*

LHMP's Mitigation Strategy must describe the community's participation in the NFIP and include actions that address continued compliance with the NFIP. There is a variety of information that addresses NFIP participation; similarly, there are many ways to address continued compliance with the NFIP.

National Flood Insurance Program Participation
This section provides an overview of information to consider for inclusion in the LHMP regarding NFIP participation.

Topic	Considerations	Where to find information
Insurance Summary	• How many NFIP policies are in the community? What is the total premium and coverage? • How many claims have been paid in the community? What is the total amount of paid claims? How many of the claims were for substantial damage? • Number of structures exposed to flood risk within the community • Describe any areas of flood risk with limited NFIP policy coverage	• State NFIP Coordinator or FEMA NFIP Specialist • FEMA NFIP or Insurance Specialist • Community Floodplain Administrator (FPA) • Community FPA & FEMA Insurance Specialist
Staff resources	• Does the community have a dedicated Floodplain Manager or NFIP Coordinator? • Is floodplain management an auxiliary duty? • Is there a Certified Floodplain Manager on staff? • Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability) • What are the barriers to running an effective NFIP program in the community, if any?	• Community FPA • Community FPA • Community FPA • Community FPA • Community FPA

Topic	Considerations	Where to find information
Compliance history	• Is the community in good standing with the NFIP? • Are there any outstanding compliance issues (i.e., current violations)? • When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)? • Is a CAV or CAC scheduled or needed?	• State NFIP Coordinator, FEMA NFIP Specialist, community records
Regulation	• When did the community enter the NFIP? • What did the community's Flood Insurance Rate Maps (FIRMs) become effective? • Are the FIRMs digital or paper? • Does the Floodplain Ordinance meet or exceed FEMA or State minimum requirements? If so, in what ways? • Provide an explanation of the permitting process and include a copy of floodplain permit	• Community Status Book http://www.fema.gov/fema/csb.shtm • Community FPA, State or FEMA NFIP Specialists • Community FPA • Community FPA
Community Rating System (CRS)	• Does the community participate in CRS? • What is the community's CRS Class Ranking? • What categories and activities provide CRS points and how can the class be improved? • Does the plan include CRS planning requirements	• Community FPA, State, FEMA NFIP • Flood Insurance Manual http://www.fema.gov/business/nfip/manual.shtm • Community FPA, FEMA CRS Coordinator, ISO representative • CRS manual http://www.fema.gov/library/viewRecord.do?id=2434

NFIP Continued Compliance Actions

The requirement to include actions related to continued compliance with the NFIP in the LHMP's Mitigation Strategy is not met by discussing ways to reduce flood risk. The Mitigation Strategy must include actions that address the administration of the NFIP in the community. This section outlines topics to consider when developing NFIP compliance related actions.

Topic	Considerations
Staff resources	Identify need for additional staff Identify training needs of existing staff
Compliance	When is the next Community Assistance Visit anticipated? If unknown, discuss any need for CAV, CAC, or other compliance assistance.
Regulation	Are there potential ordinance changes to consider to strengthen requirements? Are there potential improvements to permitting process or other administrative aspects of the community's NFIP program? Could the community enhance its floodplain services?
Flood Risk Maps	Are there flood prone areas that need new flood studies? What areas are highest priority and why? Does the community have new data that can be included in future flood map updates?
Community Outreach	Consider outreach and education to provide in the community. Outreach can be targeted to increase NFIP policies, promote NFIP services, or increase knowledge of local flood risk, among other topics. Consider a variety of audiences, such as elected officials or builders.
Community Rating System (CRS)	Does the community want to participate in the CRS program? Does the community want to improve its current CRS class ranking? Identify activities the community is or will be pursuing to gain CRS points.

APPENDIX G –

PLANNING COMMITTEE AND JURISDICTION REPRESENTATIVES

Jurisdictional Representatives/Assessment Team Members

The following Planning Committee members are documented as having attended meetings and/or completed the various deliverables that were required of participating jurisdictions during the planning process.

Municipality	Representative(s)	Title/Position/Role
Atlantic County	Vincent Jones	Director, Office of Emergency Preparedness
	Ed Conover	Plan Coordinator and Principal Point of Contact
	Don Weger	Shared Services Coordinator /Confidential Aide Emergency Management
	Joe Maher	Head, Department of Regional Planning and Development
	Bob Lindaw	Principal Planner, Department of Regional Planning and Development
	Matt Duffy	GIS Specialist, Department of Regional Planning and Development
	Thomas Daghini	Atlantic County Department of Public Works
Absecon, City of	Jeff Thomas	Emergency Management Coordinator
	Jeffrey Ciccone	Office of Emergency Management
	Terry Dolan	City Administrator
Atlantic City, City of	Tom Foley	Director , Office of Emergency Management
	Allyn Seel	Deputy Director and Emergency Management Coordinator
Brigantine, City of	James Bennett	Emergency Management Coordinator
Buena, Borough of	Charles Gazzara	Emergency Management Coordinator
	John Kline	Lieutenant, Fire Department
	Ted Peters	Deputy Coordinator, Office of Emergency Management
Corbin City, City of	Tom Bennis	Emergency Management Coordinator
	Carol Foster	Mayor
Egg Harbor, Township of	Frank Sutton	Emergency Management Coordinator
	Dale Goodreau	Deputy Administrator
Estell Manor, City of	Jeff Cornew	Emergency Management Coordinator
	Albert Barbetto	Councilman
	Wayne Caregnato	Zoning Officer
	Kimberly Hodson	City Clerk
Folsom, Borough of	John LaPollo	Emergency Management Coordinator
Galloway, Township of	Michael Brandenberger	Emergency Management Coordinator
Hamilton, Township of	Jay McKeen	(Emergency Management Coordinator)
	Nancy Rainbow	Planning Board Administrator
Hammonton, Town of	Frank Ingemi	Emergency Management Coordinator
	Nick Salvatore	Lieutenant, Police Department
Linwood, City of	Charles Kisby	Emergency Management Coordinator
	David Buzby	Volunteer Fire Company
	Joseph Breidenstine	Planning Board Secretary

Longport, Borough of	Joe Baumgartner	Emergency Management Coordinator
	Bruce Funk	Zoning Official / CRS Director
	James Leeds	Commissioner of Public Works, Parks and Public Property
Margate City, City of	Jerome Greenberg	Emergency Management Coordinator
	Daniel Adams	Deputy Fire Chief
	Roger Rubin	Zoning Officer
Mullica, Township of	John Thompson	Emergency Management Coordinator
	Pete Berenato	Superintendent of Public Works
Northfield, City of	Quin Vitale	Emergency Management Coordinator
Pleasantville, City of	Deron Smith	Emergency Management Coordinator
	Stewart Wiser	Remington, Vernick & Walberg Engineers
Ventnor, City of	Bill Melfi	Emergency Management Coordinator
	Jimmie Agnesino	Construction Code Official
Weymouth, Township of	Robert Gibney	Emergency Management Coordinator
	Richard Coughlin	Lieutenant, Dorothy Volunteer Fire Company
	Dale Messina	Secretary, Dorothy Volunteer Fire Company
	Bonnie Yearsley	Township Clerk

Contacts for Jurisdictions that did not participate fully:

Buena Vista, Township of — Carlo Merighi (Emergency Management Coordinator)

Egg Harbor City, City of — Ted Reinhard (Emergency Management Coordinator)

Port Republic, City of — Gary Giberson (Emergency Management Coordinator)

Somers Point, City of — Rob Cozen (Emergency Management Coordinator)

APPENDIX H –

MEETING AGENDAS AND PRESENTATIONS

This new Appendix contains copies of the agendas, attendance records, and presentations for the key Core Planning Group meetings held on

August 18, 2008:	Planning Process Kickoff Meeting
January 22, 2009:	Risk Assessment Progress Meeting
April 23, 2009:	Risk Assessment Interim Deliverable Question and Answer Session
May 11, 2009:	Mitigation Strategy Working Session

And also:

July 17, 2009:	Meeting to Present the Draft Plan to Public and Other Stakeholders

Atlantic County Multi-Jurisdictional
Hazard Mitigation Planning Project
Kickoff Meeting
August 18, 2008
Two Sessions: 2pm-4pm; 7pm-9pm

Agenda

- Welcome & Opening Remarks…….*Ed Conover, ACOEP*

- Overview of the Project…….....*Anna Foley, URS*
  Richard Franks, URS

  - Intent of the Project
    - Why Prepare a Hazard Mitigation Plan?
    - What is a Multi-Jurisdictional Plan?
    - Why Participate in a Multi-Jurisdictional Plan Development Process?
  - Organizational Structure of the Planning Group
  - Overview of the Plan Development Process
  - The Role of Participating Jurisdictions, Contractors, the Public & Other Stakeholders
  - Participation Criteria
  - Key Deliverables
  - Data Collection//Supporting Documents
  - Project Timeline
  - Next Steps

- Website Demonstration……...*Tom Foley, ACOEP*

- Questions & Answers…….……*All*

- Closing Remarks…….*Ed Conover, ACOEP*

- Adjourn

10 mins + County

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
Kickoff Meeting – August 18, 2008 2:00 pm Session
ACOEP, 5033 English Creek Avenue, Egg Harbor Township, NJ 08234

Last Name	First Name	Representing	Email Address	Phone
MeLfi	WILLIAM	VENTNOR CITY OEM	VENTNORCITYOEM@COMCAST.NET	823-7920
BUZBY	DAVID	LINWOOD OEM	DBuzz303@AOL.COM	609-517-4612
MAHER	Joe	ATLANTIC County Plan Dept.	maher_joe@aclink.org	609-145-5898
Kisby	Charles	Linwood OEM	linwoodfiveofficial@comcast.net	609-926-7998
CONOVER	ED	ATL Co OEM	conover_edward@aclink.org	609-407-6735
CORNEW	JEFF	ESTELL MANOR	EM-coordinator@verizon.net PO Box 42 ESTELL MANOR	609-476-4754
BARBETTO	ALBERT	ESTELL MANOR	albon6@verizon.net	609-476-2659
SUTTON	FRANK	EHT	SUTD01@ACO.COM	609 576-9441
GOODREAU	DALE	EHT	Dgoodreau@ehtgov.org	609-926-4027
FOSTER	CAROL	Corbin City	CBFPA@aol.com	6095171912
BENNI	TOM	Corbin City	TOMTCAM@comcast.com	609) 335-2743
Leeds	James	Longport	Com Public works-NJ.USA	609.271.8539
Brandenberger	Michael	Township of ~~Hamilton~~ Galloway Township	MTBrandenberger@Comcast.net	609 457-2684
Foley	TOM	Atlantic County OEM	foley_tom@ACLINK.ORG	609-407-6733

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
Kickoff Meeting – August 18, 2008 2:00 pm Session
ACOEP, 5033 English Creek Avenue, Egg Harbor Township, NJ 08234

Last Name	First Name	Representing	Email Address	Phone
Smith	Deven	City of Pleasantville	Fireeadr@hotmail.com	(609) 412-5966
TREBING	RON	TOWNSHIP OF BUENA VISTA	buenaust-admin@COMCAST.NET	856-697-2100 x7
CALARESO	Richard	Buena Vista Township	PRRK4STEAM@AOL.com	856-692-4121
Daghini	Thomas	Atlantic County	daghini_thomas@aclink.org	609-521-0229
MORTELLITE	CARL	" "	MORTELLITE_CARL@ACLINK.ORG	609-645-5877 EXT. 4471
Foley	Anna	URS	anna_foley@urscorp.com	973-785-0700 X339
FRANKS	RICHARD	URS	richard_franks@urscorp.com	" " " 449

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
Kickoff Meeting – August 18, 2008 7:00 pm Session
ACOEP, 5033 English Creek Avenue, Egg Harbor Township, NJ 08234

Last Name	First Name	Representing	Email Address	Phone
MESSINA	DALE	WEYMOUTH TOWNSHIP	DTMESSINA@VERIZON.NET	856 305 7285
COUGHLIN	RICHARD	DOROTHY VOL FIRE - WEYMOUTH TWP	RMCOUGHLIN@VERIZON.NET	609-616-3085
CONOVER	EDWARD	ATL CO OEM	conover_edward@aclink.org	609-407-6735
FOLEY	TOM	ATL CO OEM	foley_tom@aclink.org	609-407-6733
Foley	Anna	URS	anna_foley@urscorp.com	973-785-0700x339
Franks	Richard	URS	richard_franks@urscorp.com	973-785-0700x449

Atlantic County

Multi-Jurisdictional Hazard Mitigation Planning Project

Kickoff Meeting
August 18, 2008

Two Sessions:
2:00 pm – 4:00 pm
7:00 pm – 9:00 pm

Today's Agenda

- Welcome and Opening Remarks…Ed Conover, ACOEP
- Overview of the Process…Anna Foley and Richard Franks, URS
- Website Demonstration…Tom Foley, ACOEP
- Questions and Answers
- Closing Remarks…Ed Conover, ACOEP
- Adjourn

Mitigation and Mitigation Planning

- Hazard Mitigation is any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event.
- Hazard Mitigation Planning is a ***process*** for State, local, and Indian Tribal governments to identify policies, activities, and tools to implement mitigation actions.
- Consultants walk you through the process needed to meet FEMA requirements and author the plan.

Intent of the Project:
Why Prepare a Hazard Mitigation Plan?

- Study natural hazards,
- Evaluate hazard effects, and
- Identify hazard mitigation measures that will reduce risks.

Mitigation Measures – Some Examples

- *Elevating a house to reduce flood damages.*
- *Installing hurricane clips to a roof to reduce wind damage.*
- *Imposing setback distances to reduce erosion damages.*
- *Modifying building codes to incorporate hazard-resistant design.*

Mitigation Works!

Elevated homes in Sweet Lake, LA (near Lake Charles) after Hurricane Rita (09/24/05).

Intent of the Project:
Why Prepare a Hazard Mitigation Plan?

- Mitigation planning leads to judicious selection of risk reduction actions and established funding priorities.

- Implementation of mitigation actions can reduce the costs of a future disaster.

Intent of the Project:
Why Prepare a Hazard Mitigation Plan?

- Costs of a disaster can often exceed available State and Federal aid.

- Damages can be prevented by taking the time to:
  - learn about hazards and anticipate where and how they occur; and
  - allocate resources accordingly.

Intent of the Project:
Why Prepare a Hazard Mitigation Plan?

- Disaster Mitigation Act of 2000 requires it!
- Plan preparation is funded by a FEMA grant
- No out-of-pocket cost to local municipalities

- Once the plan is approved by FEMA, participating jurisdictions will be eligible to apply for mitigation project grants.

Some Key Points:

- Under DMA 2000:
  - Natural Hazards → Required
  - Man Made Hazards → Not Required

- URS has been asked to focus solely on natural hazards for the purposes of this planning effort.

Intent of the Project:
What is a Multi-Jurisdictional Plan?

- Communities joining together to participate in a single local mitigation plan development process.

- Common:
  - Planning Process
  - Hazards
  - Goals
  - Plan Maintenance Procedures

- Unique:
  - Risks
  - Mitigation Actions
  - Participation
  - Plan Adoption

Intent of the Project:
What is a Multi-Jurisdictional Plan?

- Each jurisdiction will identify its own set of mitigation actions for the plan
- No competition between municipalities

- Unique:
  - Risks
  - Mitigation Actions
  - Participation
  - Plan Adoption

Intent of the Project: *What is a Multi-Jurisdictional Plan?*

- Basic processes for single jurisdiction and multi-jurisdictional plans are identical.
- Difference lies in degree of complexity.

Intent of the Project: *Why Participate in a Multi-Jurisdictional Plan Development Process?*

- The burden on each municipality is minimal, but the cost to do a single jurisdiction plan is not.
- There are tremendous economies of scale (resources, staff hours, and $$) that are realized by coming together in a joint process.
- By participating in a multi-jurisdictional plan, your municipality will gain all the benefits of having a plan with the minimum level of effort in plan development.

Organizational Structure of the Planning Group

Jurisdictional Assessment Teams:
- For each participating jurisdiction
- Head member (plus alternate) on Core Planning Group

Planning Committee
Core Planning Group
Plus
Public & Other Stakeholders

Core Planning Group
County, Cities, Villages, Boroughs, Townships

URS Team

Overview of the Plan Development Process: *Key Steps*

- Researching a full range of natural hazard events to determine which are the most prevalent;
- Identifying the location and extent of hazard areas;
- Identifying assets located within these hazard areas;

Overview of the Plan Development Process: *Key Steps*

- Characterizing existing and potential future assets at risk;
- Assessing vulnerabilities to the most prevalent hazards; and
- Evaluating and prioritizing goals, objectives, and mitigation actions to reduce or avoid long-term vulnerabilities to the most prevalent hazards.



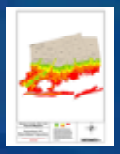
Key Steps

- **Identification of Potential Hazards**
  - Evaluation of a full range of natural hazards
  - Hazards identified for inclusion & why
  - Hazards not identified & why not

What is the "full range" of hazards that we consider for possible inclusion in the plan?

- Avalanches
- Coastal Erosion
- Wave Action
- Earthquakes
- Expansive Soils
- Floods
- Storm Surge
- Ice Jams
- Landslides
- Land Subsidence
- Drought
- Extreme Temps
- Hail
- Hurricanes / Tropical Storms
- Tornadoes
- Winter Storms / Ice Storms
- Tsunamis
- Volcanoes
- Wildfires
- Extreme Winds

Key Steps



- **Risk Assessment**
  - Hazard Profiles
    - Description of hazard
    - Location of hazard area
    - Extent (magnitude or severity)
    - Previous occurrences
    - Probability/likelihood of future occurrences

Key Steps

- **Risk Assessment**
  - Asset Identification and Characterization
    - Quantifies what is at risk
    - Five key types of assets considered:
      - Improved property
      - Emergency facilities
      - Utilities
      - Historic & cultural resources
      - Population

Key Steps

- **Risk Assessment**
  - Damage Estimates
    - Estimate potential losses (dollars/ qualitative) to assets located in hazard areas
    - *Why?* To identify centers where the cost of potential damage is the highest

Key Steps

- **Risk Assessment**
  - Existing Land Uses and Future Development Trends in Hazard Areas
    - Where is new development planned?
    - How much of this is in hazard areas?
    - Are there codes/regulations in place to provide a certain degree of protection from the most frequent events?

Key Steps

- **Capabilities and Resources**
  - Plans, codes, and ordinances currently in place
  - Can contribute to, or be utilized for, hazard mitigation
  - Local Municipalities, County, State, Federal

Key Steps

- **Mitigation Strategy**
  - Goals
  - Evaluate full range of actions
  - Select actions
  - Prioritize selected actions
  - Identify responsible party, potential funding source, and time frame

Key Steps

- **Plan Maintenance**
  - Final Plan is a "living document"
  - DMA 2000 requires updates, 5 year cycle
  - Regular monitoring and review of progress

Key Steps

- **Plan Integration**
  - DMA 2000 requires integration of mitigation plan into
    - job descriptions,
    - other local plans,
    - permitting vehicles,
    - etc…

The Role of Participating Jurisdictions, Consultants, the Public and Other Stakeholders

- Who Are Participating Jurisdictions:

  Jurisdictions that want the overall multi-jurisdictional plan to "count", in FEMA's eyes, as their jurisdiction's mitigation plan.

  - Participate, contribute

  AND

  - Formally adopt the Final Plan

The Role of Participating Jurisdictions, Consultants, the Public and Other Stakeholders

- Who Are Other Stakeholders?

- Neighborhood groups
- Non-profit organizations (i.e. scout troops, Red Cross, Salvation Army)
- Housing organizations
- Environmental groups
- Historic preservation groups
- Parent-teacher organizations
- Church organizations
- Parks organizations
- State, federal, and local government offices
- Neighboring communities/counties
- Business and development organizations
- Academic institutions
- Utility providers
- Hospitals
- Tribal groups
- Transportation entities
- Regional planning organizations
- Emergency service providers
- Jurisdiction web site managers / IT staff
- Any local office and/or group with a public outreach focus

The Role of Participating Jurisdictions, Consultants, the Public and Other Stakeholders

- Role of the Public and Other Stakeholders:
  - Advisory role
  - Provide feedback
    - Historic hazard effects
    - Proposed mitigation actions
    - Etc…
  - Get the word out

Participation Criteria

- Participating Jurisdictions must…
  - Attend meetings
  - Provide applicable data/documents on the "Wish List"
  - Respond to questionnaires
  - Give the public and key stakeholders in their jurisdiction opportunities to participate in plan development
  - Select mitigation actions
  - Define implementation strategy
  - Adopt the plan
  - Participate in plan maintenance/updates

Participation Criteria

- Participating Jurisdictions must…
  - Attend meetings
  - Provide applicable data/documents on the "Wish List"
  - Respond to questionnaires
  - Give the public and key stakeholders in their jurisdiction opportunities to participate in plan development – *See Guidance Memo #1*
  - Select mitigation actions
  - Define implementation strategy
  - Adopt the plan
  - Participate in plan maintenance/updates

The Atlantic County Planning Project

IMPORTANT!

The plan will only apply to the County and any jurisdictions that:

- Participate in the process;
- Develop a mitigation strategy*; and
- Formally adopt the final plan

** Mitigation Actions – Identified by Each Jurisdiction*

The Atlantic County Planning Project

THE FINAL COUNTY-WIDE PLAN

Recognized by FEMA:
- County
- Jurisdictions meeting ALL of the participation criteria

NOT Recognized by FEMA:
- Any jurisdictions that don't meet ALL of the participation criteria

Key Deliverables

- Guidance Memorandums (3 throughout process)
- Risk Assessment Interim Deliverable (April 2009)
- Draft Plan (June 2009)

↓

Review: Planning Committee, NJOEM & FEMA

↓

- Final Plan (60 days from coordinated comments on Draft)

Other Deliverables

- Fact Sheet
- Web Site Development Support
- Sample Adoption Resolution
- Meeting Minutes

Data Collection / Supporting Documents

- What We Have:
  - FEMA Act, Rule, Guidelines, and How-To Guides
  - State Hazard Mitigation Plan
  - On-line resources (USGS, NOAA, FEMA, etc.)
  - County GIS Data

Data Collection / Supporting Documents

- What We'd Like From You
  - Applicable items from the "Wish List" (handout)
  - Deadline: September 19, 2008
  - Send To:

Tom Foley
Atlantic County Office of Emergency Preparedness
5033 English Creek Avenue
Egg Harbor Township, NJ 08234
Phone: (609) 407 6733; Fax: (609) 407-6745
E-Mail: foley_tom@aclink.org

Project Timeline

TARGETED IMPLEMENTATION SCHEDULE:
Atlantic County
Multi-Jurisdictional Hazard Mitigation Planning Project

Task	Deliverable	Days	Date if NTP – June 10, 2008
1	Project Initiation Meeting - Refinement of Work Plan	15 days from NTP	06/25/08
2	Establish the Planning Committee	30 days from Task 1	07/25/08
3	Project Kickoff Presentation with the Planning Committee	45 days from Task 1	08/09/08
4	Outreach Tools	45 days from Task 1	08/09/08
5	Review of Available Data	60 days from Task 3	10/08/08
6	Identify Hazards	30 days from Task 5	11/07/08
7	Profile Hazards	30 days from Task 6	12/07/08
8	Asset Inventory	30 days from Task 7	01/06/09
9A	Vulnerabilities Assessment	30 days from Task 8	02/05/09
9B	Land Uses and Development Trends in Hazard Areas	60 days from Task 6	01/06/09
10	Research of Mitigation Alternatives	30 days from Task 9A	03/07/09
11	Risk Assessment Meeting	TBD by County	TBD
12	Risk Assessment Interim Deliverable	30 days from Task 10	04/06/09
13	Risk Assessment Q&A Session	15 days from Task 12	04/21/09
14	Capability Assessment	150 days from NTP	11/07/08
15	Mitigation Strategy	30 days from Task 13	05/21/09
16	Plan Maintenance Procedures	210 days from NTP	01/06/09
17	Plan Integration Strategy	210 days from NTP	01/06/09
18	Draft to [illegible]	30 days from Task 15	06/20/09
19	Final	60 days from coordinated comments on draft	

NOAA

Questions and Answers

Atlantic County Multi-Jurisdictional
Hazard Mitigation Planning Project
Risk Assessment Meeting
January 22, 2009
2:00 pm
ACOEP
Anthony "Tony" Canale Training Center
Egg Harbor Township, NJ

TODAY'S AGENDA:

- Welcome & Opening Remarks…….*Ed Conover, ACOEP*

- Overview of Project Progress …….....*Anna Foley, URS*
  Richard Franks, URS

  - Importance of Hazard Mitigation Planning
  - Planning Group Participation and Responsibilities
  - Current Status of Participation
  - Project Timeline and Current Project Status
  - Upcoming **R**isk **A**ssessment **I**nterim **D**eliverable
  - Capability Assessment
  - Other Steps
  - To-Do Actions for Jurisdictions
  - Questions & Answers

- Assistance with Completion of Forms/Questionnaires/Etc. Requested To-Date...*All*

- Adjourn…….…….....*Ed Conover, ACOEP*

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
Risk Assessment Meeting – January 22, 2009
ACOEP, 5033 English Creek Avenue, Egg Harbor Township, NJ 08234

Last Name	First Name	Representing	Email Address	Phone
Melfi	William	Ventnor City OEM	VentnorCityOEM@comcast.net	609- 823-7920
Conover	Ed	Atl Co OEM	conover-edward@aclink.org	609-407-6735
Brandenburg	Mia	Hamilton Galloway		
Vitale	Gwin	Northfield		609-641-7610 x201
Gazzara	Charles	Buena Boro		
Richwalsky	Charles	Stockton		609-652-4390
Santagata	Joe	Buena Boro	ChiefJRS@aol.com	856-697.0448
Kline	John	Buena Borough	JKline25@comcast.com	856-697-2810
Sutton	Frank	EHT OEM	SutOff@aol.com	609 646-7158
Greenberg	Jerome	Margate	JerryMyra@comcast.net	609-823-1478
Bennett	James	Brigantine OEM	jbennett@brigantinebeachnj.com	609-266-0553
Funk	Bruce	Longport	gotfunk@juno.com	609 226 3857
Foley	Anna	URS	anna_foley@urscorp.com	973-785-0700x339
Franks	Richard	URS	richard_franks@urscorp.com	" " x449

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
Risk Assessment Meeting – January 22, 2009
ACOEP, 5033 English Creek Avenue, Egg Harbor Township, NJ 08234

Last Name	First Name	Representing	Email Address	Phone
Salvatore	Nick	Hammonton	nsalvatore@townofHammonton.org	609-561-4000 ext 1
Smith	Deron	Pleasantville	DSmithEmc@comcast.net ~~DSmith@com~~	609-412-5966

Atlantic County

Multi-Jurisdictional Hazard Mitigation Planning Project

Progress Meeting
January 22nd, 2009
2:00 pm

Today's Agenda

- Welcome and Opening Remarks…Ed Conover, ACOEP
- Project Progress…Anna Foley and Richard Franks, URS
- Questions and Answers
- Adjourn…Ed Conover, ACOEP

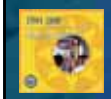
Intent of the Project:
Why Prepare a Hazard Mitigation Plan?

1

- Study natural hazards,
- Evaluate hazard effects, and
- Identify hazard mitigation measures that will reduce risks.

Intent of the Project:
Why Prepare a Hazard Mitigation Plan?

2



- Disaster Mitigation Act of 2000 requires it!
- Plan preparation is funded by a FEMA grant
- No out-of-pocket cost to local municipalities

Intent of the Project:
Why Prepare a Hazard Mitigation Plan?

3

$$ Once the plan is approved by FEMA, participating jurisdictions will be eligible to apply for mitigation project grants.

$$ Good projects will be "on the shelf" for fast turnaround when LOI's are requested.

Hurricane Ike:
110 mile per hour winds at landfall (max Cat2)

Gilchrist, Texas

Home rebuilt in 2006 to withstand a Category 5 Hurricane. Shown here after Hurricane Ike.

The Atlantic County Planning Project

THE FINAL COUNTY-WIDE PLAN

Recognized by FEMA:
- County
- Jurisdictions meeting ALL of the participation criteria

NOT Recognized by FEMA:
- Any jurisdictions that don't meet ALL of the participation criteria

The Atlantic County Planning Project

IMPORTANT!

