

COUNCIL WORKSHOP MEETING

A G E N D A

TOWN OF CHINCOTEAGUE

August 18, 2011, 5:00 P.M. - Council Chambers - Town Hall

CALL TO ORDER

INVOCATION BY COUNCILMAN T. HOWARD

PLEDGE OF ALLEGIANCE

AGENDA ADDITIONS/DELETIONS AND ADOPTION:

1. Presentation – Riverside Shore Memorial Hospital
 - a) Presentation by Joseph P. Zager, Administrator
2. Hazard Mitigation Plan Update
3. Economic Impact Study
 - a) Staff review
 - b) Strategy for cooperation
4. Council Member Comments

ADJOURN:



STAFF REPORT

To: Robert Ritter, Town Manager
From: William Neville, Director of Planning
Date: August 18, 2011
Subject: Hazard Mitigation Plan

- ❖ **Town Council update on status of the Hazard Mitigation Plan (HMP)**
 - **General Countywide chapters 1-6 (draft)**
 - **Specific Chapter 9 for Town of Chincoteague (draft)**
 - **Chapter 26 Mitigation Strategies (not available yet)**
 - ❖ **Determine if public hearing is needed for draft HMP Update – October 3rd or November 1st**
-

Hazard Mitigation is defined as any sustained action taken to reduce or eliminate long-term risk to human life or property from hazards.

The United States Congress passed, in October 2000, an amendment to the Stafford Act called the Disaster Mitigation Act of 2000. This act seeks to protect lives and property and to reduce disaster assistance costs by mitigation or sustained actions to reduce long-term risk. FEMA has since written regulations based on this act to establish the Pre-Disaster Mitigation Grant Program (PDM) and new requirements for the post-disaster Hazard Mitigation Grant Program (HMGP).

Local governments are required to complete a Hazard Mitigation Plan to continue to receive certain types of disaster assistance. Specifically, the Act requires that the plan demonstrate “a jurisdiction’s commitment to reduce risk from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards.” The final plan must be adopted by the jurisdiction and then approved by the Federal Emergency Management Agency (FEMA).

In 2003, the Virginia Department of Emergency Management asked the counties of the Eastern Shore and the Accomack-Northampton Planning District Commission (PDC) to

undertake this work and directed the PDC to apply for a Pre-disaster mitigation grant to finance the planning process. The resulting regional Eastern Shore of Virginia Hazard Mitigation Plan was reviewed by FEMA, and the sections pertaining to the Town of Chincoteague were approved and adopted by the Town Council on September 5, 2006.

An update is required by the 5th year anniversary of the adoption of the Plan that allows the community the opportunity, through advertised public hearings, to comment on plan revisions prior to the Town Council approving them. Eastern Shore localities are currently working with Curtis Smith of the A-NPDC to complete the Hazard Mitigation Plan update. Although the Town of Chincoteague adopted its current plan in September 2006, the countywide plan is valid through December 2011 according to Amy Howard with VDEM.

New Concepts and Recommendations

The current HMP has updated its evaluation of past natural hazard events to include specific areas of vulnerability that should be incorporated to assist in grant applications or other objectives.

- ✓ Barrier Island Protection Measures
- ✓ Commercial Main Street Building Flood Protection
- ✓ Critical Infrastructure
- ✓ Shallow Coastal Flooding/Drainage Improvements
- ✓ Storm Surge and Peak High Tide Events

Proposed Mitigation Projects

The project list that was adopted in 2006 has been generally completed. New projects must be listed in the approved HMP before they may be eligible for grant application. Several new project ideas have been proposed for consideration:

- Phase 2 Storm Water Master Plan
- Develop enforceable standards for fill and drainage
- GIS mapping project to evaluate incremental flooding issues
- Study and map critical infrastructure including new FEMA wave analysis
- Widen the Route 175 Causeway (shoulders, emergency lane/bike lane, center barrier)
- Commercial Building flood proofing along Main Street
- Coordinate studies and maps with Emergency Operations Plan and Comprehensive Plan

Potential Grant Applications

Hazard Mitigation Grant Program funding is now available for FY-2012 (subject to federal budget approval). The application period opened June 1, 2011. All Applications are due to VDEM on October 16, 2011. Eligible applications will be forwarded to FEMA by December 2, 2011. Successful applications typically must demonstrate a cost/benefit analysis that shows a long term reduction in cost to FEMA.

Chapter 9 Town of Chincoteague

Terminology

A zone – areas where the 1% probability flood, 100-year flood, would inundate with waves less than 3 feet.

V zone – areas where the 1% probability flood, 100-year flood, would inundate with waves greater than 3 feet.

NFIP – National Flood Insurance Program

Pre-FIRM – Built before the FIRM (Flood Insurance Rate Map) was adopted by a community

History. Chincoteague is a barrier island that is characterized by a series of ridges that run in a northeast-southwest direction that were formed approximately 2,000 to 4,000 years ago when the island was connected to the south end of Assateague Island. An inlet eventually formed at what is now the north end of the island separating Chincoteague and Assateague. A spit subsequently developed off the south end of Assateague serving as a barrier that has sheltered Chincoteague Island from erosion. Several landforms types are present including: tidal salt marshes, dunes, beaches, intermingled dunes and marshes, coastal upland or floodplain, and fill. Elevation above sea level ranges from 0 to 10 feet with most of the developed areas are within the 3 to 7 foot range.

The Town's economy has always been closely tied to natural resources and scenic beauty. Prior to the mid to late 1800s, the inhabitants of the island primarily subsisted by farming and raising cattle and sheep. As the demand for oysters grew throughout the 1800s, the seafood industry became the Town's main source of income. The seafood industry expanded to include clams, crabs, and fish during the 1900s and Chincoteague became widely known as a seafood capital (Chincoteague Comprehensive Plan, 2010).

When the causeway to the Island was constructed in 1922, the Town's primary economy began to shift from seafood to tourism. Chincoteague is now heavily dependent on the tourist industry. Many visitors come to enjoy Assateague Island National Seashore and the small coastal town atmosphere (Chincoteague Comprehensive Plan, 2010). In the 1950s, the tourist accommodations included rooming houses and small hotels. The island now includes large hotels, campgrounds, and vacation/rental homes to support the tourism industry during the 21st century and can

accommodate approximately 11,000 overnight visitors (Chincoteague Comprehensive Plan, 2002).

Demographics. The Town has experienced a significant population growth as it has become an increasingly popular tourist destination. The first significant population gain occurred leading up to the 1990s and has continued into the 21st Century. The population grew 21% from 3,572 to 4,317 between 1990 and 2000 (2000 Census). The 2010 Census indicated that the Town experienced a 31.9% decrease in population from 4,317 in 2000 to 2,941 in 2010. The Town has appealed this count and estimates 3,666 as the full year resident population. The median age for residents in Chincoteague in 2000 was 46.1 years, indicating a population older than the national average.

Chincoteague is a gateway community providing a single point of access to the National Wildlife Refuge and Seashore in Virginia with an estimated 1.5 million visitors per year. With tourism as the primary industry on the island, the Town experiences an peak population of over 15,000 seasonal residents and tourists during the summer months (Chincoteague Comprehensive Plan, 2010).

Local Industry. Chincoteague supports a seafood industry that has been a vital component of the town’s economy for generations. The town also supports a growing aquaculture industry. Both industries are vulnerable to economic losses as result of coastal flooding. Storm events have events have had adverse impacts on the local seafood industry in the past by damaging facilities and gear as well as damaging oyster and clam beds.

There is a significant risk of economic losses to the tourist related businesses if a spring northeaster caused a functional shut down of access to the beach during the summer tourist season. A late summer hurricane could also cause the tourist season to be shorter than usual and also cause functional losses.

The following table illustrates the top five types of businesses establishments located on Chincoteague.

2008 Rank	Name	No. of Establishments 2008	No. of Establishments 2001	2001 Rank
1	Accommodation and Food	46	43	1

Services				
2	Retail Trade	30	33	2
3	Construction	18	15	3
4	Other Services (except public administration)	16	12	4
5	Real Estate and Rental and Leasing	12	10	5

TABLE 9.1 Top five business sectors located on Chincoteague (Zip Code Business Patterns, 2001 and 2008).

Coastal and Storm water Flooding. The Flood Insurance Study for Chincoteague identifies the greatest threat of flood inundation comes from hurricanes and northeasters.

The entire town is located within the 100 year floodplain. Most areas are designated as an A flood zone, with only a slim edge of the southern shore of the Town located in a V flood zone. The Flood Insurance Study for Chincoteague includes a wave analysis. The town’s A zones then are likely coastal A zones where waves under 3 feet can be expected in the 100-year flood. This poses additional risk above ordinary A zones and is included in the adoption of Base Flood Elevations by FEMA. The V zone Base Flood Elevation on the island is 10 feet. The A zone Base Flood Elevations range from 7 to 9 feet.

