



The Town of Nags Head, North Carolina

Hazard Mitigation Plan

(Disaster Mitigation Act of 2000 and Senate Bill 300)



Originally Adopted: August 4, 2004

Revised and Adopted as part of the Dare County Joint Plan on May 21, 2010

Adopted by the Nags Head Board of Commissioners on November 3, 2010

**Updates since 2010 are in red for Commissioners Review on October 2, 2013
for specified sections as attached**

IV. COMMUNITY CAPABILITY ASSESSMENT

Because Nags Head has a long history of coastal storms, Town policies continually evolve to address mitigation. The Town has two main policy documents that govern hazard mitigation: the Town's 2000 Land and Water Use Plan and the 2001 Floodplain Management Plan, which was prepared as a component of the Community Rating System (CRS). The Town's zoning ordinance and the adoption of the 2002 International Building Code series and updates are additional regulatory mechanisms in place to mitigate hazard impacts. The Town participates in the National Flood Insurance Program and is rated as a Community Rating System "Class 6" community. **The Town continues to investigate innovative programs, to seek funds for mitigation measures, to provide public educational opportunities, and to update building and zoning codes for high hazard areas that support the growth management policies of the Town. These goals are outlined under Section VI Mitigation Strategies and Policies.**

Various Town departments continue to advance their pre- and post-storm mitigation capabilities. The Public Works Department annually pre-establishes debris removal agreements and maintains staff and equipment that can assist DOT and contractors with removal of debris and cleaning of roads and ditches. Police and Fire Departments are involved with local and regional emergency management planning, mutual aid agreements, and participate in numerous emergency preparedness activities. The Planning and Development Department has utilized mutual aid building inspectors for damage assessment and storm recovery and has pre-determined a response team for property damage assessment. Town GIS and information technology capabilities continually improve to help provide information before and after a storm both internally and to the public. **Together, all Town departments are trained in, and part of the Incident Command System (ICS) structure and have specific assignments and duties for incident preparedness, response, and recovery activities that can be customized for any particular type or scale of event.**

The Town remains financially, technically, and politically committed to mitigation activities **and to continual improvement of preparedness and response strategies** based on experience and known areas of vulnerability. Because of experiences including Hurricane Isabel and Hurricane Irene, Town of Nags Head staff is familiar with FEMA public assistance procedures and the relationship between reimbursement and disaster recovery. Town policies and operational procedures were reviewed and included the 2000 Land and Water Use Plan, the 2006 Land Use Plan, the 2006 Stormwater Management Plan, the CRS Floodplain Management Plan and the 2010 Land Use Plan. **Public input**



Figure 1: Aerial View of Nags Head Ocean Front in 2011, prior to completion of beach nourishment.

from Hurricane Isabel was used to update the Town's storm recovery and mitigation procedures. Implementation of ICS structure and procedures framed the Town's response to Hurricane Irene. This Plan, therefore, remains a working document to provide guidance and information on our Hazard Mitigation policies and strategies.

A. Beach Nourishment

- The health, maintenance and stability of the ocean front dunes and the beach is essential and represents the Town's first line of defense against a storms or hurricanes. The Town's locally funded beach nourishment project placed 4.6 million cubic yards of sand on the beach between May 2011 and October 2011 expanding the beach by as much as 150-200 feet in some sections.

B. Mitigation and FEMA

- Up to 80 percent of structures in the Town are vulnerable to a Category 3 hurricane. The Town's beach nourishment project should provide a greater degree of protection for vulnerable ocean front structures.
- The Town has actively worked to remove condemned structures from the ocean front that remain ocean-ward of the first line of stable vegetation. Refusal by certain property owners has resulted in law suits that are on-going.
- The State of North Carolina is currently involved in a floodplain mapping update. Until new maps are prepared and adopted, the Town will enforce Floodplain regulations in compliance with the September 20, 2006 FIRMs.
- Nationwide repetitive loss areas account for 35 % of all flood insurance losses. Nags Head has several repetitive loss areas and has submitted mitigation applications for several repetitive loss properties that qualified under the program. Our experience so far has been that this program is both competitive and takes a long time. However, Town staff will continue to identify these properties as part of damage assessments and work with property owners to help them pursue assistance.
- Post storm coordination with FEMA is paramount for damage assessment and reimbursement. Nags Head should continue to develop its relationship with FEMA to improve this process.

C. Post Storm Mitigation

- Damage assessment is an essential component for hurricane and storm recovery. To assist property owners, the Town seeks ways to provide the most current, accurate and informative damage assessment information using on-the-ground assessment teams coordinated by the Planning and Development Department.

D. Recovery and Operations

- Cellular phone service is a useful form of communication after a hurricane and their continued and reliable operation is essential for recovery. The Town has granted leases to several cell phone providers to expand coverage and bandwidth. Additionally the Town has installed a Ham radio and has hand held radios for team ICS usage.
- Intergovernmental cooperation is essential for a coordinated recovery. The Town participates in regional preparedness meetings with jurisdictions in not only Dare County but also in Virginia and North Carolina when appropriate. There are mutual aid

agreements in place with adjacent jurisdictions and a re-location agreement with the City of Cary, in case Town operations need to be relocated.

- The Town needs to develop consistent debris removal procedures and locations for temporary debris storage until permanent debris disposal sites are identified and approved. Experience from Hurricane Irene showed the importance of having debris storage areas designated as back-up to the County landfill on a temporary basis.
- The Town maintains a staff of “essential personnel” and public safety employees. Their safety and protection during and after a storm is essential and is part of the ICS procedures and plan.

