

# TOWN OF WACHAPREAGUE

## TOWN PROFILE

Wachapreague was originally a Native American fishing village settled by the Matchapungos, a subdivision of the Algonquin Tribe. Nathaniel Bradford first patented the land in 1662 for 1000 acres. The town settlement wasn't developed until the early 1800s. The Town's wharf was used to ship goods to other American cities in 1825. The late 1800s saw a successful fish oil and fertilizer company, and a booming reputation as a tourist destination. The Wachapreague Hotel in 1902 attracted hunters and fisherman from all over the country until it burned down in 1978. Wachapreague has seen a history as a town that capitalized on its location for shopping, natural beauty, and fishing.



Figure 1: Wachapreague Aerial Map

## SOCIO-ECONOMIC

Part of assessing hazards in relation to their risk is understanding the people affected. Not all people are affected equally. Some are affected by factors that relate to their ability to understand risks posed by hazards, and some by their ability to remove themselves from harm’s way. Those factors include age, mobility, income and the languages individuals speak and the languages in which individuals are able to access information.

### DEMOGRAPHICS

The population of Wachapreague has remained steady from 2000 to 2014 at just over 200 people (U.S. Census 2000, 2010). Like many towns along the Shore, Wachapreague experiences an increase in transient populations during the warm seasons due to tourism. This is an important aspect in response to emergency situations and mitigating hazards, as larger populations require more response and aid. Also, often visitors do not know where emergency facilities are located and are often less familiar with local weather patterns and hazard potentials. The median household income level indicated for 2014 by the American Community Survey in Table 1 below, is thought to be a low estimate (John Joeckel, personal communication, May 18, 2016).

*Table 1: Wachapreague Demographics*

	2014***	2013***	2010**	2000*
Population	232	182	232	236
Median Age	63.1	63.2	57.9	55.6
Disability	1	1	0	NA
Income				
Median Household Income	\$26,250	\$40,625	\$54,688	\$36,625
Poverty Level	16.4%	17.0%	24.2%	18.0%
Language				
Only English	87.0%	83.0%	92.0%	97.8%
Other	13.0%	17.0%	8.0%	2.2%
Spanish	NA	14.8%	8.0%	0.0%
Ind-Euro	NA	2.2%	0.0%	0.4%
Asian	NA	0.0%	0.0%	1.8%

Source: \* US Census 2000, \*\* US Census 2010, \*\*\* American Community Survey 2010 – 2014

### WORK FORCE

Employment patterns are important to examine for two reasons. They can help to identify concentrations of people for hazard information dissemination or hazard rescue and evacuation. They can also identify where disruptions in employment and income might occur in the aftermath of a disaster.

The majority of the workforce in Wachapreague work in wholesale, retail, education, or other. If people do not work in the fishing or tourism business than they have to commute outside of the Town to work.

**Table 2: Wachapreague Workforce**

Industry	Civilian Employed Population					
	2014**		2010*		2000***	
	Count	Percent	Count	Percent	Count	Percent
Agriculture, forestry, fishing/hunting, or mining	2	2.4%	16	13.6%	3	2.4
Construction	4	4.8%	22	18.6%	11	8.8%
Manufacturing	14	16.9%	4	3.4%	7	5.6%
Wholesale trade	5	6.0%	9	7.6%	8	6.4%
Retail trade	9	10.8%	14	11.9%	13	10.4%
Transportation and warehousing, and utilities	2	2.4%	0	-	17	13.6%
Information	1	1.2%	7	5.9%	0	-
Finance, insurance, real estate, and rentals	2	2.4%	10	8.5%	5	4.0%
Professional, scientific, waste management	7	8.4%	8	6.8%	14	11.2%
Educational, health care, social services	16	19.3%	20	16.9%	20	16.0%
Arts, entertainment, recreation, food	11	13.3%	3	2.5%	14	11.2%
Public Administration	5	6.0%	0	-	13	10.4%
Other	5	6.0%	5	4.2%	0	-
<b>TOTAL CIVILIAN EMPLOYED POPULATION</b>	<b>83</b>	<b>-</b>	<b>118</b>	<b>-</b>	<b>125</b>	<b>-</b>

Source: \* American Community Survey, 2010-2014, \*\* U.S. Census Bureau Center for Economic Studies (OnTheMap), \*\*\* U.S. Census 2000

**BUSINESSES**

Wachapreague’s surrounding natural beauty means that most of its economic vitality stems from fishing, hunting, boats, and tourism. Wachapreague has a working waterfront and navigable waterways. This allows the local fishing and recreation facilities of the Town to support a variety of businesses consisting of marinas, tackle shops, restaurants, and lodging services. The Wachapreague Inlet enables access to the Atlantic Ocean and its opportunities for commercial and recreational seafood. The Town’s economy is also heavily dependent on tourism. In 2015, there were a reported 24 town business licenses relating to lodging, restaurants, artisan/crafts, tourism, construction services, and commercial seafood enterprises (Town of Wachapreague Comprehensive Plan, 2016).

**Table 3: Wachapreague Business Types**

Industry Code Description	Total Establishments		
	2013	2011	2009
Construction	1	1	2
Retail Trade	1	1	1
Transportation and warehousing	1	1	1
Professional, Scientific, and Technical Services	1	1	1

## Town of Wachapreague

Arts, Entertainment, and Recreation	1	1	1
Accommodation and Food Services	2	2	2
<b>Total, All Establishments</b>	7	8	10
<b>Total Employees</b>	65	68	NA

Source: Census Zip Code Business Patterns, 2009, 2011, 2013

### BUILT INFRASTRUCTURE

Housing units, community facilities, and transportation are all important factors when considering hazard resiliency. They provide the social services necessary during hazardous scenarios, safe cover for those wanting to stay, and a way to leave towards safety.