The plan will only apply to the County and any jurisdictions that:

- Participate in the process;
- Develop a mitigation strategy*; and
- Formally adopt the final plan

** Mitigation Actions – Identified by Each Jurisdiction*

Status of Participants

Atlantic County Hazard Mitigation Planning Project

Municipal Participation. January 22, 2008

Municipality	Attended Kickoff Meeting	Wish List	Land Use and Development	Capability Assessment	Hazard Identification
Absecon					
Atlantic City			•		
Brigantine			•		
Buena Vista	•		•		
Buena			•		
Corbin City	•				
Egg Harbor City					
Egg Harbor	•	•			
Estell Manor	•	•	•	•	
Folsom		•	•	•	
Galloway	•	•	•		
Hamilton	•	•	•		
Hammonton			•		
Lawrence	•		•		
Longport	•		•	•	•
Margate City		•	•		
Mullica			•		
Northfield		•			
Pleasantville	•				
Port Republic			•		
Somers Point					
Ventnor City	•		•		
Weymouth	•				

Project Progress Timeline to Draft Plan

Kickoff Meeting:	August 2008
Plan Development:	Ongoing
Local Feedback:	Ongoing
Risk Assessment Interim Deliverable:	April 2009
Risk Assessment Q&A Session:	April 2009
Mitigation Strategy Working Session:	May 2009
Draft Plan:	June 2009

Risk Assessment Interim Deliverable

- Working chapters of the overall plan:
  - *Hazard Identification*
  - *Hazard Profiles*
  - *Asset Identification and Characterization*
  - *Vulnerabilities*
  - *Land Uses and Development Trends*
  - *Types of Mitigation Actions for Various Hazards*

Risk Assessment Interim Deliverable

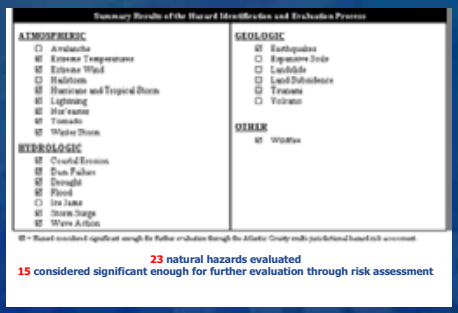
- Status: Under development at this time
- Target Date for Completion: April 6, 2009
- Question & Answer Session Target Date: April 21, 2009

Hazard Identification

Status: Completed

- Evaluation of a full range of natural hazards
  - Hazards selected for further analysis and reasons why
  - Hazards not selected and reasons why not

Hazard Identification



23 natural hazards evaluated
15 considered significant enough for further evaluation through risk assessment

Hazard Profiles

Status: Ongoing

- Description of hazard
- Location of hazard area
- Extent (magnitude or severity)
- Previous occurrences
- Probability/likelihood of future occurrences

Hazard Profiles

Drought Hazard Areas

Hazard Profiles

Drought Hazard Areas

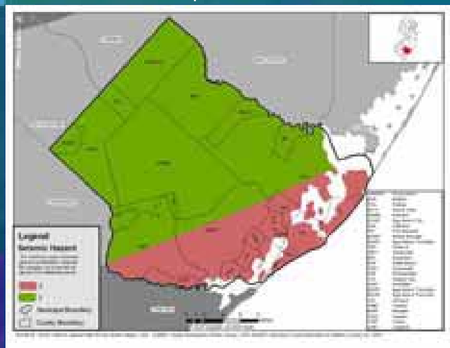
Table X.X Distribution of Agricultural Land in Atlantic County
(Source: NJDEP 2002 LULC Data)

Municipality	Total Area (Acres)	Agricultural Land (Acres)	Agricultural Land (%)
Absecon	3,729	6	0.2%
Buena	4,866	2,361	48.6%
Buena Vista	26,631	4,079	15.3%
Corbin City	5,130	182	3.5%
Egg Harbor	43,741	810	1.9%
Egg Harbor City	7,124	44	0.6%
Estell Manor	34,860	774	2.2%
Folsom	5,368	379	7.1%
Galloway	57,257	3,307	5.8%
Hamilton	72,131	2,570	3.6%
Hammonton	26,621	6,776	25.3%
Linwood	2,597	15	0.6%
Mullica	38,396	2,868	7.9%
Northfield	2,324	10	0.5%
Port Republic	5,040	114	2.3%
Weymouth	7,670	209	2.7%

Note: Jurisdictions with no recorded agricultural land not shown

Hazard Profiles

Earthquake Hazard Areas



Peak Ground Acceleration (%g)

Hazard Profiles

Improved Values in Earthquake Hazard Area

Improved Property in Earthquake Hazard Zones

Municipality	Total	3%g	% of Total
Absecon	$263,139,927	$13,316,311	5%
Atlantic City	$5,847,037,300	$0	0%
Brigantine	$513,295,303	$0	0%
Buena	$132,115,107	$132,115,109	100%
Buena Vista	$479,119,804	$479,119,804	100%
Corbin City	$28,793,922	$0	0%
Egg Harbor City	$80,098,041	$80,098,041	100%
Egg Harbor	$3,470,834,305	$1,050,359,856	30%
Estell Manor	$102,869,729	$96,322,871	94%
Folsom	$148,509,885	$148,509,885	100%
Galloway	$2,286,757,329	$2,102,409,797	92%
Hamilton	$1,728,806,249	$1,728,806,259	100%
Hammonton	$936,333,112	$936,333,112	100%
Linwood	$498,008,251	$0	0%
Longport	$165,551,868	$0	0%
Margate	$662,149,894	$0	0%
Mullica	$402,224,021	$402,224,021	100%
Northfield	$800,316,450	$0	0%
Pleasantville	$1,134,689,566	$0	0%
Port Republic	$92,347,407	$92,347,407	100%
Somers Point	$1,034,500,500	$0	0%
Ventnor City	$380,608,771	$0	0%
Weymouth	$111,684,490	$111,684,493	100%
Total	$21,298,780,238	$7,373,645,965	35%

Hazard Profiles

Landslide Hazard Areas

Hazard Profiles

Flood Hazard Areas

Hazard Profiles

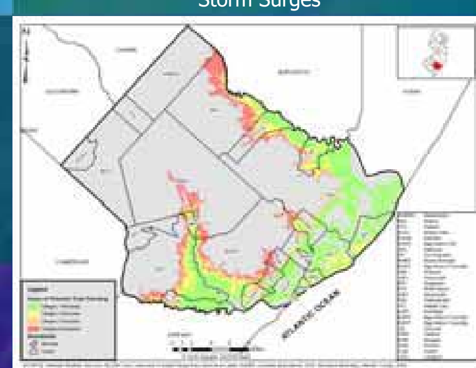
Improved Values in Flood Hazard Zones

Improved Property in Flood Risk Zones by Municipality

Municipality	Total Value	Velocity (VE)	% of Total	High Risk (A,AE)	% of Total	Moderate (X500)	% of Total
Absecon	$263,139,927	$0	0%	$29,724,892	11%	$30,013,100	11%
Atlantic City	$5,847,037,300	$77,906,239	1%	$5,560,144,493	95%	$209,906,407	4%
Brigantine	$513,296,303	$23,405,230	5%	$489,890,073	95%	$0	0%
Buena	$132,115,107	$0	0%	$560,522	0%	$0	0%
Buena Vista	$479,119,804	$0	0%	$15,307,281	3%	$14,019	0%
Corbin City	$28,793,922	$0	0%	$9,162,217	32%	$4,992,579	17%
Egg Harbor City	$80,098,041	$0	0%	$1,202,802	2%	$1,310,315	2%
Egg Harbor	$3,470,834,305	$0	0%	$265,395,808	8%	$125,222,825	4%
Estell Manor	$102,869,729	$0	0%	$1,864,380	2%		0%
Folsom	$148,509,885	$0	0%	$13,363,424	9%	$13,289,915	9%
Galloway	$2,286,757,329	$0	0%	$47,493,427	2%	$12,687,353	1%
Hamilton	$1,728,806,249	$0	0%	$96,079,691	6%	$62,864,493	4%
Hammonton	$936,333,112	$0	0%	$41,516,877	4%	$4,875,744	1%
Linwood	$498,008,251	$0	0%	$66,308,222	13%	$74,737,989	15%
Longport	$165,551,868	$64,292	0.04%	$165,487,576	99.96%	$0	0%
Margate	$662,149,894	$181,572	0.03%	$649,879,825	98%	$12,088,497	2%
Mullica	$402,224,021	$0	0%	$60,891,868	15%	$30,889,261	8%
Northfield	$800,316,450	$0	0%	$7,142,471	1%	$15,599,479	2%
Pleasantville	$1,134,689,566	$0	0%	$41,540,030	4%	$49,774,919	4%
Port Republic	$92,347,407	$0	0%	$9,720,898	10%	$19,713,085	21%
Somers Point	$1,034,500,500	$0	0%	$225,330,851	22%	$243,080,319	23%
Ventnor City	$380,608,771	$577,352	0.2%	$286,374,593	75%	$93,656,225	25%
Weymouth	$111,684,490	$0	0%	$13,494,252	12%	$0	0%
Totals	$21,298,780,238	$102,215,285	0%	$8,093,732,490	38%	$1,006,534,554	5%

Hazard Profiles

Storm Surges



Hazard Profiles

Improved Values in Storm Surge Zones

Improved Property Within SLOSH Model Inundation Zones

Municipality	Total Value	SLOSH Zones: Category 1	% of Total	Category 2	% of Total	Category 3	% of Total	Category 4	% of Total
Absecon	$263,139,527	$8,869,304	3%	$43,274,735	16%	$85,333,326	32%	$125,569,950	48%
Atlantic City	$5,847,037,300	$2,224,391,041	38%	$5,542,330,514	95%	$5,650,372,964	97%	$5,685,960,416	97%
Brigantine	$613,296,303	$369,184,376	60%	$609,706,820	99%	$611,641,792	100%	$611,641,792	100%
Buena	$132,115,107	$0	0%	$0	0%	$0	0%	$0	0%
Buena Vista	$479,119,804	$0	0%	$0	0%	$0	0%	$0	0%
Corbin City	$28,793,822	$3,588,366	12%	$11,346,575	39%	$14,947,611	52%	$20,422,619	71%
Egg Harbor City	$80,098,041	$0	0%	$0	0%	$213,061	0.3%	$486,252	1%
Egg Harbor	$3,470,034,305	$128,401,926	4%	$184,363,059	5%	$290,179,348	8%	$532,298,567	15%
Estell Manor	$102,059,729	$120,357	0.1%	$723,905	1%	$2,034,156	2%	$5,539,865	5%
Folsom	$148,509,895	$0	0%	$0	0%	$0	0%	$0	0%
Galloway	$2,266,757,329	$9,346,840	0%	$27,391,464	1%	$69,798,469	3%	$119,672,264	5%
Hamilton	$1,720,005,249	$8,709,018	1%	$22,954,433	1%	$52,250,073	3%	$240,066,332	14%
Hammonton	$936,333,112	$0	0%	$0	0%	$0	0%	$0	0%
Linwood	$490,008,251	$11,977,274	2%	$59,606,414	12%	$169,080,164	34%	$312,647,147	64%
Longport	$166,551,868	$166,006,106	99.7%	$166,006,106	99.7%	$166,006,106	99.7%	$166,006,106	99.7%
Margate	$662,149,894	$472,096,206	71%	$653,206,064	99%	$653,333,790	99%	$653,333,790	99%
Mullica	$402,224,021	$21,026,963	5%	$32,310,011	8%	$77,766,259	19%	$108,627,468	27%
Northfield	$800,316,450	$3,888,411	0.5%	$35,640,002	4%	$56,009,986	7%	$272,533,969	34%
Pleasantville	$1,134,689,566	$30,131,670	3%	$104,072,469	9%	$195,365,002	17%	$313,844,355	28%
Port Republic	$92,347,407	$5,069,599	5%	$30,499,896	33%	$65,608,770	71%	$71,493,165	77%
Somers Point	$1,034,500,500	$51,629,059	5%	$255,327,116	25%	$601,187,605	58%	$712,043,761	69%
Ventnor City	$380,608,771	$186,554,784	49%	$378,646,072	99%	$378,960,626	100%	$378,960,626	100%
Weymouth	$111,664,498	$1,330,622	1%	$9,856,826	9%	$33,168,429	30%	$33,450,027	30%
Total	$21,298,780,238	$3,592,645,423	17%	$8,087,321,992	38%	$9,061,239,373	43%	$10,261,769,894	48%

Hazard Profiles

Dam Locations

Hazard Profiles

Dam Hazard Details

Table X.X
High/Significant Potential Hazard Dams, Atlantic County
(Source: USACE NID)

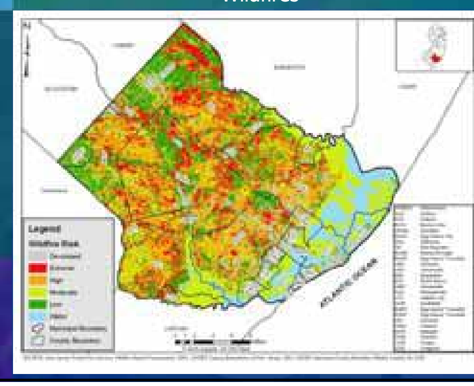
Dam Name	Municipality	River/Stream	Owner	Storage (Acre-Feet)	Hazard Potential
Lake Lenape Dam	Hamilton	Great Egg Harbor River	Hamilton Township	6,610	H
Doughty Pond Dam	Absecon	Absecon Creek	Atlantic City M.U.A.	2,400	S
Kuehnle Pond Dam	Egg Harbor	South Branch Absecon Creek	Atlantic City M.U.A.	2,100	S
Hammonton Lake Dam	Hammonton	Hammonton Creek	NJDOT	426	S
Patcong Lake Dam	Egg Harbor	Patcong Creek	Lakeside Estates	209	S
Pleasant Mills Dam	Mullica	Hammonton Creek	Nescochague Lake Assoc. Inc	160	S
Lake George Dam	Buena Vista	Great Egg Harbor River TR	Collings Lakes Civic Association	160	S
Lake Albert Dam	Folsom	Great Egg Harbor River TR	Collings Lakes Civic Association	147	S
Stephen Lake Dam	Estell Manor	Stephen Creek	Lenape Game Preserve & Breeding Assoc	130	S
Bargaintown Mill Pond Dam	Egg Harbor	Patcong Creek	County of Atlantic	123	S
Cedar Lake Dam	Buena Vista	Great Egg Harbor River TR	Mildred T. Wilson	80	S

High Hazard Potential:
Failure may cause loss of life and/or extensive property damage

Significant Hazard Potential:
Failure may cause significant property damage but loss of human life is not envisioned

Hazard Profiles

Wildfires



Hazard Profiles

Improved Values in Wildfire Hazard Zones

Improved Property in Wildfire Risk Zones by Municipality

Municipality	Total Value	Total Value of Improvements within Wildfire Risk Zones: Extreme	% of Total	High	% of Total	Moderate	% of Total
Absecon	$263,139,527	$1,536,050	1%	$7,720,177	3%	$12,807,279	5%
Atlantic City	$5,847,037,300	$20,029,359	0%	$61,028	0%	$101,460,097	2%
Brigantine	$613,296,303	$0	0%	$0	0%	$700,656	0%
Buena	$132,115,107	$892,877	1%	$3,219,829	2%	$14,043,671	11%
Buena Vista	$479,119,804	$19,447,987	4%	$44,332,862	9%	$137,063,027	29%
Corbin City	$28,793,822	$3,557,070	12%	$2,169,609	8%	$6,544,139	23%
Egg Harbor City	$80,098,041	$1,008,204	1%	$1,672,126	2%	$5,012,261	6%
Egg Harbor	$3,470,034,305	$195,968,796	6%	$866,229,066	25%	$490,394,601	14%
Estell Manor	$102,059,729	$6,480,589	6%	$23,633,214	23%	$56,736,137	54%
Folsom	$148,509,895	$13,349,054	9%	$11,036,364	7%	$21,552,187	15%
Galloway	$2,266,757,329	$154,337,270	7%	$364,637,236	16%	$323,221,356	14%
Hamilton	$1,720,005,249	$77,132,462	4%	$349,743,942	20%	$213,240,438	12%
Hammonton	$936,333,112	$16,490,064	2%	$34,348,522	4%	$132,939,467	14%
Linwood	$490,008,251	$603,111	0%	$5,504,034	1%	$23,631,374	5%
Longport	$166,551,868	$0	0%	$0	0%	$725,251	0%
Margate	$662,149,894	$0	0%	$0	0%	$4,018	0%
Mullica	$402,224,021	$33,028,716	8%	$53,866,285	13%	$122,911,182	31%
Northfield	$800,316,450	$3,806,954	0%	$16,602,754	2%	$26,225,124	3%
Pleasantville	$1,134,689,566	$6,110,301	1%	$27,920,002	2%	$91,669,697	8%
Port Republic	$92,347,407	$7,746,408	8%	$11,375,880	12%	$38,386,615	42%
Somers Point	$1,034,500,500	$1,747,764	0%	$3,116,520	0%	$13,013,613	1%
Ventnor City	$380,608,771	$0	0%	$0	0%	$276,702	0%
Weymouth	$111,664,498	$5,371,644	5%	$20,159,609	18%	$46,106,017	41%
Totals	$21,298,780,238	$568,650,747	3%	$1,844,422,204	9%	$1,875,772,974	9%

Asset Identification and Characterization

Status: Countywide totals – complete in draft form
Assets by Hazard Area – in progress
Input from CPG will be crucial

- Quantifies what is at risk
- Five key types of assets considered:
  - Improved property
  - Emergency facilities
  - Critical infrastructure & utilities
  - Historic & cultural resources
  - Population
  - Other key facilities

Asset Identification and Characterization

- Improved Property: More Than $21 Billion

Improved Property by Municipality				
Municipality	Total Number of Parcels	Number of Improved Parcels	Percentage of Improved Parcels	Total Value of Improvements
Absecon	3,732	2,743	73%	$263,139,92
Atlantic City	16,819	12,686	76%	$6,847,037,30
Brigantine	9,146	5,811	64%	$613,296,30
Buena	1,776	1,397	79%	$132,115,10
Buena Vista	9,879	2,490	25%	$479,119,83
Corbin City	411	215	52%	$20,793,92
Egg Harbor City	26,207	926	4%	$80,093,04
Egg Harbor	18,601	11,763	63%	$3,470,834,30
Estell Manor	6,738	683	10%	$102,893,72
Folsom	1,806	718	40%	$146,503,08
Galloway	18,823	10,853	58%	$2,296,252,37
Hamilton	28,509	7,079	25%	$1,720,805,24
Hammonton	6,126	4,265	70%	$936,333,11
Linwood	2,790	2,459	88%	$498,008,26
Longport	1,323	1,096	83%	$165,561,86
Margate	5,906	4,931	83%	$952,187,81
Mullica	6,224	2,173	35%	$402,224,07
Northfield	4,262	3,070	72%	$800,316,45
Pleasantville	7,619	4,780	63%	$1,134,609,56
Port Republic	907	443	49%	$92,347,40
Somers Point	4,512	3,887	86%	$1,034,500,50
Ventnor City	4,915	4,321	88%	$380,608,77
Weymouth	1,774	643	36%	$111,884,49
Total	190,446	89,330	47%	$21,290,780,23

Asset Identification and Characterization

- Emergency Facilities: 137

Table X.X Emergency Facilities by Jurisdiction						
Jurisdiction	Fire Stations	Police Stations	Ambulance Stations	Hospitals	Emergency Operations Centers	Emergency Shelters
Absecon	1	1	1	0	0	2
Atlantic City	6	2	1	1	1	0
Brigantine	1	1	1	0	1	0
Buena	2	1	1	0	0	0
Buena Vista	5	0	1	0	0	1
Corbin City	0	0	0	0	0	0
Egg Harbor City	1	1	1	0	0	1
Egg Harbor City	12	1	2	0	0	0
Estell Manor	1	0	0	0	0	0
Folsom	1	0	0	0	0	1
Galloway	6	2	1	1	0	5
Hamilton	6	3	2	0	1	4
Hammonton	2	2	1	1	0	4
Linwood	1	1	1	0	1	1
Longport	1	1	1	0	0	0
Margate City	2	1	1	0	0	0
Mullica	4	1	1	0	0	0
Northfield	2	1	1	0	0	1
Pleasantville	1	1	1	0	1	0
Port Republic	1	0	0	0	1	0
Somers Point	2	1	1	1	1	0
Ventnor	2	1	1	0	1	0
Weymouth	1	0	2	0	0	0
Totals	61	22	22	4	8	20

Asset Identification and Characterization

- Critical Infrastructure and Utilities: 14

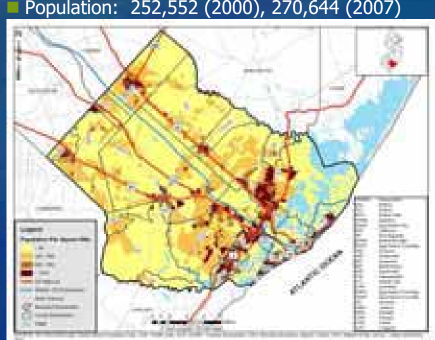
Table X.X Critical Infrastructure and Utilities by Jurisdiction						
Jurisdiction	Water Treatment Facilities	Wastewater Treatment Facilities	Electrical Power Facilities	Airports	Passenger Railroad Stations	Public Works Facilities
Absecon	0	0	0	0	1	0
Atlantic City	0	2	2	0	1	0
Brigantine	0	0	0	0	0	0
Buena Vista	0	0	0	0	0	0
Buena	0	1	0	0	0	0
Corbin City	0	0	0	0	0	0
Egg Harbor City	0	0	0	0	1	0
Egg Harbor	0	0	0	1	0	0
Estell Manor	0	0	0	0	0	0
Folsom	0	1	0	0	0	0
Galloway	0	0	0	0	0	0
Hamilton	0	0	0	0	0	0
Hammonton	0	1	0	1	1	0
Linwood	0	0	0	0	0	0
Longport	0	0	0	0	0	0
Margate City	0	0	0	0	0	0
Mullica	0	0	0	0	0	0
Northfield	0	0	0	0	0	0
Pleasantville	0	0	1	0	0	0
Port Republic	0	0	0	0	0	0
Somers Point	0	0	0	0	0	0
Ventnor City	0	0	0	0	0	0
Weymouth	0	0	0	0	0	0
Totals	0	5	3	2	4	0

Asset Identification and Characterization

- Historic and Cultural Resources: 95
  - (Report: multi-page table, not included here)
  - Sites as per NJSHPO and National Register, plus other significant locations identified through general internet research and local feedback
  - Located in 22 of the County's 23 jurisdictions

Asset Identification and Characterization

- Population: 252,552 (2000), 270,644 (2007)



Asset Identification and Characterization

- Population Breakdown by Municipality

Table X.X Population				
Jurisdiction	Population		Households	
	Total	% of County	Total	% of County
Absecon	7,638	3%	2,773	3%
Atlantic City	40,517	16%	15,848	17%
Brigantine	12,594	5%	5,473	6%
Buena Vista	7,436	3%	2,646	3%
Buena	3,873	2%	1,454	2%
Corbin City	468	0.2%	172	0%
Egg Harbor City	4,545	2%	1,656	2%
Egg Harbor	30,726	12%	11,199	12%
Estell Manor	1,585	1%	520	1%
Folsom	1,972	1%	471	1%
Galloway	31,209	12%	10,772	11%
Hamilton	20,499	8%	7,148	8%
Hammonton	12,604	5%	4,619	5%
Linwood	7,172	3%	2,647	3%
Longport	1,054	0%	544	1%
Margate City	8,193	3%	3,984	4%
Mullica	5,912	2%	2,044	2%
Northfield	7,725	3%	2,824	3%
Pleasantville	19,012	8%	6,402	7%
Port Republic	1,037	0%	366	0%
Somers Point	11,614	5%	4,920	5%
Ventnor City	12,910	5%	5,480	6%
Weymouth	2,257	1%	861	1%
Totals	252,552	100%	95,024	100%

Asset Identification and Characterization

- Other Key Facilities: 130

Table X.X
Other Key Facilities by Jurisdiction

Jurisdiction	Schools	Senior Care Facilities
Absecon	4	0
Atlantic City	14	1
Brigantine	3	0
Buena Vista	4	0
Buena	5	0
Corbin City	2	0
Egg Harbor City	3	0
Egg Harbor	10	1
Estell Manor	1	0
Folsom	1	0
Galloway	20	3
Hamilton	12	1
Hammonton	5	1
Linwood	5	1
Longport	4	0
Margate City	0	0
Mullica	4	0
Northfield	5	0
Pleasantville	10	1
Port Republic	1	0
Somers Point	6	0
Ventnor City	2	0
Weymouth	1	0
Totals	127	9

Capability Assessment

- Completed questionnaire from 3 municipalities
- Draft plan section will summarize:
  - Legal and Regulatory Capabilities
  - Administrative and Technical Capabilities
  - Fiscal Capabilities
  - Capabilities and Resources – State
  - Capabilities and Resources - Federal

Other Steps

- Damage Estimates – Ongoing
- Land Uses and Development Trends – Ongoing
- Mitigation Strategy – Local Municipalities to do in May 2009
- Plan Maintenance and Integration – Local Municipalities to Provide Feedback to ACOEP by Feb. 7, 2009

To-Do List For Local Jurisdictions: *Now to Draft Plan Completion*

JANUARY

- January 18: Last day to return completed Capability Assessment Questionnaire (which was released in November)

To-Do List For Local Jurisdictions: *Now to Draft Plan Completion*

FEBRUARY

- February 7: Last day to submit feedback on plan maintenance and plan integration (from Guidance Memos 2 and 3, which are due to be released on January 7)

To-Do List For Local Jurisdictions: *Now to Draft Plan Completion*

MARCH

- None

To-Do List For Local Jurisdictions: *Now to Draft Plan Completion*

APRIL

- April 7-21: Review the Risk Assessment Interim Deliverable
- April 21*: Attend Q&A Session on the Risk Assessment Interim Deliverable

***Note:** April 21 is a targeted meeting date; a specific date will be confirmed by ACOEP and you will be notified accordingly.*

To-Do List For Local Jurisdictions: *Now to Draft Plan Completion*

MAY

- May 14*: Attend Mitigation Strategy Working Session
- May 20: Last day to submit comments on the Risk Assessment Interim Deliverable
- May 21: Last day to submit Mitigation Options Questionnaire, Prioritization Worksheet, Implementation Strategy Worksheet, and NFIP Questionnaire (to be distributed in the Risk Assessment Interim Deliverable on April 7 and assisted at the Working Session)
- May 31: Last day to submit Outreach Log (initially distributed as part of Guidance Memo 1 in August 2008)

***Note:** May 14 is a targeted meeting date; a specific date will be confirmed by ACOEP and you will be notified accordingly.*

To-Do List For Local Jurisdictions: *Now to Draft Plan Completion*

JUNE

- Date TBD: Attend meeting to present the Draft Plan (Draft scheduled for release on June 21)

To-Do List For Local Jurisdictions: *Now to Draft Plan Completion*

JULY

- July 21: Last day to submit comments on the Draft Plan

To-Do List For Local Jurisdictions: *Now to Draft Plan Completion*

ONGOING

- Continue your Jurisdictional Assessment Team (JAT) Meetings.
- Continue outreach to the Public and Other Stakeholders in your jurisdiction and document activities in Outreach Log (last page of Guidance Memo #1).

Questions and Answers

Atlantic County Multi-Jurisdictional
Hazard Mitigation Planning Project
Q&A Session on the RAID
April 23, 2009
2:00 pm
ACOEP, 5033 English Creek Avenue, Egg Harbor Township, NJ 08234

TODAY'S AGENDA

- Welcome & Opening Remarks……*Ed Conover, ACOEP*

- **R**isk **A**ssessment **I**nterim **D**eliverable Overview ……..... *Anna Foley, URS*
  Richard Franks, URS

  - *Hazard Identification*
  - *Hazard Profiles*
  - *Asset Identification and Characterization*
  - *Land Uses and Development Trends*
  - *Damage Estimates*
  - *Types of Mitigation Actions to Consider for Various Hazards*

- To-Do Actions for Jurisdictions……. ……..... *Anna Foley, URS*
  Richard Franks, URS

- Questions & Answers…….……..……*All*

- Adjourn…….……..... *Ed Conover, ACOEP*

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
Q&A Session on the Risk Assessment Interim Deliverable – April 23, 2009 (2 pm)
ACOEP, 5033 English Creek Avenue, Egg Harbor Township, NJ 08234

Last Name	First Name	Representing	Email Address	Phone
Conover	Ed	Atl Co OEM	conover_edward@aclink.org	609-407-6735
Adams	Daniel	Margate City	adams_dan@margate-nj.com	609-517-1033
Funk	Bruce	Longport	gotfunk@juno.com	226 3857
Weger	Don	Atl. Co. OEM	weger_don@aclink.org	609 407 6764
Duffy	Matthew	ACOGRS	DUFFY_MATTHEW@ACLINK.ORG	609 645 5898
Lindan	Bob	ACRED	LINDAN_ROBERT@ACLINK.ORG	" "
Maher	Joe	"	MAHER_JOE@ACLINK.ORG	" "
Brandenberger	Micheal	Galloway Township	GALLOWAYOEM@COMCAST.NET	609 457 2684
LaPollo	John	Folsom Borough	JLapollo@folsomborough.com	609-374-4418
Goodream	Dale	Egg Harbor Township	Dgoodream@EHTOOL.ORG	609-926-4027
Smith	Deran	Pleasantville	dsmith6emc@comcast.net	609-412-5966
Salvatore	Nick	Hammonton	nsalvatore@townofhammonton.org	609 561 4000
Foley	Anna	URS	anna-foley@urscorp.com	973-785-0700x339
Franks	Richard	URS	richard-franks@urscorp.com	973-785-0700x449

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
Q&A Session on the Risk Assessment Interim Deliverable – April 23, 2009 (2 pm)
ACOEP, 5033 English Creek Avenue, Egg Harbor Township, NJ 08234

Last Name	First Name	Representing	Email Address	Phone
SEEL	A.C.	ATLANTIC CITY	ASEEL@CITYOFATLANTICCITY.ORG	347 5466
MELFI	WILLIAM	VENTNOR CITY	VENTNORCITYOEM@COMCAST.NET	823-7920
VITALE	QUIN	NORTHFIELD	KIMQUIN@COMCAST.NET	412-6479

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
Q&A Session on the Risk Assessment Interim Deliverable – April 23, 2009 (2 pm)
ACOEP, 5033 English Creek Avenue, Egg Harbor Township, NJ 08234

Last Name	First Name	Representing	Email Address	Phone
Ciccone	Jeffrey	Absecon OEM	KG2BZ@comcast.net	609 ~~445~~ 432-3383

Atlantic County

Multi-Jurisdictional
Hazard Mitigation Planning Project

Risk Assessment Interim Deliverable
Question & Answer Session
April 23, 2009
2:00 pm

Today's Agenda

- Welcome & Opening Remarks — *Ed Conover, ACOEP*
- Risk Assessment Interim Deliverable Overview — *Anne Foley, URS; Richard Franks, URS*
  - *Hazard Identification*
  - *Hazard Profiles*
  - *Asset Identification and Characterization*
  - *Land Uses and Development Trends*
  - *Damage Estimates*
  - *Types of Mitigation Actions to Consider for Various Hazards*
- To-Do Actions for Satisfaction — *Anne Foley, URS; Richard Franks, URS*
- Questions & Answers — *All*
- Adjourn — *Ed Conover, ACOEP*

Project Progress Timeline to Draft Plan

Kickoff Meeting:	August 18, 2008
Plan Development:	Ongoing
Local Feedback:	Ongoing
Risk Assessment Interim Deliverable:	April 8, 2009
Risk Assessment Q&A Session:	April 23, 2009
Mitigation Strategy Working Session:	May 14, 2009 *
Draft Plan:	June 20, 2009

** Note that May 14th is an approximate target date*

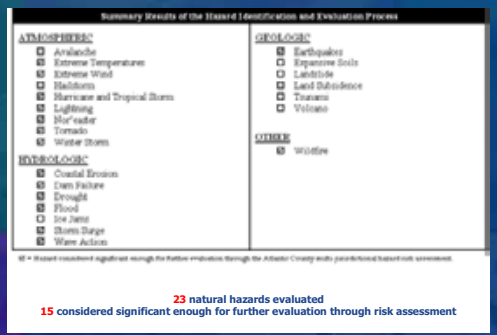
Risk Assessment Interim Deliverable

- Working chapters of the overall plan:
  - *Hazard Identification*
  - *Hazard Profiles*
  - *Asset Identification and Characterization*
  - *Damage Estimates*
  - *Land Uses and Development Trends*
  - *Types of Mitigation Actions to Consider for Various Hazards*

Hazard Identification

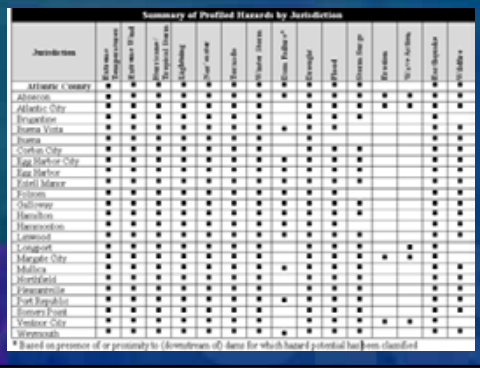
- Evaluation of a full range of <u>natural</u> hazards
  - Hazards selected for further analysis and reasons why
  - Hazards not selected and reasons why not

Hazard Identification



23 natural hazards evaluated
15 considered significant enough for further evaluation through risk assessment

Hazard Identification

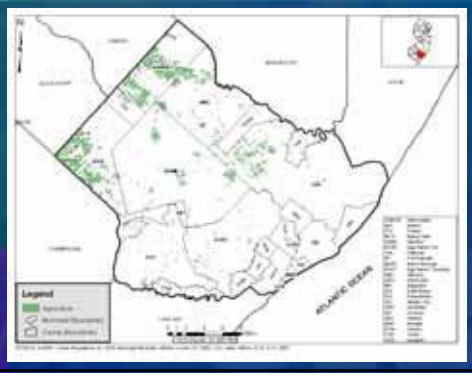


Hazard Profiles

- Description of hazard
- Location of hazard area
- Extent (magnitude or severity)
- Previous occurrences
- Probability/likelihood of future occurrences

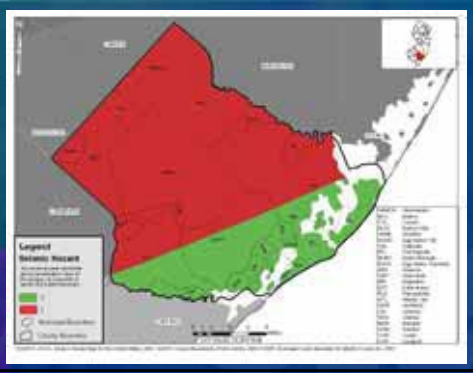
Hazard Profiles

Drought



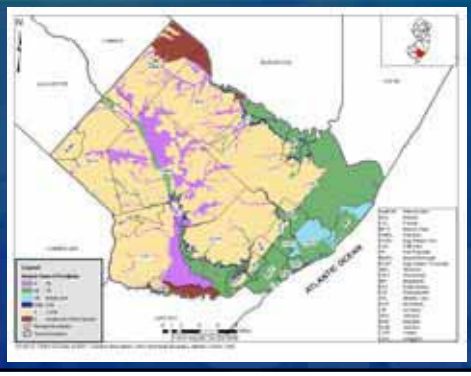
Hazard Profiles

Earthquake



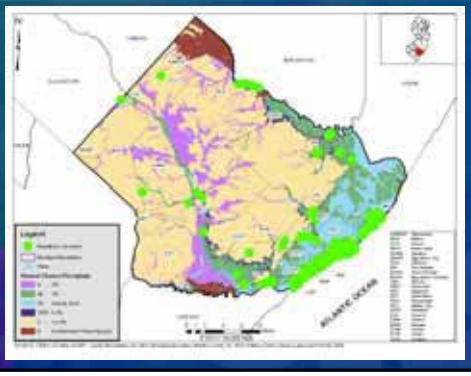
Hazard Profiles

Flood



Hazard Profiles

Flood - Repetitive Loss Areas



Hazard Profiles

Repetitive Loss Areas – Egg Harbor (West Atlantic City)

Hazard Profiles

Repetitive Loss Areas – Ventnor/Margate/Longport

Hazard Profiles

Repetitive Loss Areas - Brigantine

Hazard Profiles

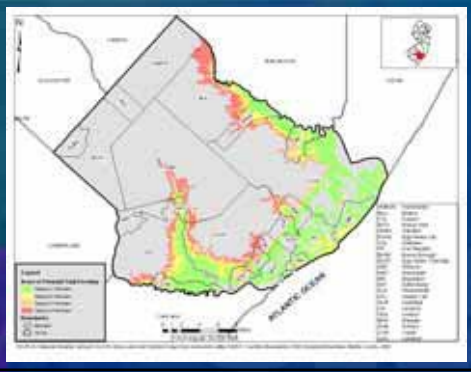
Repetitive Loss Areas – Atlantic City

Hazard Profiles

Wave Action

Hazard Profiles

Storm Surge



Hazard Profiles

Atlantic County Hurricane History

- 39 Hurricane / Tropical Storm tracks within 65 miles of Atlantic County since 1856
  - 8 Category 2
  - 3 Category 1
  - 28 Tropical Storm
- 8 traversed directly through Atlantic County
  - 1 Category 1
  - 7 Tropical Storm
- 20-30% chance Atlantic County will be impacted by named storm in any year

Hazard Profiles

Events vs. Hazards

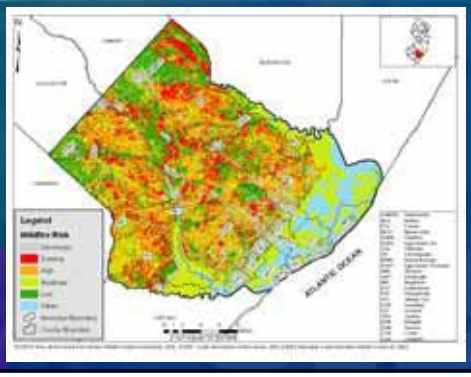
- Hurricane = EVENT
- Nor'Easter = EVENT
- Tropical Storm = EVENT
- HAZARDS associated with these EVENTS are:
  - Flood
  - Wind
  - Surge

Hazard Profiles

Dam Failure

Hazard Profiles

Wildfires



Hazard Profiles

Erosion

Hazard Profiles

Erosion

Asset Identification and Characterization

- Quantifies what is at risk
- Six categories of assets considered:
  - Improved property
  - Emergency facilities
  - Critical infrastructure & utilities
  - Historic & cultural resources
  - Population
  - Other key facilities

Asset Identification and Characterization

- Improved Property: Nearly $21.3 billion

Improved Property by Jurisdiction

Jurisdiction	Total Number of Parcels	Number of Improved Parcels	Percentage of Improved Parcels	Total Value of Improvements*
Absecon, City of	3,732	2,743	73%	$263,139,927
Atlantic City, City of	16,819	12,586	75%	$3,547,037,300
Brigantine, City of	9,145	5,811	64%	$513,293,303
Buena, Borough of	1,736	1,397	79%	$132,111,107
Buena Vista, Township of	9,629	2,490	26%	$479,119,004
Corbin City, City of	411	313	76%	$28,793,023
Egg Harbor City, City of	26,207	956	4%	$80,099,041
Egg Harbor, Township of	18,601	11,753	63%	$3,470,834,305
Estell Manor, City of	6,738	683	10%	$102,839,729
Folsom, Township of	1,808	718	40%	$148,509,085
Galloway, Township of	18,623	10,353	56%	$2,263,757,329
Hamilton, Town of	28,399	7,079	25%	$1,728,893,249
Hammonton, City of	6,138	4,263	70%	$936,511,112
Linwood, City of	2,790	2,459	88%	$498,008,231
Longport, Borough of	1,323	1,096	83%	$163,551,868
Margate, City of	5,906	4,931	83%	$662,149,894
Mullica, Township of	6,224	2,173	35%	$402,224,031
Northfield, City of	4,262	3,070	72%	$800,316,430
Pleasantville, City of	7,019	4,788	68%	$1,154,689,566
Port Republic, City of	907	442	49%	$92,247,607
Somers Point, City of	4,512	3,897	86%	$1,034,508,500
Ventnor City, City of	4,913	4,321	88%	$380,608,771
Weymouth, Township of	1,774	642	36%	$111,604,490
Total	188,446	89,110	47%	$21,298,780,258

*Not including some public buildings and other tax exempt structures.