E. Transportation and Drainage

- As a long and narrow barrier island, US158 is the main north to south corridor. Alternate parallel routes would be established as necessary for emergency access and emergency response in the event US 158 is closed.
- The two bridges that provide access to the Outer Banks island system (at Nags Head and at Southern Shores) must be managed for effective evacuation of traffic and for the return of traffic appropriately. Depending on the event and the damage experienced, State Highway patrol is asked to control access and traffic flow across these bridges.
- NCDOT has scheduled widening of US64 through Dare and Tyrell County. This will provide additional lanes for evacuation of the primary transportation corridor linking Nags Head to the rest of North Carolina. Project will take place 2013-2015.
- The NCDOT is updating the Comprehensive Transportation Plan (“CTP”) for Dare County. This plan includes several recommendations for roadway improvements, to increase safety and traffic flow along US158, the primary north-south transportation corridor, through access management, improved signal phasing, and bicycle and pedestrian facilities.
- There are numerous areas within the town that typically flood during severe storm events and hurricanes. These areas have been identified in this report and noted in the ICS planning documents for future consideration.
- Localized areas of poor drainage within the Town have been identified and have been noted in this plan. Areas of the North Ridge, Old Nags Head Place, Dolphin Run, Seven Sisters, and Nags Head Acres Subdivisions as well as scattered areas throughout Town are also noted. The Town is currently working with NCDOT for engineered solutions to address improvements on existing ditches and conveyance systems.
- The Town replaced and extended NCDOT ocean outfalls handling stormwater as part of the beach nourishment project.

F. Damaged Homes

The prolonged existence of damaged homes on the ocean beach represents a safety risk. The Town has held fast to CAMA policies and sought to remove structures damaged by erosion. However, several property owners have refused to work with the Town and are planning to repair structures now that beach nourishment is completed, even though they are partially east of the static line in what is still considered a high erosion area by CAMA. In the fall of 2013, CAMA issued several exemption letters for repairs on these homes, and the property owners began pursuing building permits.



Figure 2: Seagull Drive 2010,
Prior to beach nourishment



Figure 3: Seagull Drive, 2011
after beach nourishment

G. Zoning and Open Space

- The Town actively seeks to preserve natural areas and open space for the purposes of recreation, visual image, and stormwater retention and management.
- Local zoning regulations and the enforcement of CAMA regulations work together to protect “Areas of Environmental concern” which are also areas of vulnerability, near ocean and sound waters.
- Zoning regulations related dimensional lot requirements, setbacks, lot coverage and the use of fill are important to ensure that development on one lot does not adversely impact adjacent lots during storm events.

H. Sewer Treatment Systems.

- The Town has numerous package treatment plants, low-pressure sewage treatment systems, and septic systems. Many of these facilities are located in special flood hazard areas. Storm events can cause sewage treatment systems and on-site septic systems to fail or otherwise not operate correctly, impacting the environment. The Town’s Septic health program assists property owners with education regarding, and maintenance of, healthy and functioning septic systems. The Town also works with the State to monitor water quality for any public health risk.

I. Critical Facilities.

- Colony Ridge Nursing Home and The Outer Banks Hospital are critical medical facilities. Colony Ridge presents evacuation concerns due to the large elderly population and the Town coordinates with staff of these facilities should evacuation be deemed necessary.
- Also at the Colony Ridge property is an inactive helipad, which the Town preserved in the redevelopment process and through updates of the SED-80 zoning District for emergency management purposes if ever needed. The Outer Banks Hospital has an active helipad.
- Nags Head Elementary School maintains an evacuation plan and emergency procedures. The Town of Nags Head has participated in emergency drills with the School.
- The Nags Head Municipal Complex includes the Town Hall offices, housing the Town's Administration, Police, and Planning and Development Departments. The Town Hall is the ICS base of operations during emergency events and has been up-fitted with additional radio capacity.
- Fire Station 21 and Fire Station 16 are critical facilities housing emergency response equipment and personnel.
- Public Works provides a host of critical services including the provision of equipment for debris removal and hauling, maintenance of all Town vehicles and support equipment, fuel storage and dispensing station, sanitation, water distribution, and water supply services.

V. MITIGATION GOALS AND VALUES

The primary objective of the Town of Nags Head related to hazard mitigation is to reduce to the extent possible, damage to life and property from hurricanes, severe coastal storms, and the other hazards identified in this plan. To support this objective, the Town pursues the following goals and mitigation strategies:

1. Reduce damage to property through policies, ordinances, operational procedures, and infrastructure that reflect careful consideration of mitigation planning efforts.
2. Enhance the safety of, and service to, the public through pre- and post-storm communications, policies and procedures **and the Incident Command System.**
3. Develop and maintain infrastructure and critical facilities that have a low-vulnerability to hazard induced damage. **Coordinate with staff of critical medical facilities to ensure safe evacuation as necessary.**
4. Seek methods to protect existing structures from storm-related damage through hazard mitigation efforts and enforcement of Town floodplain, zoning and building regulations, **as well as enforcement of all CAMA regulations in accordance with CAMA rules and the Local Permitting Officer Program.**
5. **Provide public education opportunities and information regarding storm preparedness, hazard mitigation and planning initiatives.**

VI. MITIGATION STRATEGIES AND POLICIES

The 2004 Plan provides background on the development of mitigation strategies and policies originally developed. The following policies and strategies were updated from that original Plan using information provided from a review of the 2010 Hazard Mitigation Plan by Town Department Heads. Updates are developed based on the following criteria.

- Cost vs. Benefits
- Staffing capability
- Local, State, and Federal political climate
- Funding sources (internal and external)
- Effectiveness in satisfying mitigation goals
- Third party participation

A. Beach Nourishment

1. Background

Islands have a dynamic and ever-changing environment. Barrier islands have been shown to migrate, and are subject to a complex and numerous sets of natural forces, e.g., overwash processes, littoral drift, inlet formation, and dune and beach dynamics. They are further modified by storms and hurricanes. Coastal erosion, as a result of normal offshore littoral patterns, the occurrence of hurricanes and storms, and the general sea level rise which has been occurring (Titus, 1985), make development along the shores of barrier islands particularly tenuous.

In other localities, problems have arisen by allowing the construction of immovable buildings along the ocean shore, necessitating the expenditure of public funds to protect these structures when natural forces threaten them. Several methods have been used to stabilize the ocean beach. Primary among them are: (1) sand moving programs, e.g., beach nourishment, sand pushing; (2) sand trapping structures, e.g., groins, jetties; and artificial reefs, and (3) shoreline protection works, e.g., bulkheads, seawalls, revetments.