### HOUSING UNITS

There are a total of 235 housing units in Wachapreague. The vehicles available number reflects upon the 235 occupied housing units. The largest use of housing in the town is for owner occupancy, followed by seasonal, then rental housing. Generally, the Town’s housing is in good condition, however, with the decreasing population and increasing seasonal residences, there are housing that are in a poor state of repair (Town of Wachapreague Comprehensive Plan, 2016).

*Table 4: Wachapreague Housing*

	2014*	2010**	2000***
<b>Total Housing Units</b>	249	230	225
Occupied	112	124	133
Vacant	137	106	92
<b>Owner-Occupied</b>	84	95	107
<b>Renter-Occupied</b>	28	29	26
<b>Median Housing Value</b>	\$138,900	NA	NA

Source: \* American Community Survey, 2009 – 2013, \*\* US Census 2010, \*\*\* US Census 2000

### TRANSPORTATION

Wachapreague has approximately 5.6 miles of state maintained roads, including primary and secondary roads. The primary roads are Route 180 and Route 180 Y. Route 180 connects Wachapreague to U.S. Route 13. Route 180 Y provides an alternate route through Town and connects to Route 624. All other roads are secondary roads. STAR Transit’s Green Express, a demand-response van service, serves the Town. With much waterfront activity, playing at the park, walking, fishing, and launching vessels, particularly with the increased population in the summer months, there is a concern about the speed of vehicles entering Town and about sufficient parking (Town of Wachapreague Comprehensive Plan, 2016).

Individuals with personal vehicles can most often more easily remove themselves and their families from harm’s way in the case of an emergency. About 5% of the Town residences’ are without even a single vehicle.

*Table 5: Wachapreague Resident Vehicles*

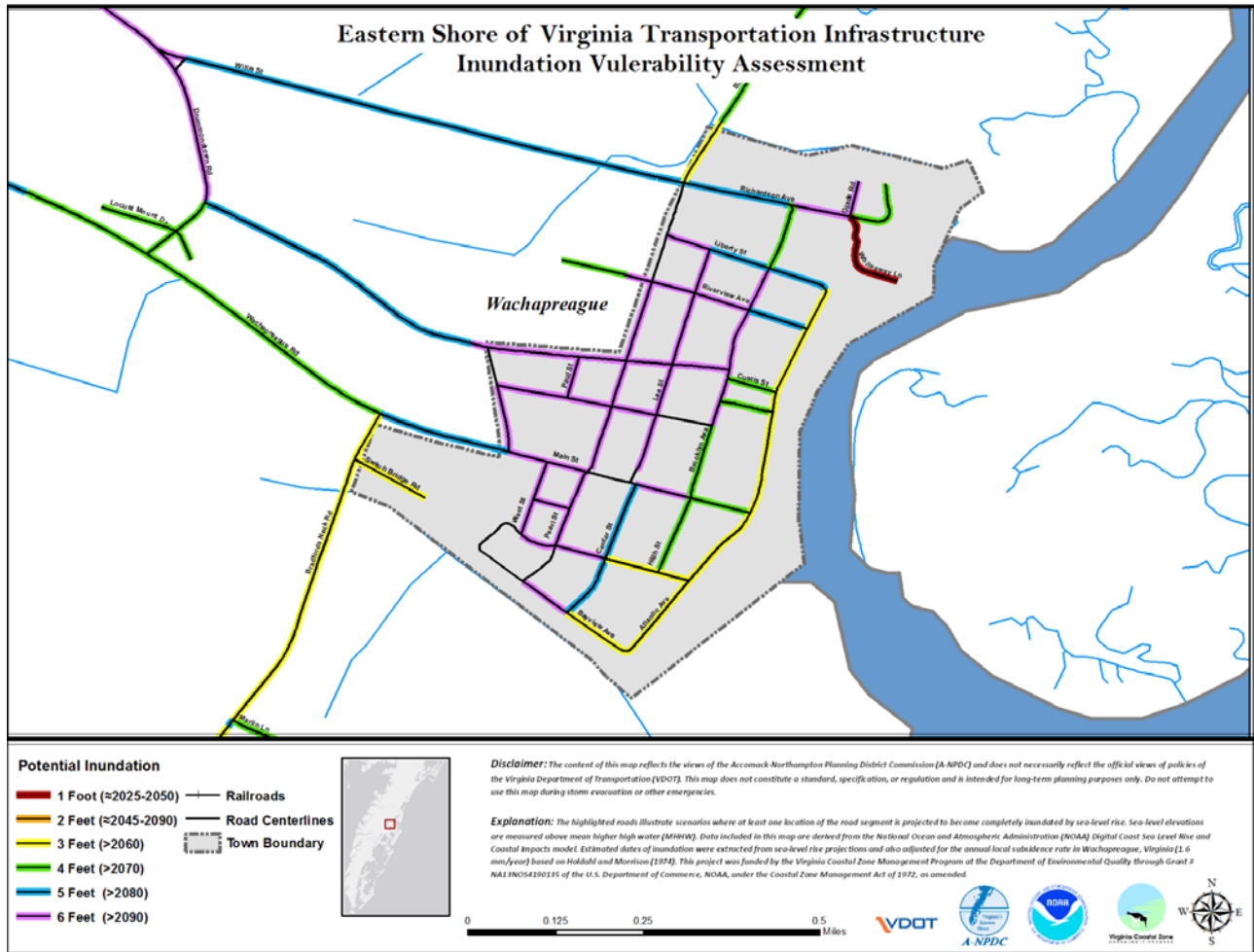
Vehicles Available	2014*	2010*	2000**
None	12	11	12
One	25	42	48

## Eastern Shore of Virginia Hazard Mitigation Plan

Two	64	57	60
Three or more	12	15	11

Source: \* American Community Survey, 2009 – 2013, \*\* US Census 2000

With only two feet of sea level rise (SLR), it is estimated that Atlantic Avenue, the main waterfront commercial street, will be at least partially inundated with water. This is important to note, as it also indicates that with two feet of flooding at mean high tide, this section of the road would also be inundated. Fortunately for the Town, the majority of the residential area roads will not likely experience flooding unless storm surge or SLR reaches six feet. Much of Wachapreague Road, the main access road to the Town and its evacuation route, is within the floodplain as well, which can be seen in Figure 2.



