

# SECTION 9



## Mitigation Action Plans

The mitigation actions proposed by each of New Hanover County’s local governing bodies participating under this Plan are listed in four individual Mitigation Action Plans (MAPs) on the pages that follow. This includes a MAP for New Hanover County, City of the Wilmington, Town of Carolina Beach, and Town of Kure Beach. Each MAP has been designed to address the multi-jurisdictional goals of this Hazard Mitigation Plan, in addition to the particular goals and objectives of each individual jurisdiction. Further, each MAP follows the same format which lists the action, whether it is new or existing, an implementation status, lead agency, estimated cost, and other items to demonstrate that each action has been thoroughly assessed for feasibility.

The Town of Carolina Beach is a new participating jurisdiction in this Plan. Therefore, mitigation actions from the Town’s previous plan have been incorporated into this Plan, using the same format used by the other jurisdictions.

Some jurisdictions included actions that pertain to man-made hazards not specifically addressed in this plan such as hazardous materials incidents and bioterrorism. The decision to exclude such hazards from the Risk Assessment portion of the plan was made primarily because man-made hazards are required to be addressed by the Disaster Mitigation Act. However, the jurisdictions chose to include actions on man-made hazards in order to potentially obtain funding and show the community its intent to complete such actions.

Mitigation Actions will be maintained on a regular basis according to the plan maintenance procedures established for the New Hanover County Multi-jurisdictional Hazard Mitigation Plan (See Section 10: *Plan Maintenance Procedures*). The text below describes the page number of each jurisdiction’s MAP, number of Mitigation Actions, and the key elements included in each action.

<b><u>Jurisdiction</u></b>	<b><u>Page</u></b>
New Hanover County .....	9.4
City of Wilmington .....	9.28
Town of Carolina Beach .....	9.41
Town of Kure Beach .....	9.67

### 44 CFR Requirement

**201.6(c)(3)(iii):** The mitigation strategy shall include an action plan describing how the actions identified in paragraph (c)(2)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction.

### 44 CFR Requirement

**201.6(c)(3)(iv):** For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit for the plan.

<b>Jurisdiction</b>	<b>Number of Mitigation Actions</b>	<b>Number of New Mitigation Actions</b>
New Hanover County	32	12
City of Wilmington	32	12
Town of Carolina Beach	43	0
Town of Kure Beach	7	0

## Key Elements of the Mitigation Action Plan

Jurisdiction and Action Number	Title of Action (Description of action to be undertaken.)
New or Existing Action	Indication of whether the action is new to the plan or is an existing action.
Discussion:	Describes any issues or concerns with the action. The goal(s) that the action is linked to may also be indicated here.
Category:	Category of Mitigation Technique that is met: Prevention, Property Protection, Natural Resource Protection, Structural Projects, Emergency Services, Public Education and Awareness
Hazard(s) Addressed:	Hazard which the action addresses.
Lead Agency/Department Responsible:	Department responsible for undertaking the action.  Common Acronyms: CRS – Community Rating System NHCEM – New Hanover County Emergency Management FEMA - Federal Emergency Management Agency GIS – New Hanover County Geographic Information Services NCDENR – North Carolina Department of Environmental and Natural Resources NCDOT – North Carolina Department of Transportation NCEM – North Carolina Department of Emergency Management NRCS – Natural Resource Conservation Services USACE – US Army Corp of Engineers
Estimated Cost:	Anticipated cost of the action.
Potential Funding Sources:	State and Federal sources of funds are noted, where applicable.
Implementation Schedule:	Date by which the action should be completed. More information is provided when possible.
Priority (High, Moderate, Low):	In preparing their own individual Mitigation Actions Plans, each jurisdiction considered their overall hazard risk and capability to mitigate natural hazards as recorded through the risk and capability assessment process, in addition to meeting the adopted countywide mitigation goals and the unique needs of their community. Prioritizing mitigation actions for each jurisdiction was based on the following five (5) factors: (1) effect on overall risk to life and property; (2) ease of implementation; (3) political and community support; (4) a general economic cost/benefit review; and (5) funding availability. This process is also described on page 8:2, Section 8: <i>Mitigation Strategy</i> .
Action Implementation Status (2010):	An indication of completion, progress, or no change since the previous plan.

# New Hanover County

		HAZARD RISK		
		Low	Moderate	High
OVERALL CAPABILITY	High			✓
	Moderate			
	Limited			

New Hanover County Mitigation Action 1	Maintain the County's Continuity of Government Plan (COOP) by ensuring that updates are completed by all county departments at least twice a year.*
New or Existing Action	Existing
Discussion:	In FY 2004, the County received grant funding to develop a COOP for the 8 departments most critical to hazard response in the County government. In order for the County to be completely prepared, all departments must be included in the COOP, which also needs to be exercised.
Category:	Prevention / Property Prevention
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Emergency Management, in coordination with New Hanover County departments.
Estimated Cost:	Local staff time; consultant services.
Potential Funding Sources:	Grant funding, most specifically, local Emergency Operations Planning Grants.
Implementation Schedule:	Bi-annual updates should be made on WEPPS by all departments. (Note: this Implementation Schedule was updated for the 2010 plan.)
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing: The COOP was revised and updated to include all County departments in January 2005; the COOP was exercised in August 2005. A web-based system that allows county departments to update their checklists on the web was developed in 2008.

\*This action has been revised for the 2010 plan.

<b>New Hanover County Mitigation Action 2</b>	<b>Enhance the survivability of critical IT services by installing redundant capability (“hot site”) at our remote operating site.</b>
New or Existing Action:	Existing
Discussion:	Conduct a risk analysis of IT systems to include Business Continuity Planning, Facilities Management, Security and other Emergency Management issues.
Category:	Prevention/Property Protection
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Information Technology
Estimated Cost:	\$300,000 for IT infrastructure necessary to provide an alternative operating site (“hot site”). Includes redundant internet connection, servers, applications, and data storage.
Potential Funding Sources:	Grant funding
Implementation Schedule:	Dependent upon funding
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	<p>Ongoing: At the NHC Government Center, we now have a data center that has fully redundant power including a backup generator with a 72 hour tank. This will allow us to operate the computer room during emergency events.</p> <p>We also completed a project to create redundant paths for our fiber optic network which connects the main county facilities (Judicial Building, DSS, Health, and Government Center). This gives us fail over in case of a fiber break along one of the paths.</p> <p>In fiscal year 2007/2008 IT conducted meetings with County Departments to assess the criticality of applications and services hosted by the IT department. We identified the most critical IT services as those necessary to support the emergency response efforts. These services include telecommunications, email communications, internet access, and access to critical data files, applications, and web sites.</p> <p>In the event that the IT facilities at the Government Center are damaged or destroyed, we need to be able to rapidly start up critical IT services from our alternate operating site (“hot site”) at the Judicial Building. See “Estimated</p>

	Cost”.
	Completion of the plans will be contingent on budgetary or grant funding.

<b>New Hanover County Mitigation Action 3</b>	<b>Install permanent generators at all five emergency shelters. Pursue funding for a permanent generator at the New Hanover County Senior Center.*</b>
New or Existing Action:	Existing
Discussion:	Currently, the 5 County school shelters have transfer switches, as does the Senior Center. However, the County has no facility with a permanently installed generator that can be activated as a shelter on short notice. The County's priority is to have permanently installed generators at 1 school shelter, the senior center and the animal shelter.
Category:	Emergency Services
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Emergency Management with assistance from the Public Schools, Health Department & Dept. of Aging.
Estimated Cost:	School & Sr. Center have transfer switches installed. The cost of wiring and 300 kw generators at each location is \$44,000. The County has a generator it can install at the Animal shelter. The cost of a transfer switch is \$15,000. Total cost for this project: \$103,000.
Potential Funding Sources:	Annual County Budget Request
Implementation Schedule:	Plans are in place to install a generator at Trask Middle School by July 2010. A generator will be installed at Codington Elementary School in 2011, completing the plan to install permanent generators at all five of NHC's emergency shelters. (Note: The Implementation Schedule has been updated for the 2010 plan.)
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing: Permanent generators have been installed at Dorothy B. Johnson Elementary, Noble Middle, and Eaton Elementary Schools. A permanent generator has been installed at the New Hanover County Animal Control facility and at Cape Fear Museum.

\*This action has been revised for the 2010 plan.

New Hanover County Mitigation Action 4	Install microwave links between the County radio system and the 911 system.
New or Existing Action:	Existing
Discussion:	The County has no communications redundancy. This project would install microwave links between the 911 center and the 2 communications towers that provide countywide coverage, and between the 2 communications towers.
Category:	Emergency Services
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Emergency Management
Estimated Cost:	\$60-90,000 for each link. Total cost: \$180,000-\$270,000.
Potential Funding Sources:	Grant funding
Implementation Schedule:	Annual County Budget Request
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	This action was completed prior to November 1, 2006.

<b>New Hanover County Mitigation Action 5</b>	<b>Continue to promote rip current awareness within the county by partnering with various beach services and the National Weather Service. Emphasis should be placed on educating children, the local public and tourists.*</b>
New or Existing Action:	Existing
Discussion:	The County has 3 Atlantic beaches which frequently experience RIP currents. Public notification of rip current location in real time in the form of Public Service Announcements and signage at beach access points would increase awareness of the hazard.
Category:	Public Awareness
Hazard(s) Addressed:	RIP currents
Lead Agency/Department Responsible:	Emergency Management in conjunction with the local office of the National Weather Service, Lifeguards
Estimated Cost:	\$2-5,000 for signs
Potential Funding Sources:	Grant or operating funds
Implementation Schedule:	Continuous
Priority (High, Moderate, Low):	Moderate
Action Implementation Status (2010):	Ongoing: New Hanover County was the test site for the east coast of the U.S. RIP Current Advisory Strategies Team and developed the initiatives, such as posters in all classrooms in the County, and signage at all 3 beaches. All initiatives completed prior to summer 2006.

