

TOWN OF NASSAWADOX

TOWN PROFILE

Nassawadox is a town in Northampton County. It is 5 miles south of Exmore and 25 miles north of the Chesapeake Bay Bridge Tunnel. The name derives from the Native American word for “land between two waters.” It’s made up of an area of 0.4 square miles and is located on U.S. Route 13. There was little evidence of a community where Nassawadox now exists in the late 1800s. A mail route and post office were influential on the development of the Town. The Pennsylvania Railroad was established in 1884 and allowed the Town to expand further. The Town is home to the Shore Memorial Hospital, one of the Eastern Shore’s largest employers (*Nassawadox Comprehensive Plan, 2000*).



Figure 1: Nassawadox Context and Boundary Maps

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 the factors relating 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 Town of Nassawadox had a population of 499 in 2010 (U.S. Census, 2010). This is a 13% decrease in population when compared to 2000. Town representatives have discredited the results from the American Community Survey in Table 1. They indicate that the figures from the 2010 U.S. Census are much more accurate, and that the population and medium household incomes shown for 2013 and 2014 are too high and that the poverty level revealed for 2014 is too low. The median age in 2010 was 61.8 years, revealing a population significantly older than the statewide or nationwide population. This is important information, as during an emergency, this population could be considered high risk and require additional support. (personal communication, January 27, 2016)

Table 1: Nassawadox Demographic Information

	2014***	2013**	2010*	2000****
Population	771	698	499	572
Median Age	50.1	46.6	61.8	53.5
Disability	31	23	NA	NA
Income				
Median Household Income	45,000	45,769	35,893	21,250
Poverty Level	14.3%			
Language				
Only English	99.9%	100.0%	96.7%	97.1%
Other	0.1%	0.0%	3.3%	2.9%
Spanish	0.1%	0.0%	0.0%	2.9%
Asian	0.0%	0.0%	3.3%	0.0%

* U.S. Census 2010, ** American Community Survey 2009 – 2013, *** Annual Estimates of the Residential Population: 2010 – 2014, **** U.S. Census 2000

WORKFORCE

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

The workforce is largely in educational and health services. This is reflective upon Shore Memorial Hospital being located within Nassawadox. The hospital is a major economic drive for not just Nassawadox, but it also supports the entirety of the Shore in relation to jobs and health services. Even though the hospital is a major employer for the shore, the majority of Nassawadox residents commute to work outside of the Town (*Nassawadox Comprehensive Plan*, 2000). This is likely to increase dramatically following the completion of the new hospital near the Town of Onley. The hospital in Nassawadox will be systematically closing in the coming years. Local businesses, particularly restaurants, retailers, and the pharmacy will be negatively impacted by the move of the hospital as well.

Table 2: Nassawadox Local Work Force Industry

Industry	Civilian Employed Population							
	2014*		2012*		2010*		2000**	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Agriculture, forestry, fishing/hunting, or mining	17	6.3%	15	6.5%	16	5.8%	3	1.8%
Construction	19	7.1%	8	3.5%	16	5.8%	4	2.4%
Manufacturing	32	11.9%	15	6.5%	19	6.9%	11	6.6%
Wholesale trade	24	8.9%	18	7.8%	16	5.8%	1	0.6%
Retail trade	18	6.7%	19	8.3%	15	5.5%	26	15.6%
Transportation and warehousing, and utilities	7	2.6%	3	1.3%	0	0.0%	4	2.4%
Information	19	7.1%	0	0.0%	2	0.7%	7	4.2%
Finance, insurance, real estate, and rentals	0	0.0%	4	1.7%	10	3.6%	10	6.0%
Professional, scientific, waste management	1	0.4%	0	0.0%	3	1.1%	13	7.8%
Educational and health care services	92	34.2%	77	33.5%	99	36.0%	58	34.7%
Arts, entertainment, recreation, food	27	10.0%	51	22.2%	48	17.5%	17	10.2%
Public Admin	0	0.0%	8	3.5%	11	4.0%	6	3.6%
Other	13	4.8%	12	5.2%	20	7.3%	7	4.2%
TOTAL CIVILIAN EMPLOYED POPULATION	269	-	230	-	275	-	167	-

Source: *American Community Survey, 2010 – 2014, **U.S. Census 2000

BUSINESSES

Business data provides basic information used in projecting potential economic losses from business and employment disruption, along with wage losses to employees. It can also serve as an indicator of community recovery resources. Finally, it can help to prioritize restoration of utility and infrastructure functions following a high-intensity hazard.