Asset Identification and Characterization

- Improved Property in Delineated Hazard Areas:

Municipality	Total Value of Improvements	Percent in 100-year Floodplain	Percent in 500-year Floodplain (but outside of 100yr floodplain)	Percent Susceptible to Wave Action	Percent Susceptible to Storm Surge (Cat 1-4)	Percent in High/Extreme Wildfire Risk Areas	Percent in Erosion Hazard Areas
Absecon	$263,139,927	11.20%	11.82%	0.00%	47.12%	3.12%	0.00%
Atlantic City	$3,547,037,300	95.09%	3.17%	1.13%	98.89%	0.34%	4.77%
Brigantine	$513,293,303	99.44%	0.00%	4.54%	99.69%	0.00%	8.79%
Buena	$132,111,107	0.43%	0.00%	0.00%	0.00%	2.54%	0.00%
Buena Vista	$479,119,004	1.13%	0.00%	0.00%	0.00%	18.11%	0.00%
Corbin City	$28,793,023	31.63%	17.54%	0.00%	70.63%	10.69%	0.00%
Egg Harbor City	$80,099,041	7.65%	3.63%	0.00%	3.47%	8.22%	0.00%
Egg Harbor	$3,470,834,305	3.50%	1.66%	0.00%	12.94%	30.17%	0.00%
Estell Manor	$102,839,729	3.67%	0.00%	0.00%	3.83%	29.03%	0.00%
Folsom	$148,509,085	0.00%	0.00%	0.00%	0.00%	18.40%	0.00%
Galloway	$2,263,757,329	3.00%	0.36%	0.00%	5.94%	32.39%	0.00%
Hamilton	$1,728,893,249	4.00%	0.68%	0.00%	13.89%	28.69%	0.00%
Hammonton	$936,511,112	4.43%	0.72%	0.00%	0.00%	5.43%	0.00%
Linwood	$498,008,231	19.09%	15.22%	0.00%	44.80%	1.74%	0.00%
Longport	$163,551,868	99.98%	0.00%	0.34%	99.87%	0.00%	0.00%
Margate	$662,149,894	99.10%	1.89%	4.10%	99.67%	0.00%	0.14%
Mullica	$402,224,031	10.14%	1.48%	0.00%	16.54%	21.63%	0.00%
Northfield	$800,316,430	3.14%	3.52%	0.00%	24.00%	2.81%	0.00%
Pleasantville	$1,154,689,566	7.69%	4.89%	0.00%	37.64%	8.00%	0.00%
Port Republic	$92,247,607	16.12%	21.89%	0.00%	77.42%	20.71%	0.00%
Somers Point	$1,034,508,500	21.79%	23.30%	0.00%	49.37%	0.47%	0.00%
Ventnor City	$380,608,771	53.06%	29.01%	0.12%	99.57%	0.00%	0.33%
Weymouth	$111,604,490	12.00%	0.00%	0.00%	21.87%	32.98%	0.00%
Totals	$21,298,780,258	35.09%	4.78%	0.64%	40.18%	11.13%	1.64%

Asset Identification and Characterization

- Emergency Facilities: 137

Emergency Facilities by Jurisdiction

Jurisdiction	Fire Stations	Police Stations	Ambulance Stations	Hospitals	Emergency Operations Centers	Emergency Shelters
Absecon	1	1	1	0	0	2
Atlantic City	6	2	1	1	1	0
Brigantine	1	1	1	0	1	0
Buena	2	1	1	0	0	0
Buena Vista	3	0	1	0	0	1
Corbin City	0	0	0	0	0	0
Egg Harbor City	1	1	1	0	0	1
Egg Harbor City	12	1	2	0	0	0
Estell Manor	1	0	0	0	0	0
Folsom	1	0	0	0	0	1
Galloway	6	2	1	1	0	3
Hamilton	6	3	2	0	1	4
Hammonton	3	3	1	1	0	4
Linwood	1	1	1	0	1	1
Longport	1	1	1	0	0	0
Margate City	3	1	1	0	0	0
Mullica	4	1	1	0	0	0
Northfield	2	1	1	0	0	1
Pleasantville	1	1	1	0	1	0
Port Republic	1	0	0	0	1	0
Somers Point	2	1	1	1	1	0
Ventnor	2	1	1	0	1	0
Weymouth	1	0	2	0	0	0
Totals	61	22	22	4	4	24

Asset Identification and Characterization

- Critical Infrastructure and Utilities: 14

Critical Infrastructure and Utilities by Jurisdiction

Jurisdiction	Water Treatment Facilities	Wastewater Treatment Facilities	Electrical Power Facilities	Airports	Passenger Railroad Stations	Public Works Facilities
Absecon	0	0	0	0	1	0
Atlantic City	0	2	2	0	1	0
Brigantine	0	0	0	0	0	0
Buena Vista	0	0	0	0	0	0
Buena	0	1	0	0	0	0
Corbin City	0	0	0	0	0	0
Egg Harbor City	0	0	0	0	1	0
Egg Harbor	0	0	0	1	0	0
Estell Manor	0	0	0	0	0	0
Folsom	0	1	0	0	0	0
Galloway	0	0	0	0	0	0
Hamilton	0	0	0	0	0	0
Hammonton	0	1	0	1	1	0
Linwood	0	0	0	0	0	0
Longport	0	0	0	0	0	0
Margate City	0	0	0	0	0	0
Mullica	0	0	0	0	0	0
Northfield	0	0	0	0	0	0
Pleasantville	0	0	1	0	0	0
Port Republic	0	0	0	0	0	0
Somers Point	0	0	0	0	0	0
Ventnor City	0	0	0	0	0	0
Weymouth	0	0	0	0	0	0
Totals	0	5	3	2	4	0

Asset Identification and Characterization

- Other Key Facilities: 130

Other Key Facilities by Jurisdiction

Jurisdiction	Schools	Senior Care Facilities
Absecon	4	0
Atlantic City	14	1
Brigantine	3	0
Buena Vista	4	0
Buena	3	0
Corbin City	2	0
Egg Harbor City	3	0
Egg Harbor	10	1
Estell Manor	1	0
Folsom	1	0
Galloway	20	2
Hamilton	12	1
Hammonton	5	1
Linwood	5	1
Longport	4	0
Margate City	6	0
Mullica	6	0
Northfield	5	0
Pleasantville	10	1
Port Republic	1	0
Somers Point	5	0
Ventnor City	2	0
Weymouth	1	0
Totals	121	9

Asset Identification and Characterization

- Historic and Cultural Resources: 160

- Located in 23 municipalities
- State and Federally-listed sites
- Other significant cultural and historical assets such as museums of local history provided by local sources and identified via general internet research.

Asset Identification and Characterization

- Population (2000) = 252,552

Population and Households by Jurisdiction (2000 Census)

Jurisdiction	Population		Households	
	Total	% of Planning Area	Total	% of Planning Area
Absecon	7,638	3%	2,773	3%
Atlantic City	40,517	16%	15,240	17%
Brigantine	12,594	5%	5,473	6%
Buena Vista	7,456	3%	2,641	3%
Buena	5,573	2%	1,454	2%
Corbin City	468	0.2%	172	0%
Egg Harbor City	4,565	2%	1,838	2%
Egg Harbor	30,726	12%	11,199	12%
Estell Manor	1,383	1%	528	1%
Folsom	1,972	1%	671	1%
Galloway	31,209	12%	10,772	11%
Hamilton	20,499	8%	7,248	8%
Hammonton	12,604	5%	4,619	5%
Linwood	7,172	3%	2,647	3%
Longport	1,054	0%	568	1%
Margate City	8,193	3%	3,904	4%
Mullica	5,912	2%	2,044	2%
Northfield	8,215	3%	2,824	3%
Pleasantville	19,012	8%	6,402	7%
Port Republic	1,037	0%	365	0%
Somers Point	11,414	5%	4,920	5%
Ventnor City	12,910	5%	5,400	6%
Weymouth	2,237	1%	831	1%
Totals	252,552	100%	93,524	100%

Note: Similarly detailed data for years later than 2000 is not yet available

Asset Identification and Characterization

- Population – Vulnerable Sectors (2000) = 7,113

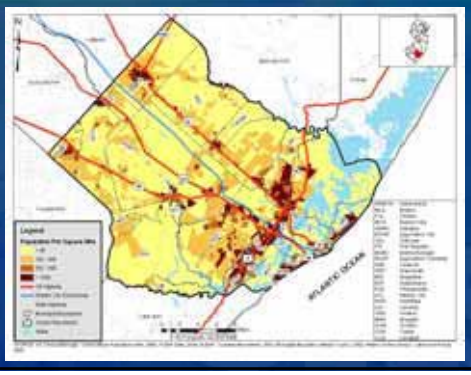
Vulnerable Sectors of the Population by Jurisdiction (2000 Census)

Jurisdiction	Total Population	Under 5 Years	% of Municipal Total	65 Years and over	% of Municipal Total	Total Vulnerable Population	% of Municipal Total
Absecon	7,638	460	6%	1,221	16%	1,681	22%
Atlantic City	40,517	3,041	8%	5,954	14%	8,995	22%
Brigantine	12,594	701	6%	2,060	17%	2,761	22%
Buena Vista	7,456	409	6%	1,110	15%	1,547	21%
Buena	5,573	245	4%	613	11%	858	15%
Corbin City	468	28	6%	49	10%	87	19%
Egg Harbor City	4,565	303	7%	633	14%	938	21%
Egg Harbor	30,726	2,276	7%	2,913	9%	5,093	17%
Estell Manor	1,383	111	7%	173	10%	264	17%
Folsom	1,972	102	5%	193	10%	295	17%
Galloway	31,209	2,030	7%	2,330	9%	4,360	16%
Hamilton	20,499	1,401	7%	1,693	9%	3,114	15%
Hammonton	12,604	714	6%	2,267	19%	3,007	24%
Linwood	7,172	373	5%	1,343	19%	1,726	24%
Longport	1,054	34	3%	364	35%	398	38%
Margate City	8,193	291	4%	2,363	29%	2,663	33%
Mullica	5,912	354	6%	620	11%	974	17%
Northfield	8,215	417	5%	1,373	17%	1,790	22%
Pleasantville	19,012	1,481	8%	3,124	16%	4,605	24%
Port Republic	1,037	58	6%	124	12%	182	18%
Somers Point	11,414	699	6%	1,748	15%	2,447	21%
Ventnor City	12,910	721	6%	3,550	28%	4,271	33%
Weymouth	2,237	141	6%	387	17%	528	24%
Total	252,552	14,433	7%	34,477	14%	50,910	20%

Note: similar breakdown data for years later than 2000 is not yet available

Asset Identification and Characterization

- Population Density (people per square mile)

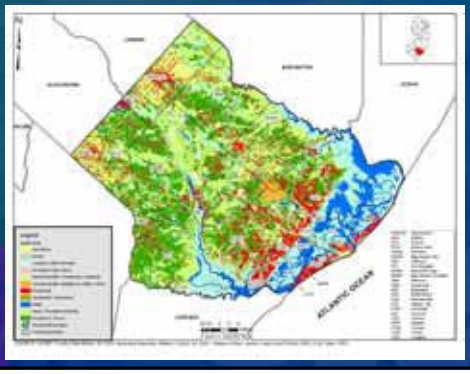


Land Uses and Development Trends

- Overview of land use and land cover across entire planning area
- Discussion of land use and development trends in each jurisdiction
- Potential for future development in hazard areas (vacant parcel analysis, and per hazard)
- Responses to LUDT questionnaires (tabulated)

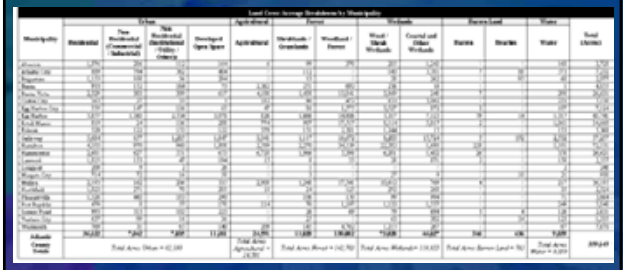
Land Uses and Development Trends

- Land Use / Land Cover



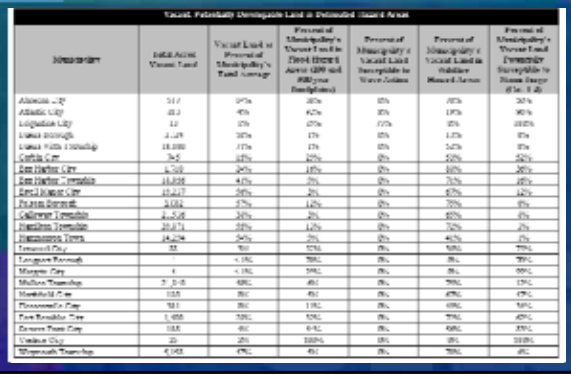
Land Uses and Development Trends

- Land Use / Land Cover



Land Uses and Development Trends

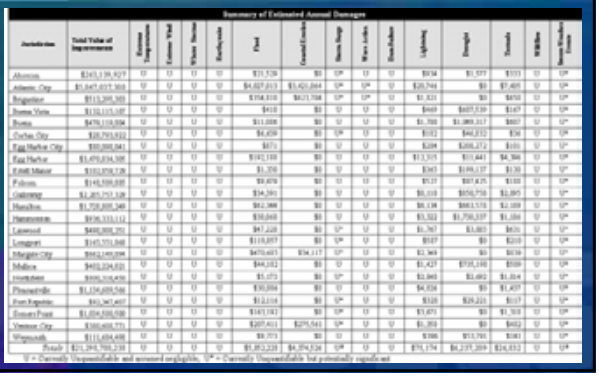
- Potentially Developable Land in Hazard Areas



Estimates of Annualized Losses for Each Hazard

- Incorporates historical loss data where available
- Incorporates HAZUS results from state plan where available
- Damage information for entire County scaled to participating jurisdictions based on improvement values
- Limitations of analysis

Estimates of Annual Losses for Each Hazard



Damage Estimates

- Ranking of Primary Hazards by Estimated Annual Damage:
  1. Drought ~ $6.2 million per year
  2. Flood ~ $5.9 million per year
  3. Coastal Erosion ~ $4.4 million per year
  4. Lightning ~ $75,000 per year
  5. Tornado ~ $27,000 per year

Others: Unquantifiable with current readily available data.

Types of Mitigation Actions to Consider for Various Hazards

- RAID Chapter 6 - READ BEFORE NEXT MEETING
- Types of actions to address specific hazards
- Tips sheets, job aids, etc.

Types of Mitigation Actions to Consider for Various Hazards

- To be used to initiate discussion and evaluation of potential mitigation actions
- Municipalities will need to identify a "punch list" of actions for their own jurisdiction at the next meeting

To-Do List For Local Jurisdictions: *Now to Draft Plan Completion*

- Submit Outstanding Questionnaires ASAP
  - Hazard Identification
  - Land Uses & Development Trends
  - Capability Assessment

To-Do List For Local Jurisdictions: *Now to Draft Plan Completion*

MAY

- **May 14***: Attend Mitigation Strategy Working Session (* ***Note:*** *May 14 is a targeted meeting date; a specific date will be identified by ACOEP and you will be notified accordingly.*)
- **May 20**: Last day to submit comments on the Risk Assessment Interim Deliverable
- **May 21**: Last day to submit Mitigation Options Questionnaire, Prioritization Worksheet, Implementation Strategy Worksheet, and NFIP Questionnaire
- **May 31**: Last day to submit Outreach Log (initially distributed as part of Guidance Memo 1 in August 2008)

To-Do List For Local Jurisdictions: *Now to Draft Plan Completion*

JUNE

- **Date TBD**: Attend meeting to present the Draft Plan (Draft scheduled for release on June 21)

JULY

- **July 21**: Last day to submit comments on the Draft Plan

ONGOING

- **Continue** your Jurisdictional Assessment Team (JAT) Meetings.
- **Continue** outreach to the Public and Other Stakeholders in your jurisdiction and document activities in Outreach Log (last page of Guidance Memo #1).

Questions and Answers

Mitigation Strategy Working Session
May 11, 2009
2:00 pm

Today's Agenda

- Welcome and Opening Remarks
- Reminders
- Any public comments?
- Mitigation Strategy Working Session
  - Completion of worksheets to evaluate and prioritize actions and develop implementation strategies
- Next Steps
- Questions and Discussion

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
Mitigation Strategy Working Session – May 11, 2009 (2 pm)
ACOEP, 5033 English Creek Avenue, Egg Harbor Township, NJ 08234

Last Name	First Name	Representing	Email Address	Phone
Conover	Ed	AtCo OEM	conover-edward@aclink.org	609-407-6735
LaPollo	John	Folsom Borough	jlapollo@folsomborough.com	609-561-4487
Wegar	Dan	ATL. Co OEM	wegar-dan@aclink.org	609-407-6764
VITALE	QUIN	NORTHFIELD	KimQWIN@COMCAST.NET	609-412-6479
Bennett	JAMES	Brigantine	jbennett@brigantinebeachnj.com	609.859-3780
SUTTON	FRANK	EHT	SUTT01@AOL.com	609 6467158
CORNEW	JEFF	ESTELL MANOR	EM_COORDINATOR_ESTELL MANOR@VERIZON.NET	609 476 4754
Salvatore	Nick	Hammonton	nsalvatore@townofhammonton.org	609-561-7000
Brandenberger	Michael	~~Hamilton~~ Galloway Twsp Township of	MTBrandenberger@Comcast.NET	609 457-2684
Foley	Tom	Atlantic City	TFoley@cityofatlanticcity.org	609-347-5466
Kisby	Charles	Linwood	linwood fire official@comcast.net	609-926-7998
Foley	Anna	WRS	anna_foley@urscorp.com	973-785-0700x339

Atlantic County

Multi-Jurisdictional
Hazard Mitigation Planning Project

Mitigation Strategy Working Session
May 11, 2009
2:00 pm

Today's Agenda

- Welcome and Opening Remarks
- Reminders
- Any public comments?
- Mitigation Strategy Working Session
  - Completion of worksheets to evaluate and prioritize actions and develop implementation strategies
- Next Steps
- Questions and Discussion

Reminders

- Please remember to sign in
- Please submit your Outreach Log if you have not already done so

Comments so far from the Public and/or Other Stakeholders??

- Please tell us what and from whom.
- We will incorporate into appropriate section of the plan.
- If not today, then please get back to us by next Monday the 18th.

Worksheet Completion

- The Worksheets:
  1. Mitigation Options Survey
  2. Evaluation and Prioritization of Actions
  3. Documenting an Implementation Strategy
  4. NFIP Worksheet
- Circulated April 27, 2009
- Return to URS no later than Thursday, May 21, 2009

Worksheet Completion

FEMA Requirements – apply to EACH municipality on an individual basis:

- Identify and analyze a comprehensive range of projects for each hazard
- Select projects that address reducing the effects of hazards on both new and existing buildings and infrastructure
- Identify, analyze and prioritize actions related to continued compliance with the NFIP

Worksheet Completion

FEMA Requirements (cont'd):

- Document the process and criteria used for prioritizing the projects
- Identify how each project will be implemented and administered, who will be responsible, resources for completion, targeted time frame?

Worksheet Completion

FEMA Requirements (cont'd):

- For each project, the estimated cost and documentation of cost-benefit review
- Identifiable action items for each participating jurisdiction

1. Mitigation Options Survey

- Ranking 6 categories of actions to reflect each municipality's local preferences
  - Preventive Measures
  - Asset Protection
  - Emergency Services
  - Structural Projects
  - Natural Resources Protection
  - Public Information

Atlantic County
Multi-Jurisdictional
Hazard Mitigation Planning Project

Mitigation Options Survey

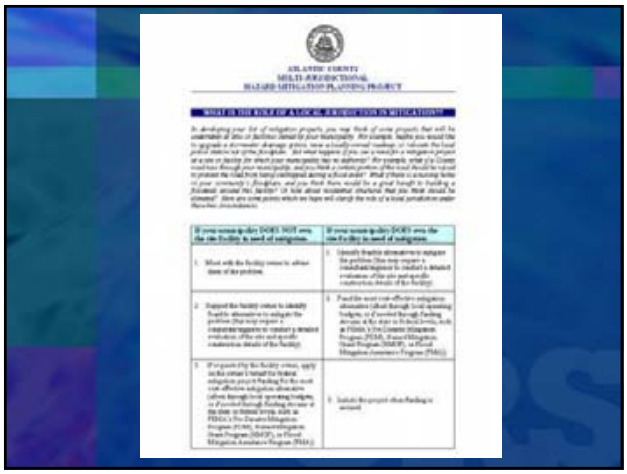
Now we'll talk about PROJECTS...

The Role of a Local Jurisdiction

Your list of mitigation projects

Projects at sites that the municipality owns

Projects at sites owned by someone else



The Role of a Local Jurisdiction

- If municipality has ownership, then your action is to undertake the project.
- If the owner is anyone else, then your action is to: advise the owner of the problem, work with them to identify a solution, and submit a grant application on their behalf to obtain funding to complete the project.

The Role of a Local Jurisdiction – An Example

- The Project: Acquire 10 residential structures that have repeatedly flooded in the past.
- Your municipality's "action" is NOT to acquire the houses (unless your local budget has a lot of extra funds!)
- Your municipality's "action" is to meet with the homeowner to advise them of the risks they face and the benefits of acquisition, and apply to FEMA on their behalf for mitigation project grant funding.

2. Evaluation and Prioritization of Actions

- FEMA's "S T A P L E E"
- Qualitative and subjective level of analysis of overall benefits and costs in lieu of formal benefit-cost analysis
- Acceptable for the planning phase

2. Evaluation and Prioritization of Actions

Socially acceptable

Technically feasible

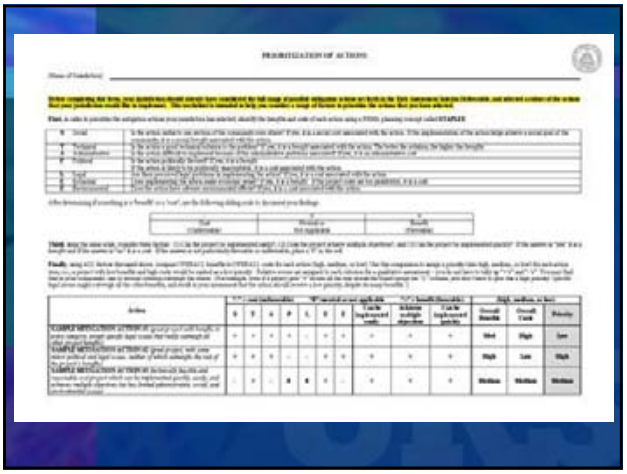
Administratively possible

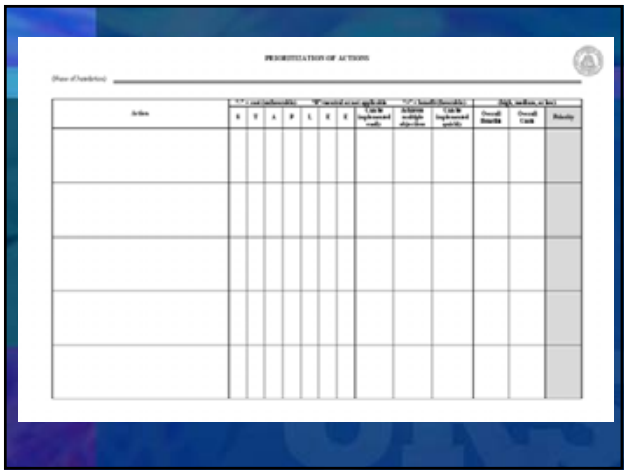
Politically favored

Legally possible

Economically viable

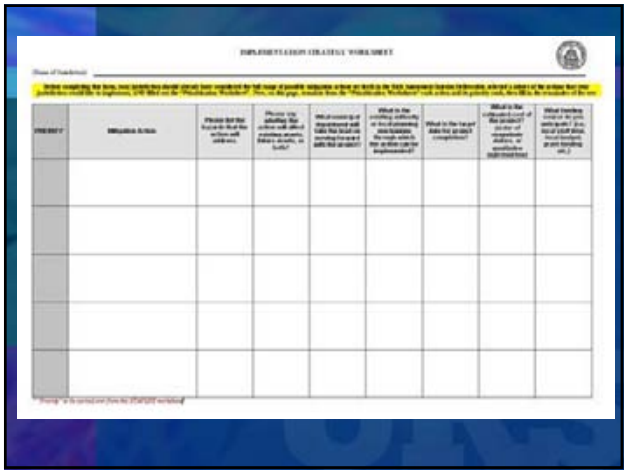
Environmental impact





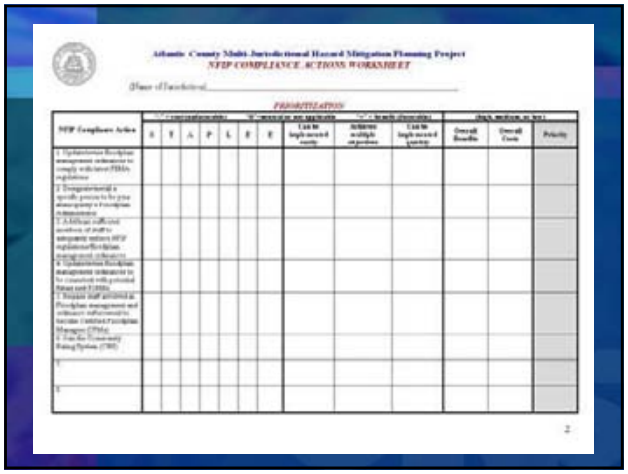
3. Implementation Strategy Development

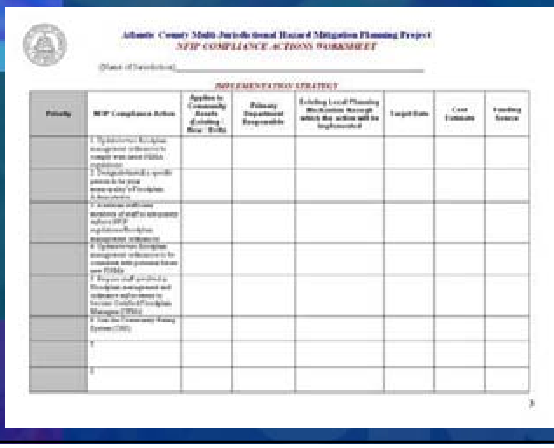
- What hazards will the project address?
- Will the project affect existing assets, future assets, or both?
- Who will take the lead?
- What authority does the municipality have to do the project?
- When will the project be completed?
- How much will the project cost? ($'s, or H/M/L)
- Where will the funds come from to do the work?



4. NFIP Compliance Actions Worksheet

- All 23 municipalities in Atlantic County participate in FEMA's NFIP, therefore:
- Everyone's mitigation strategy must identify, analyze and prioritize actions related to continued compliance with the NFIP





Next Steps

- If you are not turning in your forms today, please email or fax to URS no later than Thursday, May 21, 2009
- Draft Plan targeted for completion by June 20, 2009
- Concurrent review – CPG, NJOEM →FEMA
- CPG Comments by July 21, 2009

Questions????

Atlantic County Multi-Jurisdictional
Hazard Mitigation Planning Project
Meeting to Present the Draft Plan
July 17, 2009
11:00 am
ACOEP, 5033 English Creek Avenue, Egg Harbor Township, NJ 08234

TODAY'S AGENDA

- Welcome & Opening Remarks…….*Ed Conover, ACOEP*

- Draft Plan…….. ……..... *Anna Foley, URS*
  Richard Franks, URS

  - Welcome and Opening Remarks
  - What is Hazard Mitigation
  - Why the Plan was Developed
  - Key Milestones in the Process
  - Benefits of Having a Plan in Place
  - Who Participated
  - Roles (Participants versus Consultant)
  - Overview of Plan Development Process
  - Significant Hazards
  - Mitigation Goals
  - Types of Actions Evaluated
  - Prioritization Methodology
  - Draft Plan Review Cycle
  - Final Plan
  - Plan Maintenance
  - Questions and Answers

- Questions & Answers…….……..……..*All*

- Adjourn…….……..…….... *Ed Conover, ACOEP*

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
Meeting to Present the Draft Plan – July 17, 2009 (11 am)
ACOEP, 5033 English Creek Avenue, Egg Harbor Township, NJ 08234

Last Name	First Name	Representing	Email Address	Phone
MeLfi	William	VENTNOR CITY	VENTNORCITYOEM@COMCAST.NET	609-823-7920
Conover	Ed	Atlantic County	conover-edward@aclink.org	609-407-6742
Weger	Dan	Atlantic County	weger_dan@aclink.org	609-407-6764
GAZZARA	CHARLES	Buena Boro	AIKICHAZ@COMCAST.NET	609-381-4566
VITALE	QUIN	NORTHFIELD	QVITALE@CITYOFNORTHFIELD.ORG	609 992-6979
LaPollo	John	Folsom Borough	jlapollo@folsomborough.com	609-561-4487
WILLIAMSON	JOHN	FROM EHT	JNOWMSN@AOL.COM	609-927-4323
Brandenberger	Michael	Galloway/Hamilton	MTBrandenberger@Comcast.NET	
Foley	Tom	Atlantic City	tfoley@cityofatlanticcity.org	609-347-5466
MULLEN	SAM	ABSECON CITY	Samuel.mullen@ATT.NET	609-646-6281
DUFFY	MATTHEW	ATLANTIC COUNTY OFFICE OF ED	DUFFY_MATTHEW@ACLINK.ORG	609 645 5898
TV 40 UNIVISION				
Foley	Anna	URS	anna_foley@urscorp.com	973-785-0700 x339
Franks	Richard	URS	richard_franks@urscorp.com	973-785-0700 x449

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project

Meeting to Present the Draft Plan - July 17, 2009 at 11a.m.

