

# **Hazard Mitigation Planning Leads to Success**

## **City of Poquoson, VA**

### **FEMA-1862-DR, Virginia**



### ***Scope***

The Disaster Mitigation Act of 2000 amended the Robert T. Stafford Act and required all state and local jurisdictions to develop an all hazards mitigation plan by November 1, 2003 in order to be eligible for FEMA’s Hazard Mitigation Assistance Programs (HMA). The plan requires a planning process, hazard identification and risk assessment, vulnerability analysis, capability assessment, goals, objectives, and strategies, and a method for implementation. The city of Poquoson was the second community in the Commonwealth to develop and adopt a FEMA approved hazard mitigation plan.

### ***Purpose***

This report is designed to show that mitigation planning and implementation by the city of Poquoson has lead to the creation of a sustainable community. The lessons learned from one disaster can lead to actions that reduce the risk of loss of life and damage to property for the next disaster. Often times the effectiveness of mitigation isn’t realized until the next event occurs, it just so happens that Poquoson has experienced two major disasters within the last seven years.



## ***Background***

The City of Poquoson is located on the eastern tip of the Virginia's Lower Peninsula bordered by the Poquoson River on the north, Back River and Wythe Creek on the south, and the Chesapeake Bay on the east. The City is largely influenced by the surrounding bodies of water and has 116 miles of shoreline. The name Poquoson comes from a Native American term that has been translated as either "flat land" or "great marsh." Poquoson's population is 11,566 and over 90 percent of the City lies within the 100 year floodplain with base flood elevations ranging from 8 to 10 feet NGVD. The city only has two evacuation routes, and in many instances when the water is high enough this may be reduced to one which makes the citizens of the city extremely vulnerable should flooding occur.

## ***Hurricane Isabel***

As a coastal community, the city has seen its share of flooding events associated with Tropical Storms, Hurricanes and Nor'easter. Before Hurricane Isabel on September 18, 2003, the city had not been impacted by a significant hurricane in 70 years. Isabel devastated the coastal community with winds creating storm surge up to 7.09 ft NGVD 1929, which was recorded at the Sewell's Point tidal gauge. According to Poquoson's Hazard Mitigation Plan, the city had 2,011 flood insurance claims through



Photo by PJ Heller, <http://www.disasternews.net>



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the NFIP totaling over \$57 Million in 2009 dollars. Before Hurricane Isabel the city only had 10 repetitive loss properties, and as of January 31, 2010 the city now has over 800.

### ***November 2009 Nor'easter***

Between November 11<sup>th</sup> and 14<sup>th</sup> of 2009 the majority of the coastal communities in the Commonwealth experienced flooding, and Poquoson was no exception. A Nor'easter developed off the coast of Virginia from the remnants of Tropical Storm Ida and a low pressure system. The winds blew steady from the north, at times over 74 mph (hurricane force) for several days, causing coastal flooding to occur through 3 tidal cycles. The highest tide level recorded at Sewell's Point was 6.95 ft NGVD 1929, which was only 0.14 ft below Isabel's surge. In some cases the Nor'easter was more challenging as the tidal flooding continued for 3 straight days making emergency response efforts difficult. The following figures show that while the storms were different, they had similar high water levels.