\*This action was revised for the 2010 plan.



<b>New Hanover County Mitigation Action 6</b>		<b>Drainage project at Crosswinds Subdivision</b>	
New or Existing Action:		Existing	
Discussion:		Houses are being flooded & damaged from flood waters during rain storms much smaller than major events. Streets are flooded preventing access by emergency and other vehicles. This project would enlarge & install pipe in the drainage outfall to allow larger storms to drain.	
Category:		Structural Projects	
Hazard(s) Addressed:		Flooding	
Lead Agency/Department Responsible:		Engineering Department	
Estimated Cost:		\$750,000	
Potential Funding Sources:		Hazard Mitigation Grant Program (HMGP)	
Implementation Schedule:		Drainage improvements to Mohican Trail scheduled for 2010. Internal stormwater improvements within Crosswinds ongoing. Large scale flooding improvement projects subject to acquiring additional funding.	
Priority (High, Moderate, Low):		High	
Action Implementation Status (2010):		Ongoing: The drainage issues within the Crosswinds subdivision have been addressed to the best extent possible. NCDOT is still working on improving drainage along College Road in this area. New Hanover County and Crosswinds HOA met with NCDOT, and NCDOT Hydraulics Unit ordered a new study of the culvert under Mohican Trail. Maintenance of drainage on private properties along Mohican Trail has been ongoing to improve drainage towards Whiskey Creek.	

<b>New Hanover County Mitigation Action 7</b>		<b>Buyout of house located in Crosswinds subdivision adjacent to drainage ponds.</b>
New or Existing Action:	Existing	
Discussion:	This house is not in a 100 year floodplain, and yet it has sustained repetitive losses from periodic flooding. Since it is not eligible for buyout under FEMA regulations, we would like to use other funds to acquire this property.	
Category:	Property Protection	
Hazard(s) Addressed:	Flooding	
Lead Agency/Department Responsible:	Engineering Department	
Estimated Cost:	\$170,000	
Potential Funding Sources:	Multiple sources of funding will be sought.	
Implementation Schedule:	Funding dependent	
Priority (High, Moderate, Low):	High	
Action Implementation Status (2010):	This has not been done. No funds have been identified.	

<b>New Hanover County Mitigation Action 8</b>		<b>Retrofit/Elevation Projects for 5 Wastewater pumping stations (80, 81, 48, 92 &amp; 35).*</b>
New or Existing Action:	Existing	
Discussion:	All 5 of these pumping stations (#80, 81, 48, 92, and 35) are located in the 100 year flood plain and routinely flood during hurricane hazards such as flooding and storm surge. For each pump station, the top of the pump station wetwell, the valve box & the control panel slab will be raised above elevation of 12.5 msl.	
Category:	Property Protection-Critical Facilities Protection	
Hazard(s) Addressed:	Flooding, storm surge	
Lead Agency/Department Responsible:	Engineering Department	
Estimated Cost:	\$50,000 each. Total cost: \$250,000	
Potential Funding Sources:	Hazard Mitigation Grant Program (HMGP)	
Implementation Schedule:	Dependent on funding availability	
Priority (High, Moderate, Low):	High	
Action Implementation Status (2010):	Ongoing: 35 ongoing work scheduled for near future for NEI upgrades by Cape Fear Public Utility Authority. 80, 81, 48 and 92 were identified on the New Hanover County Capital Improvement Projects (CIP) list that has since transferred to the Cape Fear Public Utility Authority. These projects have been put on hold due to budget constraints.	

\*This action has been revised for the 2010 plan to indicate specific pumping stations.

New Hanover County Mitigation Action 9	Beaver Management Program
New or Existing Action:	Existing
Discussion:	The Beaver population of New Hanover County has been rapidly increasing. Detrimental impacts include damage to roads, drainage systems, landscape plantings & other property.
Category:	Natural resource protection-watershed management
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	County Cooperative Extension
Estimated Cost:	Up to \$60,000 annually
Potential Funding Sources:	Dept. of Transportation, Soil & Water Conservation, other sources
Implementation Schedule:	The contract is current.
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing: NHC has current contract with U.S. Department of Agriculture for beaver and beaver dam removal in New Hanover County drainage ways.

<b>New Hanover County Mitigation Action 10</b>	<b>Update flood maps to accurately reflect changes in elevation and flood patterns due to natural or man-made forces.</b>
New or Existing Action:	Existing
Discussion:	New Hanover County has experienced rapid development over the past 10 years, resulting in changes in the course of streams and coastal waters, altering the shape of the floodplain. Remapping and correcting flood maps on a regular basis will allow County officials to plan appropriate land uses for flood prone areas.
Category:	Prevention
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Department of Planning
Estimated Cost:	TBD
Potential Funding Sources:	North Carolina Floodplain Mapping Program; Cooperating Technical Partner (CTP) Program (FEMA).
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing: The State of North Carolina Flood Mapping Program completed remapping of New Hanover County's flood maps in order to accurately reflect changes in elevation and flood patterns. The new maps were adopted in coordination with the New Hanover County Flood Damage and Prevention Ordinance and became effective on April 3, 2006.

<b>New Hanover County Mitigation Action 11</b>		<b>Revise Stormwater Management Ordinance*</b>	
New or Existing Action:		Existing	
Discussion:		The County passed a storm water management ordinance on September 30, 2000 in order to regulate storm water runoff. However, development prior to 9/30/2000 was not required to manage storm water. Additionally, no systematic method for storm water management exists. And, there is no mechanism for ensuring that storm water construction projects to mitigate the effects of storm water runoff are funded. A utility would provide county wide storm water management including retrofitting areas without any storm water collection system.	
Category:		Prevention	
Hazard(s) Addressed:		Flooding	
Lead Agency/Department Responsible:		TBD	
Estimated Cost:		Dependent on funding source.	
Potential Funding Sources:		N/A	
Implementation Schedule:		N/A	
Priority (High, Moderate, Low):		High	
Action Implementation Status (2010):		Ongoing: New Hanover County continues to work toward creating a County Storm Water Utility. A Water-Sewer Authority has been created within the County, and a Storm Water Utility could be created on the heels of the Authority.	

\*This action has been revised for the 2010 plan.

<b>New Hanover County Mitigation Action 12</b>	<b>Hire a consultant to identify critical facility structures for susceptibility to hazard damage &amp; set a priority schedule for retrofitting.</b>
New or Existing Action:	Existing
Discussion:	New Hanover County has completed a critical facilities inventory. However, we need to have current information relative to each facility's vulnerability and an estimated cost for retrofitting each one.
Category:	Property Protection-Critical Facilities Protection
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Emergency Management, in coordination with other departments or private corporate interests.
Estimated Cost:	\$25,000 for the study; retrofit costs TBD.
Potential Funding Sources:	Retrofit projects may be funded through FEMA's Pre-Disaster Mitigation Program, Hazard Mitigation Grant Program or through FEMA's Public Assistance Program after a disaster.
Implementation Schedule:	Dependent on funding.
Priority (High, Moderate, Low):	Low
Action Implementation Status (2010):	This project has not yet been budgeted. No grant funds have become available for which this project would be eligible. Priority should be changed to Low at this point.

New Hanover County Mitigation Action 13	Retrofit the Government Center to wind and seismic standards.*
New or Existing Action:	Existing
Discussion:	The County Administrative Annex has been moved to a new building at 230 Government Center Drive. The building used to house a retail store and was converted to office space. However, the building does not meet current standards for wind and seismic hazards.
Category:	Property Protection - Critical Facilities Protection
Hazard(s) Addressed:	Wind and Earthquake
Lead Agency/Department Responsible:	Engineering Department
Estimated Cost:	TBD
Potential Funding Sources:	TBD
Implementation Schedule:	Dependent on Funding
Priority (High, Moderate, Low):	Low
Action Implementation Status (2010):	This project has not yet been budgeted. No funds have become available for which this project would be eligible. Priority should be changed to Low at this point.

\*This action has been revised for the 2010 plan.

<b>New Hanover County Mitigation Action 14</b>	<b>Complete open space plan that gives major consideration to hazard vulnerability for conservation and acquisition.</b>
New or Existing Action:	Existing
Discussion:	New Hanover County's coastal waters & floodplains are some of the most sought after lands for development. These same lands provide valuable buffers between the water and residential development. Preserving these lands as open space would eliminate future development and potential catastrophic losses of private property.
Category:	Prevention - Natural Resource Protection
Hazard(s) Addressed:	Hurricane hazards, coastal erosion & flooding
Lead Agency/Department Responsible:	Department of Planning
Estimated Cost:	TBD
Potential Funding Sources:	Local staff time, Clean Water Management Trust Fund, CAMA, Other grant sources
Implementation Schedule:	TBD
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	The County is in the process of creating an open space plan which will give major consideration to hazard vulnerability for conservation and acquisition. The County is also working toward buying highly vulnerable properties and using those properties for open space. The County purchased two riparian properties that equal 45 total acres that will be put into conservation easement and used for open space and recreation. Within the last year, the County also received a contiguous 14-acre donation property that will be put into conservation easement and preserved for open space and recreation.