Beach nourishment programs involve efforts to push or place sand onto the beach in an attempt to build back former dunes and upper beach. Beach nourishment projects are typically expensive and the results are temporary and often require continual nourishment. A single nor'easter may eliminate much of the sand deposited under a nourishment program. Beach nourishment programs, however, represent efforts to preserve oceanfront property without damaging neighboring property or destroying the public's use of the beach.

Groins and jetties are structures built perpendicular to the shoreline. Jetties are often very long and intended to keep sand from filling in inlets and shipping channels. Groins are smaller and attempt to trap sand flowing in the littoral current. Such structures are expensive, unsightly and cause extensive erosion problems down-current, as they rob these beach areas of the natural sand replenishment they would normally receive. So far the State of North Carolina has not supported the establishment of such structures along our Coast, however, there is currently discussion at the state level to introduce consideration of such structures at key areas along the Coast, including South Oregon Inlet.

Shoreline protection works, such as seawalls and revetments, are built parallel to the coastline and are designed to directly shield shoreline property from the ocean forces. The City of Galveston, Texas, for instance, has constructed a 17-foot high seawall, which protects its urban area. Such structures, however, reflect wave action, and intensify currents that steepen the profile of the beach and damage the property beyond the ends of the structure. In the long run these structures serve to destroy or seriously undermine the beach, require continual maintenance and investment, and are largely ineffective in protecting property from shoreline processes without perpetual nourishment of the beach seaward of the hardened shoreline. Moreover, these structures are extremely costly to build. The Coastal Resources Commission, recognizing the inappropriateness of shore-hardening devices such as wooden bulkheads, seawalls, rock or rubble revetments, jetties, groins and breakwaters, has prohibited their use on North Carolina ocean beaches and restricted their use in other areas such as the Sound. The Town of Nags Head defers to Coastal Area Management Agency regulations for such requests.

On the oceanfront, several actions can result in the destruction or removal of homes. Houses can be destroyed by storms or erosion or they can be relocated either on the same lot or off the lot. Tracking the fate of oceanfront houses can be problematic. If the house is moved either on the same lot or off the lot, the Town will issue a permit. If the house is condemned (for lack of septic or building code problems), the Town will also issue a permit for its removal. These properties can soon become a public nuisance and it is often difficult to require their removal. Town records reveal that there have been approximately 96 houses moved from the oceanfront or demolished from 1987 through 1996, 44 houses relocated on the same lot, and 56 properties listed as "washouts" on the Dare County tax listing. A "washout" represents a property where the building no longer exists and in all likelihood was destroyed by a storm or erosion. **Since the Veterans Day Storm, the Town has facilitated the relocation or demolition of 17 homes.** Most of the building permit activity for destroyed homes or relocated structures has occurred in South Nags Head.

Since 1989, the US Army Corps of Engineers has been conducting studies to determine the feasibility of constructing a federal Hurricane and Storm Damage Prevention Berm on portions of the northern beaches of Dare County.

These studies have: (1) determined the value of land development along the oceanfront, (2) the cost of constructing such a project, (3) the supply of recoverable, compatible sand available, and (4) the benefit cost ratio between berm construction costs and the value of oceanfront and near ocean structures that would be protected by such a berm.

Three sections of the northern beaches have been identified as meeting the standards for federal appropriations. Virtually all of Nags Head is included within this identified project area. The costs for initial construction of the entire Dare County project are estimated at approximately 70 million dollars. Previous nourishment projects have been funded 65 percent by the federal government, with the remaining 35 percent coming from state and local sources. The federal beach nourishment study was completed in the fall of 2000. At the time this document was written originally, easements were acquired for the first phase of the project.

Since that time, the Town carried out a successful beach nourishment project. The nourishment project performed very well during Hurricane Sandy in 2012, with the Town sustaining minimal damage, while ocean front areas to the north and south of Nags Head sustaining significant damage.

2. Beach Nourishment Funding

The Town supports beach nourishment projects for the Town beaches subject to commensurate funding appropriations from federal, state and local sources. The Town will support and encourage the establishment of a statewide beach management strategy and policy along with a dedicated funding program designed for beach restoration and nourishment projects.

Implementing actions.

- The Town will actively lobby the State for a state policy and strategy on beach nourishment and beach renourishment. Timetable A: Board Of Commissioners, Planning, Administration: **The Town received required permits in late 2010. The beach nourishment project was completed in October 2011.**
- The Town will lobby the State to establish an annually state funded statewide nourishment program. Timetable A: Town Managers Office, Planning. **In 2005, Dare County enacted an increase in the general sales tax devoted to beach nourishment. Although it was repealed in 2006 the Town currently receives interest payments from the fund. The Town uses the funds for Town wide sand fencing projects.**
- The Town will seek funding from local and regional sources to assist with the local match for federally funded beach nourishment projects. Timetable A; Town Managers office, Planning. **In 2005, Dare County enacted an increase in the general sales tax devoted to beach nourishment that was repealed in 2006. In 2008, the Town established a beach nourishment fund. In 2009, the Town applied for a Water Resources grant that was not funded. Because of the lack of financial assistance from federal and state government, Nags Head raised taxes in 2011 to help pay for the \$36 million nourishment project.**
- The Town shall request authorization to extend any ocean outfall, which will be affected by any renourishment project. Timetable D: Public Works, Planning. **The Town's CAMA permit for Beach Nourishment was modified to permit the extension of the outfalls to be affected by the widened beach. Three outfalls were extended as part of the project.**

3. Beach Nourishment-General

The Town recognizes beach nourishment as our preferred alternative for addressing the impacts from barrier island migration and ocean erosion. However, the Town also supports a variety of methods to abate the impacts to ocean erosion; these include but are not limited to: acquisition of threatened structures, relocation of threatened structures, and the establishment of innovative technology or designs which may be considered experimental, which can be evaluated by the CRC to determine consistency with 15A NCAC 7M .0200 and the other general and specific use standards within the CAMA rules.