The town has a significant number of older homes not built to current building code standards for high winds and flooding conditions. All structures on the island are at high risk to coastal flooding. An estimate of residences for built prior to the National Flood Insurance Program (pre-FIRM) is 2,016. There are approximately 609 additional residences built before the wave analysis. Some of these structures should be classified as pre-FIRM since they were built in the unincorporated areas of Accomack County prior to 1984 and annexed into the Town in 1989. Prior to 1984, structures were built to the stillwater elevations. The Flood Insurance Supplemental Study shows that wave crest increases the Base Flood Elevation by 0.8 to 1.1 feet. All pre-FIRM and pre wave analysis

structures are at greater risk of flood damage than post-FIRM structures built after June 1984.

Two commercial districts are located on the island, along Maddox Boulevard and the original downtown area on Main Street. Both of these areas are located in A zones and for the most part lie below 5 feet in elevation. In August 2011, there were 1,269 business licenses within the Town. Many of these licenses are for home based businesses and vacation rental homes since U.S. Census Business Patterns zip code data for Chincoteague indicated only 149 business establishments employing 755 persons and 162 businesses employing 807 persons in 2001 and 2008, respectively.

Flood Insurance. Chincoteague participates in the Community Rating System (CRS) of the Federal Emergency Management Agency's National Flood Insurance Program (NFIP). The Flood Insurance Program provides participants protection against catastrophic damage of loss from flooding. Communities participate in the Program by adopting and enforcing local ordinances that reduce future flood losses by regulating new construction. These measures include the adoption of floodplain zoning provisions, designed to limit damage to structures in flood hazard areas. Measures also include the adoption of special building codes for affected areas. Homeowners, renters, and business owners living in communities that participate in the Program are eligible for federally backed flood insurance.

The Community Rating System rewards communities that voluntarily take steps beyond the minimum requirements of the Flood Insurance Program with discounts on flood insurance premiums. Eligible activities fall under one or more of the following categories: flood preparedness; flood damage reduction; mapping and regulations; and public awareness.

In 2003, Chincoteague improved its rating to Class 8, entitling the community to a 10% discount on flood insurance premiums. Chincoteague's current rating is Class 8. The town had 530 NFIP policies in 2003 and 819 in 2011 that reduce the risk of financial loss experienced following a hazard event (FEMA NFIP Insurance Report, July 2003 and May 2011). Depending on the distribution of NFIP policies, these should provide a portion of the cost of repair. Purchasing NFIP contents insurance is not usually required unless the property is being used to secure a loan. In this case, NFIP

building insurance is a requirement to receive a mortgage on the property. Most of the covered losses will be for repair of existing buildings and will not be for replacement of personal property. In 2003, there was approximately \$46.3 million in properties that are uncovered for residential structural loss. This amount rose to approximately \$89.5 million in 2011 for the Town. In 2003, private residential property owners would have suffered an estimated \$107.9 million in structural and contents damage in the event of a 100-year flood, In 2011, this estimate has risen to approximately \$208.3 million

Disaster Assistance. In the past, floods that have ‘covered the entire island’ such as the 1933 hurricane and the Ash Wednesday Storm of 1962 have garnered federal assistance. However, there is no guarantee that the President would declare a disaster for a specific storm. If a federal disaster was declared, then some Federal Disaster Assistance would become available. The average housing assistance in medium sized states, such as Virginia, is \$1,675 per home (CFR-Emergency Management and Assistance, 2002). This housing assistance can include lodging reimbursement, rental assistance, home repair or home replacement. There were 2,068 households in Chincoteague in 2000 and 4,480 in 2009 (Census 2000; 2005-2009 American Community Survey 5-Year Estimate).. If all of these households applied and received the average assistance, the total federal assistance that might be available for repair of the homes would be \$3.5 million in 2003 and \$7.5 million in 2009, far short of the funds needed in both years.

There is currently some limited Federal Disaster Assistance for personal property such as loss of clothing, household items, et cetera and other necessary costs such as cleanup. For medium sized states, the average amount of this assistance is \$2,106 (CFR-Emergency Management and Assistance, 2002). If all the households received the average assistance the total assistance that might be available for contents replacement would be \$4.4 million in 2003 and \$9.4 million in 2009, far short of the funds needed in both years.

The 2000 Census showed that there were approximately 542 houses with a mortgage and these homes are valued at approximately \$85,317,500. The July 2003 NFIP insurance report showed that there were 530 policies for \$57,295,800 in 2003. In 2011 the number of policies in the Town had

increased to 819 covering \$159,316,400 (FEMA NFIP Insurance Report, May 2011) and the number of mortgages had risen to 635 in 2009 (2005-2009 American Community Survey 5-Year Estimate) It appears that most of the flood insurance policies are on mortgaged houses and that as mortgages are paid off owners are dropping their flood insurance. It also appears that those policies are not covering all the losses that would occur in the 100-year flood.

In addition, it appears that few businesses have flood insurance and those that may have flood insurance likely only insure the structure and not the contents. Depending on depth of flooding, the displacement time for a one story commercial structure could be anywhere from 62 days (flood 1 foot above floor) to 302 days (flood 8 feet above floor).



PICTURE 9.1 Chincoteague home elevation project.

NFIP Community Participation. The Town joined the NFIP on March 1, 1977. Wave height analysis wasn't included for the town until June, 1984. Accomack County also joined the NFIP at this time. Approximately, twenty-five percent of the existing town has had floodplain regulation from 1977 while the remainder of the town was administered by Accomack County from 1984 to 1989.

Chincoteague had two Flood Insurance Rate Maps (FIRMs) prior to the most recent 2009 FIRM. The 1984 FIRM shows the old town boundaries and the 1992 FIRM shows the rest of Chincoteague Island. In 1989, the Town of Chincoteague annexed the remainder of Chincoteague Island and as a result both the 1984 FIRM and 1992 FIRM are incorrect in showing the town's boundaries. An updated FIRM was provided to the Town by FEMA with an effective date of March 16, 2009.

Chincoteague had 21 flood claims between 1978 and 2003 with the average claim being \$2,878 (FEMA NFIP Insurance Report, July 2003). From 2003 to 2011, the Town experienced 21 additional claims bringing the total claims since 1978 to 42 with the average claim being \$6,318 (FEMA NFIP Insurance Report, May 2011).

HMGP Participation. The Town has participated in the HMGP through A-NPDC and the adoption of an approved Hazard Mitigation Plan for Chincoteague in September 2006. The Town and A-NPDC are currently working on a project with FEMA and VDEM to reconstruct one severe repetitive loss property.

High Wind Events. ASCE 7-98 defines the Wind Borne Debris Hazard Area as within 1 mile of the coast where basic wind speed is equal to or greater than 110 mph (3 sec gust). Chincoteague is within the 110-120 mph range. The coast of Assateague Island and Wallops Island generally are further than 1 mile from Chincoteague. The southern tip of Chincoteague is the only place that falls near or within this zone. There are two mobile home parks in this area. There are approximately 180 units in the park most threatened worth approximately \$6.8 million. Assuming, a 110 mph (3 sec gust) event, which is the 100-year event in hurricane prone areas, Chincoteague could expect that many of these mobile homes would be a complete loss. It should be noted that the Floodplain Ordinance adopted by the Town in September 2006 requires elevation and anchoring for all new or substantially improved structures.



PICTURE 9.2 Mobile Home Park on the southern tip of Chincoteague Island. Photo by: *Capt'n Bob's Marina*

Coastal Erosion. Currently, the town is not experiencing a great deal of shoreline erosion. The island, located in Chincoteague Bay behind Assateague Island, is not currently exposed to the harsher wave climate of the Atlantic Ocean. Assateague Island serves as a barrier protecting Chincoteague from coastal erosion. Natural changes to the Tom's Cove hook have significantly increased the width of the Chincoteague inlet in recent years causing greater high tides and erosion of the marshland at the south end of Chincoteague.

In 1934, a jetty was constructed at the north end of Assateague Island to prevent shoaling at Ocean City Inlet. The jetty has successfully kept the inlet to the north navigable, but has starved Assateague Island of sediment and greatly accelerated erosion and island transgression. These impacts make the island vulnerable to inlet formation during storm events. Should an inlet breach Assateague, the island of Chincoteague could be exposed to greater flood elevations, wave energy and experience increased coastal erosion. Base flood elevations on Chincoteague are currently

reduced by 4 to 5 feet due to the sheltering effect of Assateague Island (Accomack County online GIS).

A 50 year shoreline restoration project has been approved by the USACE for Wallops Island approximately 5 miles to the south of Chincoteague. Beach replenishment and extension of a seawall will protect significant federal property investments and may impact sand movement in the vicinity of Chincoteague inlet.