<b>New Hanover County Mitigation Action 15</b>	<b>Continue acquisition, elevation &amp;/or retrofitting of hazard prone properties. Notify repetitive loss property owners to see if they are interested in participating in future programs.</b>
New or Existing Action:	Existing
Discussion:	New Hanover County has 402 repetitive loss properties. The number of insured losses to date for these properties is 1,299.
Category:	Property Protections
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Department of Planning
Estimated Cost:	TBD
Potential Funding Sources:	FEMA's Pre-Disaster Mitigation Program, Hazard Mitigation Grant Program, or Flood Mitigation Assistance Program.
Implementation Schedule:	Continuous
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	The County has sent notices to repetitive loss and severe repetitive loss property owners to educate them of the options available to them. Additional properties have not been acquired, elevated or retrofitted since adoption of the Hazard Mitigation Plan.

<b>New Hanover County Mitigation Action 16</b>	<b>Develop &amp; conduct a public awareness campaign emphasizing the economic benefits of participation in the CRS program.</b>
New or Existing Action:	Existing
Discussion:	Not sure enough is known by residents as to how their insurance rates can be lowered by taking mitigation actions against flood damage.
Category:	Public Awareness and Education
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Emergency Management, Planning Department and County Public Information Officer (PIO)
Estimated Cost:	TBD
Potential Funding Sources:	Local staff time; use of NFIP & CRS publications.
Implementation Schedule:	Continuous
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing: Public information concerning the economic benefits of participation in the CRS has been created and is available on the County's website. This information is also included on a mailing sent to all people who own property in the floodplain in New Hanover County.

<b>New Hanover County Mitigation Action 17</b>	<b>Develop &amp; conduct a public awareness campaign regarding potential hazards of urban/wildfire interface.</b>
New or Existing Action:	Existing
Discussion:	County Fire Administration is strongly in favor of this action.
Category:	Public Awareness and Education
Hazard(s) Addressed:	Wildfire and urban fires.
Lead Agency/Department Responsible:	Fire Administration & County PIO
Estimated Cost:	TBD
Potential Funding Sources:	Local staff time
Implementation Schedule:	Continuous
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing: New Hanover County Fire Services' public awareness campaign is ongoing. A video was developed and is shown on the County's cable TV station. New educational materials are continually being generated.

<b>New Hanover County Mitigation Action 18</b>	<b>Ensure that standards for Firewise Communities/USA are routinely included in subdivision review process, i.e., addressed in local subdivision ordinance.</b>
New or Existing Action:	Existing
Discussion:	County Fire Administration is strongly in favor of this action.
Category:	Prevention
Hazard(s) Addressed:	Wildfire and urban fires
Lead Agency/Department Responsible:	Fire Administration, Inspections Department & County Attorney
Estimated Cost:	TBD
Potential Funding Sources:	Local staff time
Implementation Schedule:	Continuous
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing: This is an ongoing process that is an important part of the Subdivision Review Process.

<b>New Hanover County Mitigation Action 19</b>	<b>Revision of Stormwater Management Ordinance in 2010*</b>
New or Existing Action:	Existing
Discussion:	Most problems have been exacerbated by hurricanes. Flooding has led to septic failures in many areas. Specific areas where study is most necessary: Monterey Heights, Middle Sound, Murrayville Road (new school site), Castle Hayne, Masonboro Sound, and Hwy. 421 south of Echo Farms subdivision.
Category:	Property Protection & Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Department of Engineering
Estimated Cost:	TBD
Potential Funding Sources:	TBD
Implementation Schedule:	Revisions being made to ordinance only, a funded stormwater program is not feasible at this time.
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing: A funding source for a comprehensive, County-wide drainage study has not been secured at this point. A review is being conducted of the current storm water ordinance and possible funded storm water program. This is only in the planning stage; feasibility and a timetable have not been established.

\*This action was revised for the 2010 plan.

New Hanover County Mitigation Action 20	Utilize NHC TV in 2010 for public service announcements*
New or Existing Action:	Existing
Discussion:	Education program would advise residents of actions they can take to help prevent flooding in their neighborhoods or on their property. Showing a video on County Cable Channel would be a good mechanism for getting the word out.
Category:	Public Awareness & Education
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Department of Engineering & County PIO
Estimated Cost:	TBD
Potential Funding Sources:	Local staff time
Implementation Schedule:	TBD
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	<p>Completed: NCDENR made the determination that an NPDES (National Pollutant Discharge Elimination System) Phase II Permit would not be required for New Hanover County, but educational opportunities have been provided by other means. County Engineering Staff worked with County Planning Staff to develop recommendations with regard to drainage and stormwater for the Castle Hayne area to incorporate in a long-range plan for that community. The recommendations were formulated by staff but brought forward by a subcommittee made up of concerned residents from the Castle Hayne community.</p> <p>In addition, approximately 120 neighborhood meetings and over 400 individual meetings were conducted by NHC Engineering staff in 2008. Meetings were held in the communities affected by drainage issues. Information on resources available was provided along with possible solutions to address their drainage concerns. A diagram of the recommended ditch cross section and maintenance requirements is included with all correspondence sent to property owners.</p> <p>NHC Engineering staff works closely with NCDOT personnel to address drainage issues that include drainage that is the responsibility of NCDOT.</p>

	<p>In 2008, NHC Engineering staff also started working with the N.C. Cooperative Extension to create an educational pamphlet that can be distributed to individuals and neighborhood associations regarding drainage and stormwater. Engineering staff is also working with Cooperative Extension staff to develop a television commercial for NHC Public Access TV with information about who to call with drainage or stormwater concerns and things that can be done to prevent issues from occurring.</p>
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<b>New Hanover County Mitigation Action 21</b>	<b>Discourage high intensity uses and large structures from being constructed within the 100 year floodplain (1% annual chance floodplain), erosion prone areas, and other locations susceptible to hurricane and flooding hazards.</b>
New or Existing Action:	New
Discussion:	
Category:	Property Protection
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning and Zoning
Estimated Cost:	TBD
Potential Funding Sources:	NC CWMTF, Pre-Disaster Mitigation Program, other grant sources
Implementation Schedule:	TBD
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>New Hanover County Mitigation Action 22</b>	<b>Following a storm event, take advantage of opportunities to acquire or purchase land located in storm hazard areas which are rendered unbuildable or have sustained substantial damage. The property should satisfy objectives including, but not limited to the conservation of open space and scenic areas and the provision of public water access.</b>
New or Existing Action:	New
Discussion:	The property should satisfy objectives including, but not limited to the conservation of open space and scenic areas and the provision of public water access.
Category:	Property Protection
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning and Zoning
Estimated Cost:	TBD
Potential Funding Sources:	NC CWMTF, Pre-Disaster Mitigation Program, other grant sources
Implementation Schedule:	TBD
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>New Hanover County Mitigation Action 23</b>	<b>Declare a moratorium on the acceptance of any request for rezoning in flood prone areas other than for rezoning to a less intense use.</b>
New or Existing Action:	New
Discussion:	
Category:	Property Protection
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning and Zoning
Estimated Cost:	TBD
Potential Funding Sources:	NC CWMTF, Pre-Disaster Mitigation Program, other grant sources
Implementation Schedule:	TBD
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>New Hanover County Mitigation Action 24</b>	<b>Declare a moratorium on the permitting of any new construction, new utility hook-ups, or redevelopment construction that would increase the intensity of the land use existing in disaster prone areas.</b>
New or Existing Action:	New
Discussion:	
Category:	Property Protection
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning and Zoning
Estimated Cost:	TBD
Potential Funding Sources:	NC CWMTF, Pre-Disaster Mitigation Program, other grant sources
Implementation Schedule:	TBD
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>New Hanover County Mitigation Action 25</b>	<b>Request that new assessments of hazard areas be performed periodically due to the changes to the floodplain, shoreline and inlets caused by natural and man-made forces.</b>
New or Existing Action:	New
Discussion:	
Category:	Property Protection
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning and Zoning
Estimated Cost:	TBD
Potential Funding Sources:	TBD
Implementation Schedule:	TBD
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>New Hanover County Mitigation Action 26</b>	<b>Limit density to 2.5 units/acre or less in areas classified as conservation on the CAMA land use map (including areas in the 100 year, or 1% annual chance floodplain). Develop a program for density tradeoffs to encourage development outside the floodplain.</b>
New or Existing Action:	New
Discussion:	
Category:	Property Protection
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning and Zoning
Estimated Cost:	TBD
Potential Funding Sources:	TBD
Implementation Schedule:	TBD
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>New Hanover County Mitigation Action 27</b>	<b>Maintain annual review process for New Hanover County Health Department's (NHCHD) Preparedness Plans to include the NHCHD Emergency Response, Community Containment, Mass Prophylaxis, Pandemic Influenza, Strategic National Stockpile and Local Receiving Site plans, the Response Plans Development Review policy and the Epidemiology (EPI) Team Policy.</b>
New or Existing Action:	New
Discussion:	NHCHD maintains current preparedness plans to ensure readiness to respond to public health emergencies, including containment of disease and response to bioterrorism events.
Category:	Prevention and Emergency Services
Hazard(s) Addressed:	Public Health emergencies including containment of disease and response to bioterrorism events
Lead Agency/Department Responsible:	New Hanover County Health Department
Estimated Cost:	Annual review of plans has minimal cost
Potential Funding Sources:	Local Bioterrorism funding from state
Implementation Schedule:	Annual review
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New