Today's Agenda

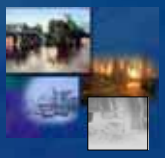
- Welcome and Opening Remarks
- What is Hazard Mitigation
- Why the Plan was Developed
- Key Milestones in the Process
- Benefits of Having a Plan in Place
- Who Participated
- Roles (Participants versus Consultant)
- Overview of Plan Development Process

Today's Agenda, continued…

- Significant Hazards
- Types of Actions Evaluated
- Prioritization Methodology
- Draft Plan Review Cycle
- Final Plan
- Plan Maintenance
- Questions and Answers

Introduction

- Atlantic County is impacted regularly by natural hazards.
- Natural hazards can cause:
  - Property loss
  - Loss of life
  - Economic hardship
  - Threats to public health and safety



Introduction

- County commitment to disaster resistance
- Each jurisdiction in the County was invited to participate in a multi-jurisdictional process to:
  - study natural hazards,
  - evaluate hazard effects, and
  - identify hazard mitigation projects that can be implemented to reduce damages.

Introduction

Natural disasters can't be prevented, but their impacts can be reduced through hazard mitigation.

What is hazard mitigation?

Hazard mitigation measures are actions you can undertake today to reduce your susceptibility to damages in the future.

Mitigation → Disaster Resistance

What is hazard mitigation?


Examples:

Elevating a house to reduce flood damages.

Installing hurricane clips to a roof to reduce wind damage.

Imposing setback distances to reduce erosion damages.

Modifying building codes to incorporate hazard-resistant design.

Elevated homes in Sweet Lake, LA (near Lake Charles) after Hurricane Rita (09/24/05).

Overview

- Disaster Mitigation Act of 2000
  - Requires local mitigation plan for mitigation project grants
  - Allows for multi-jurisdictional plans
- County received FEMA grant monies to develop plan
  - Plan documents process followed; approx. 1 year
  - Plan describes:
    - Evaluation of natural hazards
    - Risks
    - Actions to reduce risks

Overview

- All jurisdictions in the county invited to participate
- County-wide plan counts if jurisdiction:
  - Participated successfully in the process
    AND
  - Formally adopts the Final Plan
- Plan is currently in Draft; under review

What is hazard mitigation planning?

- A process undertaken BEFORE a disaster strikes
- Identifying community
  - policies
  - actions, and
  - tools

  for implementation in the long-term that will result in a reduction of risk and potential for future losses.

The Draft Plan

Why was the plan developed?

- Disaster Mitigation Act of 2000

  - Local mitigation plan as a condition for eligibility to apply for FEMA hazard mitigation project grant monies

Why was the plan developed?

- Atlantic County applied for, and was awarded, a planning grant from FEMA to prepare a multi-jurisdictional hazard mitigation plan for the County.

Key Milestones

Timeline

Project Initiation	Aug. 2008
Risk Assessment Interim Deliverable	April 2009
Jurisdictions Identify Mitigation Projects	May 2009
Draft Plan to ACOEP for Concurrent Review	June 2009

Key Milestones

Core Planning Group Meetings – Plan Development

County Invites Municipalities to Participate	Summer 2008
Project Kickoff Meeting	08/18/08
Risk Assessment Meeting	01/22/09
Q&A Session on the R.A.I.D.	04/23/09
Mitigation Strategy Working Session	05/11/09

Key Milestones

Getting the Word Out

Fact Sheet Distribution Countywide Beginning	Summer 2008
Project Web Site Established	Nov. 2008
Public Survey (posted on web site)	Nov. 2008
County Press Releases	February 2009 July 2009

Key Milestones

Getting the Word Out

- Participating jurisdictions also:
  - Briefings on Plan Progress at Public Meetings (various)
  - Posted Info on the Plan on Local TV
  - Targeted Outreach to Key Stakeholders
    (i.e., senior community, civic associations, business associations, transportation authority, etc.)

Key Milestones

Contributions of Participating Jurisdictions

Key Milestones

Contributions of Participating Jurisdictions

- Representation on the Core Planning Group
- Meeting Attendance
- Reach out to the public and other stakeholders in their respective municipalities
- Provide feedback to consultant for incorporation into the plan, including:
  - Wish List Info/Data/Documents
  - Hazard ID Questionnaires
  - LUDT Questionnaires
  - Capability Assessments
  - Outreach Logs
  - Mitigation Actions Worksheets

Benefits of Hazard Mitigation Planning

- Mitigation planning leads to judicious selection of risk reduction actions and established funding priorities.

- Implementation of mitigation actions can reduce the costs of a future disaster.

Benefits of Hazard Mitigation Planning

- Economic damages resulting from a disaster can often exceed available State and Federal aid.

- Damages can be prevented by taking the time to:
  - learn about hazards and anticipate where and how they occur; and
  - allocate resources accordingly.

Multi-Jurisdictional Approach

- Basic processes for single jurisdiction and multi-jurisdictional plans are identical.
- Difference lies in degree of complexity.

Multi-Jurisdictional Benefits

- Natural hazards do not recognize political boundaries.
- Creates economies of scale.
- Enables pooling of limited resources.

The Role of Participating Jurisdictions

- In a multi-jurisdictional plan development process, every participating jurisdiction:
  - …contributes.
  - …is an active participant.
  - …has a role.
  - …provides a piece of the puzzle.
- Plans count for jurisdictions that participate and adopt the final plan.

Successful Participants

- County plus 19 municipalities

County of Atlantic

Absecon, City of	*Folsom, Borough of*	*Margate City, City of*
Atlantic City, City of	*Galloway, Township of*	*Mullica, Township of*
Brigantine, City of	*Hamilton, Township of*	*Northfield, City of*
Buena, Borough of	*Hammonton, Town of*	*Pleasantville, City of*
Corbin City, City of	*Linwood, City of*	*Ventnor City, City of*
Egg Harbor, Township of	*Longport, Borough of*	*Weymouth, Township of*
Estell Manor, City of		

The Role of Participating Jurisdictions

- Satisfy participation criteria
- Provide information and feedback
- Reach out to the public and other stakeholders
- Assess mitigation alternatives
- Select a course of action to be followed for their community
- Implement the plan and monitor its progress

The Role of Consultants

- Providing guidance
- Providing technical information
- Asking questions
- Seeking feedback
- Inquiring about community-specific information
- Documenting the actions of team members
- Authoring the plan using their knowledge of FEMA's mitigation planning requirements

Key Steps In The Process

- Researching a full range of natural hazard events to determine which were the most prevalent;
- Identifying the location and extent of hazard areas;
- Identifying assets located within these hazard areas;

Key Steps In The Process

- Characterizing existing and potential future assets at risk;
- Assessing vulnerabilities to the most prevalent hazards; and
- Evaluating and prioritizing goals, objectives, and mitigation actions to reduce or avoid long-term vulnerabilities to the most prevalent hazards.

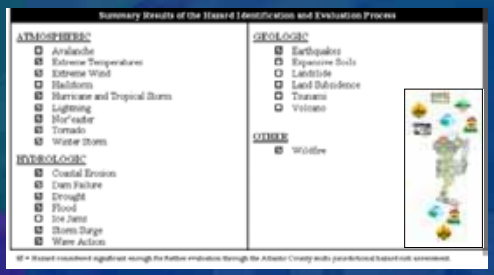
Key Plan Sections

- **Introduction**
  - Plan Purpose
  - Overview of Atlantic County
  - Summary Plan Development Process
  - Document Organization
  - Key Terms

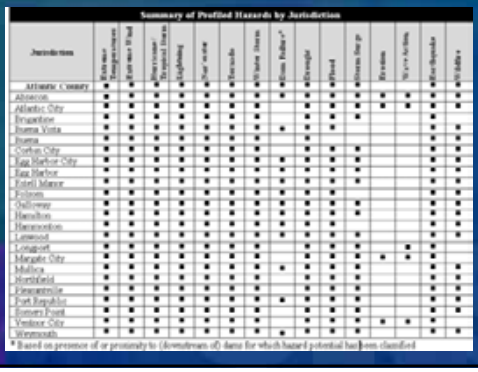
Key Plan Sections

- **Identification of Potential Hazards**
  - Evaluation of a full range of natural hazards
    - Hazards identified for inclusion & why
    - Hazards not identified & why not

Most Significant Hazards



Profiled Hazards by Jurisdiction



Key Plan Sections

- **Risk Assessment**
  - Hazard Profiles
    - Description of hazard
    - Location of hazard area
    - Extent (magnitude or severity)
    - Previous occurrences
    - Probability/likelihood of future occurrences

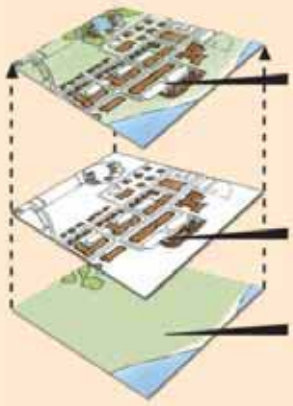
Key Plan Sections

- **Risk Assessment**
  - Identification and Characterization of Assets in Hazard Areas
    - Quantifies what is at risk
    - Five key types of assets considered:
      - Improved property
      - Emergency facilities
      - Utilities
      - Historic & cultural resources
      - Population

GIS

Hazard Mitigation Planning - GIS as a tool to:

- Inventory Assets
  - Community-wide vs. hazard area
  - Number of buildings
  - Value of buildings
  - Number of people
- Identify Hazard Exposure



A map showing the location of the community's assets can be produced...

... by overlaying the base map for the community...

... with a map delineating hazard area boundaries.

Key Plan Sections

- **Risk Assessment**
  - Damage Estimates
    - Data limitations
    - Actions to improve data are part of the plan, so limited resources can be allocated wisely
    - Qualified damages (not quantified)

Key Plan Sections

- **Risk Assessment**
  - Existing Land Uses and Future Development Trends in Hazard Areas
    - Where is new development planned?
    - How much of this is in hazard areas?
    - Are there codes/regulations in place to provide a certain degree of protection from the most frequent events?

Key Plan Sections

- **Capabilities and Resources**
  - Plans, codes, and ordinances currently in place
  - Can contribute to, or be utilized for, hazard mitigation
  - Villages, Towns, County, State, Federal

Key Plan Sections

- **Range of Alternative Mitigation Actions Considered**
  - *Including, but not limited to:*
    - Public education/outreach
    - Zoning/land use changes
    - Structural retrofits (i.e., hurricane clips, structure elevation, storm shutters, etc.)
    - Roadway elevations/backflow valves/drainage improvements
    - Tree trimming

Key Plan Sections

- **Action Item Evaluation and Prioritization**
  - Participating jurisdictions each selected action items for their community.
  - "STAPLE+E" Evaluation – Qualitative evaluation of a project's Social, Technical, Administrative, Political, Legal, Economic, and Environmental costs and benefits.
  - Priorities for each selected action assigned based on overall benefits and costs (high/medium/low).

Key Plan Sections

- **Implementation Strategy**
  - Hazard(s) the action addresses
  - Order of magnitude costs
  - Primary agency responsible
  - Mechanism for implementation
  - Target Date
  - Funding Source

To Review a Copy of the Draft Plan or Submit Comments

- Multi-Jurisdictional Planning Project web site

  www.aclink.org/PDM/
- Contact your participating jurisdiction
- Contact ACOEP

Edward Conover
Atlantic County Office of Emergency Preparedness
5033 English Creek Avenue
Egg Harbor Township, New Jersey 08234
Phone: (609) 407-6742
Fax: (609) 407-6745
E-Mail: conover_edward@aclink.org

The Approval Process

- County, Jurisdictions, Public, Other Stakeholders, NJOEM, FEMA review the Draft
- Comment Incorporation
- FEMA conditional approval of Draft
- Final Plan (with comments incorporated) is adopted by Participating Jurisdictions
- Participating Jurisdictions send adoption resolutions to ACOEP
- FEMA will review Final Plan and resolutions, and issue their formal approval

The Approval Process

- FEMA will pass/fail the plan on a jurisdictional level – depending on how your jurisdiction participated in the process
- Approved plan opens the door to mitigation project grant funding streams – participating jurisdictions who adopt the plan are now eligible applicants.

FEMA Grant Programs Tied To Having an Approved Plan In Place

Participating Jurisdictions will be eligible to apply for mitigation projects under these FEMA programs:

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)
- Severe Repetitive Loss (SRL)

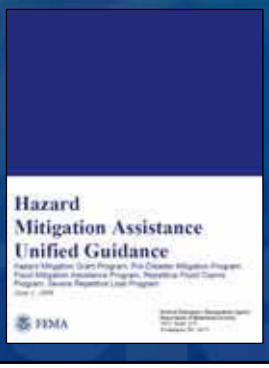
↓

"Unified Hazard Mitigation Assistance" or "Unified HMA"

FEMA Grant Programs Tied To Having an Approved Plan In Place

HMGP
PDM
FMA
SRL
RFC

** RFC = Repetitive Flood Claims program; mitigation plan not required to be eligible to apply*



FEMA Grant Programs Tied To Having an Approved Plan In Place

A. Available Funding

Table 1: Historic HMA Funding

	HMGP*	PDM	FMA	RFC	SRL
FY09	Not Available	$90,000,000	$95,700,000	$10,000,000	$80,000,000
FY08	$1,014,615,102	$114,000,000	$34,000,000	$10,000,000	$80,000,000
FY07	$314,652,849	$100,000,000	$31,000,000	$10,000,000	$40,000,000
FY06	$252,227,552	$50,000,000	$26,500,000	$10,000,000	$40,000,000
FY05	$2,134,965,791	$100,000,000	$20,000,000	Not applicable	Not applicable

Source: Page 6 of Unified HMA guidance document

FEMA Grant Programs Tied To Having an Approved Plan In Place

http://www.fema.gov/library/viewRecord.do?id=3649

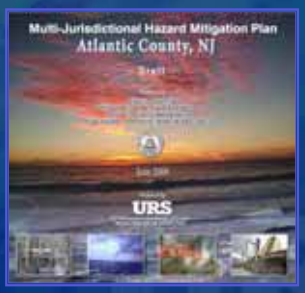
Plan Maintenance

- Final Plan is a 'living document'
- 5-year review cycle
- Assess effectiveness and status
- Reflect any changes that may affect mitigation priorities

Plan Maintenance

- Annual Work Progress Monitoring Reports
- Annual Plan Evaluation Meetings
- Update Appraisal (at 3.5 yr point of each 5 yr cycle)
- Public Participation
  - Document repositories
  - Web site
  - Annual fact sheet
  - Survey
  - Meetings with civic associations
  - Etc…

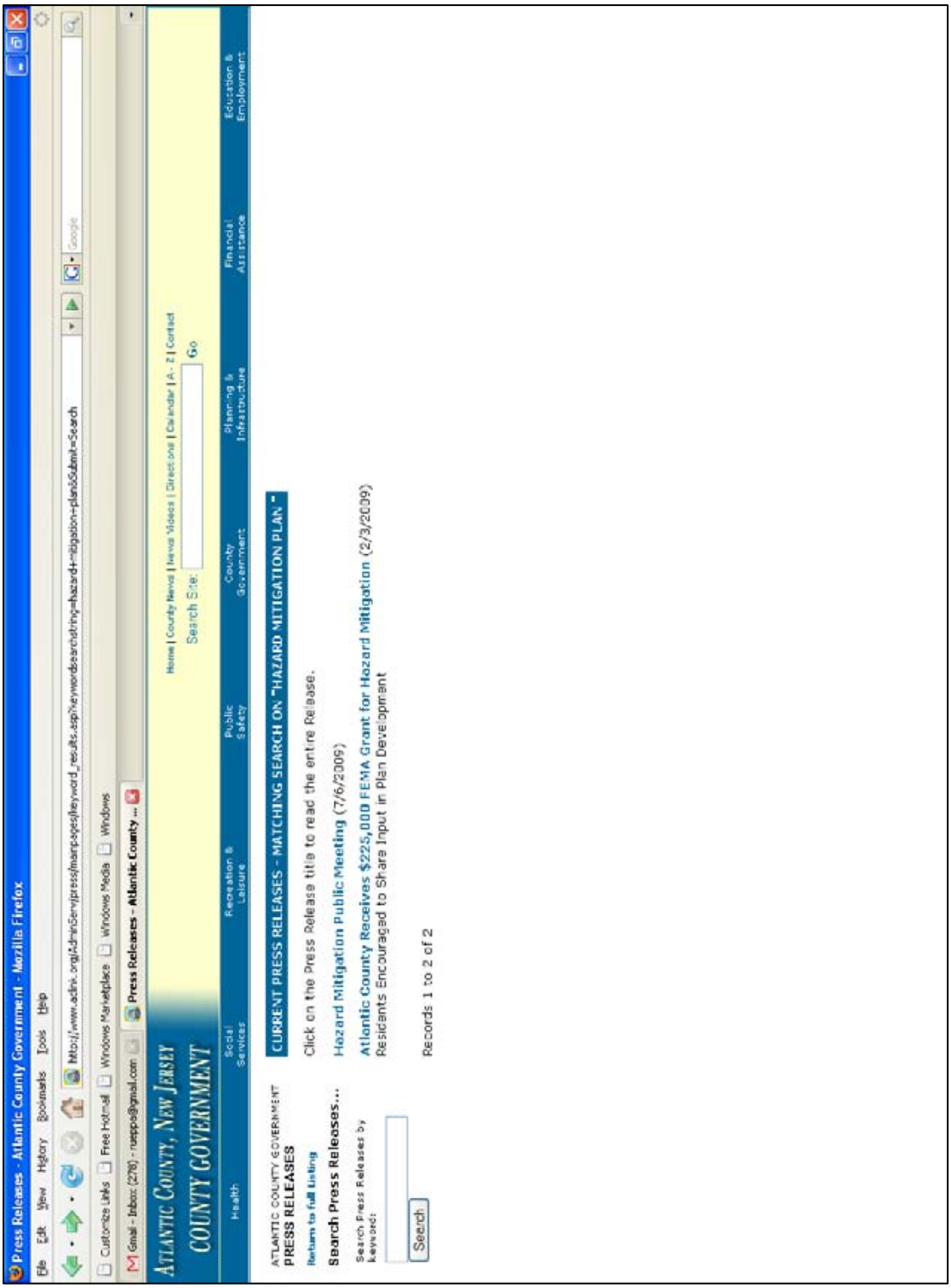
Questions and Answers



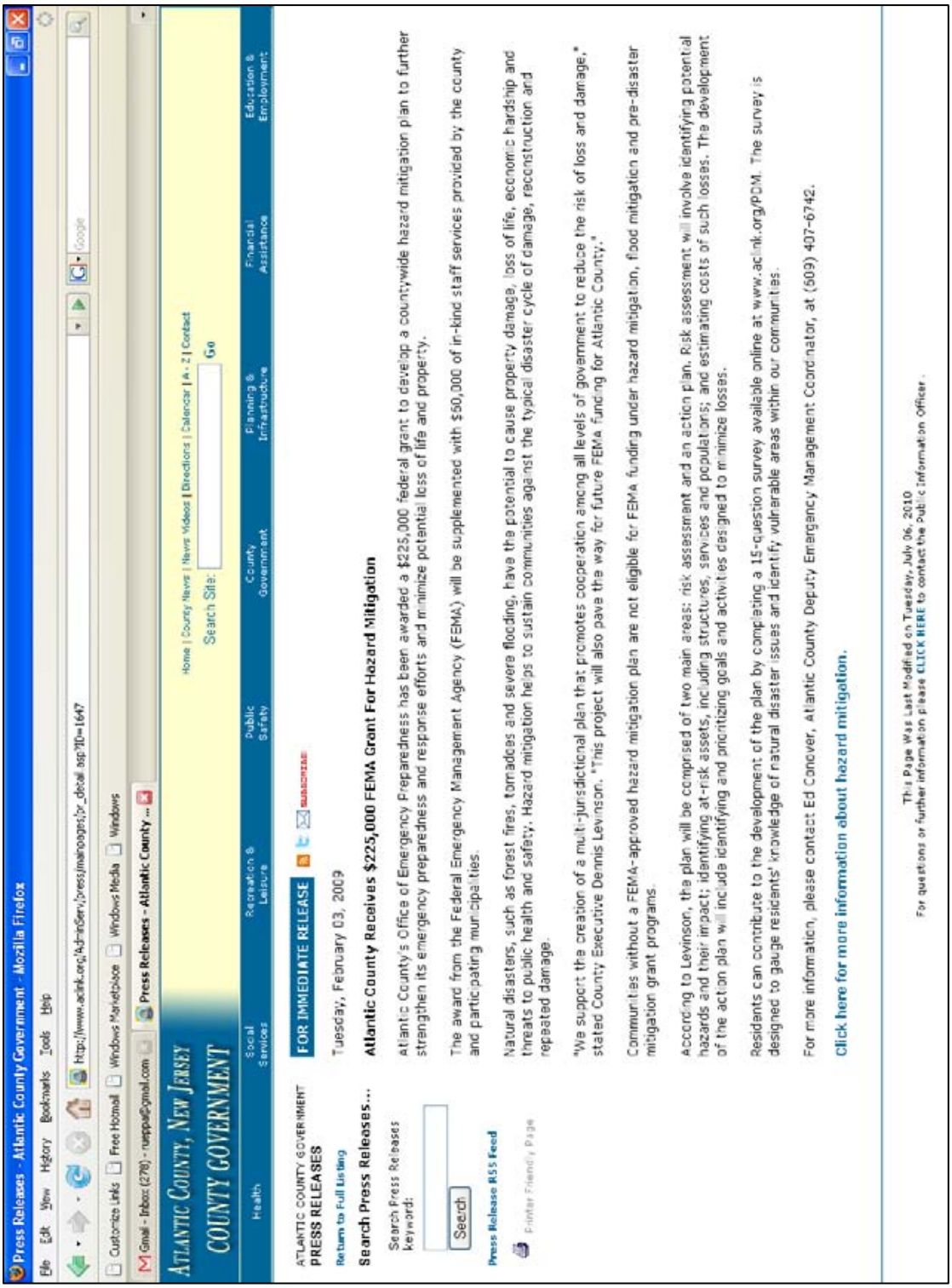
APPENDIX I –

PRESS COVERAGE

Atlantic County Press Releases: List of



Atlantic County Press Release 1: Notification of Planning Process and Grant Award (February 3, 2009)



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FOR IMMEDIATE RELEASE

Tuesday, February 03, 2009

Atlantic County Receives $225,000 FEMA Grant For Hazard Mitigation

Atlantic County's Office of Emergency Preparedness has been awarded a $225,000 federal grant to develop a countywide hazard mitigation plan to further strengthen its emergency preparedness and response efforts and minimize potential loss of life and property.

The award from the Federal Emergency Management Agency (FEMA) will be supplemented with $60,000 of in-kind staff services provided by the county and participating municipalities.

Natural disasters, such as forest fires, tornadoes and severe flooding, have the potential to cause property damage, loss of life, economic hardship and threats to public health and safety. Hazard mitigation helps to sustain communities against the typical disaster cycle of damage, reconstruction and repeated damage.

"We support the creation of a multi-jurisdictional plan that promotes cooperation among all levels of government to reduce the risk of loss and damage," stated County Executive Dennis Levinson. "This project will also pave the way for future FEMA funding for Atlantic County."

Communities without a FEMA-approved hazard mitigation plan are not eligible for FEMA funding under hazard mitigation, flood mitigation and pre-disaster mitigation grant programs.

According to Levinson, the plan will be comprised of two main areas: risk assessment and an action plan. Risk assessment will involve identifying potential hazards and their impact; identifying at-risk assets, including structures, services and populations; and estimating costs of such losses. The development of the action plan will include identifying and prioritizing goals and activities designed to minimize losses.

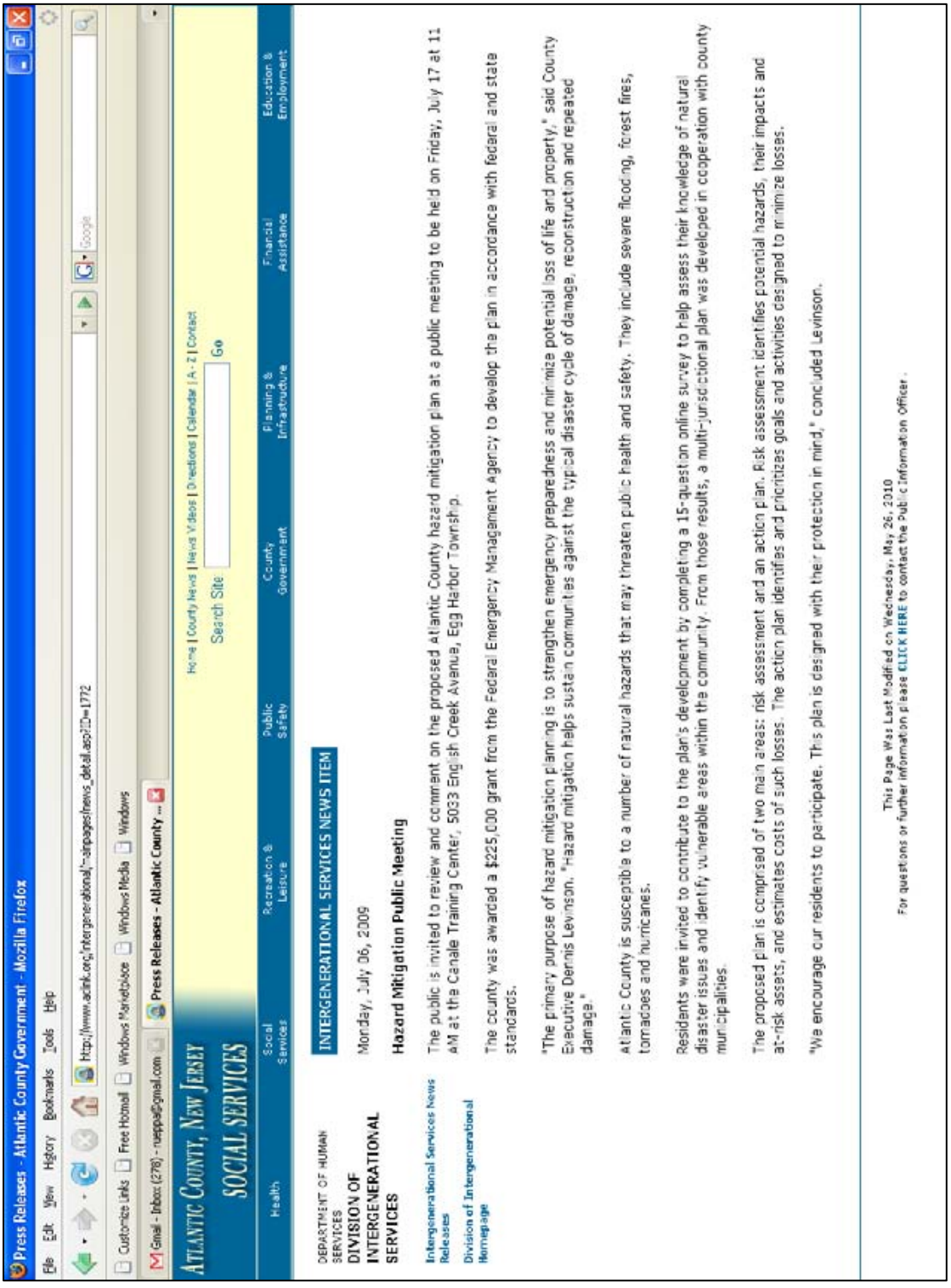
Residents can contribute to the development of the plan by completing a 15-question survey available online at www.acink.org/PDM. The survey is designed to gauge residents' knowledge of natural disaster issues and identify vulnerable areas within our communities.

For more information, please contact Ed Concver, Atlantic County Deputy Emergency Management Coordinator, at (609) 407-6742.

Click here for more information about hazard mitigation.

This Page Was Last Modified on Tuesday, July 06, 2010
For questions or further information please CLICK HERE to contact the Public Information Officer.

Atlantic County Press Release 2: Public Meeting to Present the Draft Plan (July 6, 2009)



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http://www.acnk.org/intergenerational/~/pages/news_detail.asp?ID=1772

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DEPARTMENT OF HUMAN SERVICES
DIVISION OF INTERGENERATIONAL SERVICES

Intergenerational Services News Releases
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INTERGENERATIONAL SERVICES NEWS ITEM

Monday, July 06, 2009

Hazard Mitigation Public Meeting

The public is invited to review and comment on the proposed Atlantic County hazard mitigation plan at a public meeting to be held on Friday, July 17 at 11 AM at the Canale Training Center, 5033 English Creek Avenue, Egg Harbor Township.

The county was awarded a $225,000 grant from the Federal Emergency Management Agency to develop the plan in accordance with federal and state standards.

"The primary purpose of hazard mitigation planning is to strengthen emergency preparedness and minimize potential loss of life and property," said County Executive Dennis Levinson. "Hazard mitigation helps sustain communities against the typical disaster cycle of damage, reconstruction and repeated damage."

Atlantic County is susceptible to a number of natural hazards that may threaten public health and safety. They include severe flooding, forest fires, tornadoes and hurricanes.

Residents were invited to contribute to the plan's development by completing a 15-question online survey to help assess their knowledge of natural disaster issues and identify vulnerable areas within the community. From those results, a multi-jurisdictional plan was developed in cooperation with county municipalities.

The proposed plan is comprised of two main areas: risk assessment and an action plan. Risk assessment identifies potential hazards, their impacts and at-risk assets, and estimates costs of such losses. The action plan identifies and prioritizes goals and activities designed to minimize losses.

"We encourage our residents to participate. This plan is designed with their protection in mind," concluded Levinson.

This Page Was Last Modified on Wednesday, May 26, 2010
For questions or further information please CLICK HERE to contact the Public Information Officer.

Press Coverage in *Current of EHT*: Public Meeting to Present the Draft Plan (July 8, 2009)

Public meeting set on hazard mitigation plan

The public is invited to review and comment on the proposed Atlantic County hazard mitigation plan at a meeting 11 a.m. Friday, July 17 at the Canale Training Center, 5033 English Creek Ave., Egg Harbor Township.

The county was awarded a $225,000 grant from the Federal Emergency Management Agency to develop the plan in accordance with federal and state standards.

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The proposed plan is comprised of two main areas: risk assessment and an action plan. Risk assessment identifies potential hazards and estimates the costs of asset losses. The action plan identifies and prioritizes goals and activities designed to minimize losses.

"We encourage our residents to participate. This plan is designed with their protection in mind," Levinson said.

Press Coverage in *Currents of Pleasantville-Absecon*: Public Meeting to Present the Draft Plan (July 10, 2009)

12 CURRENTS OF PLEASANTVILLE - ABSECON / Friday, July 10, 2009

Public meeting set on hazard mitigation plan

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The county was awarded a $225,000 grant from the Federal Emergency Management Agency to develop the plan in accordance with federal and state standards.

"The primary purpose of hazard mitigation planning is to strengthen emergency preparedness and minimize potential loss of life and property," said Atlantic County Executive Dennis Levinson. "Hazard mitigation helps sustain communities against the typical disaster cycle of damage, reconstruction and repeated damage."

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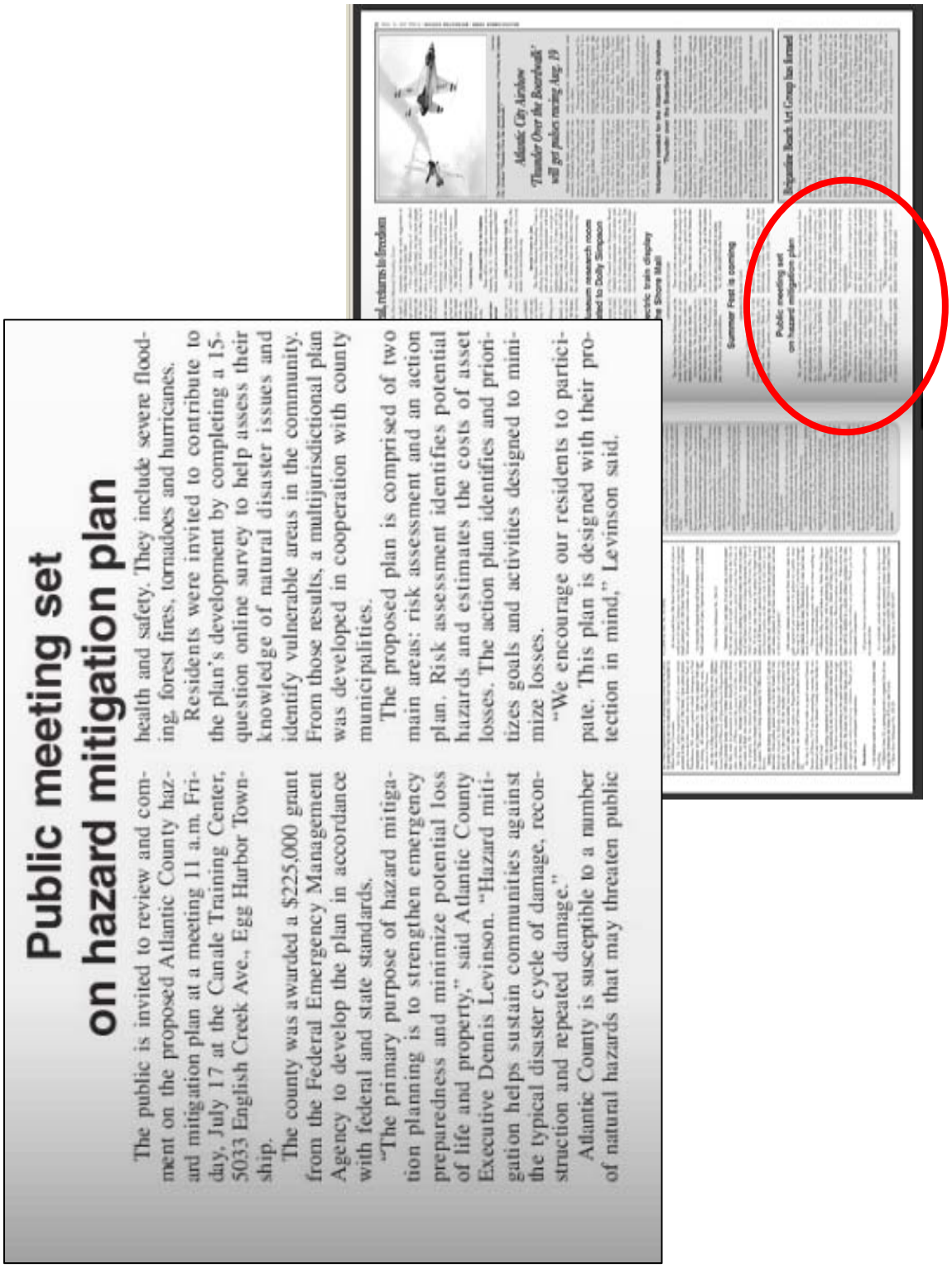
"We encourage our residents to participate. This plan is designed with their protection in mind," Levinson said.

