# Maryland's Innovative Mapping Process

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# Bio Addition, Revision or Confession ....

# Punxsutawney native!



# On every Feb 2nd

- You can now tell your friends that you know someone from Punxsutawney and
- After today you can think about floodplains and maybe use some of this presentation to use as a solution for one of your local mapping or modeling problems

## Punxsutawney, Pennsylvania

A small town with a big name and ...

# A Floodplain

And guess who lived in the floodplain behind a Corps levee and thought it would protect us from flooding in 1972?

Note: Our brick house was elevated by the original builder is the 1920's above the floodplain (even if there wasn't one defined), but we had a basement / or in this case a swimming pool. (1st lesson)

# Fast Forward 25 years later ...

# State Coordinator in 2008 with an Attitude!

# MD's Focus on Map MOD in 2006

- Join the rush to replace our paper maps with a "digital" product
- Use the State's new LiDAR for topo (thanks to Maryland DNR)/sea-level
- Update the (circa 1984) Detailed Models
- Create New Models in Approximate A-Zones
- Incorporate the products into the State and local permitting process

# Question?

 How sophisticated was your cell phone in 2006?

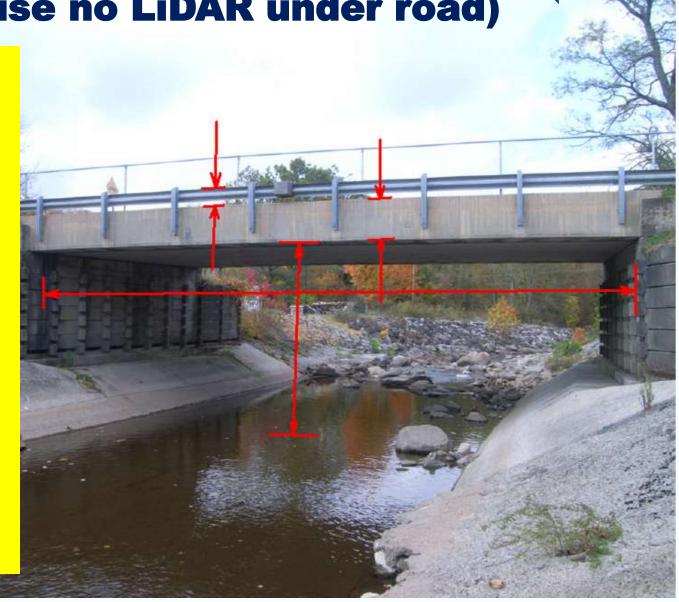
#### What's been Innovative Along the Way

- Collect Bridge and Culvert Data Digitally in 20 min (required a GPS, camera, survey equipment, etc) and data migration ...
  - No Way! / Developed a Bridge tool (see Norfolk presentation in 2006)
- All Models Updated and Georeferenced as HEC-RAS Models (since 2008)
- Riverine A-Zones created as model backed using same field data collection and georeferencing process
- All Effective models (Zone A and AE) are posted and available for download
- Created a web site: mdfloodmaps.com

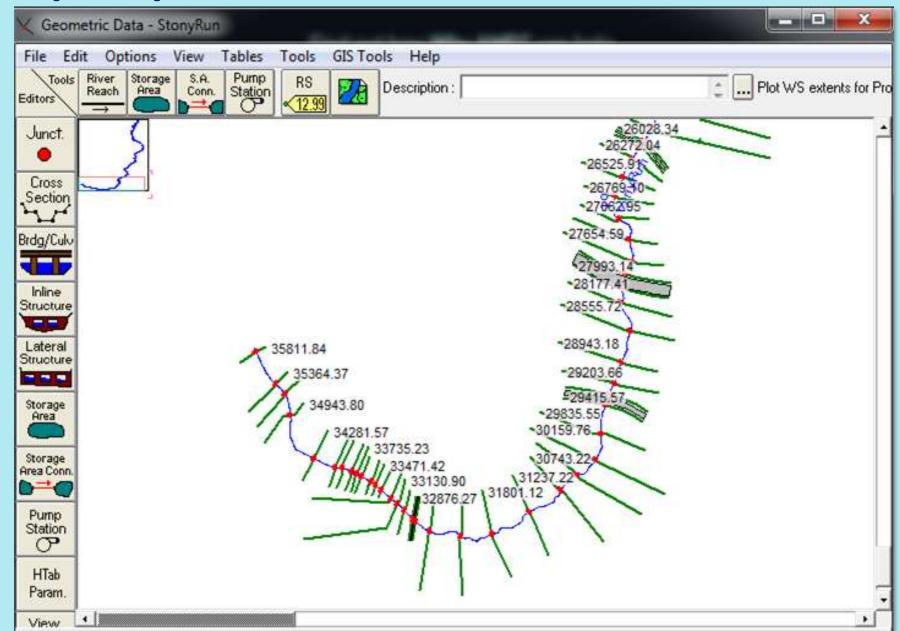
Maryland Bridge Tool (because no LiDAR under road)