Approximately, 11.2% of the island's shoreline is hardened with bulkheads or riprap. Most of this is along commercial areas and privately owned land. Approximately 15 structures are located close to the shoreline with little buffer if erosion were to occur at that location. In several locations, critical infrastructure such as the Route 175 Causeway and portions of South Main Street come within several feet of the shoreline. A variety of shoreline management tools will be needed to promote a balance between perimeter marshland protection and meeting community needs for recreation, working waterfronts, and real estate value.

Other Local Hazards. On February 28, 2004, a tanker carrying 3.5 million gallons of ethanol exploded and sunk off of the coast near Chincoteague. Although the ethanol evaporated and the fuel oil slick moved out into the ocean, an accident of this nature could have adverse impacts on the area's coastal environments and habitats. This is a significant concern for the town since so much of its economy is related to the tourism and seafood industries and the major draw for the area the National Seashore on Assateague Island. An event of this nature could affect the economy for years.

NASA has planned seven major Taurus II rocket launches from the Wallops Flight Facility that will supply the International Space Station over the next several years. The Range Safety Officer establishes a safety performance envelope around the launch site as well as a circular hazard area in the event of a launch failure. This perimeter has been set in the past at 8,500 feet allowing for safe observation from Chincoteague.

Thunderstorms during warm weather months pose a significant threat to the town. Lightning and high winds associated with thunderstorms are potentially hazardous especially during the annual Pony Penning event

each third week in July. This event attracts tens of thousands of people to the pony swim, pony auction and fireman's carnival. During 2004, while thousands were attending the events a thunderstorm passed through and caught many out in the open.

Other significant hazards commonly experienced on the island include ice/snow storms and heat waves. Heat waves, unlike ice/snow storms, occur during the height of the tourist season when the population is at its greatest, putting a larger number of people at risk. Ice/snow storms regularly cause damages to trees and power lines and make access to and around the Town difficult.

Critical Facilities. Town officials evaluated high priority hazards that may affect Chincoteague's critical facilities. All of the Town's critical facilities are located in hazard areas.



PICTURE 9.3 Firehouse on Chincoteague Island. *Photo by Elaine Meil*

The following table lists the critical facilities and their importance to the town.

Facility	Hazards	No. of People Affected	Loss Potential	Relocation Potential	Retrofit Potential
Chincoteague Municipal Complex	Wind, Manmade	4,000+	Major Disruption	No	Yes
Chincoteague Fire Station	Flooding, Wind, Manmade	4,000+	Major Disruption	Yes	No
Chincoteague Docks, Bridges and Harbor of Refuge	Wind, Flooding, Manmade	4,000+	Devastating	No	No
ANEC Power Delivery Substation	Wind, Flooding, Manmade, Loss of Power	4,000+	Devastating		
Chincoteague Water Supply & Distribution	Wind, Flooding, Fire, Loss of Power, Manmade	4,000+	Devastating	No	No
Emergency Medical Centers	Wind, Flooding, Fire, Loss of Power	4,000+	Major Disruption	Yes	Yes
Banks	Wind, Flooding, Fire, Loss of Power, Manmade	3,000+	Devastating	No	Yes
Hotels, Motels, Restaurants, Convention Center	Wind, Flooding, Fire, Loss of Power, Manmade	12,000+	Devastating	No	Yes
Coast Guard Station	Wind, Flooding, Fire, Loss of Power	15,000+	Major Disruption	Yes	Yes
Route 175 Causeway & Bridges	Wind, Flooding, Manmade	30,000+	Devastating	No	Yes
Collector Streets (Maddox, Chicken City, Ridge, Church)	Wind, Flooding, Manmade	4,000+	Major Disruption	No	Yes
Communications Network	Wind, Flooding, Manmade	4,000+	Major Disruption	Yes	Yes
Storm drainage system	Flooding	4,000+	Major Disruption	No	Yes

Planning Documents. *2002 Chincoteague Comprehensive Plan.* The 2002 Comprehensive Plan addressed hazards in several areas. The plan identified four hazards, three naturally occurring; flooding, wind, erosion and one manmade; fire. One of the major problems identified was storm water flooding. The town identified drainage after storms as one of the major concerns. Most of the vacant lands remaining are areas where the island's drainage occurs. The Town discourages filling in open drainage ditches. Some water stands in the ditches until the tide goes down.

2006 Floodplain Ordinance. The Town of Chincoteague adopted a Floodplain Ordinance in 2006 that established floodplain districts based on current FEMA Flood Insurance Rate Maps and created an overlay to all zoning districts. District provisions require permit approval for all new construction or substantial improvements to existing structures. Special construction standards apply and are enforced by professional Town staff.

2010 Chincoteague Comprehensive Plan. The 2010 Comprehensive Plan addresses the same four hazards that the 2002 Plan included: flooding, wind, erosion, and fire. Additionally, ice storms are identified as hazardous to agricultural lands on the Island. Furthermore, the plan recommends that future development adequately address storm water drainage.

Town of Chincoteague, Drainage Maintenance Program. The Town's Code requires local property owners to maintain the drainage ways on their land. Owners must keep these areas clear of natural or manmade material or substance. Allowing this debris to remain constitutes a misdemeanor with each day a separate offense. The Director of Public Works is responsible for conducting two inspections of certain drainage ways prior to northeaster and hurricane season.

Regional Planning. The Town of Chincoteague participates as a member of A-NPDC in regional planning efforts including the NPS General Management Plan, CNWR Comprehensive Conservation Plan, the Nature Conservancy sponsored Adaptation Work Group that will apply new LiDAR data to hazard mitigation planning, and other community facility/natural resource committees working on long range planning issues.

Trends. Chincoteague is currently experiencing challenging but stable economic conditions. Recent growth in home renovations and limited

new home construction (10 permits/year) are largely a result of home conversions for vacation rentals. Any significant growth is constrained by lack of public sewer and the cost of engineered septic systems to meet current design standards. There are three major campgrounds, one small campground and one agricultural area located on the island. These constitute the largest areas of remaining undeveloped land. Two large campgrounds, located on the water, are up for sale. Many new structures are being built using easily erodible fill, and incremental fill is disrupting natural drainage patterns. Completion of a stormwater drainage master plan with several key projects to reduce shallow flooding has been identified as a high priority by the Town Council.

Findings.

1. The Town lies wholly in the Special Flood Hazard Area. A small number of structures are exposed to potential erosion issues in addition to flooding, and approximately 11% of the island is hardened to avoid erosion. Storm water drainage is also a significant issue on the island.
2. Approximately 2,016 pre-FIRM buildings are vulnerable to damage or destruction in a 100-year flood event.
3. Post-FIRM buildings built with solid walls in A zones that are affected by wave action could be damaged or destroyed, even though in compliance with the NFIP regulations.
4. The 100-year flood event was estimated by FEMA to cause approximately \$107.9 million in direct damage in 2003 and approximately \$208.3 million in 2011. Federal Disaster Assistance, if received, estimated at \$16.9 million in 2009 would not cover the damage.
5. NFIP flood insurance only covers approximately 13.4% of the houses at risk. NFIP policies and mortgages are almost equal and it appears that people are dropping flood insurance as they pay off their mortgages. Few businesses appear to have flood insurance. So in addition to functional shut downs of 62 to 302 days while buildings are repaired, many businesses will have to rely on loans or savings to repair their structures and replace their contents or inventories.

6. The existing 819 flood insurance policies do not appear to cover contents or the entire value of structures that are in the risk areas. However, the coverage deficit has been reduced significantly from approximately \$37.7 million in 2003 to approximately \$24.1 million in 2011.
7. Chincoteague is dependent on the tourist industry. A northeaster, causing a 100-year flooding event, could cause tremendous economic problems if the tourism industry was partially shut down thru the summer season.
8. The water distribution system is dependent on power on both the island and mainland. Without power, water cannot be pumped to the island and fire suppression is a concern. There are no dry hydrants on the island since they do not work well in the salt water environment. The town is dependent on residual pressure in the water tanks and Mutual Aid from other fire companies to combat fire during power outages. Water mains located along the Route 175 Causeway and bridges are critical infrastructure at risk from major storm events.
9. The potential damages are increasing due to increased storm and tidal exposure from Chincoteague inlet. New construction standards and infrastructure improvements will help to mitigate the effects of hazards to new development on the island.
10. A master plan for stormwater drainage that is based on field conditions and analysis of new LiDAR elevation data should be prepared to guide and regulate land development and the Town capital improvement program



MEMORANDUM

To: Mayor Tarr and Town Council
From: Bill Neville, Planning Director
Date: August 18, 2011
Subject: Update on USFWS Draft Economic Impact Study

- ❖ **A meeting between USFWS staff and Town staff is scheduled for August 23rd to provide direction to the economists following release of the proposed alternatives on the 22nd (Attachment 3).**
 - ❖ **Town Council is requested to review the draft Town response and provide additional direction if needed.**
-

On April 29, 2011, a very early draft template of the CNWR *Baseline Socio-Economic and Economic Impact Analysis* was provided to Town Staff for review and comment (**Attachment 1**). US Fish and Wildlife Service Chief Economist Ted Mailett has asked for the Town to assist in providing more detailed information than what is currently available at the County level only.