The largest employer in Nassawadox is the Shore Memorial Hospital. The hospital is the fourth largest employer on the Eastern Shore (*Nassawadox Comprehensive Plan, 2001*). This explains why the number of businesses is relatively low and the number of employees being high. Many of the employees commute from outside the Town. The hospital's location has attracted medical services, community health services, and mental health services to be located within the Town (*Nassawadox Comprehensive Plan, 2001*). As mentioned in the Workforce section, the hospital's intentions to move north will inevitably impact the businesses in the Town, although the surrounding doctor offices will remain in the Town.

Table 3: Nassawadox Business Establishments

Industry Code Description	Total Establishments		
	2013	2011	2009
Mining, Quarrying, and Oil and Gas Extraction	1	0	0
Construction	3	4	4
Manufacturing	1	2	3
Wholesale Trade	3	2	3
Retail Trade	6	9	7

Town of Nassawadox

Finance and Leisure	3	3	4
Management of Companies and Enterprises	1	1	1
Administrative and Support and Waste Management Remediation Services	1	2	2
Health Care and Social Assistance	13	12	15
Accommodation and Food Services	4	4	4
Other Services (Except Public Admin)	2	2	2
Total, All Establishments	39	42	43
Total Employees	658	764	891

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

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 evacuate.

HOUSING UNITS

Knowledge of a community’s housing base contributes to hazard and vulnerability analysis by identifying how many homes are at risk. Vehicles available to households is one indicator of a household’s ability to evacuate when necessary.

Town representatives indicate that there were only about 3 homes constructed since 2010, and thus the American Community Survey estimate for 2014 is extremely high. They also indicated that the 2010 and 2014 figures for vacant housing units indicated in Table 4 are about twice the actual number. Nassawadox has an ordinance that governs hazardous structures to enforce the repair or clearance of dilapidated buildings (*Nassawadox Comprehensive Plan, 2000*), which restricts the vacant homes to those that are in decent condition. This is important in reference to hazards due to dilapidated structures creating dangerous scenarios for surrounding neighbors during high wind events.

There are at least two high density housing developments in the Town, Dogwood and Saw Mill Apartments. Often high density housing areas are the lower cost option for residents and can be more vulnerable to displacement and are least able to access safe and affordable housing after a disaster (Viverios, et al.).

Table 4: Nassawadox Housing

	2014*	2010**	2000***
Total Housing Units	317	239	207
Occupied	264	188	186
Vacant	53	51	21
Owner-Occupied	NA	127	124
Renter-Occupied	NA	61	62
Median Housing Value	125,000	NA	NA

* American Community Survey, 2010 – 2014, ** U.S. Census 2010, *** U.S. Census 2000

TRANSPORTATION

Eastern Shore of Virginia Hazard Mitigation Plan

U.S. Route 13 bisects the town making automobile transportation convenient for residents. Public transportation is made available through STAR transit, with bus routes along U.S. Route 13. The Eastern Shore Railroad runs through the middle of the town, serving as freight carrier connecting Hampton Roads with the Delmarva Peninsula. The railroad does not make a stop in the Town as part of its daily operations. Streets and sidewalks are maintained by VDOT and are generally in good condition (*Nassawadox Comprehensive Plan, 2000*). Table 5 points out that there are about 30 households which do not have a vehicle available, but Town representatives believe that the more accurate figure is the 20 households indicated for 2010. However, the representatives also indicated that there are less than 300 vehicles registered in the Town, and the figures for 2010 in Table 5 would indicate more than 375 vehicles available in the Town. (personal communications, January 27, 2016) The number of homes without access to a vehicle is important to note, as in emergency situations, they would be unable to evacuate or move to a safer area without assistance.