Data Collection for 8000 + Stream Crossings

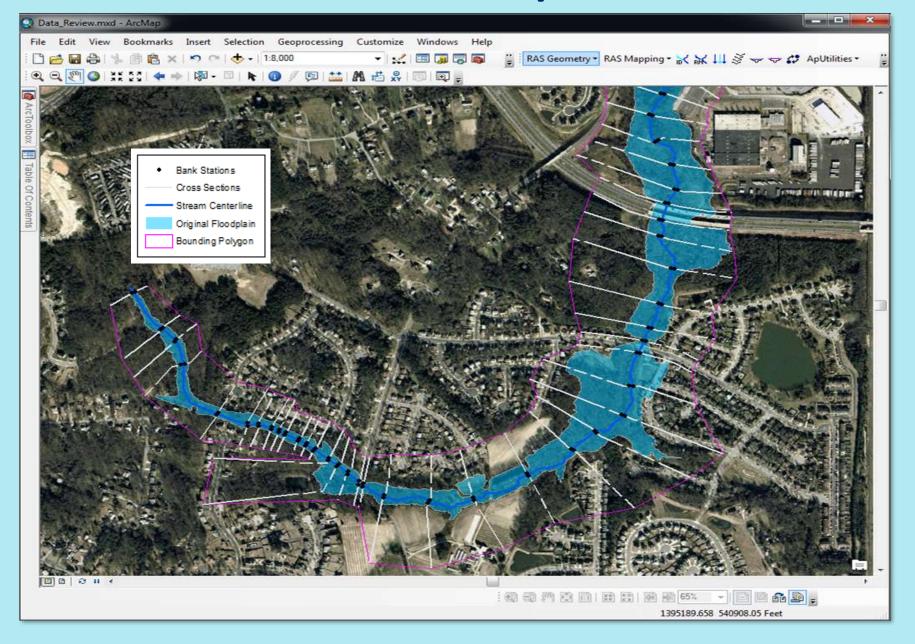
- Relative dimensions
- Structure Info
- > Piers
- Entrance parameters
- Photographs
- Bridge Viewer (on web)