Town Staff has completed a preliminary review of the analysis (**Attachment 2**) with the following observations:

- A. Completion of an extensive Town-level economic survey to collect current data may not be necessary. Use of existing best-available data is both consistent with the IMPLAN model approach and will allow for a simple comparison of the alternatives. Since there has been little change to the refuge visitor counts over the last 10 years, Census data from 2008 or 2009 may adequately represent current economic conditions for comparison purposes.
- B. Use of the IMPLAN model to evaluate the CCP socio-economic impacts to the community and region will likely only show positive impacts under all options. It appears that any potential negative effect will easily be offset by Federal “investment” spent to accomplish the proposed management changes.
- C. Wildlife Refuge leadership is seeking ‘generational change’ or a new model for the next 50 years. Protection of the traditional relationships between Refuge management and the

local economy is not a mutual goal. Elimination of commercial shellfish leases in Tom's Cove and around the perimeter of the Refuge will have a major economic impact that is not considered by the current analysis.

- D. The requested community support of a baseline economic analysis should not be considered unless there is agreement on what questions the EIA will attempt to answer. A meeting with Refuge staff is requested.

With the Council's approval, a request will be forwarded to the USFWS to encourage agreement on the questions that should be answered by the Economic Impact Analysis rather than spending time and money to complete new research on baseline economic data for the Town.

Questions for the CNWR Baseline Socio-Economic and Economic Impact Analysis

1. What is the economic impact on jobs and tourism spending with loss of tourist visits due to a change in FWS management?
 - a) Reduction in direct access parking for individual vehicles
 - b) Peak season use of fee based transit to access the recreational beach
 - c) Elimination of ORV access for surf fishing
2. What is the economic impact on property value and local tax revenue due to a change in FWS management?
 - a) Maddox Campground purchase
 - b) Reduced recreational beach access
3. What is the economic and socio-economic impact of FWS/NPS shoreline management policies that may allow the creation of a new inlet at Toms Cove and expose the southern end of Chincoteague Island to Storm Hazards, Storm Surge, and a 4 foot increase in base flood elevation?
4. What is the economic and socio-economic impact on the Chincoteague Island aquaculture and seafood industry due to a change in FWS management?
5. What is the socio-economic profile of the visitors to the Refuge?
6. How will the IMPLAN model be calibrated to match known economic indicators such as Transient Occupancy tax revenue?

ATTACHMENT #1

Chincoteague National Wildlife Refuge

Baseline Socio-Economic and Economic Impact Analysis

April 15, 2010

Prepared by:

Division of Economics

USFWS

Arlington VA

DRAFT

Do not cite or quote

Introduction

The National Wildlife Refuge System Improvement Act of 1997 requires all units of the National Wildlife Refuge System to be managed under a Comprehensive Conservation Plan (CCP). The CCP must describe the desired future conditions of a refuge and provide long-range guidance and management direction to achieve refuge purposes. The Chincoteague National Wildlife Refuge is in the process of developing a range of management goals, objectives, and strategies for the CCP. The CCP for the refuge must contain an analysis of expected effects associated with current and proposed refuge management strategies.

The Chincoteague National Wildlife Refuge was established in 1943 to provide habitat and protection for migrating birds. The refuge, most of which is located on the Virginia end of Assateague Island, was purchased with Duck Stamp revenues. The refuge also manages three areas located south of Assateague. These include Assawoman Island and portions of Metompkin and Cedar Islands. The primary function of the Refuge is to protect native and migratory species of wildlife and their habitat. The refuge is also open to the public for recreational uses centered around wildlife and wildland activities. Access to the Refuge is primarily through the town of Chincoteague, which has become a town whose economy is increasingly dependent on the tourism dollars brought into their community by Refuge visitors.

The purpose of this analysis is to provide a better understanding of the economic relationship between the Refuge and the community. For Refuge CCP planning, a regional economic assessment provides a means of estimating how current management (no action alternative) and proposed management activities (alternatives) could affect the local economy. This type of analysis provides two critical pieces of information. First it illustrates a refuge's contribution to the local community. Second, it can help in determining whether local economic effects are or are not a real concern in choosing among management alternatives.

This analysis first describes the local area economy and demographics for the Refuge. Next, it provides an analysis of both the current and proposed refuge management strategies presented in the CCP and their potential effect on the local economy. The refuge management activities of economic concern in this analysis are:

1. Spending in the local area by refuge visitors;
2. Refuge purchases of local goods and services within the local economy;
3. Refuge personnel salary spending; and
4. Refuge land purchases and changes in local tax revenues.

1. Refuge Community Profile

Chincoteague National Wildlife Refuge occupies the Virginia portion of Assateague Island. The island stretches for over 37 miles and is the longest barrier island on the Delmarva Coast. The northern part of the island is situated in the State of Maryland and is mostly designated as a National Seashore operated by the National Park Service (680 acres of the island is owned and operated as a Maryland State Park). The Refuge also has property located on Chincoteague Island (Wildcat Marsh).

The Refuge has a single entry point for vehicle traffic, which is accessed via the Town of Chincoteague, which is located on Chincoteague Island. Visitors come to the Refuge to participate in a variety of activities including wildlife watching, surf fishing, and general beach recreation. The Refuge is well known for its wild pony population, popularized by the best selling children's book, *Misty of Chincoteague* by Marguerite Henry first published in 1947. This book popularized the annual roundup of the Assateague Island ponies that are located on the Refuge, which are herded and swum across a channel to Chincoteague Island to be auctioned off to benefit the Chincoteague volunteer fire department. The event attracts thousands of tourists every year to witness the pony swim.

The first European explorer to record landing in the Assateague Island vicinity was Giovanni da Verrazano, sailing for the King of France in 1524 (Bearss, 1968). During the next one-hundred years, many explorers investigated the area but colonists preferred the better soils and protected environments of the mainland. In the mid-1600's Chincoteague and Assateague Islands were used to graze livestock by landowners wanting to avoid fencing ordinances on the mainland. Camps for livestock herders were established (Bearss, 1968 and Wroten, 1972); salt extraction and shellfishing brought more seasonal inhabitants. These activities remain currently popular on the Refuge. [\(This paragraph was copied from Refuge's previous CCP. Town Comprehensive Plan contains a slightly different historical summary – need to verify.\)](#)

The Chincoteague National Wildlife Refuge was established on May 13, 1943 through an acquisition of 8,808 acres under authority of the Migratory Bird Conservation Act. The Assistant Secretary of Interior determined that FWS ownership of this land was necessary for protection during nesting and migration seasons of all those species of wildlife determined as being of great value as a source of food, or in destroying of injuries insects, or nevertheless in danger of extermination through lack of adequate protection (U.S. District Court, 1943 – 1991 CCP p. 22). The Migratory Bird Conservation Commission (MBCC) initially approved the refuge at a meeting on March 25, 1941, acknowledging the importance of Assateague Island as prime wintering and migrating habitat for the greater snow goose (then considered endangered) and other waterfowl (MBCC, 1941).

All Chincoteague NWR lands have been purchased with money from either the Migratory Bird Conservation Fund or the Land and Water Conservation Fund. Federal title of these lands is acquired to the mean low water line.

Recreational use and related development on Assateague Island were originally authorized by Congress under Public Law 85-57 approved on June 17, 1957, which provided for construction of a bridge and road to the refuge as well as for recreational facilities in the southeastern shore of the island. These rights for development are subject to “such terms and conditions as the Secretary [of the Interior] deems appropriate for the adequate protection of the wildlife refuge.” Under special agreement with the FWS, the

Chincoteague-Assateague Bridge and Beach Authority (a political subdivision of the State of Virginia) developed and managed beach front recreational facilities and provided visitor services.

Today, the Refuge is well known for its population of wild ponies. The Chincoteague ponies are most likely descendants of colonial horses brought to Assateague Island in the 17th century by Eastern Shore planters (AINS, 1986 and Bearss, 1968) when crop damage caused by free roaming animals led colonial legislatures to enact laws requiring fencing and taxes on livestock (AINS, no date). The modern day descendants of those domestic horses are wild and have adapted to their environment. Their highly saline diet of salt marsh and dune grasses, plus brackish impoundment and pond water has dwarfed and bloated them. Today, the ponies found on the Refuge are owned by the Chincoteague Volunteer Fire Department. The Refuge permits the fire department to graze their ponies within two designated areas on the Refuge. Following tradition, the Fire Company rounds up the entire herd (approximately 150 ponies) for the Annual Pony Penning and Auction held on the last Wednesday and Thursday of July; some foals and yearlings are sold at auction to benefit the town's ambulance and fire services.

