

Increased Flooding Risk Due To Sea Level Rise in Hampton Roads Concerns, Best Practices and Plans for Adaptation

Friday, November 16, 2012

Virginia Modeling, Simulation and Analysis Center of Old Dominion University
1030 University Blvd, Suffolk, VA 23435: 757-686-6200

Morning Plenary NOTES

Opening remarks by project leads:

1. **Liz Smith, ODU Climate Change and Sea Level Rise Initiative, ODU**
(http://ww2.odu.edu/ao/research/ccslri/hr_forum.shtml)

Review agenda (available at link above); logistics; high level meeting goals.

2. **Troy Hartley, Virginia Sea Grant (<http://vaseagrant.vims.edu/>)**

VA Sea Grant is a VA State/Federal partnership with the goal to advance the resilience and sustainability of Virginia's coastal and marine ecosystems and the communities that depend upon them. As a broker of scientific information, VASG works with resource managers, businesses, communities, and other stakeholders to provide and apply the best science available.

University based: 6 universitites

These forums are a chance for you to set an agenda for a series of meetings:

This will be a venue to talk to your neighbors. Discuss best practices. Determine how to move forward on implementation.

3. **Ben McFarlane, Hampton Roads Planning District Commission (hrpdcva.gov)**

These forums will enhance and improve on existing committee processes: transportation, environmental planning and emergency management. And, bring in folks from outside local government.

HRPDC has three goals:

- State of the science
- Network across localities/or across sectors within localities
- Develop a consensus as to where we should go **as a region** with local governments and also with state partners.

4. **Ariel Pinto, Department of Engineering Management and Systems Engineering at ODU (<http://eng.odu.edu/enma/>)**

Goal with a Knowledge Management System is to replicate the dynamics of asking something and getting a response.

The Scope of KMS (slide):

Examples of KMS:

Google is an example; and so is an RSS feed (passively scanning for something of use for you); or following a blog.

Powerpoint presentations from our speakers can all be found here:

http://ww2.odu.edu/ao/research/ccslri/hr_forum.shtml

Sea Level Rise Acceleration in Hampton Roads: A Scientific Perspective, *Tal Ezer, Professor, Old Dominion University Center for Coastal Physical Oceanography*

Climate Change SLR and Severe Storms: A Federal Perspective, *Russell DeYoung, Senior Research Scientist and Climate Adaptation Science Investigator, NASA Langley Research Center*

Adaptation Practices and Lessons Learned: A State Perspective, *Molly Mitchell, Center for Coastal Resources Management, VIMS*

Management - Coastal Barrier Resources Act (1982) – pulls back financial aid as a form of management. No new policies written.

Accommodation includes early warning and evacuation.

Monitoring is only good if you have a really good information system to get the information out. Push notifications, smart phone apps, etc

Protection: Engineering solutions

-hard (walls and barriers)—more appealing in urban localities

-soft (marsh creation, living shorelines)

Lessons learned to bring home to VA:

Regional differences in strategies: urban areas vs rural areas.

Systematic/regional approach to flood protection. What you do effects your neighbors.

Open discussion:

Have not mentioned that the federal government, thru the NFIP, encourages people to live at risk in the flood plain. The people who take the biggest risks pay the most money. NFIP will be 2x as much in debt since Sandy. There will be a change in the state health and septic systems....so

more land will be able to be developed. Section 8 housing is allowed in the very vulnerable floodplain.

Need for good, solid building codes; multiple jurisdictions; standards for managing a flood plain.

Looking at the tools on the table now – existing floodplain or hazard mitigating planning. Make these plans face forward.

Dillon Rule; the localities impede having something more rigid/protective than the state-wide code. Yes there will be a section in VIMS report that deals with this issue. Recommending that the state take a more active role.

Lessons learned from Sandy

Previous events—did you feel you were prepared for those events?

After Isabel – were there any adaptation decisions that were actually implemented? YES -- Localities did make some changes after Isabel.