<b>New Hanover County Mitigation Action 28</b>	<b>Install upgraded generator in Health Department located at 2029 S. 17<sup>th</sup> St. Wilmington, NC 28401.</b>
New or Existing Action:	New
Discussion:	Two options are possible: 1) upgrade existing generator to provide backup power to pharmacy for protection of drugs and vaccines requiring refrigeration or 2) upgrade existing generator to provide backup power to entire facility, which is a designated backup EOC for the County.
Category:	Prevention and Emergency Services
Hazard(s) Addressed:	Loss of vaccine and drugs; ability to operate Health Department for emergency services during disasters; ability to operate backup County EOC during disasters
Lead Agency/Department Responsible:	New Hanover County Health Department
Estimated Cost:	Option 1: \$55,000 (2009 quote) Option 2: \$200,000 (2009 estimate)
Potential Funding Sources:	Local Bioterrorism funding from state
Implementation Schedule:	Dependent upon funding availability
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>New Hanover County Mitigation Action 29</b>	<b>National Incident Management System (NIMS) training for County personnel which includes ICS 100, ICS 200, ICS 300, ICS 400, IS 700, and IS 800.</b>
New or Existing Action:	New
Discussion:	Property Protection
Category:	Multiple
Hazard(s) Addressed:	Planning & Zoning
Lead Agency/Department Responsible:	TBD
Estimated Cost:	NC CWMTF, Pre-Disaster Mitigation Program, other grant sources
Potential Funding Sources:	TBD
Implementation Schedule:	High
Priority (High, Moderate, Low):	Property Protection
Action Implementation Status (2010):	New

<b>New Hanover County Mitigation Action 30</b>	<b>Sustain radio communications system through maintenance contracts and system upkeep. Enhance capabilities by upgrading current software to latest version and addition of integrated voice and data (IV&amp;D) features.</b>
New or Existing Action:	New
Discussion:	
Category:	Emergency Services
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Emergency Management
Estimated Cost:	\$959,282 for upgrade \$300,000 for IV&D Total Cost \$1,259,282
Potential Funding Sources:	Grant funding
Implementation Schedule:	Dependent on funding.
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>New Hanover County Mitigation Action 31</b>	<b>Potential consideration to relocate Wrightsville Beach Elementary School from the barrier island where it is currently located to the mainland.</b>
New or Existing Action:	New
Discussion:	<p>Wrightsville Beach Elementary School is located on a barrier island off of the coast of New Hanover County, NC. The relocation of the school to the mainland would mitigate potential structural damage and may prevent (mitigate) loss of service resulting from hurricanes, flooding, tsunamis, and nor'easters.</p> <p>School was closed for 6 months following Hurricane Fran in 1996.</p> <p>220 Coral Drive Wrightsville Beach, NC 28480 A barrier island off the coast of New Hanover County, NC. Located in Wrightsville Beach, NC (relocate).</p>
Category:	Prevention; structural projects
Hazard(s) Addressed:	Hurricane, flooding, tsunami, nor'easter
Lead Agency/Department Responsible:	New Hanover County Schools
Estimated Cost:	\$16 million
Potential Funding Sources:	State and Local sources
Implementation Schedule:	TBD
Priority (High, Moderate, Low):	Low
Action Implementation Status (2010):	New

<b>New Hanover County Mitigation Action 32</b>	Potential consideration to relocate Carolina Beach Elementary School from the barrier island where it is currently located to the mainland.
New or Existing Action:	New
Discussion:	<p>Carolina Beach Elementary School is located on a barrier island off of the coast of New Hanover County, NC. The relocation of the school to the mainland would mitigate potential structural damage and may prevent (mitigate) loss of service resulting from hurricanes, flooding, tsunamis, and nor'easters.</p> <p>400 South 4<sup>th</sup> Street  Carolina Beach, NC 28428  A barrier island off the coast of New Hanover County, NC.  Located in Carolina Beach, NC (relocate).</p>
Category:	Prevention; structural projects
Hazard(s) Addressed:	Hurricane, flooding, tsunami, nor'easter
Lead Agency/Department Responsible:	New Hanover County Schools
Estimated Cost:	\$16 million
Potential Funding Sources:	State and Local bond referendum
Implementation Schedule:	TBD
Priority (High, Moderate, Low):	Low
Action Implementation Status (2010):	New

# City of Wilmington

		HAZARD RISK		
		Low	Moderate	High
OVERALL CAPABILITY	High			✓
	Moderate			
	Limited			

<b>City of Wilmington Mitigation Action 1</b>	<b>IT Disaster Recovery / Business Continuity Planning</b> Critically review the City's IT Systems, Infrastructure and Policies and develop a DR/BC Plan. Funds for this have been included in our requested budget and we have made some initial contacts to be included in a pilot program provided by the Institute of Governments Center For Public Technology.
New or Existing or Action:	Existing
Discussion:	This project is affordable, will create a much needed plan, can lead to implementation of improvements to keeping the organization operable under extreme conditions and quickly after natural disasters.
Category:	Property Protection / Emergency Services
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Information Technology
Estimated Cost:	\$10,000 for the Planning \$50,000 estimated for Implementation (Implementation phase costs will vary depending on the recommendations of the study and plan results).
Potential Funding Sources:	Currently budgeted in IT's FY 04-05 Operational Budget.
Implementation Schedule:	Development of the DR/ BC Plan will begin in early FY 04-05 if approved in the budget process. Implementation will be phased by priority over the next few Fiscal Years.
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Completed in May 2004, but ongoing with new components in Winter 2010 – Summer 2011.

<b>City of Wilmington Mitigation Action 2</b>	<b>Pursue overall upgrade to IT system redundancy improvements to the network infrastructure, including: (1) improved switching equipment and related components; (2) a strategically expanded network to provide multiple routing alternatives through looping and expanding our fiber optics system; and (3) the implementation of a dedicated generator back-up.</b>
New or Existing Action"	Existing
Category:	Property Protection / Emergency Services
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Information Technology
Estimated Cost:	\$100,000+
Potential Funding Sources:	Multiple sources of funding will be sought for the long-term expansion and development of the City's Network with a focus on cooperative projects that piggyback on other utility projects with a focus on key areas where facilities are not networked. The City currently has a Voice Over IP Project being bid out that will very likely include some major components of these initiatives including the generator power, upgrades to switching components and possible expansion of our network funded through that project. The City will also pursue grants and inclusion in the City's Capital Projects Process.
Implementation Schedule:	If approved and accepted, a significant amount of work could be accomplished as a side benefit of the Voice over IP Project within the next 12 months. The other improvements will come incrementally over the next 5 years as opportunities arise to expand and/or loop the City's network to create alternate network paths and redundancies.
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Completed in May 2004. Ongoing with new components added 2008 and 2009, continued evaluated and changes.

<b>City of Wilmington Mitigation Action 3</b>	<b>Implement program and system to transfer financial systems data to a hosted disaster recovery service.</b>
New or Existing Action:	New
Category:	Property Protection/Emergency Services
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Information Technology
Estimated Cost:	Current Budget
Potential Funding Sources:	N/A
Implementation Schedule:	2007 and continuing
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>City of Wilmington Mitigation Action 4</b>	<b>Replacement of all major City radios to the upgraded Motorola digital radio network.</b>
New or Existing Action:	New
Category:	Property Protection/Emergency Services
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Information Technology
Estimated Cost:	Current Budget
Potential Funding Sources:	N/A
Implementation Schedule:	FY 2009 - 2010
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>City of Wilmington Mitigation Action 5</b>	<b>Prepare and maintain a current list of all City employees by job classification with contact information to facilitate calling in resources for emergency response.</b>
New or Existing Action:	Existing
Category:	Emergency Services
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Human Resources
Estimated Cost:	Minimal – Use of existing resources
Potential Funding Sources:	N/A
Implementation Schedule:	May 26, 2004 and continuing
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>City of Wilmington Mitigation Action 6</b>	<b>Provide special vehicle placards for City employees designated to respond in emergency situations to restricted areas or during periods of curfews.</b>
New or Existing Action:	Existing
Category:	Emergency Services
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Human Resources
Estimated Cost:	Minimal – Existing budgeted staff and materials
Potential Funding Sources:	N/A
Implementation Schedule:	May 26, 2004 and continuing
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>City of Wilmington Mitigation Action 7</b>	<b>Post information on the City's web page and Intranet to assist citizens in preparing for emergency situations.</b>
New or Existing Action:	Existing
Category:	Emergency Services
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Human Resources
Estimated Cost:	Minimal – Use of existing budgeted staff and materials
Potential Funding Sources:	N/A
Implementation Schedule:	May 26, 2004 and continuing
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>City of Wilmington Mitigation Action 8</b>	<b>Develop and maintain internal policies and procedures to support City employees in responding to emergency situations. Policies and procedures will include, but will not be limited to an Inclement Weather Policy.</b>
New or Existing Action:	Existing
Category:	Emergency Services
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Human Resources
Estimated Cost:	Minimal – Use of existing budgeted staff and materials
Potential Funding Sources:	N/A
Implementation Schedule:	May 26, 2004 and continuing
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>City of Wilmington Mitigation Action 9</b>	<b>Training for City personnel through FEMA's Emergency Management Institute (EMI) including ICS 100, ICS 200, ICS 300, ICS 400, IS 700, and IS 800</b>
New or Existing Action:	New
Category:	Emergency Services
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Human Resources
Estimated Cost:	Minimal – Use of existing budgeted staff and materials
Potential Funding Sources:	N/A
Implementation Schedule:	Spring 2006 and continuing
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>City of Wilmington Mitigation Action 10</b>	<b>As part of the City of Wilmington Operation Center Project, the City of Wilmington is constructing all buildings with backup generators. Two of the buildings will be constructed to earthquake standards to protect the City of Wilmington's Traffic Control Center and the Operations Emergency Operations Center (EOC) for the field operation groups. This purchase of the property was chosen with connection to major thoroughfares so response vehicles could deploy easier during an emergency event. Presently responding divisions are in residential areas with numerous trees.</b>
New or Existing Action:	Existing
Category:	Property Protection
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	City of Wilmington/ Public Services Department
Estimated Cost:	\$19,000,000
Potential Funding Sources:	Bond
Implementation Schedule:	Phase I Completed Phase II Under construction with 20% completed to date Phase III under design
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Completed