Find information to talk about Town's development, major hurricane and fire events, and resulting effects on the Town's development and economy. (See [Comprehensive Plan](#)).

Population

According to the Town of Chincoteague's Comprehensive Plan, the population of Chincoteague grew 21 percent from 3,572 to 4,317 individuals between 1990 and 2000. While 2010 Census data is not yet available for the Town, Census estimates in their 2005-2009 American Community Survey that the total population has experienced no significant change.¹ Census estimates that nearly 52 percent of the population is female, which is slightly higher than the national average.

Accomack County's population is approximately one-half of a percent of the State of Virginia's total population and has remained so throughout the previous decade. The Town's population is slightly greater than ten percent of the County total.

¹ Census estimates that the total population was 4,303 with a margin of error of +/- 32. <http://factfinder.census.gov/>. Accessed 4/7/11.

Population Trends (need town trends)

Table 1

Year	Virginia	Accomack County	Percent of State
2000	7,882,590	38,365	0.49%
2001	7,191,304	38,473	0.53%
2002	7,283,541	38,593	0.53%
2003	7,373,694	38,566	0.52%
2004	7,468,914	38,669	0.52%
2005	7,563,887	38,716	0.51%
2006	7,646,996	38,580	0.50%
2007	7,719,749	38,455	0.50%
2008	7,795,424	38,395	0.49%
2009	7,882,590	38,462	0.49%

Source:

Demographics

The surrounding population of the Chincoteague Refuge area is composed of predominately more minority races than either the State or the Nation. Specifically, the African American population of Accomack and Northhampton Counties is 29 percent and 37 percent of the total population, respectively.

The median ages for Accomack and Northhampton Counties is older than the median age for the State and Nation. While the percentage of family households with children is roughly the same as the State and Nation, the median family income for the counties is much lower. The poverty rate for family households with children is also much higher than either the State or Nation.

In contrast, the Town of Chincoteague is not as diversified as either county. Census estimates that over 99 percent of the Town's population is White. The Town's population is also estimated to be older than either the counties or the State. Census estimates that the Town's median age is slightly over 51 years – about ten years older than the median age for Accomack County and eight years for Northhampton. Median family income, however, is estimated to be greater than either of the Counties. The Town's estimated median family income of \$57,500 is about \$10,000 greater than Northhampton and \$9,000 greater than Accomack. However, the Town also has a very large percentage of families with children under 18 years of age living beneath the poverty level. Census estimates that nearly 22 percent of the Town's families with children under 18 years of age are living beneath the poverty level compared to 11 percent for Accomack County and nearly 18 percent for Northhampton (**Check this figure again, 22 percent seems very high.**)

Demographic Profile of Surrounding Refuge Area

Table 2

	United States	Virginia	Accomack County	Northampton County	Town of Chincoteague
	Estimate	Estimate	Estimate	Estimate	Estimate
Total Population:	301,461,533	7,721,730	38,522	13,422	4,303
White	74.5%	70.7%	66.7%	60.0%	99.6%
Black or African American	12.4%	19.6%	28.8%	36.8%	0
Asian	4.4%	4.8%	0.3%	0.9%	0
Multi-Race or Other	8.8%	4.9%	4.3%	2.3%	0
Median age --					
Total:	36.5	36.7	41.5	43.6	51.2
Male	35.2	35.3	38.3	38.1	n/a
Female	37.9	38.1	43.7	47.2	n/a
Total Households:	112,611,029	2,936,634	14,757	5,258	2,069
Family households:	75,082,471	1,967,020	9,767	3,614	1,350
Family households with children under 18	66.7%	67.0%	66.2%	68.7%	366
Median family income in the past 12 months (in 2009 inflation-adjusted dollars)	\$ 62,363	\$ 72,193	\$ 48,698	\$ 47,662	\$ 57,500
Percent of Total Family Households with children under 18 below poverty level	9.9%	7.2%	10.7%	17.8%	21.9%

Source: U.S. Census Bureau, Data Set: 2005-2009 American Community Survey 5-Year Estimates, <http://factfinder.census.gov> ; Accessed on 3/15/2011.

Education

While the proportion of residents in Refuge counties having a high school degree is greater than that for the State or Nation, there are also a greater percentage of residents in these two counties not having completed high school than the State or Nation. The area also has a smaller percentage of residents with a Bachelors degree, Masters degree, Doctorate, and professional degrees than the State or Nation.

Educational Attainment for Population 25 Years and Over

Table 3

	United States	Virginia	Accomack	Chincoteague
Combined	197,440,772	5,092,358	26,744	3,371
Degrees				
None	15.4%	14.2%	23.7%	16.0%
High School	15.2%	13.6%	37.3%	35.7%
Some Colleg, no degree	20.3%	19.4%	16.6%	15.3%
Associates	7.4%	6.6%	4.7%	5.3%
Bachelors	17.4%	19.8%	10.3%	12.9%
Graduate or Professional	10.1%	13.6%	7.5%	14.7%

Source: U.S. Census, American Community Survey, 2005-2009 Data Set; Accessed April 8, 2011.

Employment

Educational services, and health care and social assistance had the greatest number of individuals in the workforce for the Town of Chincoteague as well as for Accomack County. Census estimates that over 21 percent of the Town's workforce was employed in this industry. Nearly 18 percent of the Town's workforce was employed in the Arts, entertainment and recreation, and accommodation and food services industry. It is not surprising that this industrial sector employs so many in the Town given the fact that the Town is the gateway community to the Refuge and its associated recreational activities. Both the professional services sector and the public administration sectors employed a significant percentage of the workforce in the Town compared to manufacturing and retail trade for the County. Table XX below shows the workforce totals by industry for both Accomack County and the Town of Chincoteague.

Employed Workforce by Industry

Table 4

Industry	Accomack County, Virginia		Chincoteague town, Virginia	
	Estimate	Percentage	Estimate	Percentage
Total Employed	17,598		1,913	
Agriculture, forestry, fishing and hunting, and mining:	846	4.8%	40	2.1%
Construction	1,720	9.8%	156	8.2%
Manufacturing	2,047	11.6%	91	4.8%
Wholesale trade	650	3.7%	24	1.3%
Retail trade	2,127	12.1%	121	6.3%
Transportation and warehousing, and utilities:	527	3.0%	28	1.5%
Information	260	1.5%	10	0.5%
Finance and insurance, and real estate and rental and leasing:	905	5.1%	83	4.3%
Professional, scientific, and management, and administrative and waste management services:	1093	6.2%	250	13.1%
Educational services, and health care and social assistance:	3,487	19.8%	411	21.5%
Arts, entertainment, and recreation, and accommodation and food services:	1,640	9.3%	341	17.8%
Other services, except public administration	830	4.7%	98	5.1%
Public administration	1,466	8.3%	260	13.6%

Source: U.S. Census Bureau, 2005-2009 American Community Survey. Accessed 4/11/11.

Housing

Over 21 percent of the total housing units in Accomack County are located in the Town of Chincoteague despite the fact that only about 12 (?) percent of the County's population lives in the Town. Much of the housing in Chincoteague has been constructed or converted into housing for seasonal rentals. Census estimates that there are over 2,000 seasonal vacancies in the Town, which account for over one-half of the entire seasonal vacancies in Accomack County. The median value of homes is also much higher in the Town than the County. Census estimates that the median value for the Towns houses are \$221,900 compared to \$145,600 for the County.

The Town is clearly a community whose economy is highly dependent on the tourism industry....