**Figure 2: Town of Wachapreague Transportation Infrastructure Inundation Vulnerability**

### COMMERCIAL AREAS

The commercial center is found along Main Street and Atlantic Avenue. The commercial center consists of lodging, a Post Office, marinas, restaurants, and the Virginia Institute of Marine Science Eastern Shore Laboratory facilities.



## Town of Wachapreague

The majority of the Town has already been developed. There are remaining undeveloped lots gradually being filled up with new buildings.



*Figure 3: Wachapreague Waterfront Commercial Area. Photo by Elaine Meil*

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### COMMUNITY SERVICES AND FACILITIES

Community facilities are facilities required to support the services and functions provided by the Town government or in coordination with other public and private entities. These facilities enhance the overall quality of life for the Town and its citizens. It's important to note what facilities are available in case of a hazard, and it's important to make an inventory of facilities that could be affected by a hazard.

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#### PUBLIC SAFETY

Police protection is provided by Accomack County Sheriff's Office. The Volunteer Fire Company Fire Hall is located at 1 High Street and can be contacted at (757) 787-7818 and serves as the designated Town polling place as well. They provide Fire and other emergency services, however, EMS services are most likely going to be discontinued, and at that time the Painter or Melfa station will provide EMS services. There are no paid firefighting or non-firefighting support personnel employed, but there are about 25 volunteers. The Fire Company has an A.L.S. Ambulance, Engine, Tanker, Brush unit, and a utility/support vehicle. The station features five engine bays to house their fleet of five apparatus, as well as various other amenities.



*Figure 4: Wachapreague Volunteer Fire Company.  
Photo from The Town of Wachapreague Comprehensive Plan, 2016*

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### WATER SUPPLY AND WASTEWATER

Wachapreague residents rely on private wells for their water supply. There is no central sewerage collection and treatment in the Town. Wastewater disposal is by septic systems. In addition, residential water supplies can be threatened by failing septic systems. In the past, flooding that has damaged homes and destroyed possessions has also caused failed septic systems (Town of Wachapreague Comprehensive Plan, 2016). Also see the Hazards of Local Significance section in reference to salt water intrusion.

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### SOLID WASTE DISPOSAL

There is a private service located within the Town. There is a new Accomack County Convenience Center in Grangeville, on Wachapreague Road, just over 2.5 miles from Town.

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### PARKS AND RECREATION

The 15 acre Powell Memorial Park, has two tennis courts, a baseball field, pet waste station, picnic facilities, and playground equipment, and also serves as the storage location for the Town vehicles. The 1.5 acre Wachapreague Seaside Park, which was completed in December 2010, sits on the parcel on Atlantic Avenue where the historic Wachapreague Hotel once stood and boasts native plants, beneficial in water retention. Nearby, the fairgrounds bring a significant amount of traffic to the Town and the Wachapreague Fireman’s Carnival located there provides much of the funds for the Volunteer Fire Company.

Water access is of vital importance for watermen, recreational fishermen, birders, marine research, outdoor enthusiasts, and special events and fishing tournaments such as the Marlin Tournament. In addition to the private Wachapreague Marina, LLC, there is also the Town Marina, which offers free use of the boat ramp for all Wachapreague taxpayers and offers transient and monthly slip rentals for boats up to 44’ length over all. This facility provides access to paddle sport enthusiasts as well with a floating dock and as a launch site on the Eastern Shore Seaside Water Trail.

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### DRAINAGE DITCHES

The Town’s drainage system is maintained by VDOT and Accomack County. There needs to be a continued effort to ensure the ditches and culverts are maintained with sufficient frequency. Town residents are concerned about drainage and flooding of streets during storms. There are issues with standing storm water at the intersection of Riverview Avenue and Lee Street and within the Town Park south of the baseball field (Town of Wachapreague Comprehensive Plan, 2016).

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### POWER AND COMMUNICATIONS INFRASTRUCTURE

Mobile service in the Town is inconsistent and often unreliable.

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### SCHOOLS

There are no schools within the Town boundaries. The Virginia Institute of Marine Science Eastern Shore Laboratory is located on the northern side of Town and has multiple buildings, including dormitories.

## NATURAL ENVIRONMENT

Wachapreague lies within the geological region known as the Coastal Plain. All of the Eastern Shore is included in the Coastal Plain geological region, which is a low-lying region composed of sands, silts, and clay deposited by glacial melt water. Some of the soils in Wachapreague are generally not suited for conventional septic tank