Implementing actions

- The Town will sponsor studies designed to determine the financial contribution the beach makes to the Outer Banks and the region. Timetable D: Administration, Planning. **In 2006, the Town established a committee to address this. December-January 2007 the committee presented a recommendation to the Board of Commissioners. A Town referendum was held April 17, 2007 and failed to gain enough support for passage.**

- Following a severe storm the Town shall consider purchasing land in damage prone areas. Timetable A: Planning, Administration. In 2013 the Town purchased an oceanfront piece of property in South nags Head to be used for public beach access.

B. Mitigation and FEMA

Mitigation represents a proactive approach to reducing the vulnerability of risk to properties in the Town. The Town will investigate innovative programs and seek funds for mitigation measures such as relocation of threatened structures and more stringent building codes for high hazard areas that support the growth management policies of the Town.

Implementing actions.

- The Town shall consider the applicability of requiring “V Zone” structural certification for structures in the 100-year (A) flood zone. Timetable D: Planning. New flood maps were adopted September 20, 2006: No additional action needed as the new flood maps addressed the Town’s concerns.
- The Town will consider establishing a committee comprised of a cross section of interests to explore and make recommendations to the Board of Commissioners regarding amendments to our Flood Ordinance which address freeboard and other flood mitigative measures recognized by FEMA and the CRS program to reduce flood losses. Timetable C: Board of Commissioners. 2006: The model flood ordinance was reviewed by staff; the Town’s Planning Board and the Board of Commissioners and was modified to address higher regulatory standards and adopted on September 20, 2007.
- The Town shall support the continued education and training of the Town’s Building Inspectors and planning staff in inspections and mitigation activities. Timetable A: Planning. 2011: Inspectors attend periodic training workshops and have increased training as a result of BCEGS.
- The Town will actively work with FEMA and the State during the Statewide floodplain mapping project. Timetable A: Planning. The new flood maps were adopted September 20, 2006.
- The Town shall develop a program to identify businesses and material storage areas where significant amounts of toxic or hazardous products are stored which would be subject to flooding. Timetable C: Public Safety, Public Works. Through annual fire prevention inspections, Nags Head Fire staff evaluates and determines protection of toxic or hazardous products stored in areas prone to flooding.
- The Town shall develop regulations to require fuel tanks, including LP tanks to be adequately anchored to prevent flotation or submersion in the event of flooding. Timetable D: Public Safety, Planning. All new LP tank installations must met the current building code.
- The Town will continue to identify properties in repetitive loss areas and will continue to inform property owners in these areas of flood mitigation actions they can take to reduce flood losses. Timetable A: Planning. The Town informs repetitive loss property owners of yearly retrofitting workshops held in the fall.

- The Town shall participate in the Community Rating System program by continuing the following CRS credit activities: Timetable A: Planning.

Table 9. CRS Credit Activities

Activity	Description of Activity
310	Elevation certificates
320	Map determinations
330	Outreach projects
340	Hazard disclosure
350	Flood protection library
360	Flood protection assistance
410	Additional flood data
420	Open space preservation
430	Higher regulatory standards
440	Flood data maintenance
450	Stormwater management
510	Repetitive loss projects
530	Retrofitting
540	Drainage systems maintenance
610	Flood warning program
630	Dam safety

C. Post Storm Mitigation

The time period after a storm is a critical time to ensure that all Town regulations are adhered to and that the area is safe for visitors to return. This time period is also an opportunity to utilize current building codes and available regulations to mitigate future damage potential.

Implementing actions.

- Following a severe storm or hurricane, reconstruction will be evaluated for compliance with the adopted zoning ordinance, CAMA regulations, and all other applicable local, state and federal regulations. Timetable A: Planning. **This is an ongoing endeavor.**

D. Recovery and Operations

Intergovernmental cooperation and employee safety are essential components for a safe recovery. Effective communication of policies and procedures among Town Staff and to residents and property owners is crucial to strengthen the reentry and recovery process.

Implementing actions

- On issues of mutual concern, the Town shall coordinate recovery and post storm response activities with Dare County, the State of North Carolina, and the Federal Government. Timetable A: All Town Departments. **The Town participates in preparedness meetings such as the VA/NC hurricane meeting and hurricane recovery exercises with adjacent jurisdictions (mutual aid).**
- During a hurricane the Town maintains a staff of essential personnel and elected officials **within Town Hall, using the Town Hall building as the Emergency Operations**

Center of "EOC." When available the Town shall consider acquiring or building a command facility. Essential components may include a mobile radio transmission tower, satellite internet capability and enhanced telephone service. Timetable A: All Departments. **The Town has established the former Outer Banks Medical Center facility as a backup EOC. In 2006 the Town acquired a mobile command center. In 2012 the Town acquired and installed a HAM radio Tower for use during emergency events.**

- Following a hurricane the Town shall establish an information center staffed with Town, State and Federal employees who are available to assist property owners in the reentry and recovery process. Timetable A: Mayor, Manager, Planning, Administrative Services. **The Town has established areas and identified personnel to carry out the above as part of the ICS Plan. In addition, the Town's public information officer participates in a county wide Joint Information Section, an integral part of the ICS.**
- Following a declared emergency storm event, only those areas where damage assessment is complete and that have been declared relatively secure shall be open to the public. Timetable A: Public Safety, Planning. **Material, staffing and procedures have been identified to carry out this task.**
- The Town leases space to mobile phone service providers on the Town's two water tanks. Cellular phone service provides an essential form of communication after a storm. The Town shall consider requiring cellular phone service providers to structurally design their tower mounted equipment to withstand greater wind loads than is required by the State building code. Timetable (when leases expire): Administration, Town Managers Office. **The Town enforces the State Building Code. A new fire alarm control panel was also installed and fire alarm service completed in the Town's emergency command center.**
- The Town shall identify and implement methods to streamline the damage assessment process. This may include collection of damage assessment data utilizing handheld GIS units. This shall also include methods to expedite the availability of damage and condemnation information to Town staff and the public. Timetable C: Planning. **The Town's equipment used to collect digital information in the field proved unreliable in the field and will be discontinued. The Planning and Development Department's installation of Blue Prints Software, and trial usage of cell phone devices in the field will be used to determine a better digital collection approach. The Town will use a trained team to collect data and photos from the field.**
- The Town shall continue to pre-position debris removal agreements on a yearly basis. Timetable A: Public Works, Administration. **The Town has secured agreements with two debris haulers, a memorandum of Agreement with Dare County (for debris removal using their contractor) and one debris monitoring contractor.**
- The Town shall obtain pre-storm authorization from the NC Department of Transportation (DOT) to clear DOT maintained roads after storm events. Timetable A: Public Works, Town Manager. **This was accomplished in 2007 and again in 2012.**
- The Town shall continue to work with other North Carolina communities to obtain post-storm mutual aid personnel assistance when necessary. This could include assistance with building inspections, damage assessment, utilities repair and public facilities maintenance, and additional public safety personnel. Timetable A: Administration, Planning, Public Safety, Public Works. **The Town has mutual aid agreements with other**