<b>City of Wilmington Mitigation Action 11</b>	<b>Complete Walnut Street Wastewater Pump Station Improvements Project, which includes the addition of a fourth pump and a new in-stream waste grinder. Flood-proofing and structural upgrades to the existing superstructure, replacement of the existing motor control center, HVAC upgrades, and replacement of pump isolation valves will also be included.</b>
New or Existing Hazard:	Existing
Category:	Property Protection
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Public Utilities Department
Estimated Cost:	\$400,000
Potential Funding Sources:	Capital Improvement Program (User Fees)
Implementation Schedule:	Design is underway; Construction scheduled to be complete Fall 2005.
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Completed

<b>City of Wilmington Mitigation Action 12</b>	<b>Partner with the County to develop public information campaign utilizing external communications vehicles such as GTV-8 and NHCTV, city and county web sites and TV/Radio public service announcements. Campaign would address ongoing mitigation efforts, as well as ways to prepare for hurricane season.</b>
New or Existing Action:	Existing
Category:	Public Education and Awareness
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Partnership between City and County
Estimated Cost:	N/A (local staff time)
Potential Funding Sources:	N/A
Implementation Schedule:	June 2004 and continuing
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>City of Wilmington Mitigation Action 13</b>	<b>Partner with the County to incorporate hazard mitigation educational materials in existing communication vehicles such as city newsletter, city/county water bills, city/county Web sites, bills and speaking engagements.</b>
New or Existing Action:	Existing
Category:	Public Education and Awareness
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Partnership between City and County
Estimated Cost:	Depends on printing/ mailing, but should be able to get body of documents prepared and printed for less than \$10,000 (does not include any direct mail costs)
Potential Funding Sources:	City and County general funds, with perhaps some grant funds. Many publications available at no cost through FEMA and NCEM.
Implementation Schedule:	June 2004 and continuing
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>City of Wilmington Mitigation Action 14</b>	<b>Seagate Drainage Project - flooding mitigation of major NCDOT thoroughfare and volunteer fire station.</b>
New or Existing Action:	Existing
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$378,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Complete design in Fall 2004; Construction in Winter 2005
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Completed

<b>City of Wilmington Mitigation Action 15</b>	<b>Engineering Feasibility Study for New Center Drive - flooding mitigation of major NCDOT thoroughfare and City pump station.</b>
New or Existing Action:	Existing
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$100,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	To be determined, not yet funded
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>City of Wilmington Mitigation Action 16</b>	<b>Market Northwoods Drainage Project - flooding mitigation of properties along major NCDOT thoroughfare.</b>
New or Existing Action:	Existing
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$525,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Complete design in Fall 2004; Construction in Winter 2005
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Completed

<b>City of Wilmington Mitigation Action 17</b>	<b>Hinton Ave/Michelle Dr Drainage Project - flooding mitigation in residential area.</b>
New or Existing Action:	Existing
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$1,800,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Begin in FY07/08
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Under Design

<b>City of Wilmington Mitigation Action 18</b>	<b>Cedar Ave &amp; Sweetwater Outfall Drainage Project - flooding mitigation of NCDOT major thoroughfare through commercial area.</b>
New or Existing Action:	Existing
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$510,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Begin in FY06/07
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Under Design

<b>City of Wilmington Mitigation Action 19</b>	<b>Heidi Drive Drainage Project – flooding mitigation in single family neighborhood.</b>
New or Existing Action:	Existing
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$269,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Complete design in Spring 2005; Construct in Fall 2006
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Complete

<b>City of Wilmington Mitigation Action 20</b>	<b>Market Street/Inland Greens Drainage Project - First phase of project to mitigate flooding mitigation in single family neighborhood and along Cardinal Drive.</b>
New or Existing Action:	Existing
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$850,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Complete design in Summer 2004; Construct in Winter 2005
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Completed

<b>City of Wilmington Mitigation Action 21</b>	<b>Plaza East Drainage Project - flooding mitigation of major drainage outfall through commercial area.</b>
New or Existing Action:	Existing
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$825,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Complete design in Summer 2004; Construct in Winter 2005
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Completed

<b>City of Wilmington Mitigation Action 22</b>	<b>Lincoln Outfall Project – Stream bank stabilization project in single-family neighborhood.</b>
New or Existing Action:	New
Category:	Structural Projects
Hazard(s) Addressed:	Flooding/Stream Bank Stabilization
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$390,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Design began in 2009; anticipate construction to begin in December 2010
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>City of Wilmington Mitigation Action 23</b>	<b>Doctors Branch bank Stabilization Project. – Stream restoration and bank stabilization project in single-family and multi-family neighborhood.</b>
New or Existing Action:	New
Category:	Structural Projects
Hazard(s) Addressed:	Flooding/Stream Bank Stabilization
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$800,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Construction began in Dec 2009 and will be complete by July 2010.
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>City of Wilmington Mitigation Action 24</b>	<b>Longstreet Canal Drainage Project - Flooding mitigation and erosion stabilization of major drainage outfall through residential area.</b>
New or Existing Action:	Existing
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$2,000,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Complete design in Summer 2004; Construct in Winter 2005
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Completed

<b>City of Wilmington Mitigation Action 25</b>	<b>Dupree Dr Drainage Project - flooding mitigation through residential area because of lack of drainage system.</b>
New or Existing Action:	Existing
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$454,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Begin in FY05/06
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Completed

<b>City of Wilmington Mitigation Action 26</b>	<b>Cavalier Drive Drainage Project – flooding mitigation in single-family neighborhood.</b>
New or Existing Action:	New
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$1,082,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Currently under design, anticipate construction to begin in late summer or fall 2010.
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>City of Wilmington Mitigation Action 27</b>	<b>Wisteria/Clearbrook Drainage Project – flooding mitigation in single-family neighborhood.</b>
New or Existing Action:	New
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$5,500,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Currently under design, anticipate construction of Phase I to begin in late winter of 2010.
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>City of Wilmington Mitigation Action 28</b>	<b>Burnt Mill Tidegate Project – Restoration and rehabilitation of tidegate structure and repair of breached area around tidegate that reduces flooding in Burnt Mill Creek area.</b>
New or Existing Action:	New
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$500,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Currently under design and permit review; anticipate construction in spring of 2010.
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>City of Wilmington Mitigation Action 29</b>	<b>Mineral Springs 02-03 Project – flooding mitigation in commercial area.</b>
New or Existing Action:	New
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$365,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Currently under design; anticipate construction in late summer of 2010.
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>City of Wilmington Mitigation Action 30</b>	<b>Benda Drive Drainage Project – flooding mitigation in single-family neighborhood.</b>
New or Existing Action:	New
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$400,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Currently under design; anticipate construction in late winter of 2010.
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>City of Wilmington Mitigation Action 31</b>	<b>Cardinal/George Trask Project – flooding mitigation in single-family neighborhood.</b>
New or Existing Action:	New
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$585,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Design beginning in 2009; anticipate construction in early 2011.
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>City of Wilmington Mitigation Action 32</b>	<b>Hunters Trail Culvert Replacement Project – flooding mitigation in single-family and multi-family neighborhood.</b>
New or Existing Action:	New
Category:	Structural Projects
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Public Services / Storm Water Services
Estimated Cost:	\$315,000
Potential Funding Sources:	City Storm Water Fund
Implementation Schedule:	Anticipate design beginning in spring 2010; construction anticipated in late 2010.
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New



# Town of Carolina Beach

		HAZARD RISK		
		Low	Moderate	High
OVERALL CAPABILITY	High			✓
	Moderate			
	Limited			