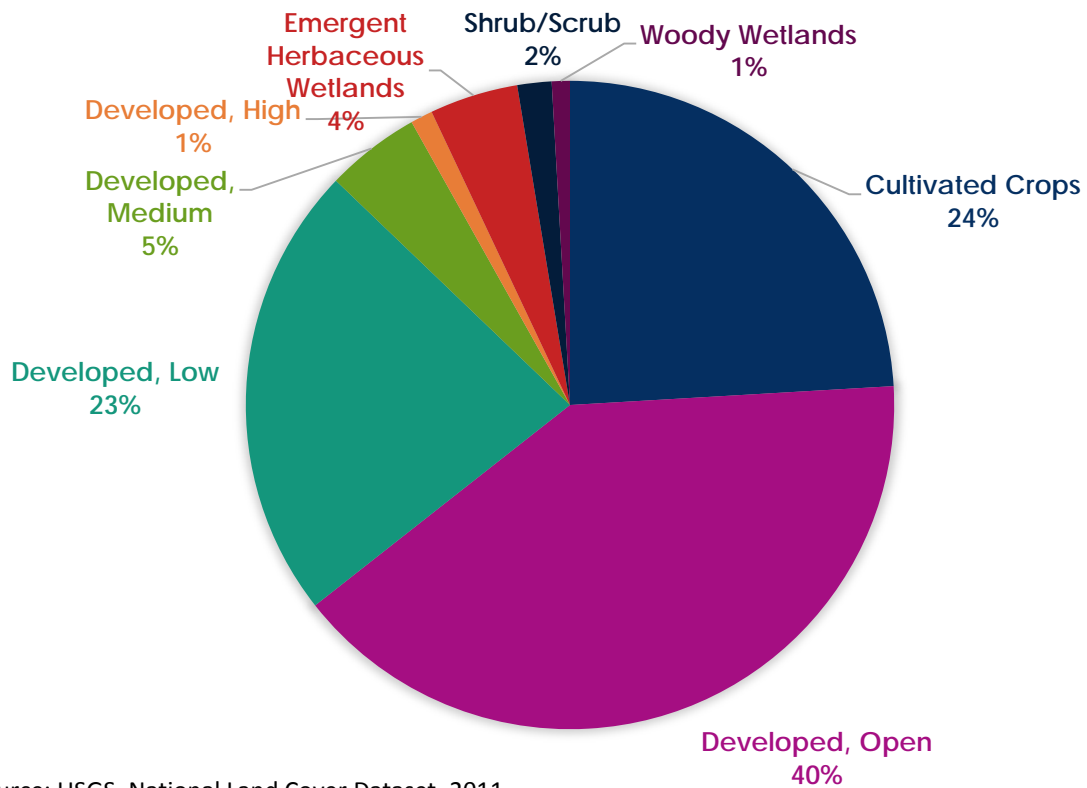
## Town of Wachapreague

drainfields. However, due to alternative on-site wastewater treatment systems, such as mound systems, it is now possible to develop on some of these soils (Town of Wachapreague Comprehensive Plan, 2016).

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### LAND USE LAND COVER

The majority of Wachapreague's land use is low-density development. Because there is a high amount of green space, there is a low percentage of impermeable surfaces. This, in conjunction with the wetlands and croplands in the Town, is a benefit in mitigating the impacts of storm water and coastal flooding events.



Source: USGS, National Land Cover Dataset, 2011

*Figure 5: Wachapreague Land Use Land Cover Percentages*



# HAZARD PREPAREDNESS & COMMUNITY CAPABILITIES

## PREVIOUS HAZARD MITIGATION PLANS

The Town has participated in the Hazard Mitigation Planning process since 2006. The Town’s primary risk is associated with coastal flooding.

*Table 6 : Town of Wachapreague Hazard Mitigation Resources*

	Ordinances, Plans, & Publications													Resources, Committees							
<b>Authority</b>	Building Code	Chesapeake Bay Act	SWMP	Hazard Mitigation Plan	Comprehensive Plan	Ordinance	Storm Water Regulations	Transportation Infrastructure Inundation Vulnerability Report	All Hazards Preparedness	Emergency Operations Plans	Mutual Aid	Agreements/Documents	Neighborhood Emergency Help	Viginia Hurricane Evacuation	Oil & HazMat Response Plan; HazMat Commodity Flow	Ground Water Committee	Navigable Waterways Committee	Climage Adaptation Working Group	ES Disaster Preparedness Coalition		
Local	*				*	*															
County			*																		
Regional				*				*	*	*	*			*		*	*	*	*		
State		*					*							*							
Federal	*																				

## NATIONAL FLOOD INSURANCE PROGRAM & HAZARD MITIGATION GRANT PROGRAM

### NFIP

The Town has been a participant in the NFIP program for over 30 years. Every year, there are a few policies for structures that were not located in the 100-year floodplain, which potentially indicates a storm water flooding problem. Most of the Town lies in the 100-year flood plain with the remainder lying in the 500-year floodplain. In 2004, the Town had 35 mortgages and 95 Special Flood Hazard Area policies compared to 51 mortgages and 104 policies in 2010. This indicates that a significant number of residents believe they have a flood problem and are actively trying to protect themselves.

Wachapreague also participates in the voluntary Community Rating System (CRS), which encourages the community to establish sound programs to recognize and encourage floodplain management activities that exceed the minimum NFIP requirements (Town of Wachapreague Comprehensive Plan, 2016). The Town has a rating of 9.

The average insurance amount per policy was \$119,686 in 2004, \$190,613 in 2011, and is \$210,210. The average value of houses in the Town in 2004 was \$83,614 and \$138,900 in 2014. This may indicate that many of these policyholders carry contents insurance along with their structure insurance. In general, it seems that a significant number of residents and businesses are seeking ways to reduce their flood damage (Mayor J. Joeckel, personal communication, April 18, 2016). In addition, the Town is developing a plan to participate in the Community Rating System, which will improve resiliency and reduce insurance costs for residents and businesses.