Dare County agencies. The Town also participates in the Statewide Mutual Aid Compact. The Town will no longer enlist community volunteers for the damage assessment process after a storm, but has pre-identified Town personnel to work with the Planning and Development Department on damage assessment so that the process is more timely and utilizes only personnel authorized to use Town equipment and those covered under Town liability insurance.

- The Town shall designate a Staff level Director and Deputy Director of Emergency Management. Timetable B: Administration, Public Safety. The Town has designated the Fire Chief as the Emergency Management Coordinator under the ICS Structure. In 2009, the Town designated the Deputy Fire Chief as Deputy Emergency Management Coordinator. In 2010, the Deputy Fire Chief was hired to fill the retired Fire Chief's position. In August of 2013 the Town hired a Deputy Fire Chief who will fulfill the role of Deputy Director of Emergency Management.
- The Town shall continue to improve methods to provide public information after a storm. This shall include an automated voice messaging system with storm damage and re-entry information, a Mayor's radio broadcast, email broadcasts, improved real-time website information with relevant local contact information, available information at traffic stops, and designation of a post-storm public information officer. Timetable A: Administration, Town Manager's Office, The Town is capable of providing the above services through the Town's PIO and Dare County Joint Information Center.
- The Town shall communicate post-storm recovery and operations policies and procedures to residents and property owners prior to hurricane season. The Town shall consider providing this information in the Town Newsletter, on the Local Government Access Channel, and the Town Website. Timetable B: Administration, Management Information Systems. Information is provided to residents and property owners as described above and through new media and traditional media outlets.
- The Town shall develop a Crisis Communications Plan which will detail the process for distributing information internally and externally to the public before and after storms. Timetable B: Administration. In 2006, the Town adopted an "Emergency Operations Plan" which details duties of Town staff before, during and after an emergency. That Plan was updated in August 2012 based on staff review of "lessons learned from hurricane Irene.

E. Transportation and Drainage

Implementing actions

- The Town will develop regulations requiring a greater street standard (dimensional and construction) where it can be reasonably demonstrated that nearby streets may be destroyed by a storm or other natural event and that the proposed street may be required to accept greater amounts of traffic. Timetable D: Planning, Public Works. Other coastal communities are being contacted to determine if this is a possible option, and if adopted, would it be enforceable.
- The Town shall consider the establishment of an emergency transportation route parallel to US 158 from the northern Town boundary at Eighth Street south to Health Center Drive. Timetable D: Planning, Public Works, Public Safety. Wrightsville, Memorial and

even the Nags Head Woods Road could be used as needed for emergency access if something happens to US158.

- Prior to a flooding event, the Town's Street Department shall assemble the necessary traffic barricades and equipment to address flooding conditions noted in this plan. Timetable A: Public Works. **This action is performed prior to a storm.**
- The Town shall identify alternative means of ingress and egress to the Outer Banks Hospital site and Colony Ridge Nursing Home facility. Timetable B: Planning, Public Safety. **This has been investigated and no feasible alternative exists. However, public safety will be in communications with Colony Ridge staff to assist with evacuation procedures prior to an event if necessary and the helipad has been preserved for use if needed during or after an event.**
- Through the budget and CIP process, the Public Works Department shall request funds to comprehensively review and improve the Town's drainage system. Additionally, funds shall be requested to address specific, localized drainage issues. Examples include the North Ridge, Vista Colony and Nags Head Acres subdivisions. Timetable A: Public Works. **The Town established a Stormwater Utility, funded by a \$2 per month charge on all water bills, in the spring of 2005. The first project funded was a major update to the Town's Stormwater Management Plan, and the creation of a Stormwater CIP. The list of stormwater management projects has been expanded greatly as a result of Tropical Storm Beryl and the wet season experienced from June through August of 2012. The Town is working to develop engineered solutions with NCDOT to prioritize projects as funds permit.**
- **The most northern outfall (known as the "Red Drum" outfall), was not included in the beach nourishment project and therefore was not extended. This outfall has proven to need repair and improvement in order to efficiently drain the NCDOT conveyance system. In 2012, Tropical Storm Beryl and heavy rain events have caused standing water in several areas of Town where the groundwater has breached and street conveyance systems backed up. NCDOT is currently in the design process for the extension of this outfall, which is critical to improving drainage conveyance in the northern part of Town.**

F. Damaged Homes

The Town recognizes that damaged homes and structures on the oceanfront present nuisance and aesthetic concerns. The Town shall take appropriate measures to abate this nuisance. The Town will investigate changes in NFIP regulations to establish realistic policies and procedures for declaration of destroyed structures.

Implementing actions

- The Town will take a more proactive approach to enforcing removal of nuisance structures, with upfront communication of policies to property owners and the issuance of civil citations to abate the nuisance. This shall include the establishment of a new timetable for compliance of condemned structures, with the goal of full compliance

within four months of initial condemnation. Timetable A: Planning. **The Town continues to explore procedures to expedite removal of nuisances. In 2010, 10 nuisance structures were moved or had permits to be moved and in 2011, 7 structures were removed.**

- The Town will petition FEMA through our state and regional NFIP representatives to consider adopting realistic regulations regarding the determination of destroyed structures. Timetable C: Planning. **On March 5, 2008 the Town adopted a resolution requesting Congress to readopt the Upton-Jones amendment.**
- Relocation of threatened structures is a viable option for reducing storm damage and erosion and mitigating nuisance properties. The Town may seek funds and consider changes to the flood ordinance which will assist in the in the relocation or removal of these threatened structures. Timetable C: Planning. **Town Staff is aware of grant programs; however, the grants require a local match and the Town has not taken the position to support relocation with government financial assistance.**
- The Town shall continue aggressive monitoring of entry into condemned homes to prevent safety hazards. Timetable A: Planning. **Enforcement of Building Code and nuisance regulations is on-going.**

G. Infrastructure

The proper placement or replacement of the Town's Infrastructure (roads, water lines etc.) after a storm is an essential mitigation tool to limit damage from future storm events.