<b>Town of Carolina Beach Mitigation Action 1</b>	<b>Educate contractors about principles for quality redevelopment and safe housing development through written materials or a Town-sponsored workshop. (1.1.1)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #4 and serves to educate the public about hazards prevalent in their area.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning & Development
Estimated Cost:	Staff Time
Potential Funding Sources:	Publications available at no cost through FEMA and NCEM
Implementation Schedule:	Continuous due to new residents and visitors
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 2</b>	<b>Hold a Town-sponsored hazard mitigation seminar for the community residents, including information on preparedness for all hazards significant to Carolina Beach (1.1.2).</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #4 and serves to educate the public about hazards prevalent in their area.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning & Development
Estimated Cost:	Staff time
Potential Funding Sources:	Publications available at no cost through FEMA and NCEM
Implementation Schedule:	Continuous due to new residents and visitors
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 3</b>	<b>Provide new home and property buyers with information on quality redevelopment and safe housing development. The information is probably most efficiently dispersed at the Town hall and other community owned, public facilities in Town. (1.1.3)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #4 and serves to educate the public about hazards prevalent in their area.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning & Development
Estimated Cost:	Staff time
Potential Funding Sources:	Publications available at no cost through FEMA and NCEM
Implementation Schedule:	Continuous due to new residents and visitors
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 4</b>	<b>Manually disperse and have a website posting which provides information about the Town's Emergency Response and Re-Entry Plan and relevant emergency response actions the public can take. Also, ensure each Town department possesses a clear list of department responsibilities as outlined in the plan. Update department contacts as they change. (1.2.1)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #4 and serves to Publicize the documents associated with emergency response and mitigation.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Fire Department
Estimated Cost:	Staff Time
Potential Funding Sources:	N/A
Implementation Schedule:	Continuous due to new residents and visitors
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 5</b>	<b>Manually disperse and have a website posting which provides information about the Town's Community-Based Hazard Mitigation Plan and relevant mitigation measures the public can take. In addition, provide a response/reply section where residents can comment on the effectiveness of the current plan and where they can make suggestions for future revisions on the plan. (1.2.2)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #4 and serves to Publicize the documents associated with emergency response and mitigation.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning & Development Department
Estimated Cost:	Staff time
Potential Funding Sources:	N/A
Implementation Schedule:	Continuous due to new residents and visitors
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 6</b>	<b>Update the <i>Town of Carolina Beach Emergency Response &amp; Re-Entry Plan</i> on an annual basis. The Emergency Response &amp; Re-Entry Plan should contain detailed information on responsible parties and contact information; this information should be updated as positions and contact information changes. (1.3.1)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #4 and serves to maintain and publicize a current action plan for emergency response.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Fire Department
Estimated Cost:	Staff time
Potential Funding Sources:	NCEM
Implementation Schedule:	Continuous due to new residents and visitors
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 7</b>	<b>Maintain evacuation routes in the event of a hazardous event. (1.4.1)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #4 and serves to maintain and publicize a current evacuation routes.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Operations Department
Estimated Cost:	N/A
Potential Funding Sources:	Powell Bill, Department of Transportation
Implementation Schedule:	Continuous due to new residents and visitors
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 8</b>	<b>The Town should publicize, on the Towns website, maps of evacuation routes which will facilitate the evacuation of Carolina Beach in case of a hazardous event. (1.4.2)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #4 and serves to maintain and publicize current evacuation routes.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Administration
Estimated Cost:	N/A
Potential Funding Sources:	Annual Budget
Implementation Schedule:	Continuous due to new residents and visitors
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 9</b>	<b>The Town should distribute via water bills and Town newsletters, maps of evacuation routes which will facilitate the evacuation of Carolina Beach in case of a hazardous event. (1.4.3)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #4 and serves to maintain and publicize current evacuation routes.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Operations
Estimated Cost:	\$500
Potential Funding Sources:	Annual Budget
Implementation Schedule:	Continuous due to new residents and visitors
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

\*Note the wording in this action was changed to “water bills and Town newsletters” from “gas/electric bills.”

<b>Town of Carolina Beach Mitigation Action 10</b>	<b>Monitor the status of backup generators, communications, and vehicles for all critical public facilities. Test generators, communications equipment, and vehicles on a regular basis, not only for maintenance, but to confirm that the equipment continues to match the needs of critical facility expansion or updated operations. (2.1.1)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #7 and serves to maintain community infrastructure.
Category:	Emergency Services
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Operations
Estimated Cost:	\$2,000
Potential Funding Sources:	Annual Budget
Implementation Schedule:	Continuous
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 11</b>	<b>Purchase, as necessary, backup generators as determined by the results of Action 10 (2.1.2)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #7 and serves to maintain community infrastructure.
Category:	Emergency Services
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Operations
Estimated Cost:	\$2,000
Potential Funding Sources:	Annual Budget
Implementation Schedule:	Continuous
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 12</b>	<b>Install, as necessary, generator quick connects, as determined by the results of Action 10. (2.1.3)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #7 and serves to maintain community infrastructure.
Category:	Emergency Services
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Operations
Estimated Cost:	\$1,000
Potential Funding Sources:	Annual Budget
Implementation Schedule:	Continuous
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 13</b>	<b>Revise the CAMA Land Use Plan (1997, 8-35) strategy to consider a policy to prohibit redevelopment in high hazard areas. (2.2.1)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #1 and serves to reduce the impact of hazards on life and property.
Category:	Prevention
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning & Development
Estimated Cost:	N/A
Potential Funding Sources:	CAMA
Implementation Schedule:	Continuous/As Needed
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	The Town of Carolina Beach encourages safe development that meets all Federal and State regulations. The Carolina Beach Land Use Plan was updated and approved by the North Carolina Coastal Resources Commission on November, 30 2007. In this revision, the revised Carolina Beach Land Use Plan has a number of policies that bolster the Town's commitment to Hazard Mitigation Planning.

<b>Town of Carolina Beach Mitigation Action 14</b>	<b>Revise the CAMA Land Use Plan (1997, 8-36) to include training for those persons in charge of the “building permit triage” to prevent the issuance of permits in areas where permits should not be issued. (2.3.1)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #1 and serves to educate those persons involved in building permit issuance in an effort to minimize improper development following a disaster
Category:	Prevention
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning & Development
Estimated Cost:	N/A
Potential Funding Sources:	CAMA
Implementation Schedule:	Continuous/As Needed
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	The Town of Carolina Beach continues to support and implement this action. Any building permits that will be issued under a disaster shall meet all Local, State and Federal regulations. Current staff is extremely experienced with emergency and disaster situations and understand the importance of expediting permitting and making sure that all Local, State, and Federal Laws are followed.



<b>Town of Carolina Beach Mitigation Action 15</b>	<b>Continue to enforce the North Carolina State Building Code. Require that new structures or structures undergoing significant renovation meet code requirements for coastal areas in accordance with the North Carolina State Building Codes. (3.1.1)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #1 and serves to improve the resistance of structures in the community against natural hazards.
Category:	Prevention
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning & Development
Estimated Cost:	Staff Time
Potential Funding Sources:	N/A
Implementation Schedule:	Continuous/As Needed
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 16</b>	<b>Monitor trees and branches in public areas at risk of breaking or falling in wind, ice, and snow storms. Prune or thin trees or branches when they would pose an immediate threat to property, utility lines or other significant structures or critical facilities in the Town. (3.2.1)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #3 and serves to reduce the impact of Natural Hazard Events on trees near built structures.
Category:	Natural Resource Protection
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Operations Department
Estimated Cost:	Ongoing
Potential Funding Sources:	Annual Budget
Implementation Schedule:	Continuous/As Needed
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 17</b>	<b>The Town will take a proactive approach in investigating dangerous damaged structures and should take prompt action in condemning damaged structures that have been abandoned. (3.2.1.)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #1 and serves to decrease the potential for structural damage from wind event debris.
Category:	Prevention
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning & Development
Estimated Cost:	Staff Time
Potential Funding Sources:	N/A
Implementation Schedule:	Continuous/As Needed
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 18</b>	<b>Purchase a complete GIS/GPS setup and provide training on said setup to all pertinent town personnel. (4.1.1)</b>
New or Existing Action	Existing
Discussion:	This action supports Goal #1.
Category:	Prevention
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning & Development
Estimated Cost:	\$21,000 (This includes the purchase of equipment, setup of equipment, and training for all pertinent personnel on equipment.)
Potential Funding Sources:	Town Budget
Implementation Schedule:	Continuous/As Needed
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 19</b>	<b>Record and maintain all tax parcel information and floodplain locations in a GIS system in order to build the Towns capability to generate maps when needed. (4.1.2)</b>
New or Existing Action	New
Discussion:	This action supports Goal #1.
Category:	Prevention
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning & Development
Estimated Cost:	Staff Time
Potential Funding Sources:	NC Floodplain Mapping Program
Implementation Schedule:	Continuous/As Needed
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	New

<b>Town of Carolina Beach Mitigation Action 20</b>	<b>Develop a database that identifies each property that has received damage due to hazards identified within this mitigation plan. The database should also include a tax identification number of the property, a description of the property damage, the value of the damage, and links to photographs of the damage. (4.3.1)</b>
New or Existing Action	Existing
Discussion:	Developing this database will allow the Town to easily identify properties at high risk of damage from certain hazards as well as properties which receive repetitive damage from multiple Hazards. In an effort to gain historical information the Town should send a survey to all residents requesting information that should be included in the database. The action supports Goal #1.
Category:	Prevention
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Planning & Development
Estimated Cost:	N/A
Potential Funding Sources:	Flood Mitigation Assistance Program
Implementation Schedule:	Continuous/As Needed
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 21</b>	<b>Revise the Zoning and Subdivision Ordinance to require the utilization of various pervious surfaces within the floodplain in order to reduce stormwater runoff. This should include utilizing the use of various pervious surfaces in parking lots in recreational areas near the floodplain. (5.1.1)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #3, Goal #5 and serves to limit flooding in developed areas.
Category:	Prevention
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Planning & Development
Estimated Cost:	Staff Time
Potential Funding Sources:	N/A
Implementation Schedule:	TBD
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	The Town's current Stormwater Management Ordinance far exceeds the requirements imposed by the State's requirements of a Phase II community.