Select Housing Characteristics

Table 5

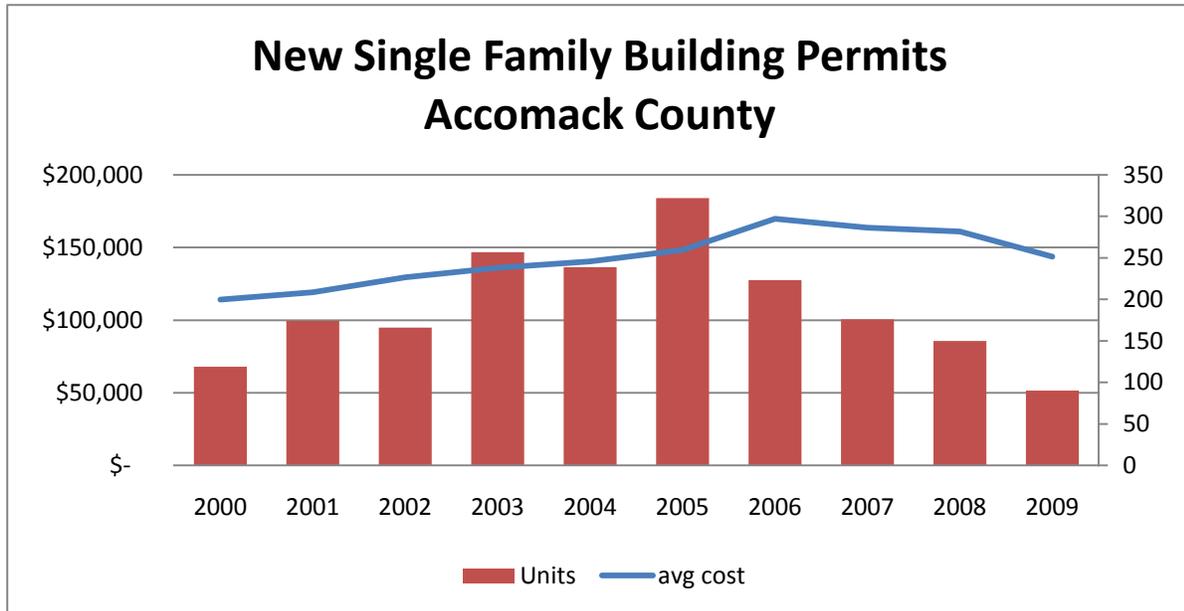
	Accomack County, Virginia	Town of Chincoteague	Percent
Total Housing Units	21,231	4,480	21.1%
Land Area			
Housing Density			
Median value (dollars)	145,600	\$221,900	152.4%
Occupied Units	14,757	2,069	
Owner-Occupied	11,192	1,668	14.9%
Renter-Occupied	3,565	401	11.2%
Vacant	6,474	2,411	37.2%
Seasonal Vacancies	3,721	2,030	54.6%

Data Set: 2005-2009 American Community Survey 5-Year Estimates Survey: American Community Survey; Accessed 3/14/2011.

Pace of Construction

Not sure if this is an interesting topic or not for the Town and refuge. Some resort communities face strong demands on their natural resources due to second home development (e.g. loss of land , associated runoff issues, overdrawn aquifers, etc.) Should discuss with refuge and town. Could be indirect effects on Refuge. Also, case could be made that Refuge helps protect these resources.

Accomack County Pace of Construction (how much of this would be attributable to Town?)



Source: U.S. Census....

Recreational Visits to the Refuge

In 1997, President William Jefferson Clinton signed into law the Refuge Improvement Act which establishes a unifying mission for the Refuge System. The mission of the Refuge System is:

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.” — Refuge Improvement Act; Public Law 105-57

The Refuge Improvement Act also establishes a new process for determining compatibility of public uses on refuges, and requires the Service to prepare a CCP for each refuge. The Act states that the Refuge System must focus on wildlife conservation. It also requires that the mission of the Refuge System, coupled with the purposes for which each refuge was established, will provide the principal management direction on that refuge. The Refuge Improvement Act identifies six wildlife-dependent public uses— hunting, fishing, wildlife observation and photography, and environmental education and interpretation — that will receive priority consideration on refuges and, therefore, in CCPs. Furthermore, the Act declares that all existing or proposed public or commercial uses must be “compatible” with the refuge’s purpose and consistent with public safety. The refuge manager determines if an existing or proposed use is “compatible” by evaluating its potential impact on refuge resources, insuring that the use supports the System mission, and does not materially interfere with or detract from the purpose for which the refuge was established.

Chincoteague National Wildlife Refuge is one of the most heavily visited refuges in the national system. Visitors come to Chincoteague for a variety of reasons. Many come in the summer months to access the beach. The beaches of Assateague Island offer a unique experience in the mid-Atlantic area as they exist primarily in an undeveloped setting unlike other beaches like Virginia Beach or Ocean City Maryland that are heavily developed. This natural setting draws many families seeking out a more traditional beach going experience.

Many summer beach visitors also take time to enjoy the wildlife found on the Refuge as they pass through on their way to or from the beach. While the Refuge is famous for its native ponies, which families delight in watching, visitors will also see many different types of migratory birds and waterfowl, and animals thus exposing them to other types of wildlife that they may not normally see on a more traditional beach visit and hopefully leaving the visitor with a greater appreciation of the importance of conservation and the ability to participate and enjoy low-impact activities for the benefit of wildlife and their habitats.

During the Fall and Spring Seasons the many visitors come to the beach for surf fishing opportunities. Depending on the season, fishermen can catch striped bass, In the fall, the Refuge opens up lower part of the beach from the parking lot to Toms Cove Hook to off-road vehicles. While some of these users are primarily engaged in wildlife watching, traditionally, most users are engaged in surf fishing activities.

The fall is also prime time for waterfowl hunting. Chincoteague NWR allows for the hunting of waterfowl during the State season. Hunters must obtain a Migratory Game Bird Hunting permit from the

Refuge for five dollars in order to hunt on the Refuge. Hunters must also possess valid State permits as well as a federal Migratory Duck Stamp in order to hunt waterfowl. During the hunting season, hunters may target ducks, geese, swans, coots, and rails. The Refuge allows hunting during the days of Thursday, Fridays, and Saturdays. The Refuge allows hunting only within the designated areas of Wildcat Marsh, Morris Island, Assawoman Island, and Metompkin Islands. The harvesting of waterfowl on the Refuge is conducted in an environmentally friendly and sustainable manner, helping to ensure that the resources will be available to future generations for enjoyment.

There is also limited big game hunting on the Refuge for Sika and White-tailed deer. Hunting occurs during the months of December and January. Hunting on the Refuge is controlled through a lottery process. ([How many enter the lottery and how many are chosen? Is there excess demand? Trends?](#)). Once selected by the lottery system, hunters must attend a firearms orientation session prior to hunting on the Refuge. The Refuge is divided into eleven primary hunting zones, with a few of those zones that are located closer to developed portions of the Refuge subdivided for smaller force firearms for safety considerations to the public.

Economic Impact of Refuge Visitation

Spending associated with recreational use of the Refuge can generate a substantial amount of economic activity in both local and regional economies. Refuge visitors spend money on a wide variety of goods and services. Trip-related expenditures may include expenses for food, lodging and transportation. Anglers, hunters, boaters and wildlife watchers also buy equipment and supplies for their particular activity. Because this spending directly affects towns and communities where these purchases are made, recreational visitation can have a significant impact on local economies, especially in small towns and rural areas. These direct expenditures are only part of the total picture, however. Businesses and industries that supply the local retailers where the purchases are made also benefit from recreation spending. For example, a family may decide to purchase a set of fishing rods for an upcoming vacation. Part of the total purchase price will go to the local retailer, say a sporting goods store. The sporting goods store in turn pays a wholesaler who in turn pays the manufacturer of the rods. The manufacturer then spends a portion of this income to cover manufacturing expenses. In this fashion, each dollar of local retail expenditures can affect a variety of businesses at the local, regional and national level. Consequently, consumer spending associated with Refuge recreation can have a significant impact on economic activity, employment, household earnings and local, state and Federal tax revenue.

Total expenditures shows the total annual retail expenditures associated with recreational visits to the Refuge. Currently, it is not known where (geographically) exactly Refuge visitors spend money. For this first draft, it is assumed that 100 percent of expenditures occur in the Accomack - Worcester County area.

Economic output (also known as *industrial output*) shows the total output generated by total recreation-related expenditures. Total output is the production value (alternatively, the value of all sales plus or minus inventory) of all output generated by recreation expenditures. Total output includes the direct, indirect and induced effects of these expenditures. Direct effects are simply the initial effects or impacts of spending money; for example, spending money in a grocery store for a fishing trip or purchasing ammunition or a pair of binoculars are examples of direct effects. The purchase of the ammunition by a sporting goods retailer from the manufacturer or the purchase of canned goods by a grocery from a food wholesaler would be examples of indirect effects. Finally, induced effects refer to the changes in

production associated with changes in household income (and spending) caused by changes in employment related to both direct and indirect effects. More simply, people who are employed by the grocery, by the food wholesaler, and by the ammunition manufacturer spend their income on various goods and services which in turn generate a given level of output. The dollar value of this output is the induced effect of the initial (or direct) recreation expenditures². The economic impact of a given level of expenditures depends, in part, on the degree of self-sufficiency of the area under consideration. For example, a county with a high degree of self-sufficiency (out-of-county imports are comparatively small) will generally have a higher level of impacts associated with a given level of expenditures than a county with significantly higher imports (a comparatively lower level of self-sufficiency). Consequently, the economic impacts of a given level of expenditures will generally be less for rural and other less economically integrated areas compared with other, more economically diverse areas or regions.

Jobs and job income include direct, indirect and induced effects in a manner similar to total industrial output. Employment includes both full and part-time jobs, with a job defined as one person working for at least part of the calendar year, whether one day or the entire year. Job income in the IMPLAN system consists of both employee compensation and proprietor income (MIG, Inc. 1999).