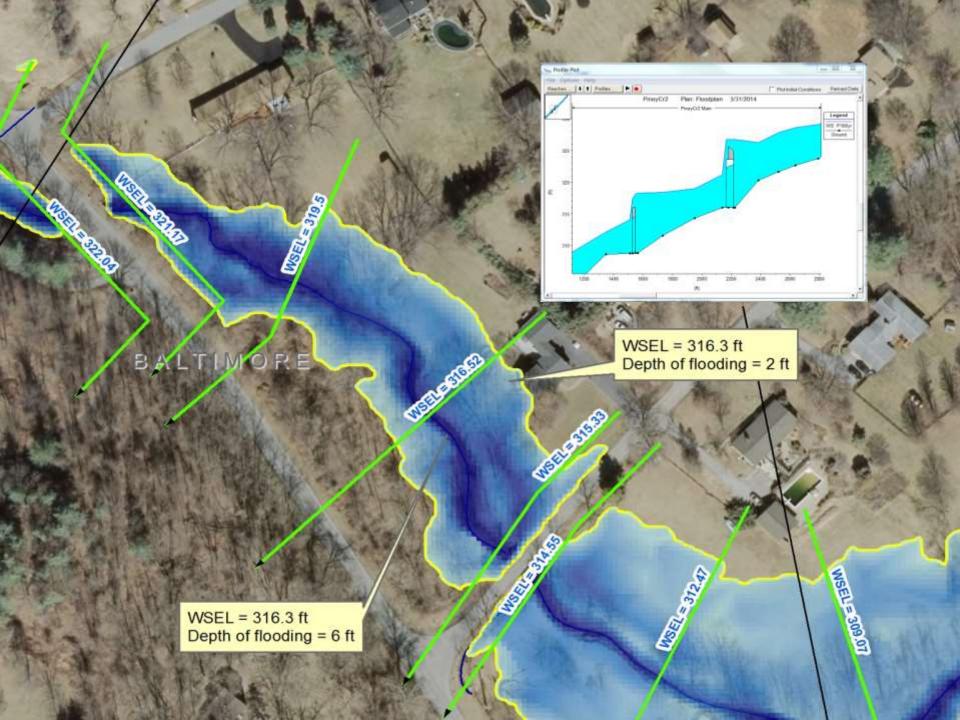


#### Paper Space versus Georeferenced HEC-RAS



#### **Georeferenced Floodplain Models**





#### What are the benefits

- More Information readily available at local level
  - (A Zones with water surface elevations)



- Data Available for SHMO for BC
- Water Surface Elevations Available to locals for Building Additions and Permits
- Maryland's A-Zone models have been accepted for LOMA's

(considering a process to transfer the data onto Elevation Certificates)

#### **More benefits**

- Data Consistent and Available
- At the end of current production schedule - 22 of 24 Counties will be completed
  - (County 23 and 24 are partials)
- (yes, many of your Watershed districts are larger!)

#### **Still More benefits**

 Modeling & Mapping Data Used in State Hazard Mitigation Plan (MEMA) – lower costs/ better data/ level 2 results



### Interagency Collaboration (



- Other Partners Coming forward
  - USFWS used data for fish blockage assessment and preliminary stream stability index
  - SHA has piloted an analysis of road network vulnerability (several counties per year)
  - Currently looking at e-Collaboration for other permitting efforts with Maryland DNR, MHT, Critical Areas, and U.S. Army Corps of **Engineers (Baltimore District)**























### **Needed Way to Distribute Data**

- Communicate Mapping Changes
- Convey Mapping Release Schedules
- House all the Data
- Distribute the Models
- Display Information
- Incorporate and Display Other Informative StateGIS Products .....

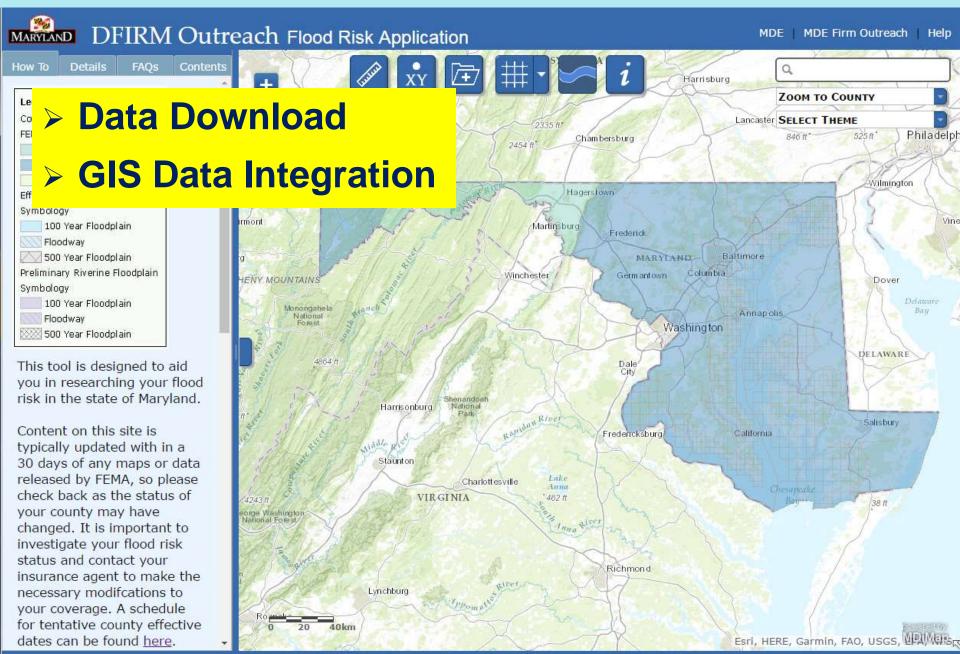
# mdfloodmaps.com



(domain name includes .org and .net)