Press Coverage in *Beachcomber News - Brigantine Edition*: Public Meeting to Present the Draft Plan (July 10, 2009)



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"We encourage our residents to participate. This plan is designed with their protection in mind," Levinson said.

Note:– Hamilton and Galloway Townships reported that advertisements were made in a local newspaper *(the Current)* on October 14, 2008 regarding the plan; however, hard copies were not retained and online versions only are available for dates beginning in mid-2009.

Galloway and Hamilton Townships ran the following ad on two local television channels in January and February 2009:

Galloway Township issued the following press release:

Atlantic County Multi-Jurisdictional Natural Hazard Mitigation Planning Project

Natural hazards have the potential to cause property damage, loss of life, economic hardship, and threats to public health and safety. Hazard mitigation measures are the things you do today to be more protected in the future. They are measures taken before a disaster happens to reduce the impact that future disasters will have on people and property in the community. Mitigation reduces the risk of loss and creates a more disaster-resistant and sustainable community. Hazard mitigation measures are essential to breaking the typical disaster cycle of damage, reconstruction, and repeated damage.
Hazard mitigation plans are developed BEFORE a disaster strikes. The plans identify community policies, actions, and tools for long-term implementation to reduce risk and potential for future losses. Adopted, implemented and maintained on an ongoing basis, these plans will gradually, but steadily, lessen the impacts associated with hazard events in Atlantic County.

As of November 1, 2004 communities without a FEMA-approved hazard mitigation plan are not eligible for FEMA project grant monies under programs such as the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance Program (FMA) and Pre-Disaster Mitigation Grant Program (PDM).

Pre-Disaster Planning relies heavily on the input of the entire community. Please take a few moments to let us know your experiences in your community. CLICK HERE

http://www.aclink.org/PDM/

APPENDIX J –

GUIDANCE MEMORANDA AND QUESTIONNAIRES/WORKSHEETS

This Appendix contains copies of the guidance memoranda and questionnaires/worksheets used in throughout the plan development process by the Core Planning Group, as described in the main text.

- Guidance Memorandum #1 - Assessing Community Support, Building the Planning Team, and Engaging the Public and Other Stakeholders
- Guidance Memorandum #2 - Plan Maintenance Procedures: Monitoring, Evaluating and Updating the Plan
- Guidance Memorandum #3 – Plan Integration
- Hazard Identification Questionnaire
- Land Uses and Development Trends Questionnaire
- Capability Assessment Questionnaire
- Mitigation Options Survey
- Prioritization Worksheet
- Implementation Strategy Worksheet
- NFIP Compliance Actions Worksheet

GUIDANCE MEMORANDUM #1

Assessing Community Support, Building the Planning Team, and Engaging the Public and Other Stakeholders

To: Ed Conover, Tom Foley
Atlantic County Office of Emergency Preparedness
For distribution to representatives from all participating jurisdictions
From: Anna Foley, URS
Date: July 3, 2008
Re: Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project

---

The Project:

A county-wide, multi-jurisdictional hazard mitigation plan to identify the risks of specific natural disasters occurring in Atlantic County and to identify where improvements need to be made to reduce potential impacts. The plan will be developed to comply with the Disaster Mitigation Act of 2000 and its implementing regulations.

The Issue:

To serve Atlantic County's diverse and concentrated population, participation of local officials, the public and other stakeholders in the hazard mitigation planning process is essential to provide local information to the planners; to identify potential risks and impacts; and to help develop, evaluate, and prioritize projects to mitigate those impacts. It is also required if the final plan is to meet FEMA requirements. The plan will therefore represent the collective efforts of citizens, elected and appointed government officials, business leaders, volunteers of non-profit organizations, and other stakeholders.

Memo Purpose:

This memorandum has been prepared by URS to provide the Planning Committee (Atlantic County and its participating jurisdictions) with suggestions for:

- assessing community support;
- building the planning team; and
- engaging the public and other stakeholders throughout the plan development process and prior to plan approval

This combined memorandum provides a summary of key information presented in the regulations and the FEMA How-To Guides, and is intended to serve as a supplement – not as a replacement – to the FEMA documents. It is intended to summarize the requirements, and provide suggestions for meeting the terms of these requirements. URS strongly suggests that Planning Committee members

make every effort to familiarize themselves with applicable FEMA regulations and mitigation planning guidance.

Memo Structure:

Section 1 – Assessing Community Support discusses measuring the level and source of community support for hazard mitigation planning to determine if the community has the knowledge, support, and resources to begin the process.

Section 2 – Building the Planning Team provides an overview of the structure of the Planning Committee, basic roles of each component, and the role of contractors in the plan development process.

Section 3 – Engaging the Public and Other Stakeholders provides options for reaching out to the public and other stakeholders during the plan development process (before the plan is adopted) and the plan maintenance process (the review cycle after the plan is adopted). It is divided into three parts:

- Public Involvement in the Plan Development Process
- Involvement of Other Stakeholders in the Plan Development Process
- Inviting the Public and Other Stakeholders to Participate in the Plan Maintenance Process

Keep In Mind:

URS Corporation, as the consulting company, is able to provide the Planning Committee with guidance on potential means to satisfy the FEMA requirements. Nevertheless, it is the members of the Planning Committee (Atlantic County and its participating jurisdictions) who are ultimately responsible for selecting activities that they feel are most appropriate for their respective communities, carrying out these activities, and providing URS with activity summaries to be incorporated into the plan.

Action Items:

Action items are discussed further throughout this memorandum. They are presented in summary here.

- Assess community support (County in July 2008; participating municipalities in August 2008)
- Assemble the planning team (County by July 31, 2008 and participating municipalities by August 31, 2008)
- County to schedule a Kickoff Meeting for the Core Planning Group during the week of August 11, 2008 and send out meeting notices
- County to distribute this memorandum to the Planning Committee at the Kickoff Meeting
- Outreach Logs (to be completed by the County and each participating jurisdiction) documenting outreach activities to the public and other stakeholders provided to URS no later than May 31, 2009
- Provide selected approach for public and other stakeholder participation in plan maintenance no later than May 31, 2009

Section 1
Assessing Community Support

FEMA's How-To Guide #386-1 suggests that the first step in any mitigation planning process is to measure the level and source of community support for planning to determine if the community has the knowledge, support, and resources to begin the process.

All of Atlantic County's 23 municipalities participate in FEMA's National Flood Insurance Program (NFIP), based on FEMA's Community Status Book Report (June 26, 2008). It would be reasonable to expect that this has served to provide community leaders and citizens with increased awareness, knowledge, support, resources and capabilities in the hazard mitigation arena, with regard to flooding. The Atlantic County Office of Emergency Preparedness (ACOEP) is a strong advocate and supporter of the mitigation plan development process and is serving to champion efforts at the local level.

In addition, Atlantic County municipalities have been impacted by natural hazards in the past. This exposure to the hazards, and to the Federal response and recovery resources available through FEMA, has presumably exposed them to the concepts of hazard mitigation. In the last ten years (since 1998) Atlantic County has received one of New Jersey's seven Major Disaster Declarations, and five of the State's six Emergency Declarations. Since the late 1990's, under a Major Disaster Declaration in the State, even non-declared counties can apply for FEMA Hazard Mitigation Grant Program monies when any county in the state is declared. The New Jersey Office of Emergency Management and FEMA provide information to municipalities on many FEMA programs such as the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM), Flood Mitigation Assistance (FMA) programs, to name a few. In fact, Atlantic County is currently funding this hazard mitigation planning project through funding received under one of FEMA's grant programs.

The County's decision to pursue the hazard mitigation planning process and its past participation in FEMA's programs seem to indicate the overall readiness of the County and its municipalities towards the process. However, URS would suggest that the Committee members go through the questions on pages 1-3 through 1-5 of the FEMA How-To Guide #386-1 (reproduced here Attachment A) to assess the knowledge, support, and resources available to their respective jurisdictions at this time, followed by their undertaking of actions that may be beneficial to remove roadblocks and build support for the planning process from the project outset.

How-To #386-1 provides suggestions for actions a community can pursue to overcome roadblocks. Some ideas are summarized below. For communities with significant planning obstacles, the How-To should be referred to directly for additional information.

- Educate public officials about the benefits of reducing potential losses through pre-disaster mitigation planning and about the costs of not having a mitigation plan, to help them understand the importance of mitigation planning and what is at stake if they do not develop a plan for reducing losses from hazards. An entry point of discussion can include the new requirements of DMA 2000 and the consequences of not having a plan in place.
- Identify community leaders who have been successful in developing mitigation projects to help bring peers together to learn from experience.
- Identify a team leader for the municipality who is in a position of authority and can share information about the benefits of mitigation planning to gain support from the community as a whole.

- Identify existing processes such as comprehensive planning that can be expanded to include hazard mitigation elements.
- Identify self-interests in mitigation for a variety of community sectors to obtain broad support.
- Some key points that can be expressed to help a jurisdiction get ready for participation in the planning process can include:
    - It simply costs too much to address the effects of disasters only after they happen;
    - State and federal aid is usually insufficient to cover the extent of physical and economic damages resulting from disasters;
    - You can prevent a surprising amount of damage from hazards if you take the time to anticipate where and how they occur;
    - You can lessen the impact and speed the response and recovery process for hazards;
    - The most meaningful steps in avoiding the impacts of hazards are taken at the state and local levels by officials and community members who have a personal stake in the outcome and/or the ability too follow through on a sustained program of planning and implementation.
    - Mitigation planning can help your community become more sustainable and disaster-resistant through selecting the most appropriate mitigation measures, based on the knowledge you gain in the hazard identification and loss estimation process;
    - Can be incorporated as an integral component of daily government business;
    - Allows you to focus your efforts on the hazard areas most important to you by incorporating the concept of determining and setting priorities for mitigation planning efforts;
    - Can save you money by providing a forum for engaging in partnerships that could provide technical, financial, and/or staff resources in your effort to reduce the effects, and hence the costs, of natural and human-caused hazards.

Action Item:
1. Assess community support (County in July 2008; participating municipalities in August 2008)

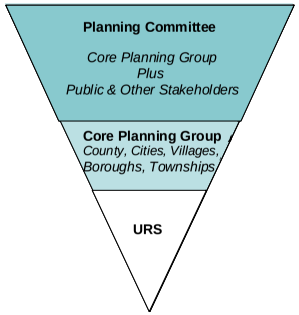
Section 2
Building the Planning Team

The next important step in any mitigation planning process is to identify members of the planning team. FEMA's How-To Guide #386-1 recommends building the planning team on existing organizations or boards when possible, and suggests consideration of representation from the following groups for the overall Planning Committee (*additional information can be found in Chapter 2 of the guide):*

- Community leaders
- Neighborhood groups and other non-profit organizations and associations
- Regional and local government agency representatives
- Businesses and development organizations and business owners/operators
- Elected officials
- Interested citizens
- Academic institutions
- Neighboring communities

URS does not have the authority to designate new Committee members. We understand that ACOEP will be taking the lead to identify and designate members for the Committee.

For the Atlantic County Multi-Jurisdictional Hazard Mitigation Plan, the overall Planning Committee should consist of representatives from the County, Cities, Townships, Villages, Boroughs, the public, and other key stakeholders. To keep meeting sizes to manageable and productive numbers, we envision a Core Planning Group to include representation at only the County and municipal levels. We propose that the Core Planning Group, with guidance from URS, coordinate directly with the general public and other stakeholders within their borders (including but not limited to: neighboring jurisdictions, agencies, businesses, academia, nonprofits, and other interested parties).



URS would also like to highlight the following paragraph, as it appears on Page 2-6 of FEMA's How-To Guide #386-1:

> ***"…your planning efforts will be more successful if your team is designated with the official authority to develop a mitigation plan. Your planning team should consider obtaining official recognition in the form of a council resolution, a proclamation, a Memorandum of Agreement (MOA), or a Memorandum of Understanding (MOU). This recognition can go a long way toward demonstrating community or state support for mitigation action, and it greatly increases the plan's chances of being formally adopted."***

This is particularly important because the prerequisite for hazard mitigation plan approval is that the governing body for each participating jurisdiction must formally adopt the final plan. URS would suggest that the ACOEP move forward with requesting formal recognition of the Committee by Council at the earliest possible opportunity. Note, however, that obtaining official recognition of the committee is not a *requirement* for the plan to pass; it is something that can be helpful at the completion of the planning process when local governing bodies are presented with the final plan for adoption.

The Role of the Contractors in the Plan Development Process

The Hazard Mitigation Plan is the County's plan; as such, its success rests on the decisions and directions set by the Planning Committee members throughout the plan development process. URS was contracted by Atlantic County to work with the ACOEP and the multi-jurisdictional Planning Committee to assist them in developing a plan that will meet the requirements of DMA 2000.

The URS Team will assist the Planning Committee by conducting the analyses necessary to provide information they need to make sound decisions, and help guide them through the necessary steps of the plan development process. The Planning Committee, in turn, will take the lead by including the local community and other stakeholders, assessing the alternatives, and ultimately selecting the course of action to be followed. At the end of the planning process, URS will prepare the Plan text (with feedback from the Planning Committee) to document the group's efforts, along with hazard information and findings, in a manner consistent with applicable regulations (DMA 2000), criteria (44 CFR Part 201.6), and guidance (FEMA's Mitigation Planning "How-To" guides; FEMA's Multi-Hazard Mitigation Planning Guidance document of March 2004).

Action Items:

1. Assemble the planning team (County by July 31, 2008 and participating municipalities by August 31, 2008)
2. Schedule a Kickoff Meeting for the Planning Committee during the week of August 11th and send out meeting notices
3. Distribute this memorandum to the Planning Committee at the Kickoff Meeting

Section 3
Engaging the Public and Other Stakeholders

Public Involvement in the Plan Development Process

The Regulations:	44 CFR Part 201.6 (b)(1) states, "*In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include….an opportunity for the public to comment on the plan during the drafting stage and prior to plan approval*."

The role of public involvement in the plan development process is to provide the general public with the means not only to learn about the process that the Planning Committee is undertaking, but also to voice concerns and to provide input throughout the planning process. With support and guidance from URS, the Planning Committee Chairman will take the lead in: (a) alerting the public to the fact that the Planning Committee is working to develop this Hazard Mitigation Plan, and (b) providing the public with a forum to ask questions, and submit comments and suggestions on the process. Additional public outreach activities should be undertaken by each participating jurisdiction.

The County should consider the following actions:

- Alert the public to the fact that the Planning Committee is working to develop this multi-jurisdictional Hazard Mitigation Plan.
- Establish a Mitigation Planning page on the Atlantic County web site to provide information on the planning process, meeting minutes and other activities.
- Establish document repositories in libraries throughout the County containing the contents of the web site, for those who may not have internet access.
- Answer questions, receive comments and provide feedback.

The Planning Committee members should consider the following actions to raise public awareness of the plan development process and provide the public with a forum for providing feedback to the overall Planning Committee:

- Answer questions and incorporate suggestions as applicable throughout the process.
- Invite the public to attend meetings about the Plan
- Invite the public to review and provide comments on the Draft Plan.
- Establish a link on their jurisdiction's web site to the Atlantic County mitigation planning web site (to provide information on the planning process, meeting minutes, etc.)
- Notify the general public using radio announcements, press advisories/releases, interviews with television personalities via cable access television, web site postings, posters and flyers publicizing the meetings, document repositories, and letters to elected officials and interested residents.

- For all of the items above, interested parties should be provided with an avenue for asking questions, submitting comments, and providing feedback.

While DMA 2000 requires that the team reach out to invite public participation, the team will not be penalized if the public chooses not to participate. The Planning Committee should use the Outreach Log included in Attachment B to document their activities. URS will collect the logs at the end of the planning process for incorporation into the plan.

Action Item:

1. Provide Outreach Logs (completed by each participating jurisdiction) documenting outreach activities to the public and other stakeholders *no later* than May 31, 2009.

Involvement of Other Stakeholders in the Plan Development Process

The Regulations:	44 CFR Part 201.6 (b)(2) states, "*In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include….an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process*."

To meet Federal requirements, "other stakeholders" (that is, stakeholders beyond Planning Committee members and the general public) must be able to learn about the process that the Planning Committee is undertaking and to voice concerns and provide input throughout the planning process.

Planning Committee members will have key roles in pursuing a range of activities to: (a) alert other stakeholders to the fact that the Planning Committee is working to develop this Hazard Mitigation Plan, and (b) provide other stakeholders with a forum to ask questions and submit comments and suggestions on the process.

Other stakeholders that could be considered are:

- Neighborhood groups
- Non-profit organizations (i.e. scout troops, Red Cross, Salvation Army)
- Housing organizations
- Environmental groups
- Historic preservation groups
- Parent-teacher organizations
- Church organizations
- State, federal, and local government offices
- Neighboring communities/counties
- Business and development organizations
- Academic institutions
- Utility providers
- Large businesses
- Hospitals
- Tribal groups
- Transportation entities
- Parks organizations
- Regional planning organizations
- Chambers of commerce

- Emergency service providers (ie., police, fire, EMS)
- Member of municipal IT group (re: web link for mitigation planning effort)
- Any local office and/or group with a public outreach focus

As recommended in the FEMA How-To Guide #386-1, even if these groups decline to participate early on, they may be reached out to in later stages of the process for participation, information, or advice. Keeping stakeholders copied on meeting notices and providing copies of meeting minutes (even via email) is a good way to invite participation and encourage coordination. The level of participation received from stakeholders can range from no participation through advisory to active participant. While DMA 2000 requires that the team reach out to invite stakeholder participation; the team will not be penalized if other stakeholders choose not to participate.

Other stakeholders can be provided with opportunities to participate using many of the same methods used to reach out to the general public. Targeted outreach to key stakeholders (i.e. via phone, fax or letter) is recommended as a supplement to these broader actions. The Planning Committee members should consider undertaking the following actions to raise stakeholder awareness of the plan development process and provide other stakeholders with a forum for providing feedback to the Planning Committee:

- Along with the general public, other stakeholders should be invited to attend meetings about the Plan.
- Along with the general public, other stakeholders should be invited to review and provide comments on the Draft Plan.
- Other stakeholders that the Planning Committee would like to solicit particular feedback from should be targeted for outreach, at the discretion of the Planning Committee. Targeted outreach can be as simple as a one page letter sent to a list of a few key stakeholders in the County from a range of areas (for example: county-wide, neighborhood, EMS, hospital, business, and development organizations; neighboring counties). The letter could:
  - Alert the stakeholders to the planning process that is being undertaken;
  - Provide them with a link to the upcoming County web site for more information on the process;
  - Identify the Planning Committee Chairman's contact information if they have detailed questions;
  - Offer to send them copies of meeting minutes and a notification when the Draft is released, if they respond requesting such.
- A Multi-Jurisdictional Mitigation Planning web page should be established by the County on its web site. Each participating jurisdictions should establish a link on their jurisdiction's web site to the overall multi-jurisdictional planning page to provide information on the planning process, meeting minutes, etc.)
- Each participating jurisdiction should also add a link on their web site to the overall) to provide information on the planning process, meeting minutes, etc. Document repositories will be established in libraries throughout the County containing the contents of the web site, for those who may not have internet access.
- Use radio announcements, press advisories/releases, interviews with television personalities via cable access television, web site postings, posters and flyers publicizing

the meetings, document repositories, and letters to elected officials and interested residents.

- For all of the items above, interested parties should be provided with an avenue for asking questions, submitting comments, and providing feedback

While DMA 2000 requires that the team reach out to invite participation from other stakeholders, the team will not be penalized if the public chooses not to participate. The Planning Committee should use the Outreach Log included in Attachment B to document their activities. URS will collect the logs at the end of the planning process for incorporation into the plan.

Action Item:

2. Provide Outreach Logs (completed by each participating jurisdiction) documenting outreach activities to the public and other stakeholders *no later* than May 31, 2009.

Inviting the Public and Other Stakeholders to Participate in the Plan Maintenance Process

The Regulations:	44 CFR Part 201.6(c)(4)(iii) states, *"[The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process."*

To meet this requirement, the new Hazard Mitigation Plan should describe what opportunities the public and other stakeholders will have during the plan's periodic review to comment on the progress made to date and on any proposed plan revisions. Opportunities for continued community involvement beyond the plan approval stage and into the plan maintenance cycle (future monitoring, evaluating, and update steps that will be undertaken in the years to come) are required for the plan to meet FEMA requirements. These also promote the development of an informed citizenry who are knowledgeable about their vulnerabilities to natural hazards and the options for reducing their losses.

Note that this is a separate issue from the public's participation to-date in plan *development*. The plan must also discuss specific procedures for how the Planning Committee will invite the public to participate in *future* plan monitoring, evaluating, and updating. Will the Planning Committee send an annual newsletter out to the public, with a survey form to fill out? Will the Planning Committee hold annual public meetings to discuss the status of the plan recommendations? What process will be in place for public comments to be incorporated into future plan updates?

URS recommends that the Planning Committee pursue a wide array of activities to involve the public during future plan monitoring, evaluating, and updates. Options include but are not limited to the items below *(also options for reaching out to the public and other stakeholders during the plan development process)*:

- Share the findings of future progress reports with interested groups, elected officials, neighborhood representatives and citizens as one way to keep the parties informed and involved. This could be done by posting progress reports in local libraries, clerk's offices, web sites, etc. Furthermore, this keeps those responsible for implementing the mitigation actions motivated.

- Conduct **town hall meetings**, which are an effective way to bring citizens and Planning Committee members together to learn about the progress being made on the plan;
- Provide **facilitated meetings**. An experienced facilitator would assist with the process of obtaining public opinions, suggestions and other pertinent information relevant to the goals and objectives of the plan.
- Provide the public with **surveys** that assess how well the public education and outreach projects are working and how the community perceives the planning efforts. Samples are included in the FEMA How-To Guides. Questionnaires/surveys are excellent tools to assist the Planning Committee in obtaining valuable feedback on the plan. By their nature, questionnaires also provide recipients with an excellent vehicle to provide comments. Once the Planning Committee has gathered the feedback from the general public and local community, URS suggests organizing the data by topic, by types of responses and suggestions or by Planning Committee members' related tasks in the plan. This will facilitate the process of incorporating the feedback into the plan. One method of organizing the data is to build a database that would contain community member/general public responses to the plan and the surveys. This data could then be used to conduct statistical analyses by topic (such as land use or environment); calculate total numbers in support of or against policies of the mitigation process; and gather suggestions and comments regarding the natural hazards, among other concerns that may arise out of the public's awareness.
- Offer **working groups** or advisory groups by topic areas such as land use, environmental protection and transportation;
- Conduct planned or impromptu **interviews** with community members and publicize their comments;
- Use the **media** to inform the public of the plan, through press releases, handing out flyers, newsletters or placing local ads on TV, and in newspapers and magazines;
- Offer **telephone hotline services** (preferably a toll-free number).
- Establish an **online presence** with a Web site or the use of an existing Web site of the participating jurisdiction members. The easy accessibility to a Web site that the public can access at any time to read about the latest natural hazards or obtain the latest hazard mitigation planning information is an excellent method of keeping the public involved and informed on a continuous basis. For instance, the Planning Committee could provide a section where the community can fill-out questionnaires as well as email Planning Committee members with issues or success stories. Additionally, by offering online services, the general public could:
    - participate in message boards on the site (open to all for comments on specific mitigation topics);
    - review meeting minutes and notes;
    - review the Plan itself;
    - follow links to natural hazards information;
    - fill out online surveys and questionnaires;
    - obtain contact information for key persons involved in the mitigation planning process; and

- vote on various mitigation-related issues, questions, processes, goals, objectives, etc.

Opportunities selected by the Planning Committee for public participation in plan maintenance should be very specific in terms of: exactly *when* these opportunities will be available; *how* the public will be notified of their opportunity to participate; where the plan and any progress reports, meeting minutes, etc. will be maintained for review, how and to whom comments can be submitted.

Statements "that" certain things will happen are not sufficient in themselves to meet FEMA criteria. Details must be provided to show that a process has been clearly thought out and identified. For example, stating "that the public will be invited to participate in future plan monitoring, evaluation, and updates" is not sufficient. Additional information should be included so that the reader knows how and when members of the public will be invited to participate; what they will be invited to do (i.e., an annual meeting? A questionnaire or survey?); how and when they will be notified of this opportunity; how they can submit comments; what will be done with their comments. In our opinion, it would be more important to have a few, well thought out options defined in detail than a multitude of options defined only in part. If participating jurisdictions have public outreach persons on staff, it may be a good idea for the Planning Committee to consider soliciting their support.

Action Item:

1. Provide selected approach for public and other stakeholder participation in plan maintenance no later than May 31, 2009.

ATTACHMENT A

Excerpt

FEMA's How-To Guide #386-1, "Getting Started: Building Support for Mitigation Planning"

Pages 1-3 through 1-5

Below is a series of questions presented in FEMA's How-To Guide #1 designed to help you assess the availability of key elements necessary for a successful planning process: KNOWLEDGE, SUPPORT, and RESOURCES. Seeking answers to these questions will help you determine what you should focus on to ensure that you have the necessary ingredients in place to begin planning. It may be difficult to obtain these answers. If so, you may wish to go ahead and begin to build your planning team knowing that you can come back to this section for guidance on issues related to knowledge, support, and resources for planning. (Note: As this text is taken directly from the FEMA How-To Guide #1, you will notice several references to "Task C". If while answering the questions you identify shortcomings in areas of KNOWLEDGE, SUPPORT, or RESOURCES, you can go to the FEMA web site and download How-To Guide #1 to read more under Task C for suggestions for removing these roadblocks. The link is http://www.fema.gov/plan/mitplanning/howto1.shtm and Task C begins on Page 1-5 of the document.

KNOWLEDGE. Answering the following four questions can help you begin to determine the level of understanding about hazard mitigation planning and risk reduction in your community. If you determine that your public officials are either unfamiliar with hazard mitigation or unconvinced that investing in mitigation measures before a disaster strikes will save more money than it would cost to recover from the disaster, you should consider engaging in the activities related to "Knowledge" that are included later in this step under Task C to help increase knowledge of hazard mitigation in your community.

1. How much do elected and/or appointed officials know and understand about hazards in their area? Do they know what they and the community can do to reduce their effects? Has there been recent disaster (or severe weather) activity?

2. How much do the citizens know about hazards in the community?

3. Do officials and citizens understand that their actions, behavior, and decisions affect their vulnerability and that steps can be taken to reduce risks?

4. Is there a difference between the risk perceived by the community and the actual risk (to the extent that risk is currently known)?

SUPPORT. Answering the following questions can help you begin to determine the level of support for hazard mitigation planning and mitigation project implementation in your community. If you determine that your local government elected and/or appointed officials or citizens do not know how they and the private sector can support mitigation, consider engaging in activities related to "Support" included later in this step under Task C to help identify strategies to increase the level of support for hazard mitigation. If you are unfamiliar with other types of planning activities at work in your community that can help support mitigation planning and activities, review these examples as well in the "Support" section under Task C.

Guidance Memorandum #1:
Assessing Community Support, Building the Planning Team, and Engaging the Public and Other Stakeholders
July 3, 2008 *Attachment A*

5. Do elected and appointed officials understand how local, state, and federal levels each support hazard mitigation and emergency management?

6. Is there something (not necessarily hazard-related) that citizens are dissatisfied with that may be located in a hazard area (i.e., tourism, economic development, blight, transportation issues) that could be dealt with in context of mitigation planning? How can the mitigation plan contribute to other planning initiatives?

7. How likely is it that there will be an individual to serve as a champion to provide leadership and/or support for mitigation planning (individual, organization, or business)?

8. What would it take to identify or recruit a planning team leader? How will you capitalize and build on expanding enthusiasm?

9. Is there an existing FMA or CRS flood mitigation plan or other single hazard plan?

10. Is there an existing system for planning in the community? Is there a planning department? A community plan? Are there local staff with planning capabilities with whom you can collaborate?

11. Is there a history of community interest and/or involvement in environmental issues? Recreational issues? Safety issues?

12. Is there an existing land use map, GIS system, contour map, soils map, topographic map, or other material that can be used to better understand the hazards context of the community?

RESOURCES. Answering the following questions can help you begin to determine the availability of resources and capabilities for hazard mitigation planning and mitigation measures in your community. If you determine that you are unfamiliar with programs that may be available in your community or state, or need financial resources to initiate the planning process, consider the activities related to "Resources" that are included later in this step under Task C to help identify untapped resources to support hazard mitigation.

13. Are you aware of the range of non-FEMA or non-mitigation programs available to assist in mitigation projects?

14. What are the major employers, industries, and organizations that help shape the culture of the community? Are they willing to be involved?

Outreach Log

ATLANTIC COUNTY
MULTI-JURISDICTIONAL
HAZARD MITIGATION PLAN
OUTREACH LOG

PARTICIPATING JURIDICTION: _____

DATE OF ACTIVITY	TYPE OF ACTIVITY	ACTIVITY DETAILS	LEAD DEPARTMENT AND/OR STAFF TITLE WHO UNDERTOOK ACTIVITY

Please add additional pages as needed

GUIDANCE MEMORANDUM #2

Plan Maintenance Procedures: Monitoring, Evaluating and Updating the Plan

To: Ed Conover
Atlantic County Office of Emergency Preparedness
For distribution to representatives from all participating jurisdictions
From: Anna Foley, URS
Date: January 6, 2009
Re: Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project

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DMA 2000:

The Disaster Mitigation Act of 2000 (DMA 2000), also known as Public Law 106-390, amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act by, among other things, adding a new section, 322 - Mitigation Planning. It contains 44 CFR Part 201.6(c)(4)(i) which states, "[The plan maintenance process shall include a section describing the] method and schedule of monitoring, evaluating and updating the mitigation plan within a five-year cycle." A formal plan maintenance process must take place to ensure that the Hazard Mitigation Plan remains an active and pertinent document. Regularly scheduled evaluations during the five-year cycle are important to assess the effectiveness of the program and to reflect changes that may affect mitigation priorities.

Local mitigation plans must be updated and resubmitted to FEMA for approval every five years in order to continue eligibility for FEMA hazard mitigation assistance programs. Plan updates must demonstrate that progress has been made in the past five years for Local Mitigation Plans to fulfill commitments outlined in the previously approved plan. FEMA recommends that local jurisdictions develop a schedule that allows a plan update and approval to occur within five years from the last approval date, with sufficient time being allotted for all activities up to and including adoption such as: (a) application and award for mitigation planning grants (if applicable); (b) contracting for technical or professional services (if applicable); (c) review of the plan; (d) planning process to develop the update; (e) State and FEMA reviews; (f) revising the updated plan if necessary based on FEMA review comments; and (g) local jurisdiction adoption of the updated plan.

The Requirement:

To meet the requirement of periodically monitoring, evaluating and updating the plan, the new hazard mitigation plan must present the criteria that will be used by the Core Planning Group to perform its regularly scheduled evaluations and five-year update of the Plan. The plan should discuss specific plan update procedures, including what criteria will be used to evaluate the plan, what may trigger a plan update before the five-year minimum, who will lead the effort to update the document and under what time frame.

Memo Purpose:

FEMA's requirements regarding plan maintenance have been written to provide a substantial degree of flexibility. This allows communities across the country to identify unique plan maintenance processes that best accommodate local resources and preferences. There is quite a wide range of plan maintenance approaches that can be taken, working within the minimum requirements. The purpose of this memorandum is to provide you with an overview of the requirements, types of plan maintenance components that can be selected to meet the requirements, and some examples of plan maintenance strategies from other FEMA-approved plans in FEMA Region 2. Core Planning Group Members are being asked to review this information, coordinate with their Jurisdictional Assessment Team, and provide comments back to ACOEP. What types of plan maintenance activities is your community in favor of? Are there any specific elements your community would like to see excluded? Everyone's feedback will then be compiled to develop a single, county-wide plan maintenance strategy that best reflects the preferences of the full team.