<b>Town of Carolina Beach Mitigation Action 22</b>	<b>The Town should support the policy identified in the CAMA Land Use Plan (1997, 8-3), “Development will be “discouraged” in locations where stormwater runoff related flooding exists, unless appropriate corrective improvements are to be completed as part of the project.” (5.2.1)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #3, Goal #5 and serves to guide development away from flood-prone areas.
Category:	Prevention
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Operations
Estimated Cost:	Ongoing
Potential Funding Sources:	Annual Budget
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	The Town recently revised the 1997 CAMA Land Use Plan and strictly enforces all regulations of Federal and State Programs.

<b>Town of Carolina Beach Mitigation Action 23</b>	<b>Protect/Enhance Shoreline Vegetation (Already required by CAMA in the estuarine area). The Town should revise its zoning and subdivision ordinance to incorporate shoreline vegetation protection buffers along the AEC's and Canals in order to protect the character and to help mitigate flooding. (5.3.1)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #1, Goal #5 and serves to protect rivers, creeks, and surrounding eco-systems.
Category:	Prevention, Natural Resource Protection
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Planning and Development
Estimated Cost:	N/A
Potential Funding Sources:	CAMA, FEMA
Implementation Schedule:	TBD
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	The Town is obligated to enforce setback regulations as directed by Federal and State Requirements.

<b>Town of Carolina Beach Mitigation Action 24</b>	<b>The Town will seek to elevate flood-prone structures. Specifically structures that are identified as repetitive losses in the area. It is understood that funding through FEMA under the HMGP and FMA programs are voluntary, as a result all elevations will be based on funding availability, political will, and private property initiative. (5.4.1)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #2, Goal #3 and serves to elevate flood-prone structures.
Category:	Property Protection
Hazard(s) Addressed:	Flooding
Lead Agency/Department Responsible:	Planning & Development
Estimated Cost:	TBD
Potential Funding Sources:	HMGP, FEMA
Implementation Schedule:	Availability of State and Federal Funds
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	The Town continues to work with flood prone and repetitive loss properties to ensure that they are informed of Federal Programs and that those properties that require elevation following significant damage are required to do so.

<b>Town of Carolina Beach Mitigation Action 25</b>	<b>Continue to prioritize beach nourishment as a means of mitigating coastal beach erosion. (6.1.1)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #1.
Category:	Prevention, Natural Resource Protection
Hazard(s) Addressed:	Erosion
Lead Agency/Department Responsible:	Town Manager
Estimated Cost:	N/A
Potential Funding Sources:	Federal/State/County
Implementation Schedule:	Every 4 years
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	The Town of Carolina Beach is currently working with the County, State, and Federal Government to make sure that Federal funding is reauthorized following the last beach re-nourishment that is slated for 2014.

<b>Town of Carolina Beach Mitigation Action 26</b>	<b>Develop a Beach Management Plan which will include annual monitoring of literal drift erosion, to address the long-term issue of beach erosion. (6.1.2)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #1.
Category:	Prevention, Natural Resource Protection
Hazard(s) Addressed:	Erosion
Lead Agency/Department Responsible:	Administration
Estimated Cost:	\$20,000
Potential Funding Sources:	State and/or Federal funds
Implementation Schedule:	1 year prior to end of Federal funding.
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	The Town surveys the beach a minimum of once per year to monitor the effects of erosion on the beach.

<b>Town of Carolina Beach Mitigation Action 27</b>	<b>Establish a Shoreline Protection Committee that will work closely with the Town Council to solicit funds for beach preservation projects, educate the public on beach preservation matters, oversee re-nourishment project development, monitor shoreline change and report any major issues to the Town Council. (6.2.1)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #1 and Goal #4 and serves to reduce the effects of erosion by improving institutional capabilities.
Category:	Prevention, Natural Resource Protection, Public Education and Awareness
Hazard(s) Addressed:	Erosion
Lead Agency/Department Responsible:	Administration
Estimated Cost:	Volunteer Committee
Potential Funding Sources:	State, Federal grants
Implementation Schedule:	2 years prior to the end of Federal funding
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	The monitoring of beach preservation efforts are currently the responsibility of Town Staff and Elected Officials. The Town will reconsider establishing a Shoreline Protection Committee in order to seek input from a variety of public interests.



<b>Town of Carolina Beach Mitigation Action 28</b>	<b>Work with New Hanover County officials and surrounding communities to distribute materials about the County Water Shortage Response Plan. (7.1.1)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #4 and serves to reduce the effects of drought through policy.
Category:	Prevention, Natural Resource Protection, Public Education and Awareness
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	Water & Sewer Administration
Estimated Cost:	Staff Time
Potential Funding Sources:	Annual Budget
Implementation Schedule:	As needed
Priority (High, Moderate, Low):	Moderate
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 29</b>	<b>Develop local Water Shortage Response Guidelines (in different phases) as a part of the <i>Carolina Beach Emergency Response Plan</i> as it relates to the expectations of the Town's water supplier. (7.1.2)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #4 and Goal #1, and serves to reduce the effects of drought through policy.
Category:	Prevention, Natural Resource Protection
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	Water & Sewer Administration
Estimated Cost:	Staff time
Potential Funding Sources:	Annual Budget
Implementation Schedule:	As needed
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	The Town has adopted a Water Shortage/Drought Ordinance that regulates the response to drought situations. In addition, the Town is nearing the completion of a long term water supply study. This study has resulted in a variety of measures that have either been implemented or are in a process of being implemented.

<b>Town of Carolina Beach Mitigation Action 30</b>	<b>The Town should continue their proactive approach to mitigation by connecting Rainwater Retention Drums to the down spouts of each gutter system on every municipal building within Carolina Beach. (7.2.1)</b>
New or Existing Action	Existing
Discussion:	The collected water should be used to irrigate all municipal gardens, parks, lawns, and the like. The action supports Goal #4 and serves to reduce the level of potable water depletion.
Category:	Prevention, Natural Resource Protection, Structural Projects
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	Operations
Estimated Cost:	N/A
Potential Funding Sources:	Annual Budget
Implementation Schedule:	N/A
Priority (High, Moderate, Low):	Low
Action Implementation Status (2010):	The Town currently requires that all private wells be reported to the Town. The Town has taken steps to improve upon the quality and capacity of its water supply system. The Town will take steps to implement measures that will insure the capability to supply customers of the Town to a build out capacity as identified in its long term water study. Other innovative strategies, such as water re-use and rain collection, will be implemented.

<b>Town of Carolina Beach Mitigation Action 31</b>	<b>Develop a tornado and waterspout warning system. (8.2.1)</b>	
New or Existing Action	Existing	
Discussion:	The action supports Goal #7 and serves to maximize citizen preparedness for tornadoes and waterspouts.	
Category:	Emergency Services	
Hazard(s) Addressed:	Tornadoes	
Lead Agency/Department Responsible:	Administration	
Estimated Cost:	N/A	
Potential Funding Sources:	N/A	
Implementation Schedule:	N/A	
Priority (High, Moderate, Low):	N/A	
Action Implementation Status (2010):	The Town has not implemented this system to date. Improvements in technology and forecasting have assisted in this matter. The Town has some capabilities and will explore the further implementation of a reverse 911 system to warn citizens of tornadoes and other pending hazards.	

<b>Town of Carolina Beach Mitigation Action 32</b>	<b>To improve road visibility, encourage the Department of Transportation to place new reflector tape or paint along road edges and in the dividing line. This should be done on all major roads through Town. (9.1.1)</b>	
New or Existing Action	Existing	
Discussion:	The action supports Goal #7 and serves to increase driving safety during thunderstorms.	
Category:	Emergency Services, Structural Projects	
Hazard(s) Addressed:	Thunderstorms, Multiple	
Lead Agency/Department Responsible:	Operations	
Estimated Cost:	N/A	
Potential Funding Sources:	N/A	
Implementation Schedule:	N/A	
Priority (High, Moderate, Low):	N/A	
Action Implementation Status (2010):	The Town has sought continual upgrades to NCDOT roadways with some initiatives being implemented.	

<b>Town of Carolina Beach Mitigation Action 33</b>	<b>In order to minimize injury from lightning strikes, shelters should be placed every five acres in all public open space areas. This recommendation should be incorporated into the zoning and subdivision ordinances. (9.2.1)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #1. Currently, the Town has very few large parcels in which the subdivision or zoning ordinance could be effective.
Category:	Prevention, Structural Projects
Hazard(s) Addressed:	Lightning, Thunderstorms
Lead Agency/Department Responsible:	Planning & Development
Estimated Cost:	N/A
Potential Funding Sources:	Grants/Annual Budget
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Low
Action Implementation Status (2010):	In process of adopting bicycle/ped plan

<b>Town of Carolina Beach Mitigation Action 34</b>	<b>The Zoning Ordinance should require that lightning detection devices be installed in public outdoor gathering areas such as school stadiums. (9.2.2)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #1.
Category:	Prevention, Structural Projects
Hazard(s) Addressed:	Lightning, Thunderstorms
Lead Agency/Department Responsible:	Planning & Development
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	During Summer months, lifeguard and police officers monitor weather occurrences and warn beachgoers of possible threats.

Town of Carolina Beach Mitigation Action 35	Develop a policy to require proper waste disposal and recycling. (10.1.1)
New or Existing Action	Existing
Discussion:	The action supports Goal #1 & Goal #4, and serves to protect natural resources from contamination. In order to protect the vulnerable aquifer from contamination, the Town should do all it can to prevent seepage of wastes and toxic elements into the ground. Proper disposal of waste and recycling when possible will aid in this effort. This measure may be implemented through a Town policy or through public education measures.
Category:	Prevention, Public Education and Awareness, Natural Resource Protection
Hazard(s) Addressed:	HAZMAT, multiple
Lead Agency/Department Responsible:	Operations
Estimated Cost:	N/A
Potential Funding Sources:	Annual Budget
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	The Town currently contracts with Waste Industries for the disposal of all waste. Recycling containers are provided for all properties that receive trash collection.