Table 5: Nassawadox Resident Vehicles

Vehicles Available	2014*	2010*	2000**
None	32	20	44
One	92	64	51
Two	86	121	77
Three or more	54	26	20

* American Community Survey, 2010 – 2014, ** U.S. Census 2000

COMMERCIAL AREAS

Route 13 runs through the middle of the downtown area of the Town. There are three commercial clusters located along U.S. Route 13 at State Route 606, State Route 678, and state Route 609. Between these clusters are residential housing. The commercial center consists of a restaurant, several variety shops, a bank, a Post Office, lumber yard, and a library.

COMMUNITY FACILITIES

Community facilities are facilities required to support the services and for the Town, these functions are provided by the Northampton County 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. Some facilities located within the town include a Post Office, and the Northampton County Free Library.

PUBLIC SAFETY

Public safety is extremely important in a hazard scenario. Police protection is provided by the Northampton County Sheriff's Department and the Virginia State Police. Fire protection for the town is provided by the Nassawadox Volunteer Fire and Rescue, which has 34 members, 15 of whom are active fire and rescue members. Equipment at the facility includes an ambulance, engine, tanker, brush unit, rehab unit, and utility vehicle. The department responds to calls throughout Northampton County (*Nassawadox Comprehensive Plan, 2000*), particularly the area between Exmore and Eastville, including Hare Valley, Franktown, Bayford, Vaucluse Shores, Marionville, Red Bank, Wierwood, Birdsnest, Treherneville, and other outlying areas.

The Northampton County Health Department is located just out of the Town limits.

WATER SUPPLY AND WASTEWATER

Residents rely on individual private wells for their water supply. Some residents rely on individual septic systems for their wastewater disposal, but the Town invested in a central public sewage system, which they have found to be overly expensive and unnecessary. The hospital was one of the main entities driving conversion to a waste water treatment plant (WWTP), and now that the hospital is moving north, there are questions concerning the future of the WWTP.

SOLID WASTE

The Town residences benefit from fee free weekly residential pickup by Davis Disposal. Commercial waste is collected by private haulers and must be taken to Accomack County. The Birdsnest Northampton County Convenience Center is only four miles south of the Town on Route 13.

POWER AND COMMUNICATIONS INFRASTRUCTURE

There are no electric substations in the Town. Because the Town lies on the Route 13, it typically does not have lengthy power outages (despite the presence of older trees) and is able to take advantage of the broadband fiber cable for internet services.

PARKS AND RECREATION

There is a park located within the jurisdiction, but it is no longer owned by the Town. A privately owned baseball complex is also located within the Town limits. The Northampton Free Library is located in Nassawadox.

STORM WATER DRAINAGE

The Town does not finance the annual maintenance of ditches along roadways throughout the Town and relies on the Virginia Department of Transportation for ditch maintenance. Ditches on private land are contracted by the Town for maintenance as close to annually as necessary and affordable.

SCHOOLS

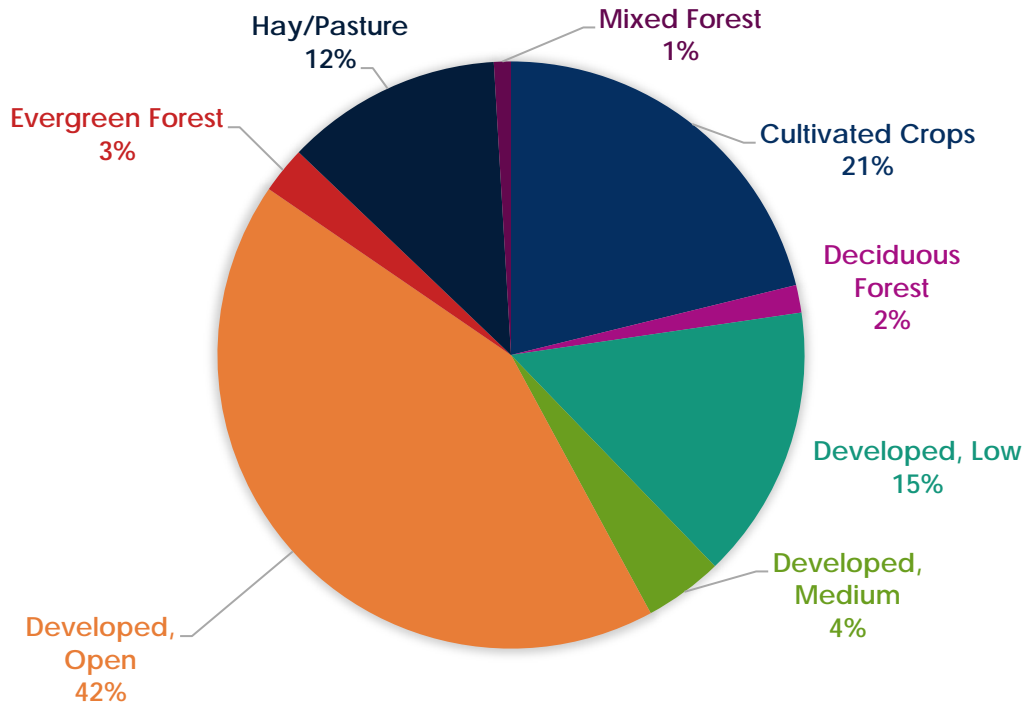
There are no schools or known daycare facilities in Nassawadox.

