Maryland Assesses its Vulnerability to Flooding

Full Mitigation Best Practice Story

State-wide, Maryland

The State of Maryland - Maryland has had its share of major flood events since the first recorded major flood event in May of 1860. Since 1933, the state has sought to ensure public safety from flooding through the regulation of development projects proposed for the floodplain. As part of its long history of flood mitigation, Maryland has also used its Comprehensive Flood Management Grant Program (CFMGP) to mitigate flood damage through projects such as acquisitions, the installation of flood warning systems, the construction of flood control projects, as well as many other projects over the years.

In addition, the state agencies that are most involved with floodplain hazard management (Maryland Department of the Environment [MDE], Maryland Department of Natural Resources [MDNR], and the Maryland Emergency Management Agency [MEMA]) have been collaborating on a variety of flood mitigation strategies. These strategies include: local mitigation planning, the use of the National Flood Insurance Program, storm water management regulations, and growth management.

Previously, determining vulnerability to flood damage was not very exact, involving overlaying Digital Flood Insurance Rate Maps (DFIRMs) with tax parcel assessment information to establish flood vulnerability. Before the flood damage vulnerability assessment, the average age of the Flood Insurance Rate Map (FIRM) used to determine floodplains was 19 years old. Flood studies would be needed to ensure flood safety was more accurate and up-to-date.

To tackle this daunting task, the Eastern Shore Regional GIS Cooperative (ESRGC) at Salisbury University was asked to undertake a vulnerability modeling effort. This would provide a systematic examination of the vulnerability of Maryland's built environment to riverine and coastal flooding.

Using FEMA's HAZUS-MH, a hazard vulnerability analysis modeling software, the ESRGC sought to generate maps and tables of Maryland's potential for loss related to buildings from flooding on a county-by-county basis.

The completion of the HAZUS-MH assessment showed different levels of vulnerability throughout the state. Altogether the assessment showed that in the event of a 100-year flood (a flood that has a one percent chance of occurring in any given year), 13.4% of the state's land mass falls within the flood zone. HAZUS-MH does more than just show where flooding would occur. It can also estimate economic losses from disaster events. The HAZUS-MH model showed that Maryland stands to lose $8.2 billion dollars from a 100-year flood event, with almost 40% of those damages taking place in three counties (Prince George's, Worcester, and Anne Arundel).

These findings by the HAZUS-MH models were published into a report by the MDE which made several policy recommendations to mitigate the potential impacts of flooding. The report recommends that the State Flood Management Grant Program (SFMGP) be able to fund a wider variety of projects, while keeping the focus on acquisitions. To accomplish this, the program needs a reliable source of funding by following the lead of other states, such as Virginia and West Virginia, which added a surcharge to flood insurance policies (typically from 1 to 5%) to fund state mitigation efforts. The report states that a 3% surcharge on Maryland flood insurance policies would provide $500,000 annually for the program. Other recommendations include implementing a "No Adverse Impact" policy and providing strong tax and grant incentives to individuals and communities that undertake measures that result in future savings of disaster recovery costs.

This report, "An Assessment of Maryland's Vulnerability to Flood Damage", has been selected by the Maryland Chapter of the American Planning Association (APA) for an award for Public Education or Research.

Activity/Project Location

Geographical Area:	**State-wide**
FEMA Region:	**Region III**
State:	**Maryland**

Key Activity/Project Information

Sector:	**Public**
Hazard Type:	**Flooding**
Activity/Project Type:	**Flood Study Map Rollout/ Map Modernization; HAZUS-MH**
Activity/Project Start Date:	**08/2005**
Activity/Project End Date:	**Ongoing**
Funding Source:	**National Flood Insurance Program (NFIP)**

Activity/Project Economic Analysis

Cost:	**$20,000.00 (Actual)**
Non FEMA Cost:	

Activity/Project Disaster Information

Mitigation Resulted From Federal Disaster?	**Unknown**
Value Tested By Disaster?	**Unknown**
Repetitive Loss Property?	**Unknown**

Reference URLs

Reference URL 1:	**http://www.mde.state.md.us/**
Reference URL 2:	**http://www.FloodSmart.gov**

Main Points

- In keeping with its long history of flood mitigation, Maryland Funded a statewide assessment of vulnerability to flood damage
- HAZUS-MH was used to generate the maps and tables and assess vulnerability on a county-by-county basis
- The completed report makes several reccommendations on how to lessen the impact of flooding in the state.
- This report was selected to recieve an American Planning Association (APA) award for Public Education or Research