*Table 7: Wachapreague HMP Participation*

	HMP 2006	HMP 2011	HMP 2016
NFIP (date joined)	Joined on September 2, 1982	Joined September 2, 1982	Joined September 2, 1982
Number of Policies	102 policies: 5 V-zone, 90 A-zone, and 7 other policies related to storm water flooding	111 policies: 4 V-zone, 100 A-zone, and 7 other policies related to storm water flooding	88 policies: 1 V-zone, 63 A-zone, and 24 other policies related to storm water flooding
Total Premium Amount	Average amount \$119,686	Average amount \$190,613	Average amount \$234,945
Total Coverage Amount			\$20,675,000
Number of Claims (since 1978)	8 claims totaling \$5,072	26 claims averaging \$14,564	28 claims averaging \$14,409
Total Paid (since 1978)	NA	NA	\$403,444
HMGP	Applied for funding from Hurricane Isabel to elevate homes and relocate firehouse. Both were pending.	Town received funding to elevate six homes following Hurricane Isabel.	Town received funding to elevate one home in 2012.
CRS Score (1 highest, 10 lowest)	-	-	-

Source: *ESVA Hazard Mitigation Plan, 2006 and 2011. FEMA NFIP Insurance Report, 2003, 2011, 2016*

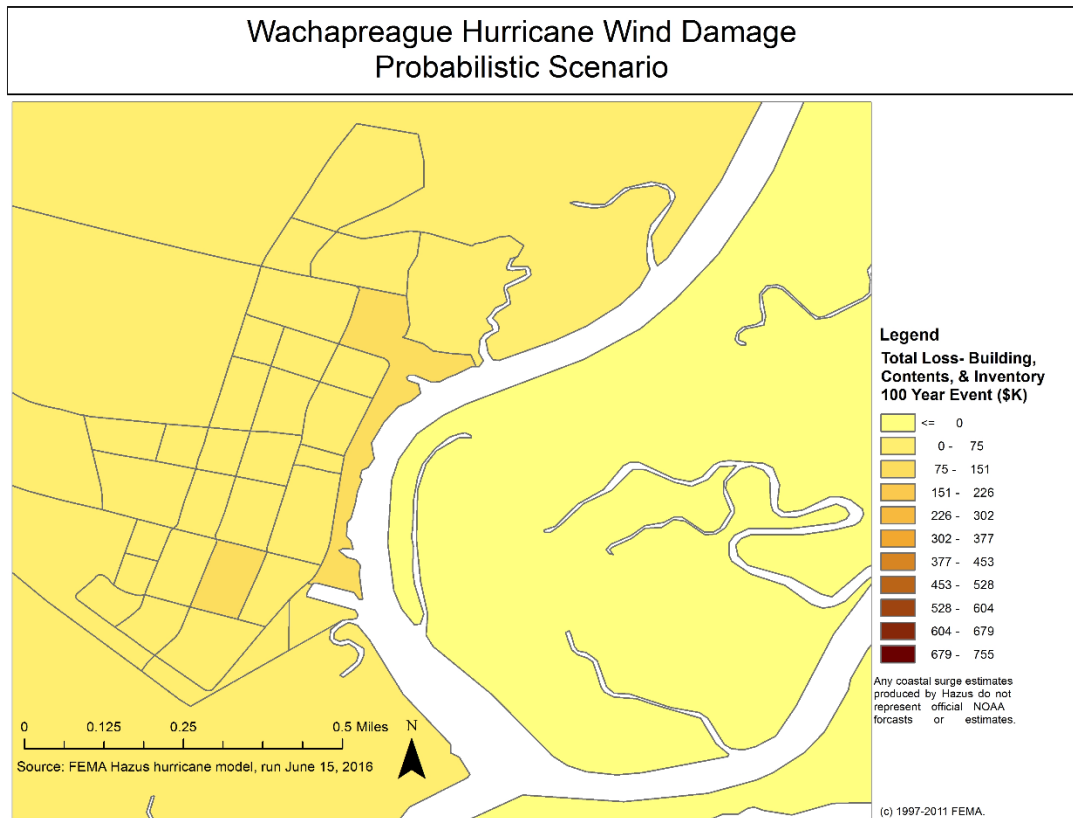
### HMGP PARTICIPATION

The Town received funding following Hurricane Isabel in 2003 to elevate six homes that had been impacted during the storm. At the time of writing of this plan, there is one house in the process of being elevated from a 2012 grant.

# HAZARD PROFILE

## WIND

No parts of Town lie in the wind borne debris hazard area. This area extends 1-mile inland from the barrier islands. The Town lies in the 110-120 mph design wind zone (Building Code). According to the Hazus model, about \$36,800 in damages would be sustained from winds from a 100 year probabilistic scenario storm, with the waterfront buildings being the most at risk to higher levels of damages. Most of the residential areas are older and have mature trees in and around the homes. During a high wind event falling branches or trees may damage some structures. During Hurricane Isabel, more trees were downed than in any other event in the past fifteen years.



**Figure 6 : Wachapreague Estimated Wind Damage by Census Block**



*Figure 7: High winds from Hurricane Isabel in September 2003 downed trees in Wachapreague including this tree which damaged a car. Photo Dan Bilicki*

## COASTAL EROSION

No structures appear to be at immediate risk to coastal erosion. The constantly shifting barrier islands, and extensive marshes, have historically protected the Town from the wave energies of the Atlantic Ocean. For Wachapreague, the erosion of Cedar Island is a major concern, as this island provides their primary protection from Atlantic storms. The images in Figure 8 partially reveal the rate and intensity of Cedar Island erosion. This rate has continued to increase, as by the summer of 2016 the entire southern end of Cedar Island, including all land shown in both images in Figure 8, are entirely submerged at all stages of the tide (Town of Wachapreague Comprehensive Plan, 2016 and Robert Hodgson, Town Council, personal communication, November 10, 2016).

Not only are the man-made structures in the Town at increased risk with the loss of the protections that the barrier island afforded, but the marsh is also vulnerable to damages and erosion from increased storm surge exposure. The marsh is vital in reducing flooding risks and as habitat to a variety of commercially valuable harvest species.

There are the remains of a Works Progress Administration earthen protection dike along the east side of Finney Creek and Atlantic Avenue. This was built in summer 1934 in response to the previous year's hurricanes. It has not been maintained and no longer provides much protection from floodwaters. This is, however, Town owned property and the Town is investigating its use as a spoil location site and more importantly an area to build up to serve as a wave break for the Town (John Joeckel, personal communication, April 19, 2016 & Robert Hodgson, Town Council, personal communication, November 10, 2016).