### Web Site Demo/ Thanks WV!

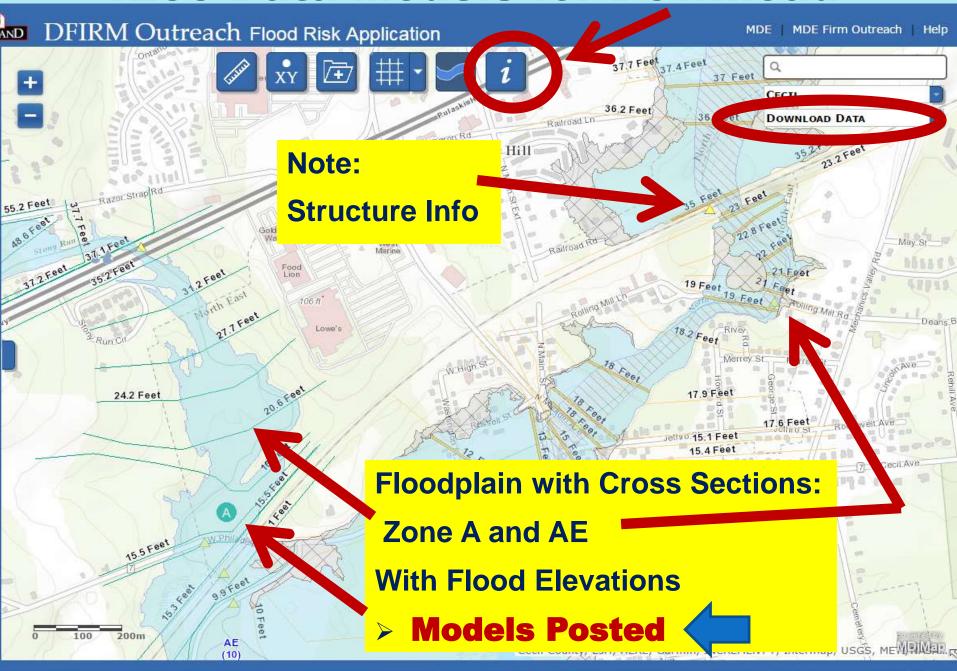




# At Yesterday's FEMA Showcase

(Rick) "Wouldn't it be nice one day to click on a cross-section on a map and be able to download a model"....