This memorandum aims to present a summary of key information that is presented in FEMA's How-To Guide #3 entitled "Developing the Mitigation Plan; Identifying Mitigation Actions and Implementing Strategies" (available online at: http://www.fema.gov/plan/mitplanning/howto3.shtm) and How-To Guide #4 entitled "Bringing the Plan to Life: Implementing the Hazard Mitigation Plan" (available online at: http://www.fema.gov/plan/mitplanning/howto4.shtm). It is intended to serve as a supplement – and not as a replacement – for the FEMA documents. URS would strongly suggest that Core Planning Group members make every effort to familiarize themselves with applicable FEMA regulations and mitigation planning guidance (see "Sources of Information on Hazard Mitigation on Planning" handout from Core Planning Group Meeting #1 on August 18, 2008).

Keep In Mind:

URS Corporation (URS), as the consulting company, is able to provide the Group with guidance on potential means to satisfy the requirement for plan maintenance procedures. However, it is Atlantic County and the participating jurisdictions that are in the best position to define the process. The Core Planning Group must coordinate amongst themselves to consider URS' recommendations herein and agree upon a plan maintenance procedure for the County's Multi-Jurisdictional Plan, to be provided back to URS in order for URS to incorporate this information into the plan. URS will incorporate the plan maintenance procedures, obtained from the Core Planning Group through ACOEP, into the new Hazard Mitigation Plan.

Action Item:

Action items are discussed further throughout this memorandum. They are presented in summary here. To allow URS sufficient time to draft appropriate plan sections, the Planning Group must:

- Submit comments to ACOEP regarding what your community is in favor of, and/or what your community opposes, regarding plan maintenance. Comments should be submitted to Ed Conover no later than February 7, 2009. Feedback is not required; lack of response will be interpreted to indicate that your jurisdiction has no particular preferences regarding this plan element.

Section 1 – Monitoring

The Regulations:	44 CFR §201.6(c)(4)(i) states, *"[The plan maintenance process shall include a section describing the] method and schedule of monitoring, evaluating and updating the mitigation plan within a five-year cycle."*

An important step in any mitigation planning process is to document the method by which the Core Planning Group will monitor the Hazard Mitigation Plan throughout the five-year period of record. For instance, the Core Planning Group should describe the monitoring system it has established to oversee the new plan. Examples include:

1. Periodic work progress reports by agencies or Core Planning Group members involved in implementing projects or activities;
2. Site visits, phone calls and meetings conducted by the individual responsible for overseeing the plan; and
3. Preparation of an annual report that will summarize the scope of the plan and the milestones of the activities above-mentioned.

Statements like the ones above should be accompanied by additional details such as how, when, and by whom monitoring activities shall be conducted.

As mentioned in item number 1 above, agencies, departments, organizations and/or individual members, whose duties have been identified in the mitigation strategy, can be asked to periodically submit a work progress report on those projects being implemented. The plan should include specific details such as: whether this 'periodic' action is to be conducted annually, semi-annually, quarterly, or over some other time frame, making note of specific due dates; responsible parties who will be completing the progress reports; to whom progress reports shall be submitted; the individual or individuals who will be reviewing the progress reports (and when); and how this information will be incorporated. The progress report should include:

1. The hazard mitigation action(s) that the agency is responsible for;
2. The supporting agencies/entities responsible for implementation;
3. A delineation of the various stages of work along with timelines (milestones should be included);
4. Whether the resources needed for implementation, funding, staff time and technical assistance are available, or if other arrangements must be made to obtain them;
5. The types of permits or approvals necessary to implement the action;
6. Details on the ways the actions will be accomplished within the organization;
7. Whether the duties will be assigned to agency staff or contracted out;
8. The current status of the project; and
9. The identification of any issues that may hinder implementation.

This method of providing progress reports helps break the process into smaller, more manageable tasks. The plan maintenance process is an ongoing activity; thus, periodic review of the plan will help keep the plan current, reflecting the changing needs of the community. URS would suggest that the Core Planning Group review the sample worksheet "Progress Report" on pages 2-13 through 2-15 of FEMA's How-To Guide #4 which can be utilized as a tool in the monitoring and documentation process of the plan (see Attachment A for a blank template of the report).

It is recommended that the Core Planning Group establish Key Performance Indicators (KPI's) that measure the effectiveness of the projects and of those involved in the projects so that team members better understand how their

actions contribute to the overall success of the projects. When identifying the Core Planning Group's KPI's, quantifiable measurements, it is critical to limit them to the areas under discussion that are essential to the Core Planning Group successfully reaching its goals. Thus, KPI's should be directly tied to the goals and objectives of the plan and the projects, and should be used as a performance management tool.

KPI's assist the team members by providing a clear focus of what's important and what needs to be accomplished. URS would suggest that the Core Planning Group review the sample worksheet "Evaluate Your Projects Results" on pages 3-6 through 3-7 of FEMA's How-To Guide #4 which can be utilized as a tool in the project evaluation process of the plan (see Attachment B for a blank template of the worksheet).

Section 2 – Evaluation

The Regulations:	44 CFR §201.6(c)(4)(i) states, *"[The plan maintenance process shall include a section describing the] method and schedule of monitoring, evaluating and updating the mitigation plan within a five-year cycle."*

Post adoption and implementation, a mitigation plan should be evaluated on an annual basis in order to assess the effectiveness of the plan and to reflect changes that may affect the mitigation priorities. It should include the criteria that will be utilized to evaluate the plan, for example:

1. Do the goals and objectives address current and expected conditions;
2. Has the nature and magnitude of risks changed;
3. Are the current resources appropriate for implementing the plan;
4. Are there any implementation problems (such as technical, political and/or legal), or coordination issues with the other agencies and/or Core Planning Group members;
5. Have the outcomes occurred as expected;
6. Whether the agencies and other Core Planning Group partners participated, as proposed; and
7. Where shortcomings are identified, and what can be done to bring things back on track?

Statements like the ones above should be accompanied by additional details such as how, when, and by whom evaluation activities shall be conducted.

The Core Planning Group may choose to meet on an annual basis to discuss monitoring results, and to evaluate progress according to specific criteria.

Attachment C includes a blank template of FEMA's "Revise the Plan" worksheet (from How-To #4). Annual evaluations using this worksheet may be helpful to determine whether a full update (in advance of the five-year minimum) would be useful.

Section 3 – Update

The Regulations:	44 CFR §201.6(c)(4)(i) states, *"[The plan maintenance process shall include a section describing the] method and schedule of monitoring, evaluating and updating the mitigation plan within a five-year cycle."* 44 CFR §201.6(d)(3) states, *"Plans must be reviewed, revised if appropriate, and resubmitted for approval within five years in order to continue to be eligible for HMGP Project grant funding."*

As stated in the above regulations, the plan must be reviewed and revised (if updated), by the local jurisdiction and resubmitted to the State Hazard Mitigation Officer for initial review and coordination within five years of the plan's approval by FEMA. This is the minimum required. The Core Planning Group may choose to update more frequently, on an as-needed basis. The plan should identify what may trigger plan updates before the minimum five-year window. It should also identify the specific update procedures, the responsible individual(s) for updating the document, and the specific timelines.

URS suggests that Mr. Ed Conover of the Atlantic County Office of Emergency Preparedness, who was identified as Coordinator for this mitigation planning project, may be a good candidate for overseeing the monitoring, evaluation and updating process (with help from the rest of the County Mitigation Planning Jurisdictional Assessment Team), and the County's Planning Department may be a good candidate for taking the lead on plan updates (again, with help from Mr. Conover and the rest of the County Mitigation Planning Jurisdictional Assessment Team). The plan must be updated and revised, at a minimum, every five years in order to keep the Mitigation Plan relevant and meet DMA 2000 requirements.

Section 4 – Public Participation in Plan Maintenance

The Regulations:	44 CFR Part 201.6(c)(4)(iii) states, *"[The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process."*

To meet this requirement, the new Hazard Mitigation Plan should describe what opportunities the public and other stakeholders will have during the plan's periodic review to comment on the progress made to date and on any proposed plan revisions.

Note that this is a separate issue from the public's participation to-date in plan *development*. The plan must also discuss specific procedures for how the Core Planning Group will invite the public to participate in *future* plan monitoring, evaluating, and updating. Will the Core Planning Group send an annual newsletter out to the public, with a survey form to fill out? Will the Core Planning Group hold annual public meetings to discuss the status of the plan recommendations? What process will be in place for public comments to be incorporated into future plan updates?

The following pages provide action item suggestions that the Core Planning Group could consider for selection as opportunities for continued participation on the part of the public and other stakeholders. The Core Planning Group members should select items that they feel are most appropriate and provide feedback to URS on what was selected as a final course of action to be incorporated into the plan.

Continued Public Involvement in Plan Maintenance

URS recommends that the Core Planning Group pursue a wide array of activities to involve the public during future plan monitoring, evaluating, and updates. Options include but are not limited to:

- Share the findings of future progress reports with interested groups, elected officials, neighborhood representatives and citizens as one way to keep the parties informed and involved. This could be done by posting progress reports in local libraries, clerk's offices, web sites, etc. Furthermore, this keeps those responsible for implementing the mitigation actions motivated.
- Conduct town hall meetings, which are an effective way to bring citizens and Core Planning Group members together to learn about the progress being made on the plan;
- Provide facilitated meetings. An experienced facilitator would assist with the process of obtaining public opinions, suggestions and other pertinent information relevant to the goals and objectives of the plan.
- Provide the public with surveys that assess how well the public education and outreach projects are working and how the community perceives the planning efforts. Samples are included in the FEMA How-To's. Questionnaires/surveys are excellent tools to assist the Core Planning Group in obtaining valuable feedback on the plan. By their nature, questionnaires also provide recipients with an excellent vehicle to provide comments.
  Once the Core Planning Group has gathered the feedback from the general public and local community, URS suggests organizing the data by topic, by types of responses and suggestions or by Core Planning Group members' related tasks in the plan. This will facilitate the process of incorporating the feedback into the plan.
  One method of organizing the data is to build a database that would contain community member/general public responses to the plan and the surveys. This data could then be used to conduct statistical analyses by topic (such as land use or environment); calculate total numbers in support of or against policies of the mitigation process; and gather suggestions and comments regarding the natural hazards, among other concerns that may arise out of the public's awareness.
- Offer working groups or advisory groups by topic areas such as land use, environmental protection and transportation;
- Conduct planned or impromptu interviews with community members and publicize their comments;
- Use the media to inform the public of the plan, through press releases, handing out flyers, newsletters or placing local ads on TV, and in newspapers and magazines;
- Offer telephone hotline services (preferably a toll-free number).
- Establish an online presence with a Web site or the use of an existing Web site of the participating jurisdiction members. The easy accessibility to a Web site that the public can access at any time to read about the latest natural hazards or obtain the latest hazard mitigation planning information is an excellent method of keeping the public involved and informed on a continuous basis. For instance, the Core Planning Group could provide a section where the community can fill-out questionnaires as well as email Core Planning Group members with issues or success stories. Additionally, by offering online services, the general public could:

  - participate in message boards on the site (open to all for comments on specific mitigation topics);
  - review meeting minutes and notes;
  - review the Plan itself;

- follow links to natural hazards information;
- fill out online surveys and questionnaires;
- obtain contact information for key persons involved in the mitigation planning process; and
- vote on various mitigation-related issues, questions, processes, goals, objectives, etc.

Opportunities selected by the Core Planning Group for public participation in plan maintenance should be very specific in terms of: exactly *when* these opportunities will be available; *how* the public will be notified of their opportunity to participate; where the plan and any progress reports, meeting minutes, etc. will be maintained for review; how and to whom comments can be submitted.

Statements "that" certain things will happen are not sufficient in themselves to meet FEMA criteria. Details must be provided to show that a process has been clearly thought out and identified. For example, stating "that the public will be invited to participate in future plan monitoring, evaluation, and updates" is not sufficient. Additional information should be included so that the reader knows how and when members of the public will be invited to participate; what they will be invited to do (i.e., an annual meeting? a questionnaire or survey?); how and when they will be notified of this opportunity; how they can submit comments; what will be done with their comments. In our opinion, it would be more important to have a few, well thought out options defined in detail than a multitude of options defined only in part. If participating jurisdictions have public outreach persons on staff, it may be a good idea for the Core Planning Group to consider soliciting their support.

Section 5 – Key Points and Draft Text For Your Review/Comment

Key Points to Consider

The two simple questions that the Core Planning Group should ensure are answered in the plan are:

1. Does the plan describe the method for monitoring, evaluating and updating the plan? (i.e., department/staff responsible for monitoring, criteria for evaluation and department/staff responsible for updating).
2. Does the plan describe a schedule for monitoring, evaluating and updating the plan within the five-year cycle?

Each participating jurisdiction should have a role in the process of monitoring, evaluating and updating the plan. One way to obtain this input would be to require that each participating jurisdiction complete each of Attachments A through C and submit to ACOEP once per year.

Draft Atlantic County Plan Section Regarding Plan Maintenance

The text below represents a draft section for the Atlantic County plan regarding plan maintenance. Please comment on anything your jurisdiction would like to see changed in the final Atlantic County Plan.

> *It is required by FEMA (as per 44 CFR Part 201.6(c)(4)(i) that, "[The plan maintenance process shall include a section describing the] method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle." A formal plan maintenance process must take place to ensure that the Hazard Mitigation Plan remains an active and pertinent document. Regularly scheduled evaluations during the five-year cycle are important to assess the effectiveness of the program and to reflect changes that may affect mitigation priorities.*
>
> *URS Corporation (URS), as the consulting company, was able to provide the Core Planning Group with guidance on potential means to satisfy the requirement for plan maintenance procedures. However, it was the members of the Core Planning Group who were in the best position to define the process. URS submitted a Guidance Memorandum (Guidance Memorandum #2 – Plan Maintenance Procedures) to*

> *ACOEP on January 6, 2009, to summarize FEMA requirements for plan monitoring, evaluation, and updates. It was also posted to the mitigation planning web site soon after for review by Core Planning Group members, the public, and other stakeholders.*
>
> *Team members were asked to provide feedback regarding their desires for plan maintenance to ACOEP. ACOEP, in turn, worked with the Consultant to develop this mitigation strategy to best reflect expressed preferences. The information presented below represents these decisions, as provided to URS through ACOEP. These methods will ensure that regular review and updating of the Hazard Mitigation Plan will occur.*
>
> *Mr. Edward Conover of the ACOEP, who was identified as Coordinator for this mitigation planning project, will oversee the overall plan maintenance process. ACOEP will take the lead on plan monitoring and evaluation steps (with help from the rest of the County Mitigation Planning Jurisdictional Assessment Team), and the County's Department of Planning will take the lead on any required plan updates (with help from Mr. Conover and the rest of the County Mitigation Planning Jurisdictional Assessment Team).*
>
> *Monitoring the Plan*
>
> *An important step in any mitigation planning process is to document the method by which the Core Planning Group will monitor the Hazard Mitigation Plan throughout the five-year period of record.*
>
> *First, to accomplish this objective, the Core Planning Group has elected to prepare Annual Work Progress Monitoring Reports, prepared by entities responsible for implementing mitigation actions (as identified in the Mitigation Strategy). Progress Monitoring Reports shall be submitted by Core Planning Group members on an annual basis to ACOEP, beginning one year from the date of FEMA's approval of the Final plan. Work progress reports shall be the FEMA How-To #4 (FEMA 386-4), Worksheet #1, Progress Report and will contain the key performance indicators identified in that document. Using the FEMA Progress Reports will answer the following questions:*
>
> - *the hazard mitigation action(s) that the agency is responsible for*
> - *the supporting agencies/entities responsible for implementation;*
> - *a delineation of the various stages of work along with timelines (milestones should be included);*
> - *whether the resources needed for implementation, funding, staff time and technical assistance are available, or if other arrangements must be made to obtain them;*
> - *the types of permits or approvals necessary to implement the action;*
> - *details on the ways the actions will be accomplished within the organization;*
> - *whether the duties will be assigned to agency staff or contracted out;*
> - *the current status of the project; and*
> - *identifying any issues that may hinder implementation.*
>
> *On a case-by-case basis, ACOEP will determine if site visits, phone calls, and/or meetings would be beneficial to supplement Annual Work Progress Monitoring Reports. If so, ACOEP will initiate the site visits/calls/meetings as applicable.*
>
> *Evaluating the Plan*
>
> *Post adoption, a mitigation plan should be evaluated on a regular basis in order to assess the effectiveness of the plan's implementation and to reflect changes that may affect the mitigation priorities.*
>
> *To accomplish this objective, the Core Planning Group will convene once per year for an Annual Plan Evaluation Meeting. Plan Evaluation Meetings will be conducted within three months after each annual batch of Progress Reports are due (see "Monitoring", above). At each Plan Evaluation Meeting, the Core Planning Group will review Progress Reports, and use the following criteria to evaluate the plan:*
>
> - *do the goals and objectives address current and expected conditions?*
> - *has the nature and magnitude of risks changed?*
> - *are the current resources appropriate for implementing the plan?*

- *are there any implementation problems (such as technical, political and/or legal), or coordination issues with the other agencies and/or Committee members?*
- *have the outcomes occurred as expected?*
- *have the agencies and other Committee partners participated as proposed?; and*
- *where shortcomings are identified, what can be done to bring things back on track?*

Following each Annual Plan Evaluation Meeting, the ACOEP will prepare meeting minutes summarizing the outcome of the evaluation meeting. ACOEP will distribute meeting minutes to Core Planning Group members via email, and will post meeting minutes on the web site.

Updating the Plan

As part of the process to maintain FEMA mitigation funding eligibility, a plan update must always be submitted to NYSEMO/FEMA for their review. This must occur within five years of the plan's approval by FEMA (and during subsequent five-year cycles thereafter).

To accomplish this objective, ACOEP will take the lead on Plan updates, with support from the Core Planning Group members and the County Planning Department. ACOEP will conduct Update Appraisals. During the Update Appraisal, ACOEP will evaluate the current Plan, Annual Progress Reports, and Annual Plan Evaluation Meeting Minutes. ACOEP will conduct the Update Appraisals at 3.5 years from the date of FEMA's approval of the Final plan, and at the same point in time during subsequent five-year windows (i.e., from the date of FEMA's approval of the final plan, Update Appraisals will occur at Year 3.5, Year 8.5, Year 13.5, etc.). The Planning Group has selected Year 3.5 as the point for the Update Appraisals to ensure that sufficient time (18 months) will be available to update the document within the five year cycle, receive FEMA's re-approval, and for local jurisdictions to formally adopt the updated plan.

The plan update will not only involve a comprehensive review and evaluation of each section of the plan, but also a discussion of the results of evaluation and monitoring activities detailed in the Plan Maintenance section of the previously approved plan. Plan updates may validate the information in the previously approved plan, or may involve a major plan rewrite. A plan update cannot be an annex referring to the previously approved plan; it must stand on its own as a complete and current plan.

Other criteria that will be considered during the update include:
- *if changing situations have modified goals/objectives/actions and/or hazards;*
- *if additional information is available to perform more accurate vulnerability assessments;*
- *if it is determined that participating jurisdictions wish to be added to and/or removed from the Plan; or*
- *if it is determined that the Plan no longer addresses current and expected future conditions.*

At the time of the update, ACOEP shall consult with FEMA for the latest Guidance in place regarding plan updates to ensure that the latest criteria are addressed in the update process.

ACOEP will prepare an updated plan, and circulate it to Core Planning Group members via email for their review and comment. Comments will be due back to ACOEP within 14 days; lack of response will be assumed to indicate concurrence with the ACOEP appraisal. Comments received which cannot be resolved remotely will trigger an Update Resolution Meeting of the Core Planning Group to resolve differences and develop a joint determination on how to modify the document.

Any plan updates will be released for public review and comment. The updated plan will be posted on the County web site, and made available in hard copy at the ACOEP offices. Notification to the public will also be issued to this same effect, and interested parties will be given 30 days to provide comments to ACOEP.

Public Participation in Plan Maintenance

As per 44 CFR Part 201.6 (c)(4)(iii) states, "[The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process." To meet this

requirement, the new Hazard Mitigation Plan should describe what opportunities the public will have during the plan's periodic review to comment on the progress made to date and on any proposed plan revisions.

The following array of activities was selected by ACOEP based on feedback received from Core Planning Group members.

- *ACOEP will continue to maintain the mitigation planning website and document repositories.*
- *Each participating jurisdiction will add a link on their jurisdiction's web page to the County mitigation planning website, if they have not already done so as part of the plan development process.*
- *ACOEP will lead efforts to prepare an annual fact sheet on the plan. This fact sheet will be submitted via email to Core Planning Group members for posting on community notice boards, at a minimum, and preferable supplemented with distribution at meetings as applicable. ACOEP will post the fact sheet on the county mitigation plan web site.*
- *ACOEP will lead efforts to prepare a survey for the public and other stake holders which will be posted on the County mitigation planning web site and in document repositories. Survey forms will be shared with participating jurisdictions for their use, as well. All feedback will be directed to ACOEP as a central location. Survey feedback will be a topic of discussion at Annual Plan Evaluation Meetings.*
- *Participating jurisdictions will conduct annual interviews and/or smaller meetings with civic groups, the public and other stakeholders. This will be accomplished through incorporating discussion of the mitigation plan into other regularly attended meetings.*
- *Participating jurisdictions will consider annual flyers, newsletters, newspaper advertisements, and Radio/TV announcements, and will implement some or all of the above at the discretion of the jurisdiction.*
- *ACOEP will establish a telephone hotline service (preferably a toll-free number) where interested parties can ask questions or submit feedback regarding the plan.*
- *Participating jurisdictions will consider offering working groups by topic area (such as land use, hazard, mitigation action, etc.) if deemed necessary based upon feedback obtained during the plan maintenance cycles.*
- *Participating jurisdictions will each conduct an annual town hall meeting on the progress of the mitigation plan.*

Section 6 – Core Planning Group Member Action Item

Please submit comments to ACOEP regarding what your community is in favor of, and/or what your community opposes, regarding plan maintenance. Comments should be submitted to Ed Conover no later than February 7, 2009. Feedback is not required; lack of response will be interpreted to indicate that your jurisdiction has no particular preferences regarding this plan element.

ATTACHMENT A

FEMA's How-To Guide #4, "Bringing the Plan to Life: Implementing the Hazard Mitigation Plan"

Worksheet #1, Progress Report

Pages 1 through 3

Worksheet # 1: Progress Report

Progress Report Period: _____ (date) to _____ (date)

Project Title: _____ Project ID#: _____

Responsible Agency: _____

Address: _____

City/County: _____

Contact Person: _____ Title: _____

Phone #(s): _____ e-mail address: _____

List Supporting Agencies and Contacts: _____

_____

Total Project Cost: $ _____ Anticipated Cost Overrun/Underrun: _____

Date of Project Approval: _____ Start date of the project: _____

Anticipated completion date: _____

Description of the Project (include a description of each phase, if applicable, and the time frame for completing each phase).

_____
_____
_____
_____
_____

Milestones	Complete	Projected Date of Completion

Plan Goal(s)/Objective(s) Addressed:

Goal: _____

Objective: _____

Indicator of Success (e.g., losses avoided as a result of the acquisition program):
In most cases, you will list losses avoided as the indicator. In cases where it is difficult to quantify the benefits in dollar amounts, you will use other indicators, such as the number of people who now know about mitigation or who are taking mitigation actions to reduce their vulnerability to hazards.

_____
_____
_____

Status *(Please check pertinent information and provide explanations for items with an asterisk. For completed or canceled projects, see Worksheet #2 — to complete a project evaluation):*

Project Status	Project Cost Status
(1) ☐ Project on schedule	(1) ☐ Cost unchanged
(2) ☐ Project completed	(2) ☐ Cost overrun* *explain: _____
(3) ☐ Project delayed* *explain: _____	(3) ☐ Cost underrun* *explain: _____
(4) ☐ Project canceled	

Summary of progress on project for this report:

A. What was accomplished during this reporting period?

B. What obstacles, problems, or delays did you encounter, if any?

C. How was each problem resolved?

Next Steps: What is/are the next step(s) to be accomplished over the next reporting period?

Other comments:

Adapted from the North Carolina HMGP Progress Report Form at
http://www.dem.dcc.state.nc.us/mitigation/document_index.htm.

ATTACHMENT B

FEMA's How-To Guide #4, "Bringing the Plan to Life: Implementing the Hazard Mitigation Plan"

Worksheet #3, Evaluate Your Project Results

Pages 3-6 through 3-7

Worksheet #3: Evaluate Your Project Results

Project Name and Number:	*Insert location map*
Project Budget:	
Project Description:	*include before and after photos if appropriate*
Associated Goal and Objective (s):	
Indicator of Success (e.g., losses avoided):	

Was the action implemented?

IF YES ↓ | IF NO ↓

What were the results of the implemented action?	Why not?		
	Was there political support for the action?	YES	NO
	Were enough funds available?	YES	NO
	Were workloads equitably or realistically distributed?	YES	NO
	Was new information discovered about the risks or community that made implementation difficult or no longer sensible?	YES	NO
	Was the estimated time of implementation reasonable?	YES	NO
	Were sufficient resources (for example staff and technical assistance) available?	YES	NO

↓

Were the outcomes as expected? If No, please explain:	YES	NO	Additional comments or other outcomes:
Did the results achieve the goal and objective (s)? Explain how:	YES	NO	
Was the action cost-effective? Explain how or how not:	YES	NO	
What were the losses avoided after having completed the project?			
If it was a structural project, how did it change the hazard profile?			

Date _____

Prepared by: _____

ATTACHMENT C

FEMA's How-To Guide #4, "Bringing the Plan to Life: Implementing the Hazard Mitigation Plan"

Worksheet #5, Revise the Plan

Pages 4-7 through 4-10

Worksheet #5: Revise the Plan

Prepare to update the plan.

When preparing to update the plan: Check the box when addressed ✓

1. Gather information, including project evaluation worksheets, progress reports, studies, related plans, etc. ☐

Comments:

2. Reconvene the planning team, making changes to the team composition as necessary (see results from *Worksheet #2*). ☐

Comments:

Consider the results of the evaluation and new strategies for the future.

When examining the community consider: Check the box when addressed ✓

1. The results of the planning and outreach efforts. ☐

Comments:

2. The results of the mitigation efforts. ☐

Comments:

3. Shifts in development trends. ☐

Comments:

4. Areas affected by recent disasters. ☐

Comments:

5. The recent magnitude, location, and type of the most recent hazard or disaster. ☐

Comments:

6. New studies or technologies. ☐

Comments:

7. Changes in local, state, or federal laws, policies, plans, priorities, or funding. ☐

Comments:

8. Changes in the socioeconomic fabric of the community. ☐

Comments:

9. Other changing conditions. ☐

Comments:

Incorporate your findings into the plan.

When examining the plan: Check the box when addressed ✓

1. Revisit the risk assessment. ☐

Comments:

2. Update your goals and strategies. ☐

Comments:

3. Recalculate benefit-cost analyses of projects to prioritize action items. ☐

Comments:

Use the following criteria to evaluate the plan:

Criteria	YES	NO	Solution
Are the goals still applicable?			
Have any changes in the state or community made the goals obsolete or irrelevant?			
Do existing actions need to be reprioritized for implementation?			
Do the plan's priorities correspond with state priorities?			
Can actions be implemented with available resources?			

Comments:

GUIDANCE MEMORANDUM #3

Plan Integration

URS

To: Ed Conover
Atlantic County Office of Emergency Preparedness
For distribution to representatives from all participating jurisdictions
From: Anna Foley, URS
Date: January 6, 2009
Re: Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project

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DMA 2000:

The Disaster Mitigation Act of 2000 (DMA 2000), also known as Public Law 106-390, amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act by, among other things, adding a new section, 322 - Mitigation Planning. It contains 44 CFR Part 201.6(c)(4)(ii) which states, "[The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate." To meet this requirement, the new Hazard Mitigation Plan should indicate how mitigation recommendations will be integrated into job descriptions, or existing planning mechanisms such as comprehensive plans, capital improvement plans, zoning and building codes, site reviews, permitting and other planning tools, where such tools are appropriate.

Memo Purpose:

This memorandum aims to present a summary of some key information that is presented in FEMA's How-To Guide #4 entitled "Bringing the Plan to Life: Implementing the Hazard Mitigation Plan" (available online at: http://www.fema.gov/plan/mitplanning/howto4.shtm) regarding Plan Integration (see Task B in Chapter 2). It is intended to serve as a supplement – and not as a replacement – for the FEMA documents. URS would strongly suggest that the Planning Group members make every effort to familiarize themselves with applicable FEMA regulations and mitigation planning guidance (see "Sources of Information on Hazard Mitigation on Planning" handout from Core Planning Group Meeting #1 on August 18, 2008).

Keep In Mind:

URS Corporation (URS), as the consulting company, is able to provide the Planning Group with guidance on potential means to satisfy the requirement for plan integration procedures. However, it is Atlantic County and the participating jurisdictions that are in the best position to define the process. The Core Planning Group must coordinate amongst themselves to consider URS' recommendations herein and agree upon a plan integration procedure for the County's Multi-Jurisdictional Plan, to be provided back to URS in order for URS to incorporate this information into the plan. URS will incorporate the plan integration procedures, obtained from the Core Planning Group through ACOEP, into the new Hazard Mitigation Plan.

Action Items:

Action items are discussed further throughout this memorandum. They are presented in summary here. To allow URS sufficient time to draft appropriate plan sections, the Planning Group must:

- Submit comments to ACOEP regarding what your community is in favor of, and/or what your community opposes, regarding plan integration. Comments should be submitted to Ed Conover no later than February 7, 2009. Feedback is not required; lack of response will be interpreted to indicate that your jurisdiction has no particular preferences regarding this plan element.

Section 1 – Implementation Through Existing Planning Mechanisms

The Regulations:	44 CFR Part 201.6(c)(4)(ii) which states, *"[The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate."*

To meet this requirement, the new Hazard Mitigation Plan should indicate how mitigation recommendations will be integrated into job descriptions, or existing planning mechanisms such as comprehensive plans, capital improvement plans, zoning and building codes, site reviews, permitting and other planning tools, where such tools are appropriate. In other words, "plan integration" can be thought of as the process whereby each local government will incorporate the plan findings and projects into their governing systems.

In the process of fulfilling the necessary requirements mandated in DMA 2000, URS suggests that the subsequent questions be addressed:

1. Does the plan identify other local planning mechanisms available for incorporating the requirements of the mitigation plan?
2. Does the plan include a process by which the local government will incorporate the requirements in other plans, when appropriate?

URS suggests that the Core Planning Group facilitate its duties by using existing processes and resources while implementing the plan and fulfilling the mitigation goals. An important step in any mitigation implementation process is to take advantage of tools and procedures that are already in place. Because the mechanisms are in-place and familiar to local officials, tapping into existing resources will alleviate the workload and accelerate the implementation process, particularly if the implementation phase calls for expanding existing agency mandates or departmental funds, for instance, or creating new programs later on.

By completing the previously-distributed Capability Assessment Questionnaires, each participating jurisdiction should have a clear understanding of their unique local capabilities and resources.

The following bullets excerpted from the FEMA How-To provide ways that the hazard mitigation plan can be integrated into local planning mechanisms:

- Departmental or organizational work plans, policy, and procedural changes. Updating the work plans, policies, or procedures to include hazard mitigation concepts and activities can help integrate the plan into daily operations. These changes can include how major development projects and subdivision reviews are addressed in hazard-prone areas or ensure that hazard mitigation concerns are considered in the approval of major capital improvement projects. Plan integration strategies could include:
    - In participating jurisdictions where Master Plans, General or Comprehensive Plans exist, Planning Group members will work with their respective planning departments to educate them on the Hazard Mitigation Plan and encourage that on the next updates of such plans, hazard mitigation for natural hazards is addressed.
    - Many participating jurisdictions have local building departments responsible for building code enforcement and review of site plans. Local jurisdictions enforce the state-adopted IBC. In these communities, Planning Group Members can coordinate with their respective building departments to ensure that they have adopted and are enforcing the minimum standards established in the State-adopted IBC.
    - Many participating jurisdictions participate in FEMA's National Flood Insurance Program and as such have local floodplain management ordinances. In these communities, Planning Group Members can coordinate with their respective Floodplain Administrator to determine if enforcement beyond FEMA minimum requirements would be prudent for the community.
    - In participating jurisdictions with local zoning ordinances, Planning Group members can work with their zoning boards to educate them on the Hazard Mitigation Plan and encourage consideration of low occupancy, low-density zoning in hazard areas, when practicable.