*Figure 8: Aerial Comparison Photos for Cedar Island 2006 & 2013. By the summer of 2016, the entire area represented in both photos is entirely under water at all tidal levels.  
Photo Courtesy of Gordon Campbell, At Altitude Gallery*

## COASTAL FLOODING

The Flood Insurance Study (FIS) for Wachapreague identifies that the greatest threat of flood inundation comes from northeasters and hurricanes.

The Special Flood Hazard Area (SFHA) boundaries have changed based on new LiDAR-based topographic data, there was a decrease of 0.1 mi<sup>2</sup> and thus 150 buildings. Within the Coastal High Hazard Areas (CHHA) the Town of Wachapreague has two A Zones within the corporate limits where the Base Flood Elevations range from base flood elevation of 7 to 8 feet. The 2015 FIRM shows approximately 91 structures within those zones, see Figure 10. Although the FIRM does not show the V Zone exceeding the immediate shoreline, it is thought that there would be damage from the wave action of floodwaters further inland. This is particularly of concern as the berm or break water opposite the channel from the waterfront has been settling and does not provide the same protection as it did years ago. Additionally, the southern end of Cedar Island has eroded significantly in the last 5 years, vastly increasing the size of Wachapreague Inlet, increasing the vulnerability of the interior marsh system and the Town to



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incoming wave action from the Atlantic during a wind or storm event. Although the Army Corps of Engineers recently announced their intention to complete a beneficial use of dredged material project, this will not be started for at least two years and most likely no physical work will take place for many years.

According to the 2000 Census, 211 (92%) of all houses were built prior to the Town adopting the NFIP ordinance. In the event of a 100-year flood it was estimated in 2006 that the Town would have \$6.5 million in building and content loss (Eastern Shore of Virginia Coastal Flood Vulnerability Assessment, 2006). In 2011, it was estimated that the Town could experience \$12.5 million in damages, which was nearly a \$6 million increase over the previous five years (Eastern Shore of Virginia Coastal Flood Vulnerability Assessment, 2011). An assessment done by Hazus Version 2.2 reveals a total loss of \$6.5 million, including building content, inventory, and business interruption for 2016. Over half of that total is from content loss. Although the VIMS construction standards are extremely high, the Hazus model estimates substantial (about 13%) building damage. The loss from inventory and contents of the VIMS facility far exceeds the cost of damages to the buildings, however, and makes up a large portion of the total loss.



*Figure 9: The Watchapreague Waterfront Commercial Area during Hurricane Isabel in 2003. Photo by Dan Bilicki*

The Hazus model estimates that a total of 476 tons of debris would be generated during such a storm. This is a significant cost to address, as it would require 19 truckloads (at 25 tons/truck) to remove the debris generated by the flood. This debris along the rack line often interferes with vehicular travel and creates a burden on the local residents. Additionally, the model estimates that 28 households will be displaced due to the flood, and that 14 people from these households would seek temporary public shelter.

The Town's fire hall is located in the floodplain as is the commercial center. Wachapreague's economy is based on the businesses centered on the waterfront. There are seven main docking facilities located there: Wachapreague Town Marina, Wachapreague Seaside Marina, Island House Dock, Fisherman's Lodge, Coast Guard Dock, the clam house and the Virginia Institute of Marine Sciences (VIMS) campus. Most other businesses are also located close to Atlantic Avenue. This flood prone area represents most of the commercial activity that occurs in the Town as previously emphasized in Figure 2.

The Town has purchased the parcel where the Wachapreague Hotel was once located and maintained the Wachapreague Seaside Park there since 2010. The parcel's waterfront and central location within the Town made it very desirable for development. Maintaining the parcel as a park eliminates any potential flooding hazards that would be problematic were any development to occur there.