Implementing actions

- It shall be a Town policy that damaged Town infrastructure be built back to established Town standards only if it can be demonstrated that there is a reasonable and they have a reasonable expectation to survive future hazard events. Timetable C: All Town Departments. **Waterlines have been replaced only if they meet these criteria.**
- The Town shall develop contingency plans for those Town streets that may be lost as a result of erosion. This can include development of alternative routes or access, or upfront declaration of the potential for future improvements. Timetable D: Public Works, Town Manager, Board of Commissioners.
 - **The Town has followed the same procedure for waterlines, and water services that cannot be restored in their previous location.**
 - **The Town, with assistance from the Town Attorney, in 2006-2007 has identified alternative means of access to several properties along the ocean front where property owners agreed to work cooperatively.**
 - **The Town modified development regulations to assist with providing access to properties where a Town road has been damaged or lost. The Town took action to officially close Surfside Avenue in 2011 as a Town Road when it was lost due to erosion.**
 - **In 2012, the Town worked with the Nature Conservancy, and Clean Water Management Trust Fund to relocate a portion of Nags Head Woods Road damaged by Hurricane Irene in coordination with a soundside stabilization and natural restoration project.**

H. Zoning

Another key element in the reconstruction process is the enforcement of existing zoning rules and land use regulations.

Implementing actions

- Storm damage reconstruction shall reflect pre-storm conditions to the extent possible. Redevelopment shall comply with the Land Use Classification Map and the zoning ordinance. Timetable A: Planning. **Enforcement is ongoing.**
- As the amount of available vacant oceanfront land diminishes, the Town can expect redevelopment of existing sites. It is the Town's position that the existing oceanfront development regulations adequately address concerns such as building height and density, and that currently permitted uses adequately represent the desired uses for the oceanfront. Timetable A: Planning. **This policy is presently in place.**

I. Sewage treatment plants and septic systems

The Town relies primarily on on-site septic systems; however, within the Town there are several sewage treatment plants and numerous low-pressure septic systems. During recovery after a severe storm, monitoring the function of on-site septic systems and treatment plants is critical to ensure that environmental damage does not occur.

Implementing actions

- The Town shall consider seeking authority and adopting regulations which would allow qualified Town staff to inspect sewer treatment facilities and on-site septic systems after a storm. These regulations should also allow staff to request the corrective actions necessary to ensure proper operation of these systems. Timetable C: Board of Commissioners, Administration, Planning and Septic Health. **Town staff is trained to inspect systems, but no authority to enter private property has been requested. In 2007 the Town adopted a regulation that prohibits "pump and haul" operations for residential uses where the septic system cannot be repaired.**
- The Town shall take a proactive approach to educating citizens on the negative implications of using a septic system that has suffered storm damage. The Town will develop educational materials informing homeowners on the proper care of a system impacted by floodwaters. Timetable B: Septic Health, Public Works. **This process is ongoing through the Septic Health Initiative.**

J. Critical facilities

An essential component to storm preparedness and the recovery process is the protection of critical facilities and the individuals they serve.

Implementing actions

- The Town shall require Hurricane Evacuation plans from sensitive, vulnerable or critical facilities which are likely to contain occupants who may not be sufficiently mobile to avoid death or injury during a flood or hurricane, including, but not limited to: hospitals,

nursing homes, police stations and fire stations. Timetable A: Planning, Public Safety. **Emergency plans concerning critical facilities are updated annually and added to the Emergency Operations Plan.**

- The evacuation, operation, and recovery plans for the Outer Banks Hospital and the Colony Ridge Nursing Home shall be reviewed and approved by the Town's Public Safety Department. These plans shall address the evacuation of critically ill patients, securing the facility prior to and during the storm, and plans for startup after the storm. Timetable B: Planning, Public Safety. **In 2012, Fire, Police, Emergency Management and EMS Staff met with representatives of The Outer Banks Hospital and Colony Ridge Nursing Home to determine methods to best serve the affected special needs population. These interactive meetings identified several deficiencies. Steps have been taken to mitigate hazards and implement new procedures.**
- The design of the proposed elementary school shall address flooding and hurricane resistant construction. Timetable (when plans submitted): Planning, Public Safety. **The school is complete and construction meets or exceeds State Building Code requirements.**
- It is strongly urged that evacuation drills and tornado drills be conducted at the proposed elementary school. Timetable (when school completed): Public Safety. **This is a school function; however, our Police and Fire Department have participated with and support School preparation activities.**

K. Natural Resource Protection

Open and natural spaces are important elements in Nags Head for their aesthetic value as well as to provide important natural flood mitigation functions such as stormwater retention. The Town will inventory open space, actively pursue grants and funding opportunities, and develop and implement a plan to acquire and preserve open space throughout the Town.

