

FEMA Map Modernization Program

Presented to

**Maryland Association of Floodplain
and Stormwater Managers**



October 27, 2005

Map Modernization Program



Map Modernization Program Outline

- **Map Mod Goal and Objectives**
- **Map Service Center**
- **Stakeholder - Community Involvement**
- **DFIRM Production Process**
- **Mapping Information Platform (MIP)**
- **Multi-Year Flood Hazard Identification Plan (MHIP)**

Map Modernization Program



Map Mod Goal and Objectives

The Primary Goal of Flood Map Modernization.....

Reduce the loss of life and property



Hurricane Isabel
September 2003



Objectives of Flood Map Modernization

- Develop up-to-date flood hazard data for flood-prone areas nationwide
- Provide flood maps and data in digital format available through the Internet
- Fully integrate FEMA's community and state partners into the mapping process



More accurate and digitally available flood maps will.....

- Increase awareness of flood hazards
- Support sound floodplain management to guide new development away from flood hazard areas
- Provide for more accurate flood insurance determination and rating.

Benefits for State and Community Floodplain Managers

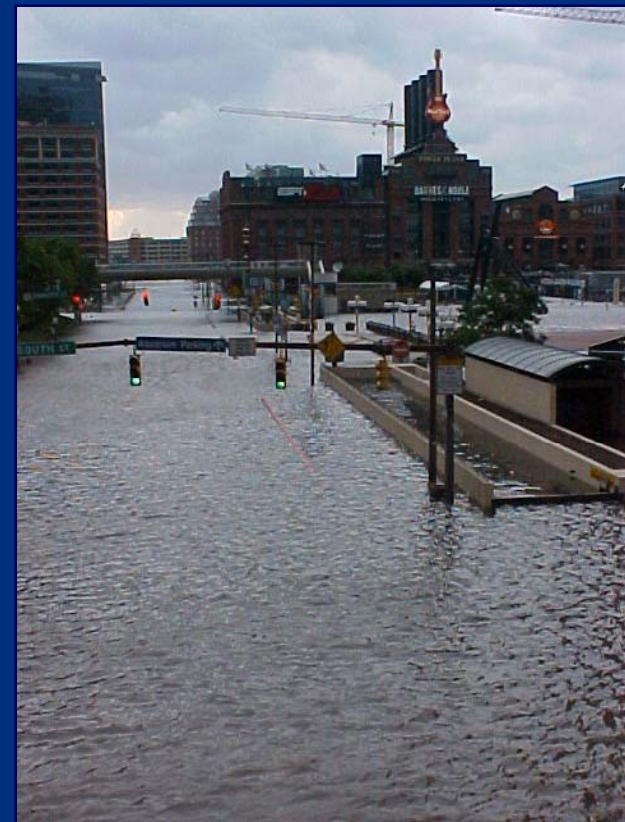
- Greater empowerment for local decision making
- High quality data for more informed planning
- Comprehensive approach to flood risks, land use, and growth management
- Facilitates compliance with regulations
- More informed and educated public

Benefits to Insurance Agents and Lenders

- More accurate maps – lowering their risk
- Improves capability to understand and manage financial risk, and protect investments
- Provides an effective risk management and regulatory tool which enables better local decision-making
- Provides up-to-date information to make better-informed decisions and comply with regulations

Integrating FEMA's State and Local Mapping Partners into the process will.....

- Help leverage local knowledge and capabilities, and increase local capabilities
- Maximize Federal/State/Local resources
- Foster local ownership of the Digital Flood Insurance Rate Maps



Modernizing Flood Maps Using State-of-the-Art Mapping Technologies

- Facilitates DFIRM production and helps reduce processing time
- Makes map data more easily and widely available
- Allows for faster future revisions and updates



Map Modernization Program



**A first important step in Map Modernization
has already been taken....**

Map Service Center

Flood Maps are currently available on the Internet

Click Map Search

FEMA
The FEMA Flood Map Store
MSC MAP SERVICE CENTER

OPEN Welcome | MAP Catalog | Map Search | Quick Order | My Account | Digital Post Office | ? Help | Cart

Updates

Guides Online

The MSC has several how-to guides available online for free download. Look on our free [documents page](#) for guides on how to use Map Search and how to create FIRMettes.