- Job descriptions. Working with department or agency heads to revise job descriptions of government staff to include mitigation-related duties could further institutionalize hazard mitigation. This change would not necessarily result in great financial expenditures or programmatic changes. For example, the How-To presents the following language which could be considered for adding into job descriptions for a community planner, floodplain manager, emergency manager, building code official, or water resources engineer in the Public Works Department:

Knowledge, Skills and Abilities

Knowledge.	*Knowledge of the principles of emergency management, specifically hazard mitigation. Knowledge of the principles and practices of sustainable development and how it is incorporated into hazard mitigation planning. Knowledge of FEMA's pre- and post-disaster mitigation programs, as well as other federal agency programs (HUD, EPA, SBA) that provide technical and/or financial assistance for implementing pre- or post-disaster mitigation planning. Knowledge of private/non-governmental programs that can support reconstruction and mitigation strategies.*
Skills.	*Consensus building and team building, communication (verbal and written), and interpersonal skills.*
Abilities.	*Ability to apply planning principles and tools to the goals of hazard loss reduction.*

- Capital and operational budgets. Instead of solely relying on funding from hazard mitigation programs or other external sources of grant monies, jurisdictions might consider a line item for mitigation project funding in their capital or operational budgets. Having a line item in these budgets may not guarantee funding every year, but it is certainly easier to get the money allocated if it is already there. Examples include:
    - A revolving fund to finance a buyout program.
    - A low-interest loan program to fund retrofits.

- Executive Orders, ordinances, and other directives. The governing body or local executive often has the authority to issue directives to require departments and agencies to carry out certain hazard mitigation actions. Using one of these mechanisms, the governing body or executive can direct department heads to provide progress reports to the planning team on the hazard mitigation initiatives that the departments are responsible for carrying out.

- Comprehensive planning. Adding a hazard element to the comprehensive plan is one of the most effective mechanisms to institutionalize hazard mitigation for new construction. A primary benefit of combining these processes is that they both influence the location, type, and characteristics of physical growth, specifically buildings and infrastructure. While planning in and of itself may not be regulatory, it uses regulatory mechanisms (zoning, development ordinances, etc.) for implementing goals and objectives.

Additionally, in many parts of the country, the comprehensive planning process is an established activity that is already familiar to the public, and it usually generates a great deal of interest and public participation.

Examples of using existing resources to accomplish mitigation, as excerpted from FEMA's How-To #4, include:

- The Department of Public Works could adopt more rigorous procedures for inspecting and cleaning debris from streams and ditches. Instead of cleaning only after storms or complaints from citizens, the Department could require inspections of streams and ditches at least semi-annually.
- The Planning Department could add hazard vulnerability to subdivision and site plan review criteria and incorporate any necessary actions at the planning stage.
- A Community conservation society or other interested voluntary organization could perform inventories of historic sites in hazard areas that might require special treatment to protect them from specific hazards.
- Partners and nonprofit organizations and businesses can assist the planning team in a number of ways, by including lending expertise, discounted materials, staff or volunteer time, or meeting space. The planning team can in response offer these entities opportunities for greater public exposure and thus, greater recognition. The planning team can inform partners about the hazards they potentially face the ways they can mitigate these hazards and how their staff can mitigate hazards at home.
- Citizens have an ongoing role to play in project implementation. The planning team should actively seek volunteers to help implement programs and activities. Knowledgeable citizens can also be recruited to provide expertise in specific subject areas. The more the team involves people in implementing the plan, the greater the support it will receive.
- State agencies can lend their time, expertise and funds to the implementation of hazard mitigation projects. Make sure the planning team's list of state contacts is very broad, as the resources of one state agency may be unknown to another.
- Colleges and universities can provide technical expertise to projects that my require Geographic Information System (GIS), engineering, planning or other technical assistance. They can also provide meeting space, laboratories and other logistical support.
- Community libraries are an excellent source of information and services, including volunteers.

Section 2 –Draft Text For Your Review/Comment

The text below represents a draft section for the Atlantic County plan regarding plan integration. Please comment on anything your jurisdiction would like to see changed in the final Atlantic County Plan.

As per 44 CFR Part 201.6(c)(4)(ii), "[The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate."

URS Corporation (URS), as the consulting company, was able to provide the Planning Group with guidance on potential means to satisfy the requirement for plan integration procedures. However, it was the members of the Core Planning Group who were in the best position to define the process. URS submitted a Guidance Memorandum (Guidance Memorandum #3 – Plan Integration) to ACOEP on January 6, 2009, to summarize FEMA requirements for integrating the plan into other local planning mechanisms. It was also posted to the mitigation planning web site soon after for review by Core Planning Group members, the public, and other stakeholders.

Team members were asked to provide feedback regarding their desires for plan integration to ACOEP. ACOEP, in turn, worked with the Consultant to develop this mitigation strategy to best reflect expressed preferences. The information presented below represents these decisions, as provided to URS through ACOEP. These methods will ensure that regular integration of the Hazard Mitigation Plan will occur.

ACOEP, with input from URS and the Core Planning Group member feedback, noted the following capabilities in relation to mitigation planning and opportunities to integrate the mitigation plan into daily activities. Progress with regard to Plan Integration will be on the agenda for each Annual Plan Evaluation Meetings.

Participating jurisdictions currently use comprehensive land use planning, capital improvements planning and building codes to guide and control development. After the Hazard Mitigation Plan is formally adopted, these existing mechanisms will have hazard mitigation strategies integrated into them, as follows:

- *Within six months after adoption of the Hazard Mitigation Plan, Core Planning Group members for each participating jurisdiction will issue a letter to each of its community's department heads to solicit their support and explore opportunities for integrating hazard mitigation planning objectives into their daily activities. Specifically, letters can include:*
  - *Many participating jurisdictions have Master Plans, General or Comprehensive Plans. In participating jurisdictions where Master Plans, General or Comprehensive Plans exist, Core Planning Group members will work with their respective planning departments to educate them on the Hazard Mitigation Plan and encourage that on the next updates of such plans, hazard mitigation for natural hazards is addressed.*
  - *Many participating jurisdictions have local building departments responsible for building code enforcement and review of site plans. Local jurisdictions enforce the state-adopted IBC. In these communities, Core Planning Group Members can coordinate with their respective building departments to ensure that they have adopted and are enforcing the minimum standards established in the State-adopted IBC.*
  - *Many participating jurisdictions participate in FEMA's National Flood Insurance Program and as such have local floodplain management ordinances. In these communities, Core Planning Group Members can coordinate with their respective Floodplain Administrator to determine if enforcement beyond FEMA minimum requirements would be prudent for the community.*
  - *In participating jurisdictions with local zoning ordinances, Core Planning Group members can work with their zoning boards to educate them on the Hazard Mitigation Plan and encourage consideration of low occupancy, low-density zoning in hazard areas, when practicable.*
- *Participating jurisdictions will consider working with their department or agency heads to revise job descriptions of government staff to include mitigation-related duties could further institutionalize hazard mitigation. This change would not necessarily result in great financial expenditures or programmatic changes. For example, the How-To presents the following language which could be considered for adding into job descriptions for a community planner, floodplain manager, emergency manager, building code official, or water resources engineer in the Public Works Department:*

Knowledge, Skills and Abilities

Knowledge.	*Knowledge of the principles of emergency management, specifically hazard mitigation. Knowledge of the principles and practices of sustainable development and how it is incorporated into hazard mitigation planning. Knowledge of FEMA's pre- and post-disaster mitigation programs, as well as other federal agency programs (HUD, EPA, SBA) that provide technical and/or financial assistance for implementing pre- or post-disaster mitigation planning. Knowledge of private/non-governmental programs that can support reconstruction and mitigation strategies.*
Skills.	*Consensus building and team building, communication (verbal and written), and interpersonal skills.*
Abilities.	*Ability to apply planning principles and tools to the goals of hazard loss reduction.*

- *Instead of solely relying on funding from hazard mitigation programs or other external sources of grant monies, participating jurisdictions will consider a line item for mitigation project funding in their capital or operational budgets. Having a line item in these budgets may not guarantee funding every year, but it is certainly easier to get the money allocated if it is already there. Examples include:*
  - *A revolving fund to finance a buyout program.*
  - *A low-interest loan program to fund retrofits.*

- *Participating jurisdictions with comprehensive plans will add a hazard element to the comprehensive plan as one of the most effective mechanisms to institutionalize hazard mitigation for new construction. A primary benefit of combining these processes is that they both influence the location, type, and characteristics of physical growth, specifically buildings and infrastructure. While planning in and of itself may not be regulatory, it uses regulatory mechanisms (zoning, development ordinances, etc.) for implementing goals and objectives. Additionally, in many parts of the country, the comprehensive planning process is an established activity that is already familiar to the public, and it usually generates a great deal of interest and public participation.*

Examples of using existing resources to accomplish mitigation, as excerpted from FEMA's How-To #4, include:

- *Core Planning Group members will work with their local Department of Public Works to adopt more rigorous procedures for inspecting and cleaning debris from streams, ditches, and storm drain systems. For example, instead of cleaning only after storms or complaints from citizens, or on an annual basis, the Department could require inspections of streams and ditches at least twice per year and after a significant rain event.*
- *Participating jurisdictions will seek to add hazard vulnerability to subdivision and site plan review criteria and incorporate any necessary actions at the planning stage.*
- *ACOEP will seek to identify a community conservation society or other interested voluntary organization could perform inventories of historic sites in hazard areas that might require special treatment to protect them from specific hazards.*
- *Partners and nonprofit organizations and businesses can assist the planning team in a number of ways, by including lending expertise, discounted materials, staff or volunteer time, or meeting space. The planning team can in response offer these entities opportunities for greater public exposure and thus, greater recognition. The planning team can inform partners about the hazards they potentially face the ways they can mitigate these hazards and how their staff can mitigate hazards at home. Participating jurisdictions will reach out to partner groups in their communities to identify those who may be willing to donate goods or services and create a database of contact information and indicated goods/services.*
- *Citizens have an ongoing role to play in project implementation. The planning team should actively seek volunteers to help implement programs and activities. Knowledgeable citizens can also be recruited to provide expertise in specific subject areas. The more the team involves people in implementing the plan, the greater the support it will receive.*
- *State agencies can lend their time, expertise and funds to the implementation of hazard mitigation projects. ACOEP will make sure the planning team's list of state contacts is very broad, as the resources of one state agency may be unknown to another. ACOEP will assist participating jurisdictions in reaching out to state agencies for support.*
- *Colleges and universities can provide technical expertise to projects that may require Geographic Information System (GIS), engineering, planning or other technical assistance. They can also provide meeting space, laboratories and other logistical support. ACOEP will assist participating jurisdictions in reaching out to educational institutions for support.*
- *Community libraries are an excellent source of information and services, including volunteers. Participating jurisdictions will meet once each five years with their local library staff members to discuss the mitigation plan so they are well-versed in its purpose and understand where to direct interested parties for more information, to provide feedback, or to become involved.*

Section 3 – Core Planning Group Member Action Item

Please submit comments to ACOEP regarding what your community is in favor of, and/or what your community opposes, regarding plan integration. Comments should be submitted to Ed Conover no later than February 7, 2009. Feedback is not required; lack of response will be interpreted to indicate that your jurisdiction has no particular preferences regarding this plan element.

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
HAZARD IDENTIFICATION QUESTIONNAIRE

IDENTIFICATION OF POTENTIAL HAZARDS FOR ATLANTIC COUNTY, NJ

The first step in completing a multi-jurisdictional risk assessment for Atlantic County is to answer the question: *what kinds of natural hazards can affect the planning area?* In completing this step we must simply identify all the natural hazards that might affect Atlantic County, and then narrow the list to those hazards that are most likely to significantly impact the County and its municipal jurisdictions. Further research and analysis will then be focused on those hazards identified as significant, while the other hazards will be eliminated from further consideration in the risk assessment and mitigation planning process.

FEMA's current regulations and interim guidance under the Disaster Mitigation Act of 2000 (DMA 2000) require, at a minimum, an evaluation of a full range of natural hazards. To receive a 'satisfactory' score for this element, the plan must indicate:

- which hazards were initially considered
- which hazards *were* identified as significant hazards to be addressed in the plan (and why)
- which hazards *were not* identified as significant hazards to be addressed in the plan (and why not)

FEMA Planning Requirement

44 CFR Part 201.6(c)(2)(i): *[The risk assessment shall include] a description of the type… of all natural hazards that can affect the jurisdiction.*

Atlantic County's consultants at URS have considered a full range of natural hazards, and have identified several as significant hazards that are recommended to be addressed in the Multi-Jurisdictional Hazard Mitigation Plan. These hazards were identified through an extensive process that involved research of past disaster declarations in the County; review of the New Jersey State Hazard Mitigation Plan; and an evaluation of readily available online information from reputable sources (such as Federal and state agencies) to supplement information from these key sources. The following table documents this evaluation process for the full range of hazards considered. For each hazard considered it indicates whether or not the hazard was identified as a significant hazard to be addressed in the plan, how this determination was made (i.e. the sources of information that were consulted while researching each hazard), and why this determination was made. *(Please note that some hazards not currently identified as significant may be reconsidered during future plan updates and possibly included in subsequent versions of the plan.)* For your convenience, brief definitions of each hazard are listed on pages 14 through 16.

The hazard identification process is not complete without your feedback. Please take a moment to review this table and fill in the "Core Planning Group Member Feedback" column. Do you concur with the determination? We are also interested in anything that may come to mind regarding: (a) historic events, including the date, number of injuries, and types (and/or dollar amounts) of damages to buildings, utilities, infrastructure and, especially, critical facilities; and (b) any areas of town and/or specific facilities that you feel are particularly at risk, even if there are no historic occurrences. *(Note: There is no need to re-submit this information if you have already provided it to the URS team).*

Please provide feedback using the following table and return to the following address by email, US mail, or fax, no later than **November 18, 2008**. Please make sure to provide your contact information on page 2, and feel free to attach additional pages if needed. Thank you in advance for your participation!

Ann Foley / Richard Franks
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Wayne, New Jersey 07474
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Fax: 973 812 0985
Email: Anna_foley@urscorp.com Richard_franks@urscorp.com

CONTACT INFORMATION

Name: _____

Title/Agency: _____

Jurisdiction You Are Representing: _____

Phone: _____

E-mail: _____

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?	Core Planning Group Member Feedback • *Do you concur? If no, please explain.* • *Any historic events? If so, when? What were the damages?* • *Any localized areas and/or specific facilities particularly at-risk?*
ATMOSPHERIC HAZARDS				
Avalanche	NO	• Review of FEMA's Multi-Hazard Identification and Risk Assessment (MHIRA) • Review of US Forest Service National Avalanche Center web site	• The topography and climate of southern New Jersey including Atlantic County do not support conditions required for the occurrence of avalanches.	
Extreme Temperatures	**YES**	• Review of New Jersey State Hazard Mitigation Plan 2008 (NJSHMP) • Review of FEMA MHIRA • Data from National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center storm events database (NCDC) • Input from Planning Group	• The NJSHMP gives extreme temperature events a low qualitative ranking among the statewide hazards of concern, since impacts are considered limited, despite a relatively high annual probability. • NJSHMP discusses extreme cold events in the hazard profile section on winter storms, but devotes a separate section to extreme heat events, which reports that such events area not unusual, particularly in the southern portion of the state. Extreme heat and overexposure to summer temperatures in NJ result in approximately five deaths annually and 25 – 170 hospitalizations every year. • MHIRA places Atlantic County in an area with a Summer Heat Index of 115 – 120°C:	

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?	Core Planning Group Member Feedback • *Do you concur? If no, please explain.* • *Any historic events? If so, when? What were the damages?* • *Any localized areas and/or specific facilities particularly at-risk?*
			i.e. there is a 5% chance that temperatures in this range will be equaled or exceeded in any given year. • NCDC reports 83 extreme temperature events for Atlantic County between July 1994 and September 2007. Of these 44 featured extreme heat and 11 featured extreme cold. The remainder were unseasonal high or low temperature events which, while unusual, are not generally associated with specific impacts. The NCDC attributes a total of 48 deaths to the recorded extreme temperature events affecting Atlantic County: 43 attributed to extreme heat, 5 to extreme cold.	
Extreme Wind	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • NOAA NCDC storm events database • Review of American Society of Civil Engineers (ASCE) Standard 7-02 (Minimum Design Loads for Buildings and Other Structures) • Input from Planning Group	• Atlantic County is located in a region that is highly susceptible to numerous types of extreme wind events including severe thunderstorms, hurricanes and tropical storms, nor'easters, and severe winter storms. MHIRA indicates that extreme wind speeds of up to 160mph are possible. • NJSHMP reports that high straight-line winds related to thunderstorms affect nearly all areas of the state equally. Atlantic County lies in an area which experiences and average of 33 thunderstorm days per year. • NCDC reports a total of 73 high wind events (wind speed at least 50 knots/58mph) affecting Atlantic County since 1950, with 1 death, 18 injuries, and almost $10 million in damage attributed to these events, including some damage outside in areas outside Atlantic County. NCDC attributes a further 2 deaths, 10 injuries and $6 million in damage to an additional 118 wind events affecting Atlantic County for which the wind speed was less than 50 knots or not recorded.	

HAZARD IDENTIFICATION QUESTIONNAIRE

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?	Core Planning Group Member Feedback • *Do you concur? If no, please explain.* • *Any historic events? If so, when? What were the damages?* • *Any localized areas and/or specific facilities particularly at-risk?*
			• The 3-second wind gust for building design purposes in Atlantic County as per ASCE 7-02 is 110mph in the western half of the county, and 120mph in the eastern half of the county.	
Hailstorm	NO	• Review of NJSHMP 2008 • Review of FEMA MHIRA • NOAA NCDC storm events database and National Severe Storms Laboratory (NSSL) web site • Input from Planning Group	• The NJSHMP mentions hail as a hazard but one with a very low qualitative ranking among the identified statewide hazards of concern. Hailstorms are considered to have a high annual probability but limited impact in severity and area. • According to NSSL data Atlantic County lies in an area that can expect hailstorm events on 1-2 days per year, with coastal areas likely to experience more hailstorms than inland areas. • NCDC reports a total of 25 hailstorm events (hailstones at least 0.75" in diameter) affecting Atlantic County since 1962, including two events which featured "damaging hail" (hailstones of diameter 2" or more). No recorded deaths, injuries, or dollar losses are attributed to any of these events. • There are minimal hazard mitigation techniques available to reduce hailstorm impacts outside of general emergency preparedness procedures and severe weather warning systems already in place.	
Hurricane and Tropical Storm	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • NOAA NCDC storm events database • Review of NOAA National Hurricane Center (NHC) website and analysis of published	• NJSHMP gives hurricanes a high qualitative ranking among the identified statewide hazards of concern – second only to flooding. The Plan shows coastal areas of the state, including those in Atlantic County, to be the most affected by hurricane forces, and subject to the highest associated impacts of storm surge, wind, wave action, and rain. • FEMA mapping shows Atlantic County to be located in a hurricane-susceptible zone where	

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?	Core Planning Group Member Feedback • *Do you concur? If no, please explain.* • *Any historic events? If so, when? What were the damages?* • *Any localized areas and/or specific facilities particularly at-risk?*
		historical hurricane and tropical storm tracks • Input from Planning Group	winds of up to 160mph are possible. • According to the NHC the estimated return period for a category 1 hurricane in the Atlantic County area is 22 years, rising to 480 years for a category 5 hurricane. • Records from the NOAA National Hurricane Center show a total of 64 storm tracks passing within 65 nautical miles (75 miles) of Atlantic County since 1856, including 12 for which the center (or eye) has passed directly over parts of the county. Of the 64 total, 3 were category 1 hurricanes, 8 were category 2, and 28 were tropical storms. The remainder were tropical depressions and extratropical storms. • Other sources such as the NCDC database indicate that hurricanes passing significantly further than 75 miles from New Jersey have been responsible for damage, flooding and erosion in Atlantic County.	
Lightning	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • NOAA NCDC storm events database and National Severe Storms Laboratory web site • Input from planning group	• The NJSHMP mentions lightning only as a product of thunderstorms and a potential cause of wildfires. The plan does not include a separate hazard profile section for lightning. • According to NOAA, New Jersey did not rank among the top 25 US States for the most fatalities, injuries, or damage reports due to lightning strikes in the period 1959 through 1995. • According to NOAA and FEMA data, Atlantic County lies in an area that experiences a very low annual lightning flash density: generally less than one lightning flash per square kilometer per year. • NCDC reports 12 significant lightning strike events in Atlantic County since 1994, to which 3 injuries and $33,000 in property damages were attributed.	

HAZARD IDENTIFICATION QUESTIONNAIRE

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?	Core Planning Group Member Feedback • *Do you concur? If no, please explain.* • *Any historic events? If so, when? What were the damages?* • *Any localized areas and/or specific facilities particularly at-risk?*
Nor'easter	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • Input from Planning Group	• The NJSHMP gives nor'easters a high qualitative ranking among the identified statewide hazards of concern – behind only flooding and hurricanes. The plan considers that all areas of New Jersey are equally likely to experience nor'easters in some form, but that the coastal region of the state is most vulnerable to their sometimes devastating impacts, including high wind, flooding, erosion, wave damage, and heavy snow. Under some circumstances the effects (flooding, erosion) of nor'easters in coastal areas may be more severe than those of some hurricanes because the storm surge can be of longer duration.	
Tornado	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • NOAA NCDC storm events database and National Severe Storms Laboratory web site • Input from Planning Group	• The NJSHMP gives tornadoes a medium qualitative ranking among the identified statewide hazards of concern. The plan records a total of 144 tornadoes in the state of New Jersey since 1951, and plots the location of six that have occurred in Atlantic County. The plan considers the tornado season in NJ to be March through August, but acknowledges that they can occur at any time of year. • NCDC reports seven tornado events affecting Atlantic County since 1970. Of these, three were classed F2 on the Fujita Tornado Scale (considerable damage), one was classed F1 (moderate damage) and the remainder were classed F0 (light damage). A total of three injuries and just over $1million in property damage was attributed to these events. • According to NSSL data, Atlantic County is located in an area which is likely to experience approximately one tornado in any given year.	

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?	Core Planning Group Member Feedback • *Do you concur? If no, please explain.* • *Any historic events? If so, when? What were the damages?* • *Any localized areas and/or specific facilities particularly at-risk?*
Winter Storm	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • NOAA NCDC storm events database • Input from Planning Group	• The NJSHMP gives winter storms a medium to high qualitative ranking among the identified statewide hazards of concern. The plan reports that winter storms affect all areas of the state equally and are responsible for "many" deaths each year. However, the average annual snowfall for Atlantic County is shown as 15-20 inches per year, significantly less than the northern third of the state, where average annual snowfalls reach upwards of 35 inches per year. While the plan highlights the upland areas in the north of the state as particularly susceptible to extremely low temperatures, it also reports that very low temperatures are also not unusual in the Pine Barrens, which partially cover significant areas of Atlantic County. • According to FEMA/NCDC data, Atlantic County is located in an area in which there is a 5% chance that snowfall depth of 50-75" will be equaled or exceeded in any given year. This range is the third lowest of seven snowfall ranges mapped by NCDC in the conterminous United States. • NCDC reports 82 significant snow and ice-related events affecting Atlantic County since 1995, to which two deaths, two injuries, and $30million in property damages have been attributed (including some in areas outside Atlantic County). Of these 82 events, 17 were specifically identified as "Heavy Snow" events. A further three were specifically identified as "Ice Storm" or "Freezing Rain" events. Heavy snow and freezing rain were also present in many of the other events simply identified as "Winter Storm" or "Winter Weather". • NCDC mapping also shows Atlantic County to be located in an area which experiences less than eight hours of freezing rain annually.	

HAZARD IDENTIFICATION QUESTIONNAIRE

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?	Core Planning Group Member Feedback • *Do you concur? If no, please explain.* • *Any historic events? If so, when? What were the damages?* • *Any localized areas and/or specific facilities particularly at-risk?*
HYDROLOGIC HAZARDS				
Coastal Erosion	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • New Jersey Department of Environmental Protection (NJDEP) Coastal Management Program website • Richard Stockton College of New Jersey, Coastal Research Center: New Jersey Beach Profile Network (NJBPN) website • Input from Planning Group	• Despite acknowledging that localized coastal erosion has a relatively high annual probability, the NJSHMP gives coastal erosion the lowest qualitative ranking among the identified statewide hazards of concern. • Mapping presented in MHIRA places Atlantic County in an area where the overall shoreline is accreting (rather than eroding) by an average of one meter (3.3 feet) per year. Displacements of +/- 1 meter per year are considered stable and represent only a moderate risk. • Inspection of NJDEP mapped shorelines from 1836 to 1977 show that apart from the areas in and around tidal inlets, the Atlantic County shoreline is historically quite stable. • The 2006 NJBPN report for Atlantic County indicates that since 1986 most of the ocean shoreline in the county has experienced alternating periods of accretion and erosion, rather than a constant long-term movement in one direction or the other, even when accounting for periods of beach renourishment in certain areas. • Shoreline areas of Atlantic County remain vulnerable to occasional severe coastal erosion from periodic storm events such as hurricanes, tropical storms, and nor'easters. • Shore protection projects are routinely initiated and funded in the county through NJDEP and the U.S. Army Corps of Engineers. These projects in addition to many other elements of NJDEP's Coastal Management Program serve to reduce damages to public and private property caused by coastal erosion.	

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?	Core Planning Group Member Feedback • *Do you concur? If no, please explain.* • *Any historic events? If so, when? What were the damages?* • *Any localized areas and/or specific facilities particularly at-risk?*
Dam Failure	**YES**	• Review of NJSHMP 2008 • U.S. Army Corps of Engineers (USACE) National Inventory of Dams Database • Stanford University National Performance of Dams Program (NPDP) website and database • NJDEP Dam Safety Program website • Input from planning group	• The NJSHMP outlines the various roles and responsibilities for dam safety in the state but does not discuss dam failures in the hazard profiles section of the plan or rank it among the statewide hazards of concern. • The USACE database records 25 dams in Atlantic County, of which one is designated a "High Hazard" dam, and 11 are "Significant Hazard". • The NPDP database records 32 dams in the county, including one "High Hazard" dam and 10 "Significant Hazard" dams. • GIS data supplied by the county records 37 dams, some of which may no longer be in operation.	
Drought	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • NOAA NCDC database • NJDEP Drought Information website • Input from planning group	• The NJSHMP discusses drought in the hazard profile section of the plan, and notes that droughts of moderate severity occur at least once every few years in the state. Drought is given a medium qualitative ranking among the statewide hazards of concern. • According to the Palmer Drought Severity Index (PDSI) Map for the USA, Atlantic County is located in an area that experienced drought conditions for less than 5% (the lowest PDSI rating) of the period 1895 to 1995. • The NCDC database records 33 drought related events affecting Atlantic County since 1995, including one in 1999 to which $80 million in crop damage was attributed across the whole state. • For the purposes of this plan the primary impacts of drought falls on agriculture, which is economically significant in the northern and western portions of Atlantic County.	

HAZARD IDENTIFICATION QUESTIONNAIRE

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?	Core Planning Group Member Feedback • *Do you concur? If no, please explain.* • *Any historic events? If so, when? What were the damages?* • *Any localized areas and/or specific facilities particularly at-risk?*
Flood	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • NOAA NCDC database • Review of FEMA Q3 flood map data • Review of FEMA National Flood Insurance Program (NFIP) Community Status Book • Input from planning group	• The NJSHMP discusses flooding in detail in the hazard profile section of the plan, and gives it the highest qualitative ranking among the statewide hazards of concern, since it has widespread impacts and a long history of occurrences in the state. • The NJSHMP reports that there are on average approximately $1.8 million worth of NFIP claims made each year in Atlantic County, the 7th highest in the state (out of 22). • The NCDC database records 62 flood events in Atlantic County since 1993, with almost 80% of them categorized at least in part as coastal flooding incidents. These events have caused almost $88 million in property damage, including damage in areas outside the county. • FEMA Q3 flood mapping shows that a Special Flood Hazard Area (SFHA: areas with a 1% probability of flooding in any given year) is present to some degree in every municipality in the County, with a few municipalities located entirely within the SFHA: 32% of the county land area and nearly $9 billion worth of property are located in SFHAs. • All Atlantic County municipalities are currently active in the NFIP, and six participate in the Community Rating System.	
Ice Jams	NO	• Review of NJSHMP 2008 • Review of FEMA MHIRA • USACE Cold Regions Research and Engineering Laboratory (CRREL) Database • Input from planning group	• The NJSHMP mentions ice jams as a potential cause of flooding, but does not discuss them in any detail in the hazard profiles section. • CRREL records 98 ice jams occurring in New Jersey since 1867, ranking the state 25th in the USA for recorded ice jams. • The CRREL database lists one ice jam event occurring in Atlantic County since 1904. No specific impacts are recorded for this event, which occurred in Folsom in 1959.	

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?	Core Planning Group Member Feedback • *Do you concur? If no, please explain.* • *Any historic events? If so, when? What were the damages?* • *Any localized areas and/or specific facilities particularly at-risk?*
Storm Surge	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • Review of USACE Sea, Lake and Overland Surges from Hurricanes (SLOSH) model • NOAA NCDC database • Input from planning group	• The NJSHMP mentions storm surge as a significant cause of flooding in the hazard profile section of the plan, particularly in association with hurricanes. • Atlantic County has more than 20 miles of shoreline directly fronting the Atlantic Ocean, and many more miles of shoreline in areas between the barrier islands and the mainland. The topography of the county is also generally flat and low-lying. • MHIRA places Atlantic County in an area where storm surge elevations of 5-7 feet (which could occur during a category 1 hurricane) have an estimated recurrence interval of 10 years. • The SLOSH model results show that even the storm surge from a category 1 hurricane associated with worst-case combinations of direction, forward speed, landfall point and tides would be likely to cause damage to property in all Atlantic County municipalities except for four located along the western border of the county.	
Wave Action	**YES**	• Review of NJSHMP 2008 • NOAA NCDC database • Review of FEMA Q3 flood map data • Input from planning group	• The NJSHMP mentions waves as a component of hurricanes and similar storms, but does not discuss wave action or damage in detail in the hazard profiles section of the plan. • The NCDC database records 62 coastal flooding/heavy ocean surf events affecting Atlantic County since 1995. These events are estimated to have caused 3 deaths, six injuries, and almost $22 million in property damage (including damage in areas outside the county). • FEMA Q3 mapping shows that wave heights of three feet or more are expected for the base flood along the shoreline of all coastal municipalities in Atlantic County, and also in several backbay areas.	

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?	Core Planning Group Member Feedback • *Do you concur? If no, please explain.* • *Any historic events? If so, when? What were the damages?* • *Any localized areas and/or specific facilities particularly at-risk?*
GEOLOGIC HAZARDS				
Earthquake	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • US Geological Service (USGS) Earthquake Hazards Program website • National Atlas earthquake risk mapping • New Jersey Geological (NJGS) Survey website • Input from planning group	• The NJSHMP discusses earthquakes in the hazard profile section of the plan, and gives them a medium qualitative ranking among the statewide hazards of concern. The plan highlights four historic earthquakes that caused significant damage in the state. • NJGS records 153 earthquakes epicentered in New Jersey, but only one in Atlantic County: an earthquake epicentered near Pleasantville in 1910 for which no magnitude was recorded. • USGS and National Atlas mapping place Atlantic County in an area with a 10% chance that a seismic event of Peak Ground Acceleration (PGA) 2-3% of gravity could be exceeded in 50 years. • FEMA currently recommends that earthquakes be comprehensively evaluated for mitigation purposes for all areas where events of PGA 3%g or more have a 10% chance of exceedance.	
Expansive Soils	NO	• Review of NJSHMP 2008 • Review of FEMA MHIRA • New Jersey Geological (NJGS) Survey website • US Department of Transport, Federal Highway Administration Report FHWA-RD-76-82 • US Department of Agriculture, Natural Resources Conservation Service website • Input from planning group	• The NJSHMP does not specifically mention expansive soils as a hazard of concern. • MHIRA places Atlantic County in an area with little or no potential for swelling of clay soils. • Report FHWA-76-82 places Atlantic County in an area designated Nonexpansive: where high volume change soils do not occur or are extremely limited. • New Jersey has adopted the International Building Code of 2000, of which Chapter 18 includes mitigation measures for building on expansive soils through design, removal, or stabilization.	

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?	Core Planning Group Member Feedback • *Do you concur? If no, please explain.* • *Any historic events? If so, when? What were the damages?* • *Any localized areas and/or specific facilities particularly at-risk?*
Landslide	NO	• Review of NJSHMP 2008 • Review of FEMA MHIRA • Review of USGS Landslide Incidence and Susceptibility Mapping • Review of New Jersey Geological Survey mapping • Input from planning group	• The NJSHMP discusses landslides in the hazard profiles section of the plan, and collectively gives geological hazards a low qualitative ranking among the statewide hazards of concern. The plan reports that landslides are not particularly common in New Jersey, and tend to occur in the northern portion of the state. The plan has no record of any significant landslides in Atlantic County. • MHIRA places Atlantic County in an area of low potential for landslides and debris flows. • USGS mapping shows Atlantic County in an area of low incidence and low susceptibility to landslides. • The general topography of Atlantic County does not feature hilly terrain to any significant degree – the highest natural elevation in the county is approximately 150 feet above sea level.	
Land Subsidence	NO	• Review of NJSHMP 2008 • Review of FEMA MHIRA • Review of New Jersey Geological Survey mapping • Input of planning group	• The NJSHMP discusses land subsidence in the hazard profiles section of the plan, and collectively gives geological hazards a low qualitative ranking among the statewide hazards of concern. Recorded sinkholes in New Jersey have been primarily located in the northern and northeastern part of the state, and there is essentially no history of underground mining in Atlantic County. • MHIRA mapping shows New Jersey as having a historical record of very little or zero cumulative damages from subsidence caused by mining, sinkholes, or underground fluid withdrawal. • NJGS mapping does not indicate the presence in Atlantic County of any rock types which have the potential for the formation of sinkholes.	