Tax revenues are shown for business taxes, income taxes, and a variety of taxes at the county, state and national level. Like output, employment and income, tax impacts include direct, indirect and induced tax effects of expenditures, output and job income.

Two types of information are needed to estimate the economic impacts of recreational visits to the refuge: (1) the amount of recreational use on the Refuge by activity; and (2) expenditures associated with recreational visits to the refuge. With this information, total recreation-related expenditures can be estimated. These expenditures, in turn, can be used in conjunction with regional economic models to estimate economic output, jobs, job income and tax impacts associated with these expenditures.

Retail Expenditures

The basic approach to estimating retail expenditures is to multiply per person per day expenditures by the number of visitor days to obtain total expenditures. Table 9 shows per person per day recreation expenditures by activity and by resident and non-resident for Region 5 (Department of the Interior et al. 2007). Table 7 shows recreation visits and participation by activity for the Refuge in 2010. Since the number of visitors to the Refuge is primarily based on car counts, and since there is no overnight visitation on the Refuge, the total number of visitors (minus environmental education participants) can be interpreted to reflect total number of visitor days (one person visiting the Refuge for at least part of one day). Table 8 shows the number of hours the Refuge estimates that visitors spend on various activities

² More technically, direct effects are production changes associated with the immediate effects of changes in final demand (in this case, changes in recreation expenditures); indirect effects are production changes in those industries directly affected by final demand; induced effects are changes in regional household spending patterns caused by changes in regional employment (generated from the direct and indirect effects) Taylor et al. 1993, Appendix E, p. E-1)

and where these visitors come from, either the local area (residents) and from out of the local area (non-residents). Using the above information, retail expenditures, economic output, jobs, job income and tax revenue can be estimated for the Accomack - Worcester County area.

Table 6 shows estimates of Refuge recreation-related expenditures, and associated economic output, jobs, job income and total (county, state and Federal) tax revenue. Total retail expenditures are estimated at \$113.8 million; economic output at \$150.3 million; jobs at 1,794, job income at \$48.6 million and total tax revenue of \$10.6 million.

Table 6

Chincoteague NWR: 2010 Visitor Recreation Expenditures (2010)			
(Dollars in millions)			
	Residents	Non-Residents	Total
Retail Expenditures	\$2.9	\$110.9	\$113.8
Economic Output	\$3.8	\$146.5	\$150.3
Jobs	45	1,749	1,794
Job Income	\$1.2	\$47.4	\$48.6
Total Tax Revenue	\$0.6	\$10.0	\$10.6

Visitation to Chincoteague NWR

Table 7

2010

RappMeasure	Actual
5.04 Total number of visitors	1,359,553
5.05 Number of Special Events hosted on- and off-site	7
5.06 Number of participants in special events on site	8,568
5.07 Visitors to Visitor Center or Contact Station	364,568
5.13 Upland game hunt visits	0
5.14 Big game hunt visits	2,097
5.15 Total hunting visits	2,304
5.21 Fishing visits	129,885
5.25 Number of Foot Trail/Pedestrian visits	1,019,664
5.26 Number of Auto Tour visits	1,359,553
5.27 Number of Boat Trail/Launch visits	0
5.28 Number of Bicycle visits	352,740
5.29 Total Wildlife Observation visits	2,731,957
5.35 Number of Photography participants	815,731
5.41 Number of education participants involved in on- and off-site environmental education programs.	8,948
5.47 Number of interpretation participants in on- and off-site talks/programs	60,226
5.51 Total other recreational participants	2,719,106

Banking on Nature Key Visitor Characteristics Assumptions

Table 8

Activity	Average Hours per day per person	Percentage of Visitors that are Residents	Percentage of Visitors that are Non-Residents
<i>Big Game Hunting</i>	8	0.06	0.94
<i>Upland Game Hunting</i>	0	0	0
<i>Migratory Bird Hunting</i>	6	0.17	0.83
<i>Freshwater Fishing</i>	0	0.00	0.00
<i>Salt Water Fishing</i>	4	0.11	0.89
<i>Total Non-Consumptive</i>			
1. Nature Trails (33E)	3	0.11	0.89
2. Observation Platforms (33F)	2	0.11	0.89
3. Other Wildlife Observation	4	0.11	0.89
3a. Birding	2	0.11	0.89
3b. Other Wildlife Observation (33G)	2	0.11	0.89
4. Beach/Water Use (3VD)	5	0.11	0.89
5. Other Recreation (3VE)	2	0	1

Average Visitation Expenditures

Table 9

2010

REGION 5

		Non-		Non-		Non-		Non-		Non-		Non-
	Resident	Resident	Resident	Resident	Resident	Resident	Resident	Resident	Resident	Resident	Resident	Resident
	Non-	Non-	big game	big game	small game	small game	migratory	migratory	freshwater	freshwater	saltwater	saltwater
	Consumptive	Consumptive	hunting	hunting	hunting	hunting	hunting	hunting	fishing	fishing	fishing	fishing
Sector												
lodging	3.19	26.18	1.17	7.33	0.73	10.75	3.33	24.89	1.29	12.90	1.91	12.28
food/drink	6.76	39.40	6.65	17.94	4.50	26.85	9.62	26.70	5.07	14.29	9.74	18.29
other transport	7.15	22.93	6.95	18.86	4.62	23.13	11.25	25.19	5.56	16.81	6.91	17.54
air transport	0.39	1.13	0.00	1.07	0.00	22.80	0.00	1.28	0.01	1.77	0.26	0.82
other	1.58	1.98	1.39	7.51	1.31	17.76	6.97	38.03	6.85	11.82	39.22	32.37
total	19.07	91.62	16.17	52.71	11.16	101.30	31.17	116.08	18.77	57.60	58.03	81.30

Chincoteague NWR Budget Expenditures

Refuge Expenditures

Chincoteague NWR spends \$3.4 million in operations and maintenance each year. Three quarters of this funding is spent on salaries to employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$397,700 in benefit amounts are not counted in local spending.

Chincoteague NWR: Expenditures for fiscal year 2009.

Table 10

	Dollars	Percent
Local Expenditures		
Personnel Compensation	1,507,699	44.8%
Transportation of People	4,206	0.1%
Transportation of Things	4,962	0.1%
Communications	30,769	0.9%
Utilities	43,304	1.3%
Contracts	115	0.0%
Building Repairs	1,196,301	35.5%
Equipment Maintenance	74,809	2.2%
Supplies and Materials	296,760	8.8%
Motor Vehicle Fuel	37,571	1.1%
Equipment-Capitalized	48,111	1.4%
Equipment-Non-capitalized	123,806	3.7%
Local Sub-Total	3,368,415	100.0%
Non-Local Expenditures		
Employee Benefits	397,735	
Air Travel	29,040	
Non-Expense Item		
Real Property	20,325	
Grants	909	
Organization Total	3,816,424	

Changes in the value of real property do not necessarily lead to local economic activity. Purchases of land, for example, are best understood as a change in the form of assets rather than expenditures. In FY1996, Chincoteague recorded a \$6,198 improvement of staff quarters at the refuge. This is not included in local expenditures.

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

Refuge spending in the local economy paid for both locally produced items and things imported into the region for sale. So all of the expenditures did not result in increased local output. Table 5-6 shows \$2.7 million had a direct effect on local output. Typical purchasing patterns for households and industries in the region suggest the remaining spending flowed to suppliers outside the area. About \$663,900 became compensation for local workers in 36.3 jobs. The iteration of refuge spending through the local economy generated \$3.5 million in total output and 44.4 jobs.

Chincoteague NWR: Economic Impacts of Refuge Expenditures

Table 11

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	2,100	4,900	100	400	0.0	0.0
Utilities	56,500	78,900	8,400	11,600	0.1	0.1
Construction	100	19,200	0	4,900	0.0	0.2
Manufacturing	126,800	142,100	33,600	36,200	0.7	0.8
Trade	283,600	390,500	90,200	125,900	4.1	5.7
Transportation	7,700	14,000	2,400	4,300	0.1	0.2
Information	29,300	75,800	4,300	11,600	0.1	0.2
Finance	253,500	539,500	12,900	40,900	0.5	1.7
Lodging	99,000	176,700	30,100	53,900	1.5	2.7
Government	22,400	49,500	8,000	17,800	0.1	0.3
Other	1,789,800	2,042,800	473,900	566,600	29.2	32.5
Total	2,670,800	3,533,900	663,900	873,900	36.3	44.4
Multipliers		1.32		1.32		1.22

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services. Much of what employees buy locally falls into the trade and finance categories so these sectors appear to have very large multipliers. Chincoteague's economy is highly seasonal so earnings by seasonal laborers may not be spent within the region but returned to the workers' distant place of residence. This may help explain the high leakage and low multipliers.