Eastern Shore of Virginia Hazard Mitigation Plan

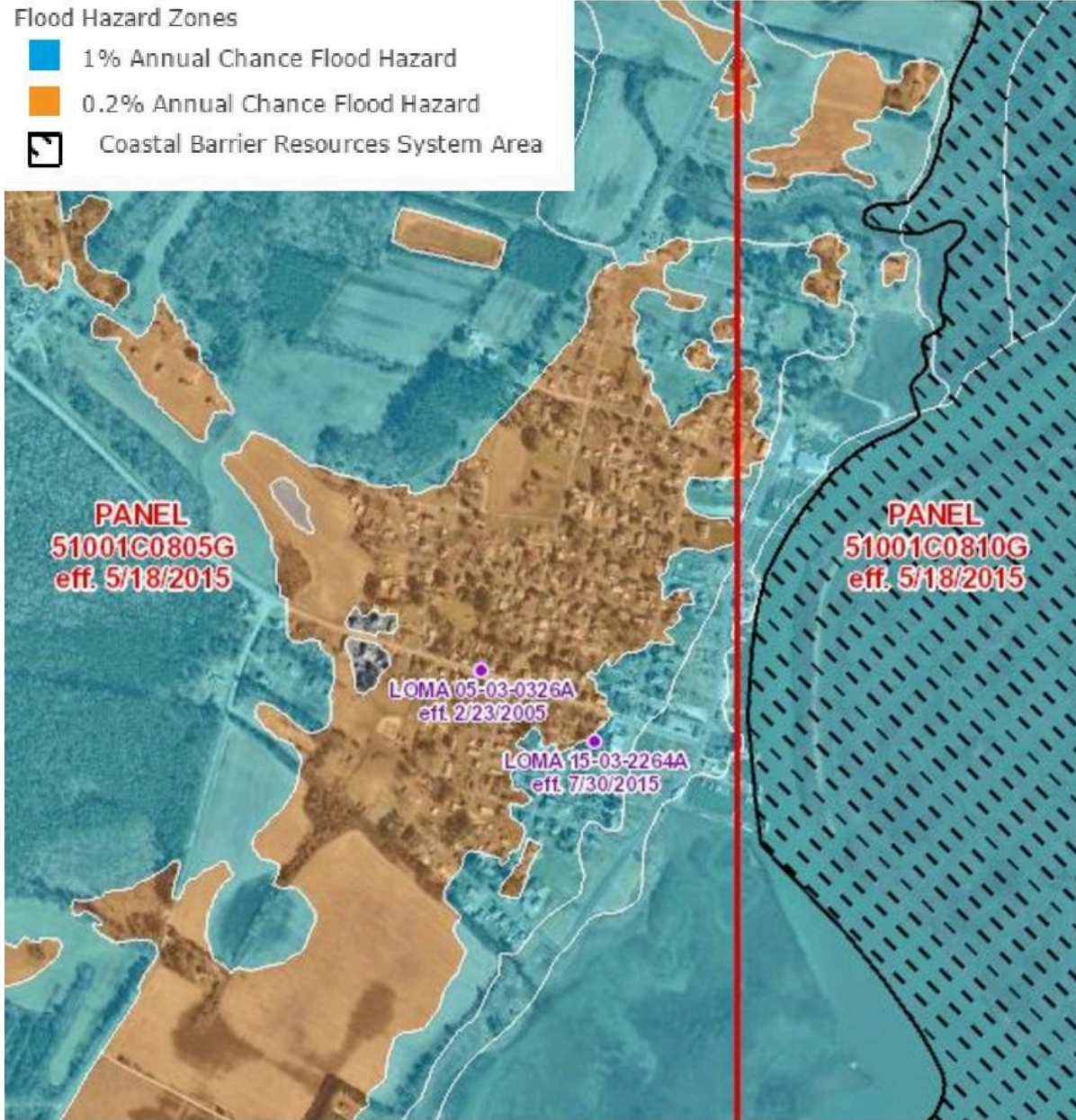


Figure 10: FEMA's National Flood Hazard Layer (effective May 18, 2015)  
Source: Accomack.mapsdirect.net)



*Figure 11: Surge impacting the location of the Seaside Park, marina, and Island House Restaurant during a storm event in October 2005. Photo by Dan Bilicki*



*Figure 12: Photograph showing the surge from Hurricane Isabel in September 2003 impacting the same area depicted in Figure 11. Photo by Dan Bilicki*

## STORM WATER FLOODING

The Town is divided into three drainage sheds. One of these runs along the waterfront and expands to include most of the southern portion of the Town. Storm water in this area drains onto Atlantic Avenue and is caught by storm sewers and diverted into Wachapreague Channel and Finney Creek (Wachapreague Town Plan, 1983). The second drainage basin includes most of the remainder of the Town and lies just behind the waterfront drainage basin. This basin has the largest amount of development within it. The lowest point is the intersection of Riverview Avenue and Lee Street. Areas in the Town Park south of the baseball field is also an area that water will sit until it drains into the soil or evaporates. The majority of the soil in the Town sandy loam (fine, Dragston, Magotha, and Bojac), which typically drains well, but generally doesn't hold a significant amount of water. Portions of a third basin are within the Town. The area affected is western pieces of Town centered on Main Street. The water from this area drains west out of the Town. The land south of the ball field holds surface water. Like many coastal areas, tides can have an impact on the storm water flooding, as when tide is high water cannot readily drain.

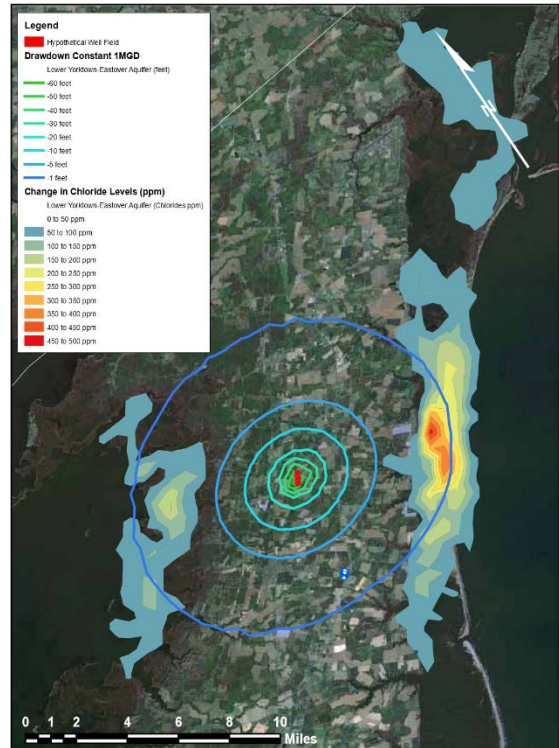
## HAZARDS OF LOCAL SIGNIFICANCE

In addition to the primary four hazards described above, the Town has various other potential threats. These are described below, however, additional hazards may exist.

### GROUND WATER CONTAMINATION

Wachapreague’s location on the Wachapreague Channel and its direct connection to the Atlantic Ocean causes the Town to be vulnerable to two types of ground water disturbances. Excessive fresh water removal from the waterfront could cause saltwater intrusion. Wells further inland could lead to vertical movement of brackish water found below the lens of potable water (Wachapreague Comprehensive Plan, 2016). Because all of the Town residents rely on wells for their water, this is of high concern.

Figure 13 to the right models a hypothetical withdrawal near the center of the peninsula and the devastating affects that would most likely occur on the Bay and Seaside adjacent coastal areas. Although Wachapreague is just to the south of the area represented in the map, similar effects would occur around the Town if a large withdrawal were to be installed in the area west of the Town.



*Figure 13: Salt Intrusion (source: ESVA Groundwater Resource Protection and Preservation Plan, 2013)*

### FIRE

In 1978 the Town’s hotel was destroyed in a fire. In 2010 the VIMS Eastern Shore Laboratory’s Seaside Hall with a total loss of all the contents. The replacement Seaside Hall was built elevated and to much higher construction standards than the dated destroyed building. Due to the aging housing stock, the risk for fire could be higher due to aging electric wiring.