#### > 1200 Data Models for Download



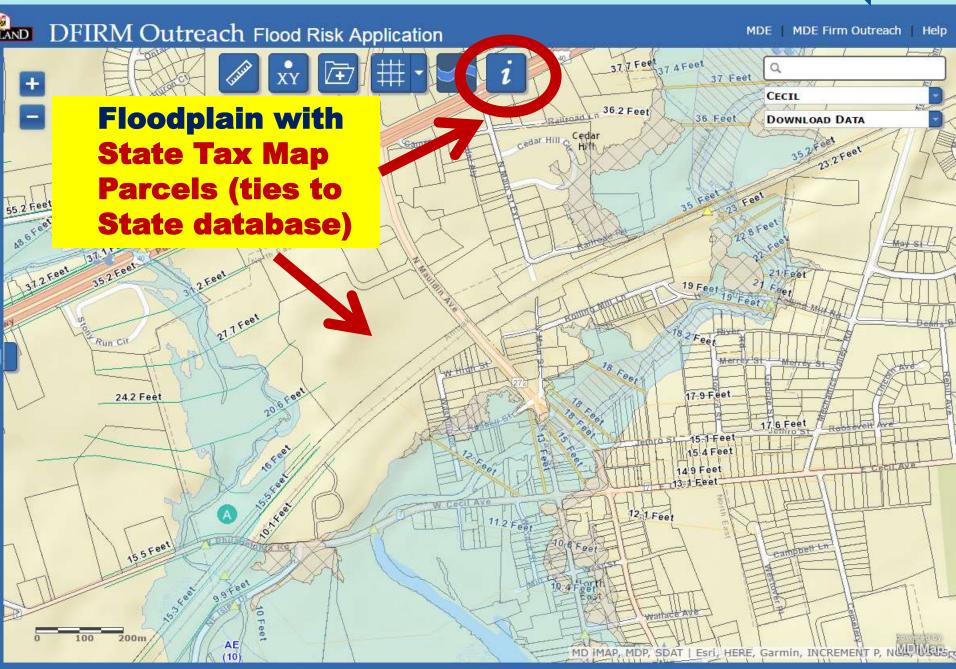
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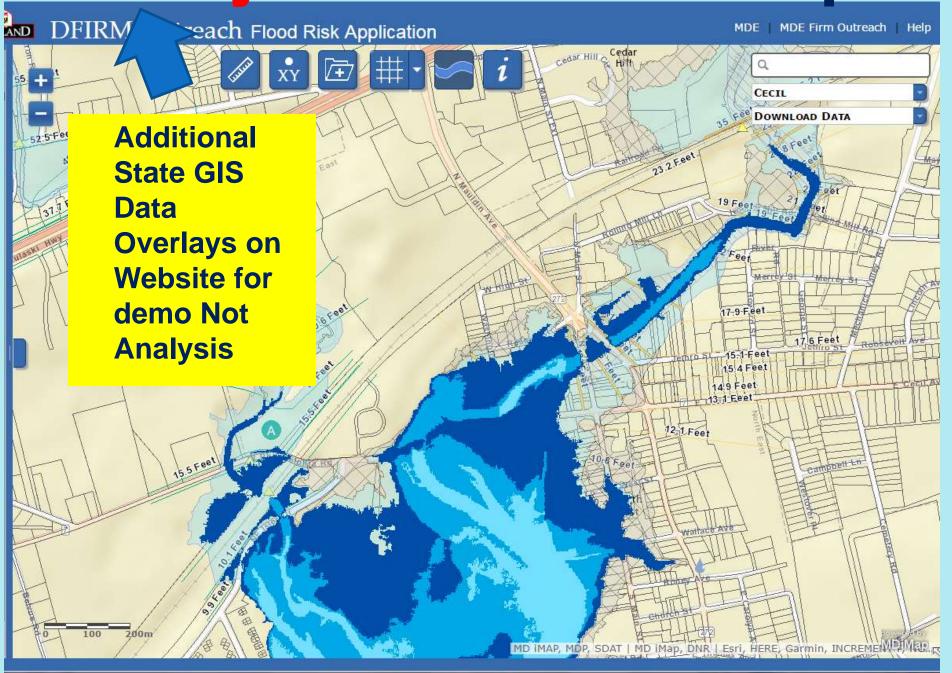
• (Maryland) Can we add timely and responsive to innovative?