- Portsmouth – After Isabel: There was not much info at all on the web. Isabel almost locked up the phone lines from the public trying to get information. After Isabel...they put flood maps on line, slosh model results, 0-8ft flood line. That helped a lot. Also, started working more with rental population; trying to get the tenant population to understand that a hurricane is not a tornado.....they last much longer.
- Norfolk – After Isabel: A nice adaptation step after Isabel was to raise control systems on pump stations because some flooded. This helped sell the investment in the pump station renovation/flood-proofing so they did not flood.
 - A big issue was power down. No reliable way to make sure houses were secure when power came back on. Fast forward to Irene...we now have a capability to tell where power outages are. That is a critical issue...knowing where power is out and where it is coming back on so that public safety can be deployed. This is a partnership with Dominion. Contact your local Dominion rep and get a password. This had a big impact during Sandy because it was so prolonged. If food stores and big box stores have power then you don't have to bring in food or supplies.

Don't send a firetruck into high water to rescue. Got a 5-top surplus truck from military surplus for rescue. Conventional public works equipment cannot operate. These surplus trucks are available to local governments. Equip these trucks with a hydraulic lift for wheelchairs, etc.

- City of Newport News EOC was **coordination facility**. The **field operations** need to be dealt with in another environment. Operations, planning, -- Follow ICS (incident command system) forms and process and planning. This takes training....

- Lots of training in Newport News. Now there are operational manuals for those critical elements.
- Storm surge maps became much more important after Isabel. Public works know where to go...major challenge, drainage, make sure there are no blockages. Create a comprehensive list of where to send crews before a storm to make sure there are no blockages. Mariner's Museum controls Lake Maury and they lower the level in advance of a storm.

Where you better prepared for Sandy. Yes.

The 2009 Nor'easter prepped Portsmouth very well for a Sandy-like event. The nor'easter made them know what high levels flooded where. Sandy made Portsmouth think about their high needs populations and modified some codes for nursing homes.

Norfolk: focused on warning people. Used water tight manhole covers to reduce the overflows (permanent). Put bypass pumps and generators....pre-stationed. The city made a big deal of advanced notice and explaining to people that we won't come get you if don't evacuate. Used to be when roads flood, police put out cones. These were ineffective. Instead they used trucks parked sideways. Opening parking garages downtown and in partnership with ODU was very helpful. Identifying higher parking lots in Ocean View (farm fresh, schools) and let people know they could park there.

Isabel and the nor'easter helped VB understand what amt of water above MLLW will flood where. These helped raise the awareness and consciousness. More jurisdictions are engaging in repetitive loss aid. We need the departments coming together.

LARC was closed for a week after Isabel. LARC uses modeling topinpoint most vulnerable spots.

Navy – during Sandy in northeast there were a lot of issues with utilities. Sandy was different....the size was a factor. Emergency response teams come in after the storm. Sandy was so large that emergency response teams entered into installations where they had to travel 2-3 hours to stay overnight because there was such a huge area of damage. Logistically....looking at intensity but also sheer size.

As you talk to your own colleagues around the mid-Atlantic region, were any surprises from Sandy:

- Urban hurricane impact is pretty bad because of so many people.
- Lots of infrastructure damage.
- Power companies seem to be having trouble with Sandy in NY.

Personal observation: when there is a lack of historic knowledge.....people don't really believe that they need to be prepared.

Communication and outreach are the key. Why did people in the NY LI area not believe that it would be as bad as it was, and why did they not leave? No “memory” of such a severe storm.

Increased communication thru email and txt pushes.. Info can be disseminated very quickly.
Keep people off the streets!

Sandy – in some regions, they had to deal with a hurricane and a blizzard at the same time. Is this a climate effect. We are not doing a good job of getting people to listening to the emergency preparedness. Why is that? Sandy forecasts were dead on. This ties back to the lack of historical knowledge.

Takes 2-3 events before people pay attention (flooding). People don't really understand risk very well. People have a tendency to assign low risk to high risk things.

Sandy in VA Beach.....in Back Bay there were very local effects.

Break outs:

What are the critical needs/concerns; strategies; hinderances to implementation – what are the barriers to implementation.

Take it to the next level.