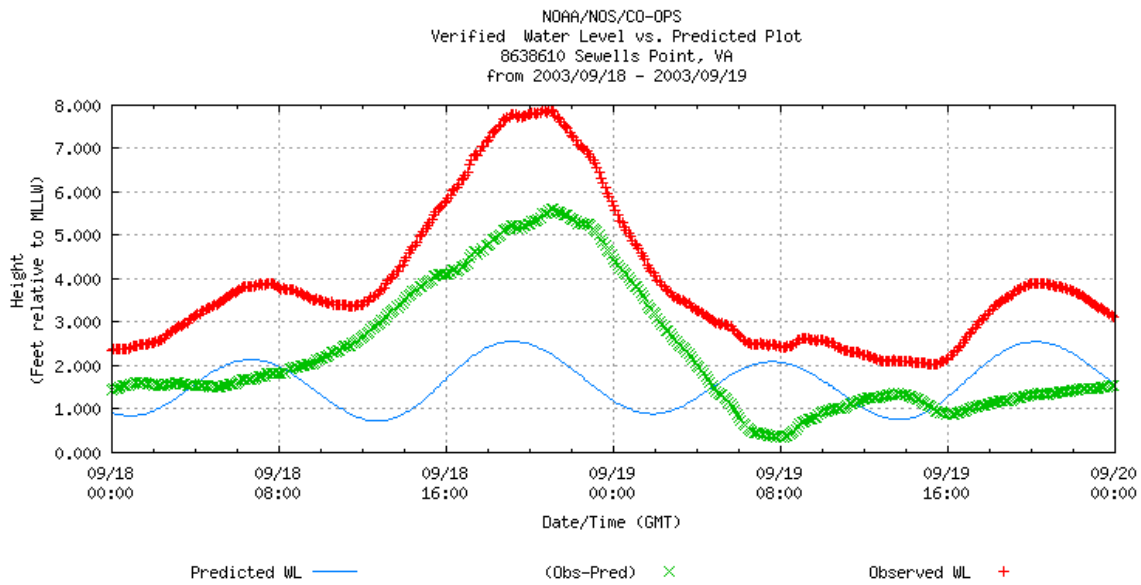


Pine Street, Poquoson, VA: Source: iWitness Weather

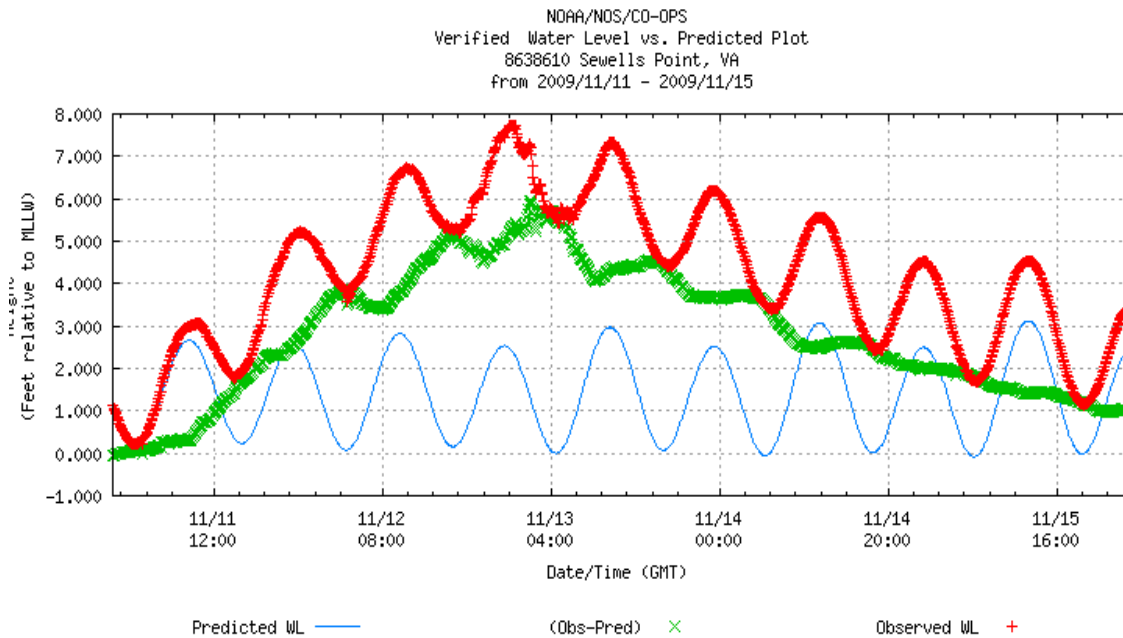


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## Isabel Tide Levels at Sewell's Point



Source : NOAA Hurricane Isabel 2003



Source: NOAA November Nor'easter 2009



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Since the November 09' Nor'easter had similar water levels as Isabel, it is an excellent event for comparison as to how effective, successful, and important the implementation of mitigation has been for the city. The following sections will outline specific mitigation actions taken after Isabel and its effectiveness during the November 09' Nor'easter.

### ***Planning Process***

During the months after Hurricane Isabel violently swept through the City of Poquoson in 2003, devastating the coastal community, local officials began to ask themselves how they could avoid such losses for future events. The creation of their original 322 Hazard Mitigation Plan gave them the avenue for such a discussion. In their plan, the community was able to identify what hazards they were vulnerable to, why they were susceptible and what they could do to mitigate losses in the future.

In their initial Hazard Mitigation Plan Poquoson described mitigation goals that would lessen damages for any future hazard event. In the case of this community, the major hazard was coastal flooding. The community devised a planning team that developed Mitigation Goals (overall ideas of how to avoid loss), Strategies (ways in which to see the Goals through) and Actions (the physical means in which to make the Goals happen). The main concerns for the community were emergency response protocols, structural loss avoidance measures and improvements to warning and evacuation procedures.



## ***Floodplain Ordinance***

By the time their required Hazard Mitigation Plan Update was due in July 2009, Poquoson had successfully implemented many of the measures identified in the original plan. Poquoson's planning team decided to include measures that would lessen damages to current structures, future development and repetitively flooded structures as well as reduce injury and loss of life to the citizens of Poquoson. One strategy was to amend the local floodplain ordinance. As of February 13<sup>th</sup>, 2006 all new construction and improvements were required to have the lowest first floor on the property built to the Based Flood Elevation (BFE) plus one foot of freeboard. This would provide additional protection above the National Flood Insurance Program's minimum requirements.