NATURAL ENVIRONMENT

Nassawadox is very flat, with sloped ranging from 0% to 2%. Most of the land is at an elevation of 35 to 40 feet above sea level. The soils in Nassawadox are either hydric or highly permeable, with a depth to groundwater of 0 – 36 inches. Hydric soils are a major limiting factor in Nassawadox due to their severe limitations in respect to constructing on-site septic systems. A majority of residents in the Town utilize on-site septic systems for residential and commercial waste disposal. The presence of groundwater near the surface can cause septic system failure resulting in ground water contamination (*Nassawadox Comprehensive Plan, 2001*).

LAND USE LAND COVER

Nassawadox is just over 50% developed, as indicated in both Figure 2. With only about 5% natural forest and shrub cover, and an excess of developed areas, areas with high percentage of constructed materials (including asphalt, concrete, buildings, etc.), the Town is more susceptible to storm water complications and issues. Cultivated crop covers about a fifth of the Town, indicating the importance of agriculture in our area.



Source: USGS. National Land Cover Dataset. 2011

Figure 2: Land Use Land Cover Percentages

GROUND WATER

The Town's water supply is obtained from groundwater through individual private wells. The majority of the Town lies within the spine recharge area. It is critical to protect the spine recharge area in order to assure the continuance of good quality and large quantities of groundwater on the Eastern Shore. Although barren land has remained undeveloped due to the soils being unsuitable for septic systems, new technologies in above ground septic options may allow further development. Any development needs to be done with consideration of the effects of impervious surfaces on groundwater recharge and quality (*Nassawadox Comprehensive Plan, 2000*).

HAZARD PREPAREDNESS & COMMUNITY CAPABILITIES

PREVIOUS HAZARD MITIGATION PLANS

Nassawadox did not participate in the 2006 or 2011 HMP, but deferred to the county for hazard preparedness and was only mentioned within the context of the National Flood Insurance Program. The Town has not updated its Comprehensive Plan since 2000, but its zoning ordinance was amended in 2015.

Table 6 : Town of Nassawadox Hazard mitigation Resources

	Ordinances, Plans, & Publications													Resources, Committees						
Authority	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	Virginia Hurricane Evacuation	Oil & HazMat Response Plan; HazMat Commodity Flow	Ground Water Committee	Navigable Waterways Committee	Climate Adaptation Working Group	ES Disaster Preparedness Coalition	
Local					*	*														
County	*		*																	
Regional				*				*	*	*					*	*	*		*	
State		*					*							*						
Federal	*																			

NATIONAL FLOOD INSURANCE PROGRAM

NFIP

The Town of Nassawadox joined the NFIP program on May 8, 2007 (FEMA Community Status Book Report, June 2011). Nassawadox does not have any identified Special Flood Hazard Areas. NFIP data for Nassawadox indicates that there is one policy covering \$280,000 for a structure located in the Town. The policy is not located in a Special Flood Hazard Area indicating that storm water flooding may be a concern within the Town. There have not been any claims filed since the Town joined the NFIP in 2007 (FEMA NFIP Insurance Report, May 2011).

Nassawadox does not have any identified Special Flood Hazard Areas, but have joined the NFIP.