LOMCs on the Web

The MSC now has LOMCs available for online viewing; tied to the map panels to which they apply. When you are viewing a summary panel listing that is a result of a Catalog query, Map Search, or Quick Search you will see an additional "plus sign" icon next to the view button if LOMCs exist for that panel. Clicking on the "plus sign" icon will expand a list of relevant LOMCs under that panel. You may click the view button next to a LOMC to view it the same way that you view a map panel.

Note: Online viewing is only available for LOMCs in digital form. The MSC has digital LOMCs issued from June 1, 1997 through June 17, 2005. For a listing of LOMCs older than June 1, 1997 please [contact the MSC](#).

DFIRM Viewer

The final version of the DFIRM Viewer is now available at

Three Ways to Get Maps

Catalog - Find products by state, county or community.

Map Search - Find products by street address or by navigating a map.

Quick Order - Enter the exact map panel ID (including the suffix character).

Digital Product Information

The Map Service Center has a free map viewer called F-MIT Basic which you can download and use to view map image files. You can download it [here](#).

Internet

Start | New Memo - Lo... | Microsoft Excel... | Google Search... | FEMA: MSC St... | http://store.m... | MSC Product M... | 11:02 AM

Flood Maps are currently available on the Internet

MSC Product Map Search - Microsoft Internet Explorer

MSC Product Map Search

HELP?

1 Select a Product: Public Flood Map

2 Search By Address or Coordinates :

Address: 3829 Old Baltimore City: Olney State: MD Zip: 20832 go

Refresh Map

- Major Cities
 - Major Cities > 1,000,000
 - Big Cities, 300,000-1,000,000
 - State Largest Cities, 100,000-300,000
- State Borders
- US Territories
- States
- Other Countries

0 931mi

Type in address

Click "Go"

Flood Maps are currently available on the Internet

FEMA: MSC Store - Map Search - Microsoft Internet Explorer

Address: http://store.msc.fema.gov/webapp/wcs/stores/servlet/MapSearchResult?storeId=10001&catalogId=10001&langId=-1&panelIDs=2400490150B&Type=pbp&nonprinted=

FEMA

The FEMA Flood Map Store

MSC MAP SERVICE CENTER

OPEN Welcome | MAP Catalog | Map Search | Quick Order | My Account | Digital Post Office | Help

Cart

Map Search Results

FEMA issued Flood Maps Media Type is Paper

Check the products that you would like to add to the shopping cart.

Map Item ID	Description	Effective Date	Show LOMC	View	Paper	CD	On-Line
2400490150B	MONTGOMERY CO *	07/02/1979	+	View	<input checked="" type="checkbox"/> \$2.00	<input type="checkbox"/> \$1.50	<input type="checkbox"/> \$1.50

[Add to Cart](#)

Home

Done Internet

System identifies Map Panel

Click to view Panel

Flood Maps are currently available on the Internet

The screenshot displays the 'MSC Digital Post Office' web application in Microsoft Internet Explorer. The browser's address bar shows the URL: http://map1.msc.fema.gov/idms/IntraView.cgi?ROT=0&O_X=6920&O_Y=4611&O_ZM=0.050000&O_SX=600&O_SY=400&O_DPI=400&O_TH=20096367&O_EN=2034021. The page features a central map of a region with a network of roads and water bodies. To the left of the map is a control panel with buttons for 'ZoomWin', 'Pan', 'Zoom In', 'Zoom Out', '1:1 Zoom In', 'MAX Zoom Out', and 'Make a FIRMette'. A blue arrow points from the 'Make a FIRMette' button to a white callout box containing the text 'Click "Make a FIRMette"'. Another blue arrow points from a white callout box containing the text 'Full Map Panel' to the right side of the map area. The status bar at the bottom of the browser window shows the coordinates '(36.2" , 7.21")' and the 'Internet' logo.