#### **Other State GIS Data Sets Available**

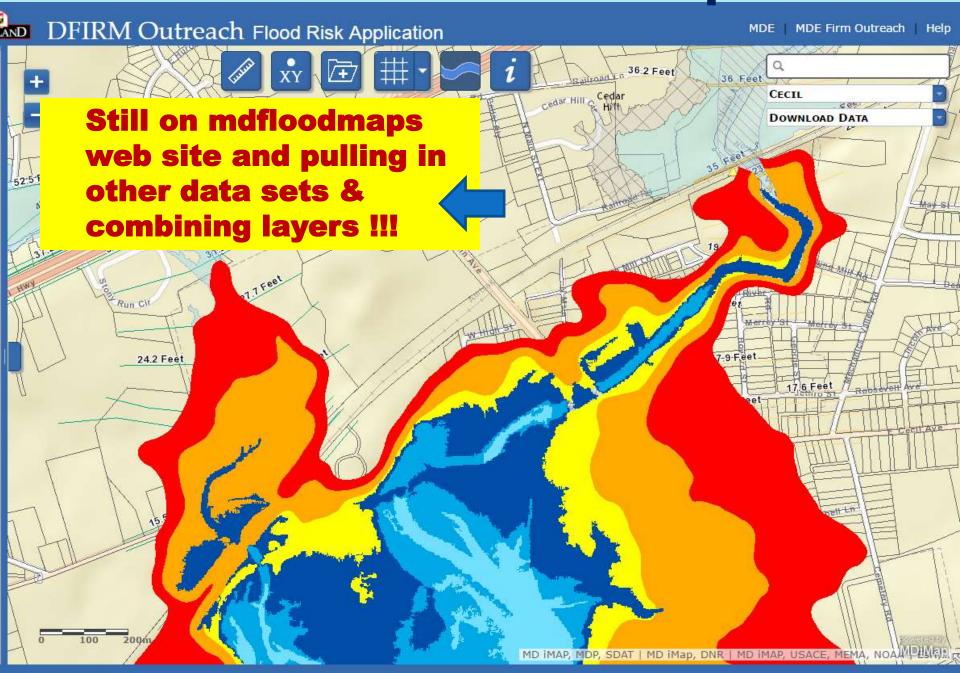




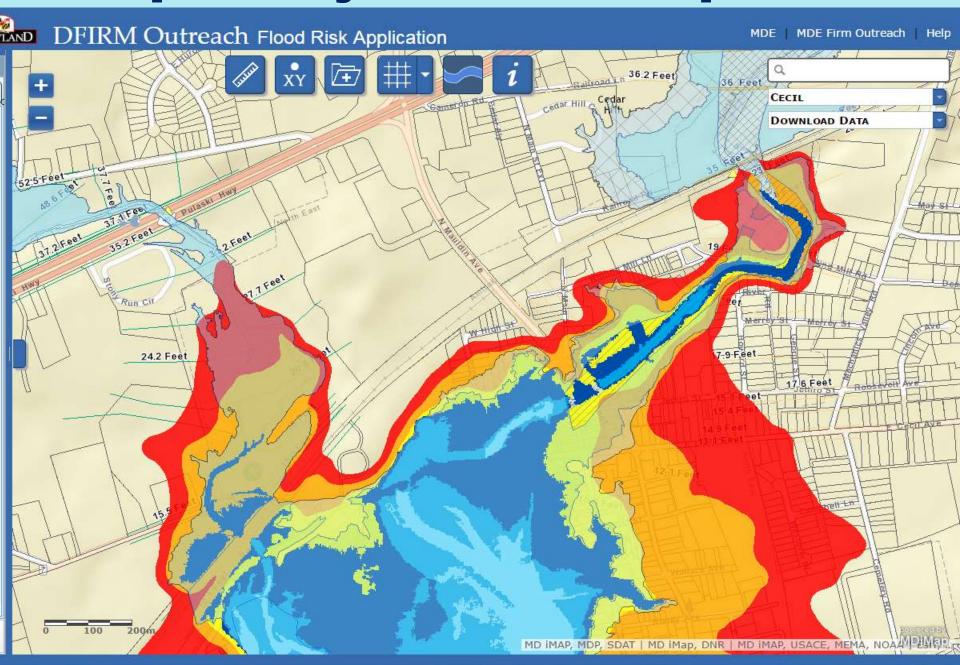
#### Resiliency: Sea-Level Rise & Floodplain