Table 7: Summary of Nassawadox Past NFIP Participation

	HMP 2006	HMP 2011	HMP 2016
Date Joined	Did not join NFIP	May 8, 2007	May 8, 2007
Classification	NA	No identified Special Flood Hazard Area	No identified Special Flood Hazard Area
Policies	NA	1	2
Policy Dollar Amount	NA	\$280,000	\$630,000
Claims	NA	0	0
Claims Dollar Amount	NA	NA	NA

Source: The Eastern Shore of Virginia Hazard Mitigation Plan, 2011, 2006

HMGP

The Town has not participated in the Hazard Mitigation Grant Program.

HAZARD PROFILE

Stormwater flooding has the greatest and most frequent impact on the Town.

WIND

No parts of the Town lie in the wind borne debris hazard area. This area extends 1-mile inland from the Bay shoreline. Many of the housing stock is aging, but most are well maintained. There are a significantly high number of mature trees and particularly after extensive rain event saturate the soils, these can pose a threat to buildings, roadways, and electric services.

Tornados and straight line winds, despite their infrequency in the region, pose a threat to the Town.

COASTAL EROSION

The Town is not at risk to coastal erosion due to inland location.

COASTAL FLOODING

Nassawadox does not have any identified Special Flood Hazard Areas.

STORMWATER FLOODING

Following heavy rain events, the Town experiences severe drainage problems, resulting in flooding, particularly north of Rogers Drive and perpendicular to Pine Avenue (Nassawadox Comprehensive Plan, 2000 and personal communication, January 27, 2016). In the Woodstock residential area here was a ditch put in when the subdivision developed, but it has not been maintenance regularly to ensure continued proper operation.

HAZARDS OF LOCAL SIGNIFICANCE

GROUNDWATER CONTAMINATION

Groundwater quality is threatened by contaminants that are discharged, leached, or disposed into the ground. The major contamination threats to groundwater in Nassawadox are on-site septic system failure, underground storage tanks, and above ground storage tanks (Nassawadox Comprehensive Plan, 2000). Nassawadox is in Wellhead Protection Area E.

SNOW AND ICE

Beyond potential road hazards, snow and ice can pose a hazard by increasing stress on mature trees and causing branches to come down, damaging buildings, vehicles, and/or hindering transportation.

FIRE AND SMOKE

Around 1920 a combination hotel, barroom, and theater building burned down. The replacement building is brick with asphalt roofing, but the majority of the remaining downtown businesses are wooden and connected.

CRITICAL FACILITIES

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

Facility	HMP 2006	HMP 2011	HMP 2016	Hazards	No of People Affected	Loss potential	Relocation Potential	Retrofit Potential
No Town-Owned Facilities								
Other Facilities								
Volunteer Fire Department	NA	NA	X	Fire, Wind, Snow and Ice	10,000	Devastating	Yes	Yes
Park & Baseball Complex	NA	NA	X	Fire, Wind, Stormwater	1,000	Inconvenience	No	Yes
Northampton Free Library	NA	NA	X	Fire, Wind, Snow and Ice, Stormwater	10,000	Inconvenience	No	Yes
Post Office	NA	NA	X	Fire, Wind, Snow and Ice, Stormwater	1,000	Major Disruption	No	Yes

Eastern Shore of Virginia Hazard Mitigation Plan

Shore Stop (gas station)	NA	NA	X	Fire, Wind, Stormwater	2,000+	Major Disruption	No	Yes
Water tower (at hospital)	NA	NA	X	Fire, Wind, Snow and Ice	1,000+	Major Disruption	No	Yes

FINDINGS

1. Due to the Town's central location, the hazards expected to have the greatest impact on the Town are stormwater flooding and high wind events. There are no defined Special Flood Hazard Areas within the Town, but the Town does participate in the NFIP and there is one insurance policy in force.
2. The Town does not own any property or facilities.
3. With the relocation of Riverside Shore Memorial Hospital out of the Town, there is a concern that the Town will not be as economically viable or resilient.
4. The relocation of Riverside Shore Memorial Hospital out of the Town is leaving uncertainty as to the maintenance and future of the waste water treatment facility.
5. Residential areas have older construction and many mature trees. During a wind event, branches and trees may come down causing secondary wind damage and power outages.