### WATER QUALITY

Since many people rely on the fisheries and aquaculture industries, both commercial and recreational, the health of the seaside bays and the Atlantic Ocean is fiscally and culturally vital. Pollution, nutrients, oxygen levels need to be kept at healthy levels, and monitoring for invasive species and diseases need to be a high priority to prevent damaging fisheries and the scenic coastal ecosystem. Even potential offshore activities such as shipping or oil exploration could threaten the health and livelihood of the community.

### HINDERANCES TO WATERWAY NAVIGATION

Shoaling of nearby inlets and channels could negatively impact flushing and water quality in addition to creating a hazard for boaters. As a major access point to the seaside, and with events like the Marlin Tournament, ensuring the safe and easy navigation of channels surrounding the Town is economically imperative. In addition, shoaling



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and shifting aquatic sediments could have a negative impact on clam and oyster aquaculture, both of high economic importance regionally and to the Commonwealth.

### CRITICAL FACILITIES

The following table lists the critical facilities and their relative importance to the Town. Although lightning is not included as a primary hazard in this Plan, it is important to note that the Town has three tall structures in the Town that are vulnerable to lightning. These are the ferris wheel at the carnival grounds, and two churches.

*Table 8: Wachapreague Critical Facilities*

Facility	HMP '06	HMP '11	HMP '16	Hazards	No of People Affected	Loss potential	Relocation Potential	Retrofit Potential
<b>Town-Owned Facilities</b>								
Town Marina	-	-	X	Flooding Wind	100+	Devastating	No	Yes
Dredge Spoil Basin	-	-	X	Erosion	200+	Devastating	No	No
Parks	-	-	X	Flooding, Fire	200+	Major Disruption	No	Yes
Town Vehicles	-	-	X	Flooding Wind Fire	200+	Inconvenience	Yes	Yes
<b>Other Facilities</b>								
Coast Guard Station	-	X	X	Wind	Boaters on the Seaside	Devastating	No	No
Fire Station	-	X	X	Flooding	1000+	Devastating	Yes	Maybe
Churches	-	X	X	Flooding Wind Lightning	50+	Inconvenience	No	Maybe
Commercial Area	-	X	X	Flooding Wind	100+	Devastating	No	No
VIMS Campus and Dock 50'	-	X	X	Flooding Wind	6 – 8	Devastating	No	Maybe
Carnival Grounds	-	X		Flooding Wind Lightning	Supports the fire station, 1000+	Major Disruption	No	No
Post Office	-	-	X	Flooding Wind Lightning	200+	Major Disruption	Yes	Yes



*Figure 14: The carnival grounds in Wachapreague are at risk to coastal flooding and were inundated with flood waters from Hurricane Isabel in 2003. High winds and lightning also threaten these structures. Photo by Dan Bilicki*

## FINDINGS

1. Most structures in the Town are in the 1%-annual-chance floodplain, including its entire commercial area, which does not require a 1%-annual-chance flood to suffer damages. Coastal Flooding is the greatest eminent threat to the Town. Hazus estimates a total loss of \$6.5 million, including building content, inventory, and business interruption should this 1%-annual-chance flood event occur.
2. The southern end of Cedar Island has eroded significantly in the last 5 years, vastly increasing the size of Wachapreague Inlet, and thus increasing the vulnerability of the interior marsh system and the Town to incoming wave action from the Atlantic during a wind or storm event. In addition the long-ago created berm opposite the channel from the waterfront has been settling and does not provide the same protections. Due to these issues, it is thought that the Town is more susceptible to damage from wave action during a storm event than indicated by the FIRM V Zone.
3. Approximately 92% of all homes were built before the NFIP building code requirements were adopted. After a 1%-annual-chance event there will be significant damage and many structures may trigger the substantial damage regulation that requires the structures to be elevated above the base flood

elevation. Not all structures at risk are insured and those that are insured will not likely receive enough money to comply with these requirements. Currently, Increased Cost of Compliance insurance is included in NFIP flood insurance but the maximum amount is \$30,000. This will in most cases not be enough to comply with elevating the older homes in Wachapreague.

4. The local fire station that responds to Wachapreague and the surrounding area is located in the floodplain very close to the waterfront. The firehouse does not require a 1%-annual-chance flood to have water in the buildings. Its lack of elevation means much less significant events imperil the residents of Wachapreague and surrounding areas of Accomack County. The fire house is a cinderblock building that holds up fairly well in floodwaters. This is a major problem since FEMA's Benefit Cost Analysis is solely based on damage to structures and does not take into account the importance of the structure. During flood conditions and in the recovery period, it is more important to have a safe, working fire station than elevating or purchasing a single house, approximately the equivalent in project cost. Yet the Benefit Cost Analysis will make the house look better on paper aiding a single family versus the entire community. It is a failure not to take into account all benefits in the Benefit Cost Analysis.
5. The Town has noted several stormwater flooding problems within its limits.
6. Several Wachapreague residents are proactively trying to protect themselves from flood damage by purchasing flood insurance even though it is not mandatory. These persons make good candidates for other measures to reduce their flood risk.
7. As could be seen in Hurricane Isabel in 2003, mature trees and strong sustained wind can cause massive destruction. Wachapreague, not in the direct path of Isabel, may also be in line for extensive damage from falling branches and trees in a strong wind event. Since so many buildings are in the flood plain in Wachapreague, it is likely that fallen trees will substantially damage structures. If a tree damages a house in this manner then owners will have to meet the NFIP's elevation requirement and usually homeowner's policies will not cover this expense. Although Hazus estimates only \$36,800 in damages from a 1%-annual-chance wind event, this value does not take into account any flooding damages.