Implementing actions

- The town will identify important areas to be acquired as open space and shall request funds for acquisition of these areas through the budget, CIP, and grant process. Timetable A: Planning. **The Town purchased the "Whalebone Park" site in the fall of 2008. It has been developed as a park that serves children between the ages of 2 and 12 and incorporates features which meet ADA guidelines. The park also allows for inclusive play for all children regardless of physical or sensory abilities. The Town is working with the Coastal Area Land Trust to look at additional properties for easement or conservation along the Roanoke Sound as part of a Boardwalk development effort.**
- The Town will consider an incentive program rewarding those developers which set aside additional open space in perpetuity. Timetable E: Planning. **No action taken as of this date but is being considered as part of stormwater and fill updates currently under development by the Planning Board.**
- The Town shall continue to acquire land for open space and recreational purposes. Timetable A: Planning. **The Town purchased the "Whalebone Park" site in the fall of 2008. It has been developed as a park that serves children between the ages of 2 and 12 and incorporates features which meet ADA guidelines. The park also allows for inclusive play for all children regardless of physical or sensory abilities. The Town is also**

working with the Coastal Area Land Trust to look at additional properties for easement or conservation along the Sound as part of a Boardwalk development effort. The Town also completed and adopted a Parks and Recreation Plan in 2011. In 2011-12, the Town Board of Commissioners initiated a process of identifying and researching the feasibility of purchasing additional properties. The Town will complete the work needed to dedicate appropriate Town owned property(ies) to the State of North Carolina as a nature preserve. Timetable A: Administration, Planning. No action taken since last update.

L. Brush Fires/Fire Protection

The Town has several areas with greater property damage potential resulting from brush fires. Nags Head Woods is a 1,000 acre maritime forest which abuts several residential neighborhoods. The residential areas in South Nags Head west of SR 1243 from Gulfstream Street to the southern Town limits are susceptible to brush fires because of their proximity to the Cape Hatteras National Seashore. The Nags Head Public Safety Department has an ongoing program to mitigate the potential for damage in these areas.

Implementing actions

- The Town shall maintain fire breaks where appropriate. The Town shall coordinate with the National Park Service to maintain the fire break in South Nags Head. Timetable A: Public Safety. The addition of a staffed South Nags Head Station 21 on February 14, 2006 vastly improved the firefighting capabilities of the Town and specifically benefits the South Nags Head residential community. Providing prompt firefighting services in the wild land/urban interface reduce the hazard and damage potential of uncontrolled wildfire in this area. Ongoing fire prevention efforts include wild land fire prevention discussions with homeowners to assist in maintaining safe clearances from combustible vegetation. 2009, the National Park service and Dominion Power created a 30'-40' firebreak between homes located west of Old Oregon Inlet Road and NPS property. The firebreak lessens the opportunity for uncontrolled fires to affect residences. In March 2012, nearly 200 acres of sound front marsh vegetation was subject to a control burn fuel reduction program that removed extensive fuel loading and helped to decrease the possibility of an uncontrolled wildfire in the Nags Head Woods area. In May 2012, a buffer zone fuels reduction program was completed, effectively removing combustible materials from a firebreak located adjacent Well Field Road and back to Nags Head Woods Road. In February and April of 2013, the Town, NC Forestry and The Nature Conservancy worked together to prescribe burn 50+ acres of private sound front marsh area in Nags Head Woods. This was the first intentional fire in this area and homeowners were pleased with the tremendous fuel reduction afforded by the prescribed burn.
- The Town shall continue the program to remove dead wood in critically fire prone areas. Timetable A: Public Safety. Homeowners may access the fire prevention staff to determine an optimal way to create fire safe landscaping.
- The Town shall review and require maintenance of access for emergency vehicles and fire apparatus. Timetable A: Public Safety. Annual fire inspections of commercial facilities identify areas of fire lane non-compliance and required corrections are mandated by code enforcement officials. Technical reviews of proposed commercial

developments incorporate NC fire code access lane requirements. A Nags Head Woods roadway deficiency created by severe storm erosion left fire crews unable to navigate large apparatus along the entire roadway for much of 2011 and a portion of 2012; this has been corrected. The Town of Nags Head provided the 2012 review of Nags Head Woods road to determine if adequate fire apparatus clearance is available, and all was determined to be sufficient to sustain fire equipment access.

- The Town shall evaluate the Nags Head Woods Fire Plan on a regular basis and coordinate information with Nature Conservancy Staff. Timetable A: Public Safety. An evaluation meeting and update of Nags Head Woods Fire Plan was conducted in the spring of 2011. Fire staff performed an annual drive through of Nags Head Woods and conducted the regular meeting with Nags Head Woods Steward Aaron McCall to discuss observed hazards and mitigation/prevention. It appears that State of NC grant funding is potentially available for fuel removal program funding and Fire/Conservancy staffs are meeting in October 2011 to discuss a plan of action and implementation. Currently, homeowners may access the fire prevention staff to determine an optimal way to create fire safe landscaping. A series of fire prevention fuels reduction meetings were conducted to inform/educate the public of the forthcoming Nags Head Woods Marsh controlled burn in March 2012. A series of public fuel reduction meetings were conducted in the fall of 2012 to answer homeowner questions about Nags Head Wood fire prevention and planning for prescribed burns to be conducted in the spring of 2013.
- The Town shall continue cooperation with the US Forest Service and Dare County for mutual aid fire protection. Timetable A: Town Manager's Office, Public Safety. Nags Head Fire Rescue provided mutual aid structural firefighting services to all those Dare County Fire Departments requesting assistance in 2011/2012, as well as utilizing incoming resources to assist in mitigating hazards exceeding the capabilities of Nags Head Fire Rescue. Nags Head continues to maintain excellent mutual aid working relationships with all Dare County fire departments.
 - The Town shall continue to evaluate and update the Nags Head Urban Wild Fire Interface Plan as necessary. Timetable A: Public Safety. An evaluation was completed in 2012 and no changes were made to current plan.
- The Town shall continue to review the water system throughout the Town for fire protection capabilities and prioritize capital improvements as necessary. Timetable A: Public Safety, Town Manager's Office, Public Works. In 2009, Nags Head Fire staff worked with Nags Head Water staff to implement waterline improvements to benefit Northridge Subdivision, Old Nags Head Cove, West Side Court and Gray Eagle Street.
- The Town shall continue to inventory fire hydrants, water distribution infrastructure, and other town infrastructure in support of fire planning efforts. Timetable C: Public Safety, Planning. In 2008 the inventory was reviewed and updated. An additional 1,640 feet of 8-inch waterline under design for US 158 Bypass from Bonnett to Baltic streets was determined to be needed. Lack of funding has prevented the line from being built. A detailed Hydraulic Study was completed in 2010. Several projects to improve domestic flow, and fire protection, were recommended. These have been prioritized and will be constructed when funds are available. The 2013-2014 budget allowed for funding of five additional fire hydrants spaced equally along Wellfield Road. These additional hydrants will enhance fire protection and provide a firefighting water source for uncontrolled wildfires in Nags head Woods.