Full Map Panel

Click "Make a FIRMette"

Flood Maps are currently available on the Internet

The screenshot displays the 'MSC Digital Post Office' web application within a Microsoft Internet Explorer browser window. The browser's address bar shows the URL: `http://map1.msc.fema.gov/jidms/IntraView.cgi?ROT=0&O_X=7391&O_Y=5083&O_ZM=0.051343&O_SX=758&O_SY=522&O_DPI=400&O_TH=20433125&O_EN=2043312`. The application title is 'Intranetix Viewer [24004901508.tif] - Microsoft Internet Explorer'. The main interface features a central map of a region with a red rectangular area highlighted. A blue arrow points from a text box labeled 'Position box for desired area' to this red rectangle. To the left of the map is a vertical toolbar with various navigation and printing controls, including 'Zoom Win', 'Pan', 'Zoom In', 'Zoom Out', '1:1 Zoom In', 'MAX Zoom Out', and options for 'Print Area', 'Scale and North Arrow', and 'Title Block'. Below these are options for '1. Select page size' (Letter 8.5x11, Legal 8.5x14, Tabloid 11x17) and '2. Select & Move Areas'. At the bottom of the toolbar, there are icons for '3. Create FIRMette', 'Adobe PDF', and 'Image File'. A blue arrow points from a text box labeled 'Select file type desired' to the 'Image File' icon. On the right side of the map, there is a data table with multiple columns and rows of text. The browser's status bar at the bottom indicates '(36.2" , 8.33")' and 'Internet'.

Flood Maps are currently available on the Internet

Intranetix Viewer [2400490150B.tif] - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Media Print Mail News RSS Feeds

Address http://map1.msc.fema.gov/idms/IntraView.cgi?ROT=0&O_X=7391&O_Y=5083&O_ZM=0.051343&O_SX=758&O_SY=522&O_DPI=400&O_TH=20433125&O_EN=2043312 Go Links

MSC Digital Post Office

Save your FIRMette Back

FIRMette can be saved and printed

FIRMette created

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MONTGOMERY COUNTY,
MARYLAND
(UNINCORPORATED AREAS)

PANEL 150 OF 200
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
240049 0150 B

EFFECTIVE DATE:
JULY 2, 1979

U.S. DEPARTMENT OF HOUSING
AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION

This is an official copy of a portion of the above referenced Flood map. It was extracted using FIRM On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the file block. For the latest product information about National Flood Insurance Program flood maps, check the FEMA Flood Map Store at www.msc.fema.gov

Done Internet

Flood Maps are currently available on the Internet

Some important stats.....



- 65% of all MSC orders are now submitted through the website
- In FY 05 1 million unique visitors accessed the site and 800,000 FIRMettes were created