Refuge Revenue Sharing and Payments in Lieu of Taxes

Chincoteague contains 13,433 acres of fee lands that were appraised at \$42.3 million in FY2008. The refuge revenue sharing fund paid \$99,300 to Accomack County, Maryland, \$2,900 to Chincoteague County, Virginia , and \$587 to Worcester County, Maryland. The refuge earned no funds for refuge revenue sharing.

None of Chincoteague's lands were reserved from the public domain so PILT payments were not made for this refuge.



Information Request

Town of Chincoteague, Virginia

July 19, 2011 (request from 4/6/11 and 6/15/11)

Edward J. (Ted) Maillett

Senior Economist
Division of Economics
U.S. Fish and Wildlife Service
4401 N. Fairfax Drive
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Arlington, VA 22203
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'We briefly met late last fall at the Refuge to discuss the upcoming Comprehensive Conservation Planning process hosted by Lou Hinds, Refuge Manager. I am emailing you because I have not been very successful in locating Town specific information over the internet. As you are probably aware, the Town does not appear to be a Designated Census Place so the best readily available data I can find is for the Accomack County. I really would like to avoid generalizing County economic/demographic information as a proxy for the Town so I am hoping that you may be aware of alternative data sources. Please feel free to email me links or documents that you may have in your possession that we could use for the economic analysis.'

Issue Statement

Chincoteague National Wildlife Refuge and Assateague National Seashore are moving forward with the preparation of 15 year management plans (CCP/GMP) that have the potential to significantly impact the economy and lifestyle of the Eastern Shore.

The community's main concerns for a working 'baseline' economic study center on the specific U.S. Fish and Wildlife Service proposals that would **change** the currently successful management plan to:

- Reduce direct access beach parking by over 50% from 961 spaces to 450 spaces
- Mandate use of shuttle transit for peak season visitors
- Relocate recreational beach facilities to undesirable habitat
- Remove private property from the tax base for remote parking areas
- Eliminate all off-road vehicle access for surf fishing
- Reduce the Wild Pony herd that is both a cultural and financial resource to the Town
- Eliminate commercial shellfish leases within and surrounding the Refuge/Seashore
- Restrict navigable waters and limit shoreline public access
- Discontinue repair of storm damage along the shoreline at Tom's Cove
- Add unknown effects of new rules and compatible/appropriate use determinations

It is unclear whether the FWS Economic Impact Analysis as proposed will measure these potential impacts and costs in terms of fewer visitors/less spending, or whether it is intended to only demonstrate the economic benefit of any Refuge activity to the local and regional economies.

ATTACHMENT #2

Review of Draft Study

Questions and comments on the early first draft of a CNWR Baseline Socio-Economic and Economic Impact Analysis (dated April 15, 2011) are listed below:

- Page 4
 - Please remove the reference to Chincoteague ponies as 'dwarfed and bloated'.
 - Town profile information will be provided separately if needed.
 - In addition to population information about the Town of Chincoteague and Accomack County, please provide information regarding the visitor population to the Refuge (over 80% from 300 miles, 4 hour drive radius)
- Page 5
 - Please provide demographic information regarding the visitor population to the Refuge (over 80% from 300 miles, 4 hour drive radius). For an economic study, this is where the new input (money) to the system is coming from.
 - The description of Chincoteague is written as a critique, inferring somehow that Census statistics were a problem to be remedied. Chincoteague is a unique coastal community with multigenerational family values, a shared cultural history, and a highly valued traditional way of life. These characteristics that include seniors and watermen living on a subsistence income are what shape an affordable, quiet family resort, that does not encourage change...or a desire to become a mirror of an urban national demographic profile.
- Page 6/7
 - Education should be described in terms of why it is related to economic issues or how it benefits the volunteer base for the Refuge, not as a critique compared to the National profile
 - Employment data needs to be verified and adjusted for seasonal, federal and sole proprietor employees. Agreement should be reached on whether all industry categories are equally affected by tourism, and whether the analysis should be evaluated on an annual average basis (impact is diluted) or separately for the peak summer months (when most businesses make it or break it for the year).
- Page 8
 - Mayor Tarr has requested that Table 4 include more accurate information regarding employment provided in the Shellfish Industry sector.
- Page 9/10
 - Housing data is important to establish value as 1) seasonal rental homes that generate transient occupancy revenues, 2) the overall value to the real estate tax base, and 3) the sustained customer base for small contractors that maintain and improve their properties.
 - How will the 'select housing characteristics' table be used in IMPLAN?
- Page 11
 - Recreation is described only in terms of the Refuge System. CNWR has a unique relationship with the National Park Service that may have economic implications about which agency is responsible for funding recreational improvements and maintenance. Should this be described in the study?
 - Visitation to the Refuge is enhanced by its close proximity to a 'gateway community' that allows for multiple day stays and increased tourism benefits. (add to paragraph 3)
- Page 12/13

ATTACHMENT #2

- Economic Impact of Refuge Visitation is the whole point of the analysis and it is buried on page 12...new chapter needed or put up front. It should be noted that visitor spending is greatly enhanced compared to other Refuges due to recreational beach use.
 - Paragraph 4 on page 13 is the heart of the study: "information needed to estimate the economic impacts of recreational visits to the Refuge:
 - 1) Recreational use on the Refuge by activity
 - 2) Expenditures associated with recreational visits to the Refuge"
 - How does the economic model estimate economic output, jobs, job income and tax impacts from only these two bits of information? Visitor spending on recreation at the Refuge is not the only basis for the Town or County's economic activity. Will this be a complete or partial view of the baseline economy?
 - How will this analysis help to measure economic change that may be created by FWS Alternative management plans?
 - Page 14-18
 - Given the information presented, you are not left with the impression that this is a baseline analysis.
 - Tables 6-10 evaluate the benefits of Tourism expenditures and Table 11 provides a summary of Refuge expenditures with an estimated \$3.5 million and 44 job outputs to the local economy. If this is the answer... the only question asked was all about the Refuge.
 - Will these results be calibrated with the local tax revenues to confirm visitor spending estimates?
 - If the only 'input' is visitor spending on recreational visits to the Refuge, will this be the only tool to measure the impact of all management changes? How does the model place a value on the Grazing Permit for Chincoteague ponies and the annual benefit to the CVFC?
 - In table 10, is it fair to say that \$1 of FWS budget spent in the local economy is treated the same as \$1 of regional tourist spending?
 - Will public 'investment' in new infrastructure at the Refuge be considered a cost to the economy or a benefit that will offset any impacts created by management plan changes?
-

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July 5, 2011

Thomas Bonetti
Senior Refuge Planner
Northeast Regional Office
300 Westgate Center Drive
Hadley, Massachusetts 01035

RE: Comprehensive Conservation Plan
Baseline Socio-Economic and Economic Impact Analysis

Dear Tom:

It has been several months since you forwarded the Rough Draft Economic Analysis to me for review. This has been a challenging assignment to understand the economic impact model and find the data necessary to evaluate the Town of Chincoteague's economy. At this point, I believe that it would be helpful and necessary to hold another meeting or conference call before the Town considers a new data collection effort.

After a preliminary review of the document, it seems clear that you have to decide how the baseline analysis will be used before you know what information is necessary.

- A. What questions will the baseline economic impact analysis help to answer? It seems that the IMPLAN model was designed to demonstrate the benefit of Refuge visitation to the surrounding economy. That is understood, however, it is not clear how a tool with a singular purpose can measure the cumulative impact of changes in FWS management on:
 - Tourist visitation and spending (socio-economic profile of visitors to the Refuge should be based on a 300 mile radius)
 - ORV access and surf fishing
 - Property values and the Maddox Campground purchase
 - Shoreline management policies that may encourage the creation of a new inlet at Toms Cove and expose the southern end of Chincoteague Island to Storm Hazards, Storm Surge, and a 4 foot increase in base flood elevation?
 - Chincoteague Island aquaculture and seafood industry
 - Quality of life issues and community identity
- B. How will the IMPLAN model be calibrated to match known economic indicators such as Transient Occupancy tax revenue?

Draft Copy

- C. Will the IMPLAN model be used to evaluate the CCP socio-economic impacts to the community and region by only showing positive impacts under all options? It appears that any potential negative effect will easily be offset by Federal “investment” spent to accomplish the proposed management changes.

The Town of Chincoteague’s economy is more than just tourism, and the GMP/CCP for Assateague Island National Seashore and Chincoteague National Wildlife Refuge affects more than just visitor spending. Let’s agree on whether this will be a simple or complex analysis before a final draft is completed.

Sincerely,

William W. Neville, AICP
Director of Planning

cc. Edward J. (Ted) Maillett, USFWS Senior Economist
Lindsey Morse, Volpe Center
Lou Hinds, Refuge Manager
Trish Kicklighter, NPS Park Superintendent