#### **Hurricane / Sea-Level / & Floodplain**

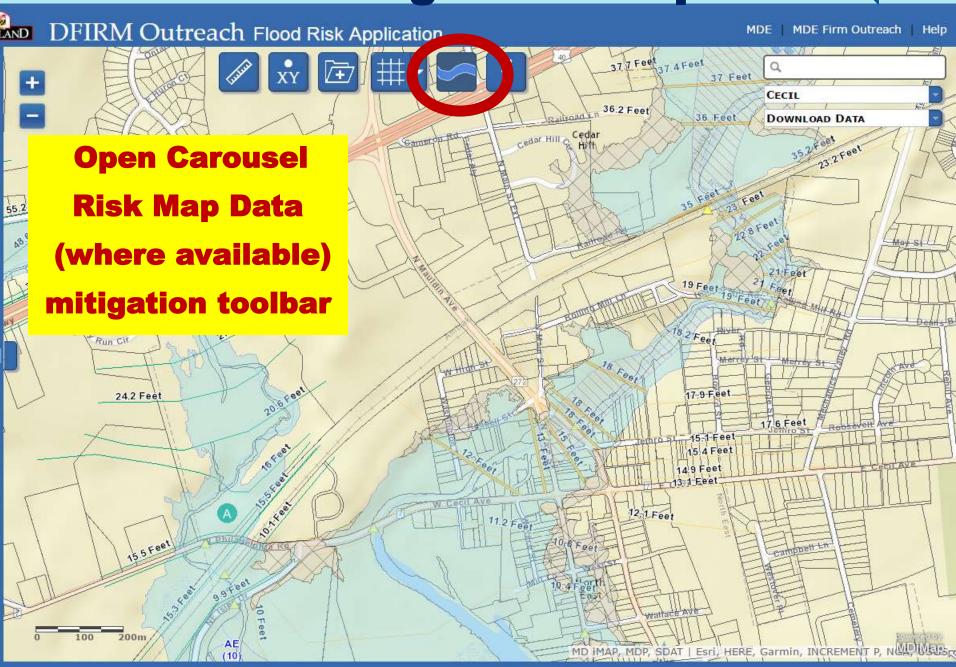


#### Floodplain Layer Pulled to Top for demo



#### **Just Added a Mitigation Component**





### What's Next

- Library has been built ....(now what)
- Want to keep the models current ("Live Models")
  - FP models always need to be updated
  - Integrate the State and local permit process into maintaining the models



- Keep the lines of communication (and model info out of the "old" stovepipe mentality) Example: "I got my permit - I don't need a LOMA."
- State's Goal is to Exchange (modeling) info at the State, Federal, and local levels.

#### Conclusion

- Maryland would like to define Innovative mapping on the basis of what we All do Next!
- •Keep those blue arrows coming Everywhere!

# **Questions?**

• Dave Guignet

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410-537-3775

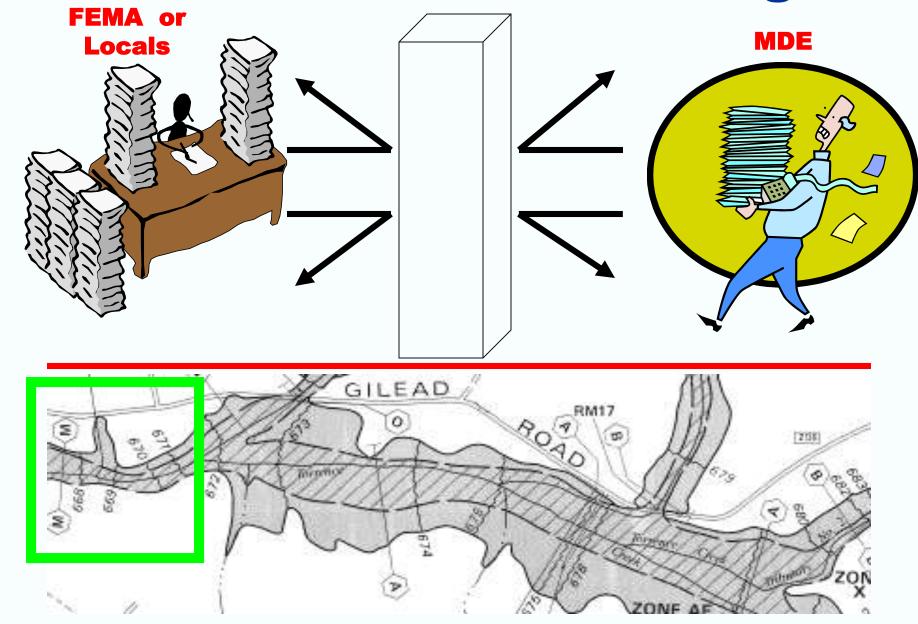
dave.guignet@maryland.gov

**Web Site:** 

www.mdfloodmaps.com



#### **Permit and Data Sharing !!!**



# What's Next (proposed next steps /permits)

- Applicant Downloads Effective Model and modifies X-sections
- Data Upload of Proposed Models
- Integrate State Permit with local NFIP community and Require Applicant to send the locally vetted package on to FEMA for Letters of Map Amendments
- Working with SHA on defining the process and Implementing a joint (or simultaneous) permit review

### **Next Steps ....(high to low)**

- Email trigger notify local NFIP office at beginning of process (Ensure communication with local NFIP on pending State Waterway Construction permits)
- Live data Up-Loads (Down loads already there)
- Cross-Section and Profile Viewer (link to pdf at MSC)
- Mobile Application (Very Soon!)
  Early Discussions at Silver Jackets on Combining Modeling with Real Time weather information and Running What If **Scenarios (where will it flood)**

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