- The Town shall continue to evaluate and update the capital improvements plan for fire protection infrastructure. Timetable E: Public Safety The Town of Nags Head anticipates a “shared fire facility” partnership with the Town of Kill Devil Hills. This arrangement is based on NC ratings system recommendations that determined a strategically placed fire station would enhance response and lower insurance ratings in both towns. Nags Head and KDH fire administrations met in 2012 to review the future of a shared station and discussed their commitment to working together in this effort. In September 2011, the Town of Nags Head submitted an application for the 2011 FEMA "Assistance to Firefighters" grant program. The application requested funding for a new aerial apparatus to replace the Nags Head 1987 E-One ladder truck. FY 2012/2013 budget process realized funding for the acquisition of a modern aerial fire apparatus to replace the current aged apparatus. The new “quint” type fire apparatus is currently under construction and delivery is expected in the late summer of 2013.
- The Town shall continue its fire education program. This includes newsletter and newspaper articles on fire protection as well as grants from the State Division of Forestry for fire education. Timetable A: Public Safety. The Town shall improve fire protection in Nags Head Woods with the installation of ‘dry hydrants’ and maintenance and improvements to Nags Head Woods Road. Timetable B: Public Safety. The Nags Head Woods road is maintained by Nags Head Public Works and roadway material is added as needed to maintain an acceptable driving surface. In 2011/2012, fire safety related topics and newsletter articles were distributed, and the website updated with current fire prevention information. The “Change your Clock, Change your Battery” program resulted in the installation of numerous new smoke detectors placed in homes in Town. Fire Prevention e mails, tweets and other valuable life safety information were forwarded to the public from the United States Fire Administration, helping to advance injury prevention in Nags Head. Fire information is supplied face to face to the community via the annual October Youth Fire Prevention Night and National Fire Prevention week activities.
- With the installation of the new water tank, the Town shall install a new 12 inch water line from the Public Works facility to Barnes Street. This will increase fire flow to north end neighborhoods. Timetable C: Public Works, Public Safety, Planning. This was completed in 2006.
- The Town shall research available data on underground storage tanks and leaking underground storage tanks. Timetable C: Planning, Public Safety. Underground fuel tanks, when required by fire code, have been removed or brought into compliance with Fire Code and DEHNR standards.

M. Water Protection

Nags Head is a member of the Dare County Regional Water System, but no longer operates the Fresh Pond Water Treatment Plant. This has eliminated the threat from natural, or man-made, disasters to this former Public Water Supply source. The Town does operate over 75 miles of distribution system waterlines, and two major pump stations. The town shall continue to identify improvements to make the water system safer.

Implementing actions

- The Town shall coordinate with Kill Devil Hills regarding fencing around their portion of the Fresh Pond. Timetable B: Public Works, Town Manager's Office. **The Fresh pond water treatment plant has been permanently decommissioned.**
- The Town shall continue to evaluate the implementation of water restrictions during periods of drought. Timetable A: Public Works, Town Manager's Office. **The Town has a Water Shortage Supply Plan.**
- The Town of Nags Head shall continue to monitor develop and the installation of on-site septic systems with the Fresh Pond Area of Environmental Concern. Timetable A: Planning. **Process monitored through the development and permitting process.**
- The Town shall continue to cooperate with Dare County on the development of additional water supply well facilities. Timetable A: Planning, Public Works. **The Town continues to cooperate with Dare County as requested. Additional wells and 2 million gallons of treatment capacity added to Dare County Water Plant in Kill Devil Hills in 2005-2006.**

VII. MONITORING, EVALUATING, AND REPORTING PROGRESS

The Town will review this Plan on an annual basis or after a declared disaster. The annual report will review progress, discuss actions that were not completed and provide a justification for this, and will discuss potential revisions as well as recommendations for new implementing actions. During this annual evaluation, it will be important to determine the feasibility and the need to implement items not yet addressed. The evaluation should utilize input from the mitigation planning committee, Town Staff, and citizens to determine if current conditions call for changes to the plan. Mechanisms for public input will be available through the Town website, Board meeting audience response, and Town Staff. Monitoring of implementation action items will be done by the responsible parties listed for each item. Monitoring will be conducted on an as needed basis in accordance with the timeline and target completion date specified. Progress reporting of all implementation actions shall be conducted by the responsible parties listed for each item during the annual report process. Criteria to be addressed during the annual review include:

- Have conditions changed since the last plan update which requires revisions to plan goals or strategies?
- Has the nature or magnitude of risks changed?
- Are there current financial or staffing constraints that inhibit implementation of certain strategies?
- Are there other legal, technical, or political factors limiting implementation of mitigation strategies?
- Have the strategies implemented to date been effective? What measures of effectiveness can be used to document this?
- Did third parties participate in the implementation of the plan in the way that was desired or expected?

VIII. REVISIONS AND UPDATES

Planning Staff as directed by the Town Manager will review the evaluation report and present the findings to the Board of Commissioners with recommendations for updates and revisions. At least one plan update will occur every five years in accordance with FEMA requirements. As updates occur; the date, reason and responsible party will be noted. The 2004 Plan was reviewed by the Planning Committee and found to be effective. No deficiencies were found with the 2004 mitigation strategies and actions and no new policies were added in this update, however, several new actions are being pursued as a result of current conditions and experience with recent storms.

Continued Public Involvement

Each plan update will be advertised and public input will be solicited in a similar manner to the initial plan. As mentioned above, mechanisms for continued public input will be available through the Town website, Board meeting audience response, and Town Staff. The Town is making efforts through the CRS program to present more educational opportunities for the public. Upcoming events for 2013-2013 include a CRS workshop on hazard mitigation through retrofits, the development of information materials on stormwater management techniques for local property owners currently under development in conjunction with Dare County and the Outer Banks Ecological Field Site of UNC Chapel Hill, and updates to the local stormwater ordinance with accompanying educational materials.

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