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?	Core Planning Group Member Feedback • *Do you concur? If no, please explain.* • *Any historic events? If so, when? What were the damages?* • *Any localized areas and/or specific facilities particularly at-risk?*
Tsunami	NO	• Review of NJSHMP 2008 • Review of FEMA MHIRA • Review of FEMA "How-to" mitigation planning guidance volume 2 (FEMA publication 386-2)	• The NJSHMP briefly discusses tsunami events in the plan section profiling flood hazards. The plan concludes that while the mid-Atlantic region has been subject to minor tsunami action in the last 250 years, the probability of a large tsunami impacting the coast of New Jersey is very small, due to the position of the state on the trailing edge of the North Atlantic Plate. • FEMA 386-2 indicates that locations on the Atlantic coast to the north of Virginia have a relatively low tsunami risk (compared to areas on the Pacific coast) and do not currently need to include tsunamis in the detailed risk assessment.	
Volcano	NO	• Review of USGS Volcano Hazards Website • Review of FEMA MHIRA	• There are no known volcanoes located within approximately 2,000 miles of Atlantic County	
OTHER HAZARDS				
Wildfire	**YES**	• Review of NJSHMP 2008 • Review of FEMA MHIRA • Review of New Jersey Forest Fire Service (NJFFS) website	• The NJSHMP discusses wildfires in the hazard profile section of the plan, and gives them a medium to low qualitative ranking among the statewide hazards of concern. • The New Jersey Pine Barrens area, which lies partially within Atlantic County, is widely recognized as highly prone to forest fires, and the whole ecosystem is in some ways dependent on fire for its continued existence. Within these areas are a large number of homes and small communities, which were developed before the current regulations restricting development within the Pine Barrens. • NJFFS reports that there were 2,713 wildfire incidents in Atlantic County from 1993 to	

Natural Hazards Considered	Was this hazard identified as a significant hazard to be addressed in the plan at this time? (Yes or No)	Which sources of information were used to make this determination?	Why was this determination made?	Core Planning Group Member Feedback • *Do you concur? If no, please explain.* • *Any historic events? If so, when? What were the damages?* • *Any localized areas and/or specific facilities particularly at-risk?*
			2006, with a peak of 251 incidents in 2006. NJFFS also reports 4,148 acres burned in the same period, with 2,150 acres burned in 1997 alone. Only one other county in the state had more incidents per year, and two had more acres burned per year. • NJFFS mapping shows that there are significant areas in Atlantic County considered by NJFFS to be High and Extreme hazard areas for fire risk.	

HAZARD DESCRIPTIONS	
Hazard	**Description**
ATMOSPHERIC	
Avalanche	A rapid fall or slide of a large mass of snow down a mountainside.
Extreme Temperatures	Extreme heat and extreme cold constitute different conditions in different parts of the country. Extreme cold can range from near freezing in the South to temperatures well below zero in the North. Similarly, extreme heat is typically recognized as the condition whereby temperatures hover ten degrees or more above the average high temperature for a region for an extended period.
Extreme Wind	Wind is air that is in constant motion relative to the surface of the earth. Extreme wind events can occur suddenly without warning. They can occur at any time of the day or night, in any part of the country. Extreme winds pose a threat to lives, property, and vital utilities primarily due to the effects of flying debris and can down trees and power lines. Extreme winds are most commonly the result of hurricanes, tropical storms, nor'easters, severe thunderstorms and tornadoes, but can also occur in their absence as mere "windstorms." One type of windstorm, the downburst, can cause damage equivalent to a strong tornado.
Hailstorm	Any storm that produces hailstones that fall to the ground; usually used when the amount or size of the hail is considered significant. Hail is formed when updrafts in thunderstorms carry raindrops in to parts of the atmosphere where the temperatures are below freezing.
Hurricane and Tropical Storm	Hurricanes and tropical storms are classified as cyclones and defined as any closed circulation developing around a low-pressure center in which the winds rotate counter-clockwise in the Northern Hemisphere (or clockwise in the Southern Hemisphere) and with a diameter averaging 10 to 30 miles across. When maximum sustained winds reach or exceed 39 miles per hour, the system is designated a tropical storm, given a name, and is closely monitored by the National Hurricane Center. When sustained winds reach or exceed 74 miles per hour the storm is deemed a hurricane. The primary damaging forces associated with these storms are high-level sustained winds, heavy precipitation and tornadoes. Coastal areas are also vulnerable to the additional forces of storm surge, wind-driven waves and tidal flooding which can be more destructive than cyclone wind. The majority of hurricanes and tropical storms form in the Atlantic Ocean, Caribbean Sea and Gulf of Mexico during the official Atlantic hurricane season, which extends from June through November.
Lightning	Lightning is a discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm, creating a "bolt" when the buildup of charges becomes strong enough. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Lightning rapidly heats the sky as it flashes, but the surrounding air cools following the bolt. This rapid heating and cooling of the surrounding air causes thunder. On average, 73 people are killed each year by lightning strikes in the United States.
Nor'easter	Similar to hurricanes, nor'easters are ocean storms capable of causing substantial damage to coastal areas in the Eastern United States due to their associated strong winds and heavy surf. Nor'easters are named for the winds that blow in from the northeast and drive the storm up the East Coast along the Gulf Stream, a band of warm water that lies off the Atlantic coast. They are caused by the interaction of the jet stream with horizontal temperature gradients and generally occur during the fall and winter months when moisture and cold air are plentiful. Nor'easters are known for dumping heavy amounts of rain and snow, producing hurricane-force winds, and creating high surf that causes severe beach erosion and coastal flooding.
Tornado	A tornado is a violently rotating column of air that has contact with the ground and is often visible as a funnel cloud. Its vortex rotates cyclonically with wind speeds ranging from as low as 40 mph to as high as 300 mph. Tornadoes are most often generated by thunderstorm activity when cool, dry air intersects and overrides a layer of warm, moist air forcing the warm air to rise rapidly. The destruction caused by tornadoes ranges from light to catastrophic depending on the intensity, size and duration of the storm.
Winter Storm	Winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Blizzards, the most dangerous of all winter storms, combine low temperatures, heavy snowfall, and winds of at least 35 miles per hour, reducing visibility to only a few yards. Ice storms occur when moisture falls and freezes immediately upon impact on trees, power lines, communication towers, structures, roads and other hard surfaces. Winter storms and ice storms can down trees, cause widespread power outages, damage property, and cause fatalities and injuries to human life.

HYDROLOGIC	
Coastal Erosion	Landward displacement of a shoreline caused by the forces of waves and currents. Coastal erosion is measured as the rate of change in the position or horizontal displacement of a shoreline over a period of time. It is generally associated with episodic events such as hurricanes and tropical storms, nor'easters, storm surge and coastal flooding but may also be caused by human activities that alter sediment transport. Construction of shoreline protection structures can mitigate the hazard, but may also exacerbate it under some circumstances.
Dam Failure	Dam failure is the collapse, breach, or other failure of a dam structure resulting in downstream flooding. In the event of a dam failure, the energy of the water stored behind even a small dam is capable of causing loss of life and severe property damage if development exists downstream of the dam. Dam failure can result from natural events, human-induced events, or a combination of the two. The most common cause of dam failure is prolonged rainfall that produces flooding. Failures due to other natural events such as hurricanes, earthquakes or landslides are significant because there is generally little or no advance warning.
Drought	A prolonged period of less than normal precipitation such that the lack of water causes a serious hydrologic imbalance. Common effects of drought include crop failure, water supply shortages, and fish and wildlife mortality. High temperatures, high winds, and low humidity can worsen drought conditions and also make areas more susceptible to wildfire. Human demands and actions have the ability to hasten or mitigate drought-related impacts on local communities.
Flood	The accumulation of water within a water body which results in the overflow of excess water onto adjacent lands, usually floodplains. The floodplain is the land adjoining the channel of a river, stream ocean, lake or other watercourse or water body that is susceptible to flooding. Most floods fall into the following three categories: riverine flooding, coastal flooding, or shallow flooding (where shallow flooding refers to sheet flow, ponding and urban drainage).
Ice Jams	A formation of ice over a body of water that limits the flow of the water due to freezing. Ice jam flooding occurs when warm temperatures and heavy rain cause the snow to melt rapidly, causing frozen rivers or lakes to overflow. As the water lifts, the ice that's formed on top of the body of water breaks into small pieces of varying sizes. These pieces or large chunks of ice tend to float downstream and often pile up near narrow passages or near obstructions, such as bridges and dams. This accumulation can impact the integrity of the structures and also cause upstream flooding as water backs up behind the obstruction.
Storm Surge	A storm surge is a large dome of water often 50 to 100 miles wide and rising anywhere from four to five feet in a Category 1 hurricane up to more than 30 feet in a Category 5 storm. Storm surge heights and associated waves are also dependent upon the shape of the offshore continental shelf (narrow or wide) and the depth of the ocean bottom (bathymetry). A narrow shelf, or one that drops steeply from the shoreline and subsequently produces deep water close to the shoreline, tends to produce a lower surge but higher and more powerful storm waves. Storm surge arrives ahead of a storm's actual landfall and the more intense the hurricane is, the sooner the surge arrives. Storm surge can be devastating to coastal regions, causing severe beach erosion and property damage along the immediate coast. Further, water rise caused by storm surge can be very rapid, posing a serious threat to those who have not yet evacuated flood-prone areas.
Wave Action	The characteristics and effects of waves that move inland from an ocean, bay, or other large body of water. Large, fast moving waves can cause extreme erosion and scour and their impact on buildings can cause severe damage. During hurricanes and other high-wind events, storm surge and wind increase the destructiveness of waves and cause them to reach higher elevations and penetrate further inland.
GEOLOGIC	
Earthquake	A sudden, rapid shaking of the Earth caused by the breaking and shifting of rock beneath the surface. This movement forces the gradual building and accumulation of energy. Eventually, strain becomes so great that the energy is abruptly released, causing the shaking at the earth's surface which we know as an earthquake. Roughly 90 percent of all earthquakes occur at the boundaries where plates meet, although it is possible for earthquakes to occur entirely within plates. Earthquakes can affect hundreds of thousands of square miles; cause damage to property measured in the tens of billions of dollars; result in loss of life and injury to hundreds of thousands of persons; and disrupt the social and economic functioning of the affected area.
Expansive Soils	Soils that will exhibit some degree of volume change with variations in moisture conditions. The most important properties affecting degree of volume change in a soil are clay mineralogy and the aqueous environment. Expansive soils will exhibit expansion caused by the intake of water and,

	conversely, will exhibit contraction when moisture is removed by drying. Generally speaking, they often appear sticky when wet, and are characterized by surface cracks when dry. Expansive soils become a problem when structures are built upon them without taking proper design precautions into account with regard to soil type. Cracking in walls and floors can be minor, or can be severe enough for the home to be structurally unsafe.
Landslide	The movement of a mass of rock, debris, or earth down a slope when the force of gravity pulling down the slope exceeds the strength of the earth materials that comprise to hold it in place. Slopes greater than 10 degrees are more likely to slide, as are slopes where the height from the top of the slope to its toe is greater than 40 feet. Slopes are also more likely to fail if vegetative cover is low and/or soil water content is high.
Land Subsidence	The gradual settling or sudden sinking of the Earth's surface due to the subsurface movement of earth materials. Causes of land subsidence include groundwater pumpage, aquifer system compaction, drainage of organic soils, underground mining, hydrocompaction, natural compaction, sinkholes, and thawing permafrost.
Tsunami	A series of waves generated by an undersea disturbance such as an earthquake. The speed of a tsunami traveling away from its source can range from up to 500 miles per hour in deep water to approximately 20 to 30 miles per hour in shallower areas near coastlines. Tsunamis differ from regular ocean waves in that their currents travel from the water surface all the way down to the sea floor. Wave amplitudes in deep water are typically less than one meter; they are often barely detectable to the human eye. However, as they approach shore, they slow in shallower water, basically causing the waves from behind to effectively "pile up", and wave heights to increase dramatically. As opposed to typical waves which crash at the shoreline, tsunamis bring with them a continuously flowing 'wall of water' with the potential to cause devastating damage in coastal areas located immediately along the shore.
Volcano	A mountain that opens downward to a reservoir of molten rock below the surface of the earth. While most mountains are created by forces pushing up the earth from below, volcanoes are different in that they are built up over time by an accumulation of their own eruptive products: lava, ash flows, and airborne ash and dust. Volcanoes erupt when pressure from gases and the molten rock beneath becomes strong enough to cause an explosion.
OTHER	
Wildfire	An uncontrolled fire burning in an area of vegetative fuels such as grasslands, brush, or woodlands. Heavier fuels with high continuity, steep slopes, high temperatures, low humidity, low rainfall, and high winds all work to increase risk for people and property located within wildfire hazard areas or along the urban/wildland interface. Wildfires are part of the natural management of forest ecosystems, but most are caused by human factors. Over 80 percent of forest fires are started by negligent human behavior such as smoking in wooded areas or improperly extinguishing campfires. The second most common cause for wildfire is lightning.

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Hazard Mitigation Planning Project

LAND USES AND DEVELOPMENT TRENDS QUESTIONNAIRE

Part of the plan development process involves an evaluation of land uses and development trends within each participating jurisdiction. This look into the future is important because development in hazard areas could put more assets at risk and, in turn, could work to increase potential disaster-related damages at a time when the mitigation plan's purpose is to reduce the potential for damages emanating from natural disasters.

The URS Team will be describing existing land use based on a review of Atlantic County GIS-based land use maps. Plan sections regarding future development trends will also incorporate relevant information contained in the latest Cross Acceptance Reports for the County and each municipality.

We would appreciate your feedback at this juncture to supplement our broader efforts with more specific information about your municipality. Please answer the questions on the attached pages, and return to URS by email, US mail, or fax, no later than October 18, 2008.

Anna Foley / Richard Franks
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201 Willowbrook Boulevard, 3rd Floor
Wayne, New Jersey 07470-7005
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Email: anna_foley@urscorp.com richard_franks@urscorp.com

Thank you, in advance! If you have questions, please reach out to us at any time.

Suggestion: Your municipal planner (or planning board) may be of great assistance to you in completing this questionnaire.

Name: _____

Title/Department: _____

Jurisdiction You Are Representing: _____

Email Address: _____

1. **In the space below, please describe several key development trends that are occurring within your jurisdiction, such as the predominant types of development occurring, location, expected intensity, and pace by land use. While some degree of detail is preferred, it is also ok if your feedback is qualitative and quite general, such as: *"high-occupancy, high-density residential development is occurring near the waterfront"* …or… *"single family residential development is occurring in presently undeveloped woodland areas outside of the city center"* …or… *"retirement housing is being constructed on lands that were previously used for farming"*.**

Name: _____

Title/Department: _____

Jurisdiction You Are Representing: _____

Email Address: _____

2. Does your jurisdiction enforce regulations/ordinances/codes to protect new development from the effects of natural hazards? (Some examples might be floodplain management ordinances enforcing FEMA's NFIP for new development or substantial improvements in the floodplain; steep slope ordinances for communities which may have landslide hazards; earthquake resistant design criteria and/or high wind design criteria; or buffer zones in wildfire hazard areas.) If so, please describe.

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CAPABILITY ASSESSMENT QUESTIONNAIRE

Performing a Capability Assessment is one step of preparing a hazard mitigation plan. A mitigation planning Capability Assessment consists of taking an in-depth look at community mechanisms (such as plans, codes, ordinances, staffing, etc.) that can affect hazard mitigation activities in a jurisdiction. Sometimes, these mechanisms are found to contribute to mitigation in a positive way - things that will *facilitate* mitigation actions. On the contrary, other mechanisms are sometimes found to have the opposite effect – things that can *hinder* the effective or efficient pursuit of mitigation actions (such as outdated policies, insufficient annual budgets, lack of an appropriate department or program, insufficient staffing, lack of appropriate legal authority, or 'red tape').

Performing the Capability Assessment is useful for two main reasons:

1. It provides information that can be used to develop an approach for Plan Integration (the step of identifying how the plan, once it is adopted, will tie into existing plans, policies, procedures, etc).
2. It documents information that will be useful for jurisdictions in developing an implementation strategy for selected hazard mitigation actions (that is, defining who in the jurisdiction will take the lead on moving forward with the mitigation action).

While sounding like an ominous task, FEMA has put together a Capability Assessment Questionnaire (attached here, from their Mitigation Planning How-To Guide #3, Worksheet #3, Job Aid #2) which for the most part, requires a series of 'yes' or 'no' responses. The Capability Assessment Questionnaire walks the preparer through a process of documenting community agencies/departments/organizations and their missions, functions, programs, plans, policies, regulations, funding, etc. of each group, in order to create an inventory of resources that can be brought to bear on mitigation efforts. It also helps preparers identify the regulatory, administrative, technical, and fiscal capacities and capabilities of each entity. In the plan, URS will summarize capabilities at the State and Federal levels. We will also incorporate into that assessment any feedback submitted by local jurisdictions who return their completed Capability Assessment Questionnaires.

If you have questions or need help completing the forms, please let us know. We will also set aside some time at a future meeting to assist you.

Please return completed questionnaires to us no later than January 18, 2009 so that we will have time to incorporate all of your information into the plan. You can submit by email, US mail, or fax, to:

Anna Foley / Richard Franks
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Wayne, New Jersey 07470-7005
Phone: 973-785-0700 ext. 339 (AF) ext 449 (RF); Fax: 973-812-0985
Email: anna_foley@urscorp.com richard_franks@urscorp.com

***Suggestion**: The other members of your Jurisdictional Assessment Team may be of great assistance to you in completing this questionnaire. You may wish to complete this questionnaire as a group at your next JAT meeting.*

FEMA How-To #3, Worksheet #3: Local Mitigation Capability Assessment

On the following page, list the name of the agency and its mission in the first column. By identifying the missions and functions, as well as programs, plans, policies, regulations, funding and other practices administered by that agency, local and tribal jurisdictions create an inventory of resources that can be brought to bear on mitigation efforts within the community or tribe.

List any programs, plans, policies, etc., this agency has in the second column. It is important to include within this column any legal authorities (which can be found by reviewing the state capability assessment) that govern how land would be developed within hazard areas. Typically, these types of regulations are found in local zoning, building, subdivision, and other special land development codes (such as floodplain management ordinances, hillside ordinances, etc.). You should also take the opportunity to include any resources that this organization has developed for local use as part of each respective program. Include any appropriate legal citations or source references for programs, regulations, policies, etc.

If you know a point of contact, list it in the third column.

Check off whether the programs, plans, policies, etc., have an effect on loss reduction. Communities and tribes should now evaluate the effects or implications of these activities on efforts to reduce losses within the jurisdiction (fourth column). The essential questions to be answered are: Does/would this program/plan/policy, etc., support or facilitate mitigation efforts, or does/would it hinder these efforts? How or why? Put these reasons in the Comments column. At this point, you will not try to resolve any issues (such as if a particular program or policy could negatively affect proposed mitigation efforts), but the planning team will carry this information forward as input into the evaluation of specific actions in later phases of the process.

Finally, add any other comments you may have about the agency or its activities in the last column.

Name:_____Title/Dept.:_____Jurisdiction:_____Email:_____

Agency Name (Mission/Function)	Programs, Plans, Policies, Regulations, Funding, or Practices	Point of Contact Name, Address, Phone, Email	Effect on Loss Reduction*		Comments
			Facilitate	Hinder	

*Definitions:

Facilitate: *Programs, plans, policies, etc. that make implementing mitigation actions easier.*
Hinder: *Programs, plans, policies, etc., that pose obstacles to implementation of mitigation actions, (i.e., outdated policies, insufficient annual budgets, lack of an appropriate department or program, insufficient staffing, lack of appropriate legal authority, or 'red tape')*

FEMA How-To #3, Worksheet Job Aid #2: Local Hazard Mitigation Capabilities

This job aid will assist the planning team in identifying the various capabilities and capacities in your jurisdiction when completing Worksheet #3.

Legal authority and administrative, technical, and fiscal capabilities and capacities in local jurisdictions vary greatly. It is important to recognize the capabilities and limitations of each jurisdiction in the plan.

Section 1: Legal and Regulatory Capability

The following section encourages the planning team to think about the legal authorities available to your community and/or enabling legislation at the state level affecting all types of planning and land management tools that can support local hazard mitigation planning efforts in your community.

The following planning and land management tools are typically used by states and local and tribal jurisdictions to implement hazard mitigation activities. Which of the following does your jurisdiction have? If the jurisdiction does not have this capability or authority, does another entity/jurisdiction have this authority at a higher level of government (county, parish, or regional political entity), or does the state prohibit the local jurisdictions from having this authority? You should include this information in the second column on Worksheet #3.

Name:_____ Title/Dept.:_____ Jurisdiction:_____ Email:_____				
Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit? (Y/N)	Higher Level Jurisdiction Authority (Y/N)	Comments
a. Building code				
b. Zoning ordinance				
c. Subdivision ordinance or regulations				
d. Special purpose ordinances (floodplain management, stormwater management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)				
e. Growth management ordinances (also called "smart growth" or anti-sprawl programs)				
f. Site plan review requirements				
g. General or comprehensive plan				
h. A capital improvements plan				
i. An economic development plan				
j. An emergency response plan				
k. A post-disaster recovery plan				
l. A post-disaster recovery ordinance				
m. Real estate disclosure requirements				
n. Other				

Section 2: Administrative and Technical Capacity

The following section encourages the planning team to inventory existing personnel and technical resources that can be used for mitigation planning and implementation of specific mitigation actions. Think about the types of personnel employed by your jurisdiction and the public and private sector resources that may be accessed to implement hazard mitigation activities in your community.

For smaller jurisdictions with limited capacities, no local staff resources may be available for many of the categories noted below. If so, the planning team should consider public resources at the next higher level of government that may be able to provide technical assistance to the community. For example, a small town may be able to turn to county planners or engineers to support its mitigation planning efforts or a regional planning agency may be able to provide assistance. For some hazard mitigation actions, consider federal agencies that provide technical assistance, such as the U.S. Department of Agriculture (USDA) Cooperative Extension Service, which has offices in most counties. The planning team in rural communities must be creative in identifying outside resources to augment limited local capabilities. For larger or more urban jurisdictions, this inventory task may involve targeting specific staff in various departments that have the expertise and may be used to support hazard mitigation initiatives.

You will need this information when preparing your mitigation strategy (later phases of the planning process).

Identify the personnel resources responsible for activities related to hazard mitigation/loss prevention within your jurisdiction. Does your jurisdiction have:

Staff/Personnel Resources	Yes/No	If "Yes", Identify Department/Agency and Position
a. Planner(s) or engineer(s) with knowledge of land development and land management practices		
b. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure		
c. Planners or Engineer(s) with an understanding of natural and/or human-caused hazards		
d. Floodplain manager		
e. Surveyors		
f. Staff with education or expertise to assess the community's vulnerability to hazards		

Name:_____Title/Dept.:_____Jurisdiction:_____Email:_____		
g. Personnel skilled in GIS and/or HAZUS		
h. Scientists familiar with the hazards of the community		
i. Emergency manager		
j. Grant writers		

Section 3. Fiscal Capability

Identify whether your jurisdiction has access to or is eligible to use the following financial resources for hazard mitigation. Use this information to fill in the second column on Worksheet #3 and later on in the process when preparing your mitigation strategy.

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
a. Community Development Block Grants (CDBG)	
b. Capital improvements project funding	
c. Authority to levy taxes for specific purposes	
d. Fees for water, sewer, gas, or electric service	
e. Impact fees for homebuyers or developers for new developments/homes	
f. Incur debt through general obligation bonds	
g. Incur debt through special tax and revenue bonds	
h. Incur debt through private activity bonds	
i. Withhold spending in hazard-prone areas	
j. Other	

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Mitigation Options Survey

Municipality……..

Please score the following generic descriptions of mitigation measures in the order that you consider them to be most preferred by your community, with 1 = most preferred, through 6 = least preferred.

1. Preventive measures ☐
- Regulations,
- Building codes
- Zoning

2. Asset protection ☐
- Structure elevation/retrofit
- Hurricane clips
- Fireproof treatments

3. Emergency services ☐
- Redundant communications systems
- Hazard warning systems
- Response resources

4. Structural projects ☐
- Floodwalls/levees
- Channel improvements
- Drainage
- Dams

5. Natural resource protection ☐
- Set aside flood prone land for parks/open space
- Wetland/wildland restoration

6. Public information ☐
- Newsletters
- Information at civic association meetings
- Public notices
- Local media

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) _____

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, and selected a subset of the actions that your jurisdiction would like to implement. This worksheet is intended to help you consider a range of factors to prioritize the actions that you have selected.

First, in order to prioritize the mitigation actions your jurisdiction has selected, identify the ***benefits*** and ***costs*** of each action using a FEMA planning concept called **STAPLEE**.

S Social	Is the action unfair to one section of the community over others? If yes, it is a social cost associated with the action. If the implementation of the action helps achieve a social goal of the community, it is a social ***benefit*** associated with the action.
T Technical	Is the action a good technical solution to the problem? If yes, it is a ***benefit*** associated with the action. The better the solution, the higher the ***benefits***.
A Administrative	Is the action difficult to implement because of the administrative problems associated? If yes, it is an administrative ***cost***.
P Political	Is the action politically favored? If yes, it is a ***benefit.*** If the action is likely to be politically unacceptable, it is a ***cost*** associated with the action.
L Legal	Are there perceived legal problems in implementing the action? If yes, it is a ***cost*** associated with the action.
E Economic	Does implementing the action make economic sense? If yes, it is a ***benefit***. If the project costs are too prohibitive, it is a ***cost.***
E Environmental	Does the action have adverse environmental effects? If yes, it is a ***cost*** associated with the action.

After determining if something is a 'benefit' or a 'cost', use the following sliding scale to document your findings:

-	0	+
Cost (Unfavorable)	Neutral or Not Applicable	Benefit (Favorable)

Third, using the same scale, consider three factors: (1) Can the project be implemented easily?, (2) Does the project achieve multiple objectives?, and (3) Can the project be implemented quickly? If the answer is "yes" it is a ***benefit*** and if the answer is "no" it is a ***cost***. If the answer is not particularly favorable or unfavorable, place a '0' in the cell.

Finally, using ALL factors discussed above, compare OVERALL benefits to OVERALL costs for each action (high, medium, or low). Use this comparison to assign a priority (also high, medium, or low) for each action item; i.e., a project with low benefits and high costs would be ranked as a low priority. Relative scores are assigned to each criterion for a qualitative assessment – you do not have to tally up "+'s" and "-'s". You may find that in your community, one or several criterion outweigh the others. (For example, even if a project gets "+" scores all the way across the board except the "L" column, you don't have to give this a high priority. Specific legal issues might outweigh all the other benefits, and result in your assessment that the action should receive a low priority, despite its many benefits.)

Action	**"-" = cost (unfavorable)**				**"0"=neutral or not applicable**			**"+" = benefit (favorable)**			**(high, medium, or low)**		
	S	**T**	**A**	**P**	**L**	**E**	**E**	**Can be implemented easily**	**Achieves multiple objectives**	**Can be implemented quickly**	**Overall Benefits**	**Overall Costs**	**Priority**
SAMPLE MITIGATION ACTION #1 *(great project with benefits in every category, except specific legal issues that really outweigh all other project benefits)*	+	+	+	+	-	+	+	+	+	+	**Med**	**High**	**Low**
SAMPLE MITIGATION ACTION #2 *(great project, with some minor political and legal issues, neither of which outweighs the rest of the project's benefits)*	+	+	+	-	-	+	+	+	+	+	**High**	**Low**	**High**
SAMPLE MITIGATION ACTION #3 *(technically feasible and reasonable cost project which can be implemented quickly, easily, and achieves multiple objectives but has limited administrative, social, and environmental issues)*	-	+	-	**0**	**0**	+	-	+	+	+	**Medium**	**Medium**	**Medium**

PRIORITIZATION OF ACTIONS

(Name of Jurisdiction) _____

Action	"-" = cost (unfavorable)						"0"=neutral or not applicable		"+" = benefit (favorable)	(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority

IMPLEMENTATION STRATEGY WORKSHEET

(Name of Jurisdiction) _____

Before completing this form, your jurisdiction should already have considered the full range of possible mitigation actions set forth in the Risk Assessment Interim Deliverable, selected a subset of the actions that your jurisdiction would like to implement, AND filled out the "Prioritization Worksheet". Now, on this page, translate from the "Prioritization Worksheets" each action and its priority rank, then fill in the remainder of the row

PRIORITY*	Mitigation Action	Please list the hazards that the action will address.	Please say whether the action will affect existing assets, future assets, or both?	What municipal department will take the lead on moving forward with the project?	What is the existing authority or local planning mechanism through which the action can be implemented?	What is the target date for project completion?	What is the estimated cost of the project? *(order of magnitude dollars, or qualitative high/med/low)*	What funding source do you anticipate? *(i.e., local staff time, local budget, grant funding, etc.)*

**** "Priority" to be carried over from the STAPLEE worksheet***

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project
NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction)_____

First:

1. Please fill in the following table. *(Note: All 23 municipalities participate in the NFIP; therefore, your municipality DOES have a floodplain management ordinance AND a Floodplain Administrator on the books).*

Name of Your Jurisdiction	Adoption Date of your Current Floodplain Management Ordinance	Position Title of Your Jurisdiction's Designated Floodplain Administrator	Number of Municipal Staff with Roles in Enforcement of Floodplain Management Ordinance
Please give a brief description of activities currently undertaken by your municipality to enforce your floodplain management ordinance:			

***Next*:**

2. If your current floodplain management ordinance was adopted before 1996 and has not been subsequently revised, then fill in Row 1 on Pages 2 and 3. *(Please leave Row 1 blank if your ordinance is current as of 1996 or later.)*
3. If your jurisdiction does not have a specific person designated to act as your local Floodplain Administrator, or if the person filling this position is unaware of their role as Floodplain Administrator, then fill in Row 2 on Pages 2 and 3. *(Otherwise please leave Row 2 blank).*
4. If you consider the present level of staffing insufficient to adequately enforce your floodplain management ordinance, then fill in Row 3 on Pages 2 and 3. *(Please leave Row 3 blank if you feel current staffing levels are adequate.)*
5. Please fill in Row 4 on Pages 2 and 3 to evaluate how you plan to update your floodplain management ordinance to be consistent with revised Flood Insurance Rate Maps that may at some point become available in the future for Atlantic County. (*Note that FEMA has not included Atlantic County as part of its Map Modernization study; thus, no new mapping is anticipated in the near future. However, everyone should still fill in Row 4.)*
6. If floodplain management staff members in your municipality are not Certified Floodplain Managers (CFMs), then please fill in Row 5 on Pages 2 and 3. *(Please leave Row 5 blank if your floodplain managers are already CFMs.)*
7. If your municipality is not already a participant in FEMA's Community Rating System (CRS), please fill in Row 6 on Pages 2 and 3. *(Six jurisdictions currently participate in the CRS: Atlantic City, Brigantine, Hamilton, Longport, Margate & Ventnor; everyone else should fill in Row 6.)*
8. If you consider there to be additional activities that could be undertaken to enforce your municipality's floodplain management ordinance beyond what your municipality is already doing, please list these actions in the blank Rows 7 and 8 on Pages 2 and 3. *(Otherwise, you can leave Rows 7 and 8 blank.)* * Feel free to attach additional pages if you need more space.

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Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project

NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction)_____

PRIORITIZATION

NFIP Compliance Action	"-" = cost (unfavorable)					"0"=neutral or not applicable	"+" = benefit (favorable)			(high, medium, or low)		
	S	T	A	P	L	E	E	Can be implemented easily	Achieves multiple objectives	Can be implemented quickly	Overall Benefits	Overall Costs	Priority
1. Update/revise floodplain management ordinances to comply with latest FEMA regulations													
2. Designate/install a specific person to be your municipality's Floodplain Administrator													
3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances													
4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs													
5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)													
6. Join the Community Rating System (CRS)													
7.													
8.													

Atlantic County Multi-Jurisdictional Hazard Mitigation Planning Project

NFIP COMPLIANCE ACTIONS WORKSHEET

(Name of Jurisdiction)_____

IMPLEMENTATION STRATEGY

Priority	NFIP Compliance Action	Applies to Community Assets (Existing / New / Both)	Primary Department Responsible	Existing Local Planning Mechanism through which the action will be implemented	Target Date	Cost Estimate	Funding Source
	1. Update/revise floodplain management ordinances to comply with latest FEMA regulations						
	2. Designate/install a specific person to be your municipality's Floodplain Administrator						
	3. Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances						
	4. Update/revise floodplain management ordinances to be consistent with potential future new FIRMs						
	5. Require staff involved in Floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)						
	6. Join the Community Rating System (CRS)						
	7.						
	8.						