<b>Town of Carolina Beach Mitigation Action 36</b>	<b>The Town shall work with other appropriate governmental bodies, namely New Hanover County and surrounding communities to provide for a continued pure supply of potable water. (10.1.2)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #1 and serves to protect natural resources from contamination.
Category:	Prevention, Natural Resource Protection
Hazard(s) Addressed:	HAZMAT, multiple
Lead Agency/Department Responsible:	Water & Sewer Administration
Estimated Cost:	Staff Time & Water Department Operating Budget
Potential Funding Sources:	Annual Budget
Implementation Schedule:	N/A
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	A one hundred foot radius of no new development is required surrounding each well to help prevent water contamination. The Town continues to pursue long-term measures that will provide customers with quality water.

<b>Town of Carolina Beach Mitigation Action 37</b>	<b>The fire department has the responsibility to assure the Town's protection during fire events. Part of this responsibility is dependent upon the department's ability to maintain the materials and a knowledge base for addressing such an event. This responsibility must be supported by provision of adequate funding for the continuing education and materials necessary to maintain this preparedness. (11.1.1)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #1 and Goal #7 and serves to maintain fire event preparedness.
Category:	Prevention
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	Fire Department
Estimated Cost:	Staff time
Potential Funding Sources:	Towns General Fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 38</b>	<b>Explore and seek access to all potential sources of information and communication regarding early fire detection (11.1.1)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #1 and Goal #7 and serves to maintain fire event preparedness.
Category:	Prevention
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	Fire Department
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	N/A
Priority (High, Moderate, Low):	N/A
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 39</b>	<b>Evaluate and improve fire sighting procedures. (11.2.1)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #1 and Goal #7 and serves to maintain fire event preparedness.
Category:	Prevention
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	Fire Department
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	N/A
Priority (High, Moderate, Low):	Low
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 40</b>	<b>Ensure the fire hydrants are working properly. (11.3.1)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #1 and Goal #7 and serves to maintain fire event preparedness.
Category:	Prevention
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	Fire Department
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	Annual
Priority (High, Moderate, Low):	Moderate
Action Implementation Status (2010):	Ongoing

<b>Town of Carolina Beach Mitigation Action 41</b>	<b>The Town should develop a plan of action to maintain the materials and knowledge base for addressing a HAZMAT spill, or develop preliminary measures to assist the county until the representatives arrive. (12.1.1)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #1 and Goal #7 and serves to maintain hazardous materials event preparedness. This responsibility must be supported by provision of adequate funding for materials and trainings necessary to maintain this preparedness.
Category:	Prevention
Hazard(s) Addressed:	Hazardous Materials
Lead Agency/Department Responsible:	Fire Department
Estimated Cost:	Staff-time
Potential Funding Sources:	NC State Emergency Management
Implementation Schedule:	N/A
Priority (High, Moderate, Low):	Moderate
Action Implementation Status (2010):	Ongoing – the state funds a Hazardous Materials Regional Response Team out of Wilmington, NC. The team is staffed and trained to respond to mitigate haz-mat incidents. All members of the Carolina Beach Fire Department are trained at the operations level.



Town of Carolina Beach Mitigation Action 42	The Town may consider supporting offshore drilling for gas and oil based on justifiable need and economic conditions. Other policies promoting renewable energy would be preferred. The Town does not support or permit oil refineries, storage facilities, or staging areas in the town.*  (12.2.1)
New or Existing Action	Existing
Discussion:	The action supports Goal #1 and serves to minimize the risk of hazardous materials events. This responsibility must be supported by provision of adequate funding for materials and trainings necessary to maintain this preparedness.
Category:	Prevention
Hazard(s) Addressed:	Hazardous Materials
Lead Agency/Department Responsible:	Administration
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	N/A
Priority (High, Moderate, Low):	N/A
Action Implementation Status (2010):	Ongoing

\*The wording of the action was changed for the 2010 plan.

<b>Town of Carolina Beach Mitigation Action 43</b>	<b>The Town should develop a plan of action to maintain the materials and knowledge base for addressing a nuclear event, or develop preliminary measures to assist the county until the representatives arrive to maintain nuclear event preparedness. (13.1.1)</b>
New or Existing Action	Existing
Discussion:	The action supports Goal #1 and Goal #7 and serves to maintain nuclear event preparedness. This responsibility must be supported by provision of adequate funding for materials and trainings necessary to maintain this preparedness. This may be made part of the Towns Emergency Response Plan.
Category:	Prevention
Hazard(s) Addressed:	Nuclear Event
Lead Agency/Department Responsible:	Administration
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	Annual review of Emergency Response Plan
Priority (High, Moderate, Low):	Moderate
Action Implementation Status (2010):	Ongoing

## Town of Kure Beach

		HAZARD RISK		
		Low	Moderate	High
OVERALL CAPABILITY	High			
	Moderate		✓	
	Limited			

<b>Town of Kure Beach Mitigation Action 1</b>	<b>Relocate the Riggins condominium complex, consisting of four residential properties, away from identified flood hazard area.</b>
New or Existing Action:	Existing
Category:	Property Protection
Hazard(s) Addressed:	Flood, Hurricanes and Tropical Storms
Lead Agency/Department Responsible:	Town Council
Estimated Cost:	\$3,617,624
Potential Funding Sources:	Application Pending 75% - Pre-Disaster Mitigation Program (FEMA) 25% - Town of Kure Beach
Implementation Schedule:	One year from grant award
Priority (High, Moderate, Low):	Moderate
Action Implementation Status (2010):	This action has been put on hold until the town is legally able to intervene and assist.

<b>Town of Kure Beach Mitigation Action 2</b>	<b>Enhance public education and awareness strategies for disaster preparedness and prevention through hosting public meetings/workshops with guest speakers, in addition to providing additional literature on natural hazards and mitigation techniques.</b>
New or Existing Action:	Existing
Category:	Public Education and Awareness
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Town Council
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	June 2004 and continuing
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Kure Beach Mitigation Action 3</b>	<b>Enhance GIS capabilities for the Kure Beach Public Works Department through the addition of hazards specific spatial data to existing databases.</b>
New or Existing Action:	Existing
Category:	Prevention
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Public Works Department
Estimated Cost:	N/A – coordinate with New Hanover County, North Carolina Center for Geographic Information and Analysis, PNPs, etc.
Potential Funding Sources:	If eligible, possibly make GIS enhancements using grant funds from FEMA/NCEM following future disaster declarations
Implementation Schedule:	As needed and ongoing
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Kure Beach Mitigation Action 4</b>	<b>Increase wildfire risk awareness and seek recognition through “Firewise Communities USA,” in addition to developing strategies to buffer structures located on the urban wildland interface by cooperation with New Hanover County and the federal government.</b>
New or Existing Action:	Existing
Category:	Public Education and Awareness; Prevention; Property Protection
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	Town Council
Estimated Cost:	To be determined
Potential Funding Sources:	North Carolina Division of Forest Resources Wildland/Urban Interface Fire Program; FEMA’s Assistance to Firefighters Grant Program; State Fire Assistance Hazard Mitigation Program (National Fire Plan).
Implementation Schedule:	As soon as possible
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing interaction between Town, County, NC Dept. of Forestry and the Dept. of the Army

<b>Town of Kure Beach Mitigation Action 5</b>	<b>Design, build and maintain a managed stormwater system that is compliant with EPA's Stormwater Phase II requirements to minimize increased stormwater flooding due to increased construction.</b>
New or Existing Action:	Existing
Category:	Structural Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Public Works Department
Estimated Cost:	To be determined
Potential Funding Sources:	FEMA's Emergency Management Performance Grants, Hazard Mitigation Grant Program, Pre-disaster Mitigation Program, Flood Mitigation Assistance (Project); EPA's Nonpoint Source Grant Program
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Kure Beach Mitigation Action 6</b>	<b>Continue to upgrade building codes and safety standards in cooperation with New Hanover County. Continue to upgrade and modify the Kure Beach building code to enhance the ability of structures to withstand storms.</b>
New or Existing Action:	Existing
Category:	Prevention / Property Protection
Hazard(s) Addressed:	Hurricanes and Tropical Storms, Severe Thunderstorms and Tornadoes
Lead Agency/Department Responsible:	Town Council and Building Inspections
Estimated Cost:	N/A
Potential Funding Sources:	Town Budget
Implementation Schedule:	As soon as possible
Priority (High, Moderate, Low):	High
Action Implementation Status (2010):	Ongoing

<b>Town of Kure Beach Mitigation Action 7</b>	<b>Pursue elevation projects for any identified repetitive loss properties where the homeowner has expressed interest in such a project.</b>
New or Existing Action:	Existing
Category:	Prevention / Property Protection
Hazard(s) Addressed:	Flood, Hurricanes and Tropical Storms
Lead Agency/Department Responsible:	Town Council / Commissioner
Estimated Cost:	To be determined
Potential Funding Sources:	FEMA's Pre-Disaster Mitigation (PDM) Program, Hazard Mitigation Grant Program (HMGP) or Flood Mitigation Assistance (FMA) Program.
Implementation Schedule:	Pending grant funding
Priority (High, Moderate, Low):	Low
Action Implementation Status (2010):	Ongoing