## ***Structural Elevation***

Another measure was to elevate structures that were already in existence. This was done through, at first, the Property Owner Elevation Assistance Program, where home owners were reimbursed for portions of dollars they had spent to elevate. This concept was later melded with other programs within the FEMA Hazard Mitigation Assistance programs. According to the Poquoson 2009 HMP Update, there have been a total of 567 homes elevated above the BFE. After Hurricane Isabel, between 2004 and 2007, 200 homes were elevated using (ICC) Increased Cost of Compliance coverage, along with approximately 70 home elevations that used Community Development Block Grants and Hazard Mitigation Grant Program funds. The remaining homes are believed to have been directly funded via homeowners or other forms of government assistance. This initiative



proved to be instrumental in avoiding losses during the November 09' Nor'easter that rolled through the Poquoson area.



Photo by Ken Larsen – 1300 Block of Poquoson Avenue during Isabel (2003)



Source: Google Maps – 1300 Block of Poquoson Avenue, elevated structures



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## *Demolition Rebuild*

Residential structures as well as public infrastructure factored in to the City's mitigation elevation initiatives. The old fire station, which had suffered severe flood damage during Isabel, was demolished and the newly constructed building was completed in February 09'. It was "rebuilt on fill to an elevation of 15 feet above mean sea level" (Poquoson HMP Update). During the November 09' Nor'easter event there was no damage to the facility.



Source: City of Poquoson

## *Warning Systems*



Poquoson's other priority was to develop a better warning system that would allow emergency officials to spread evacuation alerts to citizens. This was through the Code Red system brought to the city in January 2009 through Emergency Management Performance Grant (EMPG) funds. The system allows for Poquoson's emergency management officials to contact all 5,314 telephone numbers in their repository all at once. A recorded message can be relayed to either a hard line or cellular phone. During the November 09' Nor'easter this system gave residence the opportunity to move automobiles out of the path of impending floodwaters.



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The local businesses within the city that were outside of the flood plain allowed residents to park their cars in their parking lots. Once all parking resources in the city were expended, Poquoson officials made an agreement with the Wal-Mart in York County for overflow parking. Local officials could not determine the actual property dollar loss avoidance but stated that the number of cars moved was in the hundreds.

In addition, prior to the November 09' Nor'easter, community leaders decided to move the entire Emergency Operations Center & 911 centers out of the 100-year floodplain, which would allow them to continue to communicate with citizens throughout such an event. The old EOC had been flooded during Isabel but was able to maintain communications due to back up generators. During the November 09' Nor'easter the new Emergency Operations Center remained dry and communication capabilities remained operational throughout the storm.

### ***Plan Integration***

As a result of recommended mitigation actions made in the 2004 edition of this Hazard Mitigation Plan, Poquoson's 2009 Comprehensive Plan will include the most current Multi-Hazard Mitigation Plan by reference. The Multi-Hazard Mitigation Plan and the City's Comprehensive Plan are now complementary and together they reinforce the importance of sound planning decisions. (Poquoson HMP 2009)



## ***NFIP – CRS and Increase in Insurance Policies***

Since Hurricane Isabel in 2003 the city has seen an increase in NFIP policies from 2,567 to 3,110 in 2008. This shows that the citizens are taking action to obtain insurance in preparation for the next flooding event. The city also is involved in the NFIP Community Rating System (CRS) which provides incentives to communities that go above and beyond the minimum NFIP requirements. Poquoson currently has a CRS rating of 9, which allows property owners with NFIP policies to save 5% on their insurance premiums. Poquoson is one of 17 communities in the Commonwealth to be a part of CRS.



## ***Outreach***

The City of Poquoson is not only proactive in regards to construction, ordinances and response efforts but is also active in maintaining a constant mitigation presence throughout daily life.



Within this quarterly booklet there is a discussion addressing the November 09' Nor'easter's negatives and positives. Each quarter the city puts out these booklets with several pieces of disaster or mitigation material for residence to absorb. The City of Poquoson also distributes information packets to new home owners that pertain to NFIP compliance/insurance as well as overall safety during a flood event. The community leaders recognize that there must be a constant reminder to residents in order for loss avoidance to stay in the forefront of public thought.



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## *Summary*

- According to the city, there were no reported damages to the 567 homes that were elevated as a result of HMGP, ICC, and local homeowner funded elevations.
- Hundreds of cars were saved from flood damage due to the Code Red System
- No flood damage occurred at the rebuilt fire station
- The city maintained communications throughout the entire event
- More property owners have flood insurance and therefore reduced the amount of out of pocket expenses to repair flood damages.

The ability of the City of Poquoson to maintain a sustainable community is defined by their ongoing mitigation efforts. Their actions are a great example of a community that has indentified and planned for their highest risk; due to the comprehensive and long term efforts by members of their planning and mitigation teams they have, and continue to, successfully implement mitigation actions to reduce losses in the future.



Photo by Crosby and Krista Forrest



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## *Acknowledgements*

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