

### 3.10. VIRGINIA

#### 3.10.1. POQUOSON, VA

<b>Population Density</b>	745/ sq. mi.
<b>Form of Government</b>	City
<b>Category</b>	Suburban Bayfront
<b>CRS Rating</b>	9

Median Household Income	Median Per Capita Income	% Owner Occ	Population	2000-2010 Pop Growth Rate	% White	% Hispanic	% Minority	% Seasonal Housing
76796	35510	78.5	12150	0.49	95.1	2%	6.2%	0.5

Adaptations	Status	Incorporates CC	Type	Impact	Standard	Costs	Funding Source
Elevation standards of 4.5 ft for new roads	Completed	No	Protection	Recommendation	Unique	NA	None
Floodplain Management Overlay Ordinance	Implemented	No	Accommodation	Mandatory	Above Required	Low (< \$10,000)	None
Freeboard - 1 Ft	Implemented	No	Accommodation	Mandatory	Unique	Low (< \$10,000)	None
Hazard Mitigation Plan - Incorporates Sea Level Rise	Completed	Yes	Procedural	Recommendation	Above Required	Low (< \$10,000)	None
Pump Station Improvements	Implemented	Yes	Accommodation	Recommendation	Unique	NA	None
Incorporated HMP into Comprehensive Plan	Completed	Yes	Procedural	Recommendation	Above Required	Zero	None

## CONTACTS

Ellen Roberts, P.E., City Engineer  
ellen.roberts@poquoson-va.gov  
757-868-3025

Kevin Wyne, Principal Planner  
kevin.wyne@poquoson-va.gov

Kenneth Somerset, Building Official  
kenneth.somerset@poquoson-va.gov

City of Poquoson  
500 City Hall Ave., Poquoson, VA 23662

## POPULATION AND GEOGRAPHY

The City of Poquoson derives its name from a Native American word for flat land or great marsh. It is a suburban community of 12,150 people in the Hampton Roads metropolitan area. It was chartered as a city in 1975, when most of its construction took place. Approximately 10% of its land remains undeveloped and buildable.

Poquoson is located on Virginia's Lower Peninsula and bordered by the city of Hampton on the south and York County to the west. It is surrounded by water—the Poquoson River on the north, the back River and Wythe Creek on the north, and the Chesapeake Bay to its east.

The terrain is flat, with marshes, inlets, and creeks surrounding the city, giving a total shoreline of 118 miles. The developed portion of the city has elevations ranging from sea level to 15 feet, with average elevations between 4 and 7 feet.

A large portion of the land in the city is a federally owned and maintained wildlife refuge called Plum Tree Island. This impacts the calculation of area within the floodplain, because the refuge is included in the data. Although the Hazard Mitigation Plan statistics show that 90% of the land is in the 100-year floodplain, this is likely due to inclusion of Plum Tree Island. City staff report that less than 80% of the developable parcels in Poquoson are located within a floodplain.

Poquoson has a population of 12,150 people, 95% of whom are white and 1% black. Asians comprise 2.2% and Latinos 1.9% of the population. Median income is \$36,840 and median household income is \$84,315, making it the wealthiest community in our sample of cities in the Tidewater region. The population has been growing slowly in the past few decades. Poquoson is a middle-class residential community, part of the Norfolk-Virginia Beach metropolitan area. Immediately adjacent to the city is the NASA Langley Research Center and the Langley Air Force Base, providing a significant job base.

Poquoson also has a significant historic population of lower-income watermen, traditional tidewater residents who earn their living from the sea. These people, who have lived in town for generations before the suburbanization of Poquoson, are especially vulnerable to sea level rise as they live in low-lying parts of town.

### COASTAL ISSUES

Like the other communities profiled in the Hampton Roads region, Poquoson is highly vulnerable to coastal hazards. The committee preparing the hazard mitigation plan determined floods and wind events to be the most likely hazards to impact the community.

Tidal flooding is the most significant threat in Poquoson, which occurs with tropical systems and nor'easters. Historically and according to the FEMA Flood Insurance Study, severe flooding was experienced in 1933, 1936, and in 2003 when Hurricane Isabel produced a storm tide of 8 to 9 feet above mean low water. Poquoson was one of the hardest hit areas in the Hampton Roads area during Hurricane Isabel. Strong east or northeast winds push the Chesapeake Bay into the mouth of the York and James Rivers, causing flooding in Poquoson. The most severe nor'easters to impact Poquoson occurred in 1956 and 1962.

As the Hazard Mitigation Plan ("HMP") explains, "Combined structure and content value losses in the community total nearly \$400 million. The loss ratio represents the percent of the total building exposure that could be damaged. According to this model, damage associated with a 100-year event would be as high as 25-percent of the total value of all single family residential structures and their contents, or more than \$365 million" (Poquoson, Va. HMP p. 44).

Poquoson's infrastructure and evacuation routes are also highly vulnerable. Only one road leading out of the city, Victory Boulevard, is not shown in the 100-year floodplain. (HMP p.49) The HMP reports that 48 of the city's 59 identified critical facilities are located in the 100-year floodplain (HMP p. 43).

### ADAPTATIONS

#### **Incorporation of climate change and SLR into hazard mitigation plan**

A component of the hazard mitigation planning process is to conduct a hazard identification study to determine the most significant threats to the jurisdiction. For the 2009 update, the committee reviewed and validated a list that includes sea level rise as a critical hazard, one of five enumerated in the plan (HMP p.15). The plan cited and incorporated NOAA sea level records at Sewells Point and Gloucester Point. The HMP states that most of Poquoson's land lies below 7 feet mean sea level, and therefore increases in sea level will have a significant impact on its 14-square miles of 100 and 500 year floodplains.

The hazards identified that will be exacerbated by sea level rise include:

*Increased Shoreline Erosion* – the plan references increasing vulnerability to erosion from chronic and episodic storm-caused erosion and secondary effects including increased water depth and sediment loads, which can inundate seagrass and reduce critical shoreline habitat.

*Inundation of Normally Dry Lands* - the plan addresses the risk of drowning wetlands when they cannot migrate upland. It specifically notes that the Poquoson Wetlands Board has observed an influx of requests for bulkhead repair as a result of more frequent inundation behind failing bulkheads.

It discusses the economic and cultural losses to watermen as a result of the reduction in spawning habitat for fish and crabs as a result. The plan also references potential flooding of barrier wetlands such as Plum Tree, Black Walnut Ridge, and Cow Island, which could increase flood vulnerability inland.

*Coastal Flooding* - the plan highlights the potential increase in coastal severity and frequency of coastal storms that could exacerbate coastal flooding as well.

*Salt Water Intrusion* - the plan also references the risk that saltwater may intrude into groundwater aquifers.

Given that so much of the territory of the city is in the 100-year floodplain, it is nearly unavoidable that many of the critical facilities are at risk of a flood. Except for the City Hall and one fire station, all of Poquoson's critical facilities are in the 100-year flood area. The plan mentions the city's commitment to construct all future critical facilities and infrastructure "to avoid the flood-prone areas of the City if possible, and to minimize impacts otherwise" (HMP p.43). Poquoson's 2009 Comprehensive Plan includes the most current Multi-Hazard Mitigation Plan by reference. The Multi-Hazard Mitigation Plan and the City's Comprehensive Plan are now complementary and they reinforce the importance of integrating the two.

#### **Elevation standards for all new roads**

The hazard mitigation plan explains that most flooding occurs on roads at or below 4.5 feet mean sea level, and as a result Poquoson development standards require all new roads to be built at least 4.5 above mean sea level.

#### **Pump Stations**

All of Poquoson's new pump stations are constructed above the 100-year flood elevation. The city also installed a system that allows the pump stations to notify the city when any of 16 events occur, such as when the water level rises, power is interrupted, or the pump fails. The city has also installed permanent generators or has mobile generators available to supply all 29 pumping stations. The city also mandates that all new utilities built below the 100-year flood elevation have watertight manhole lids.

#### **Floodplain Management Overlay Regulations**

Municipalities in Virginia cannot adopt standards for buildings that diverge from state code. Local officials are responsible for enforcing Virginia's Uniform Statewide Building Code, which is based on the International Construction Code. The Virginia code specified building standards to protect against hazards such as wind, flood, and fire.

Poquoson does go beyond state requirements with regard to wind zones. Poquoson is divided into two zones, but Poquoson requires the entire city to be built to the stricter standards. Buildings must be constructed to withstand winds of 110 miles per hour with 3-second gusts and a ½-inch ice load, and mandates that all footings include rebar and that roof attachments use extra brackets at the ends.

The City of Poquoson Municipal Code, Appendix A, Zoning, includes the Floodplain Management Overlay District which regulates development in the Special Flood Hazard Area (SFHA).

The ordinance requires 1-foot freeboard for all new and substantially improved structures. In addition to the standards in the ordinance, some permitting procedures help Poquoson building officials protect new construction from flood damage. Replacement manufactured homes must be placed with the lowest horizontal structural element above the base flood elevation. Engineering details are required to indicate that replacement manufactured homes are anchored to resist flood and wind uplift forces. Permit applicants must sign a statement acknowledging that FEMA Elevation Certificates are required to be submitted at two stages of construction: one during construction (prior to the Floor Joist Inspection) and another before final inspection. The elevation data are maintained in a computer database. The Building Official affixes a sticker explaining the hydrostatic venting requirement to each of the three sets of plans for structures in the SFHA. The Building Official then requires that the permit applicant sign and date the sticker to indicate recognition of the requirement. (HMP p. 67)