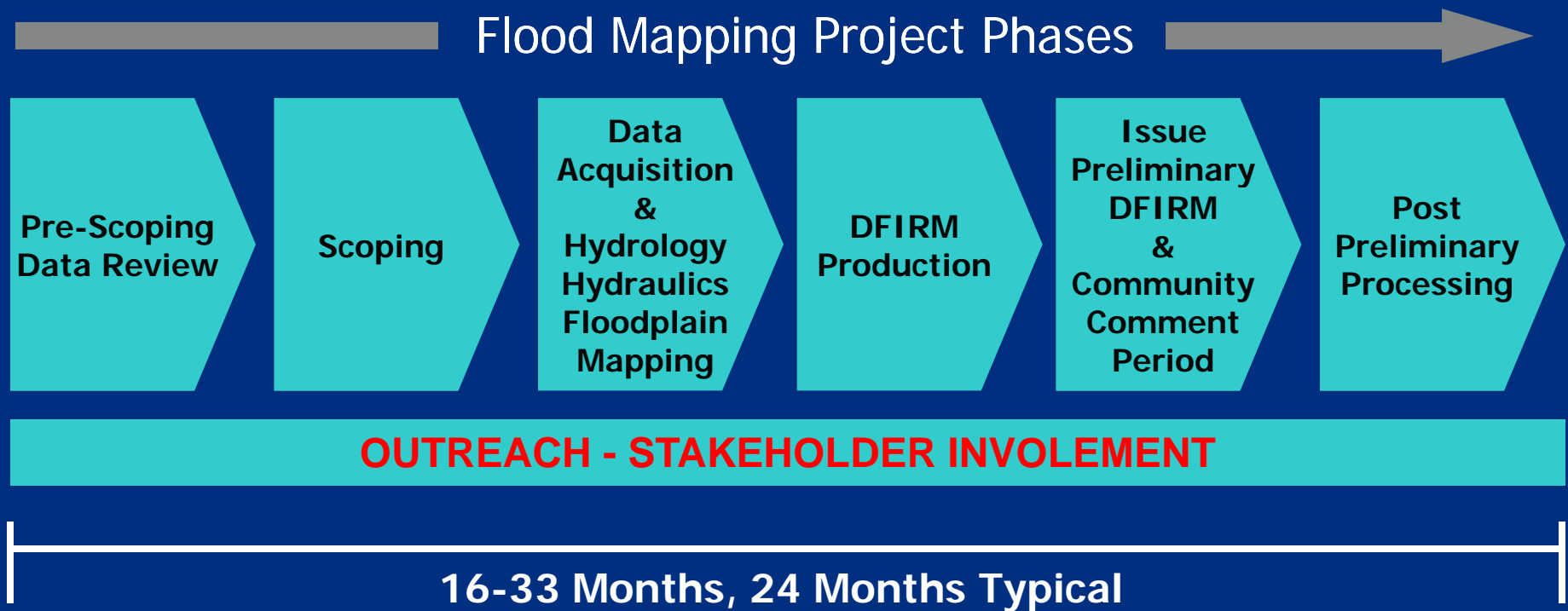
www.store.msc.fema.gov or www.msc.fema.gov

Map Modernization Program



**Stakeholder - Community
Involvement**

Overview of the Mapping Process



Map Modernization Outreach

- A comprehensive, and interactive communication/outreach program
- Promote government agencies working as partners and opportunities for data sharing
- Promote overall NFIP
- Increase public awareness to improve an overall credibility and enable impacted stakeholders to have a positive experience with the Map Modernization

Map Modernization Stakeholders

- National & Multi-jurisdiction
- Community & Local



National & Multi-Jurisdictional Stakeholders

- FEMA Headquarters Staff
- FEMA Regional Office Staff
- DHS
- Congress Members
- State Officials
- County Officials
- Regional Planning Organizations
- Other Organizations (Soil & Water Districts, Zoning Districts, etc)
- Schools
- State Legislators
- Land Developers & Building Associations
- Engineering Companies and Surveyors
- Insurance Companies and Agents
- Realtors
- Lending Institutions
- Flood Zone Determination Companies

Community and Local Stakeholders

- State Officials
- County & Municipal Officials
- Regional Planning Organizations
- Other Organizations (Soil & Water Districts, Zoning Districts, etc)
- Schools
- State Legislators
- Public Information Media
- Home Owners and Renters
- Business Owners
- Land Developers & Builder Associations
- Engineering Companies and Surveyors
- Insurance Companies and Agents
- Realtors
- Leading Institutions

Community and Local Stakeholders

Why is this audience so special -----

- Building relationships with communities and local groups is essential to the Map Modernization objectives.
- Provides an immediate interface with the communities that must adopt and utilize the hazard maps.
- Provide assistance in expanding involvement in Map Modernization and encourage NFIP participation as well.
- Local knowledge and participation crucial for success of program.

Key Outreach Opportunities

- **During DFIRM Pre- to Post-Scoping Efforts**
 - Contact with local officials and stakeholders for exchange of information
 - Keeping local officials informed of study findings
 - Public awareness information provided
 - Data collection
- **When the preliminary DFIRM is released**
 - Starts the process for Public Meetings – Presentation of Preliminary Flood Insurance Study and DFIRMs.
 - 90-day appeal period
 - Receipt and/or resolution of appeals
 - 6 month compliance period – adoption of DFIRM via ordinance

Map Modernization Program

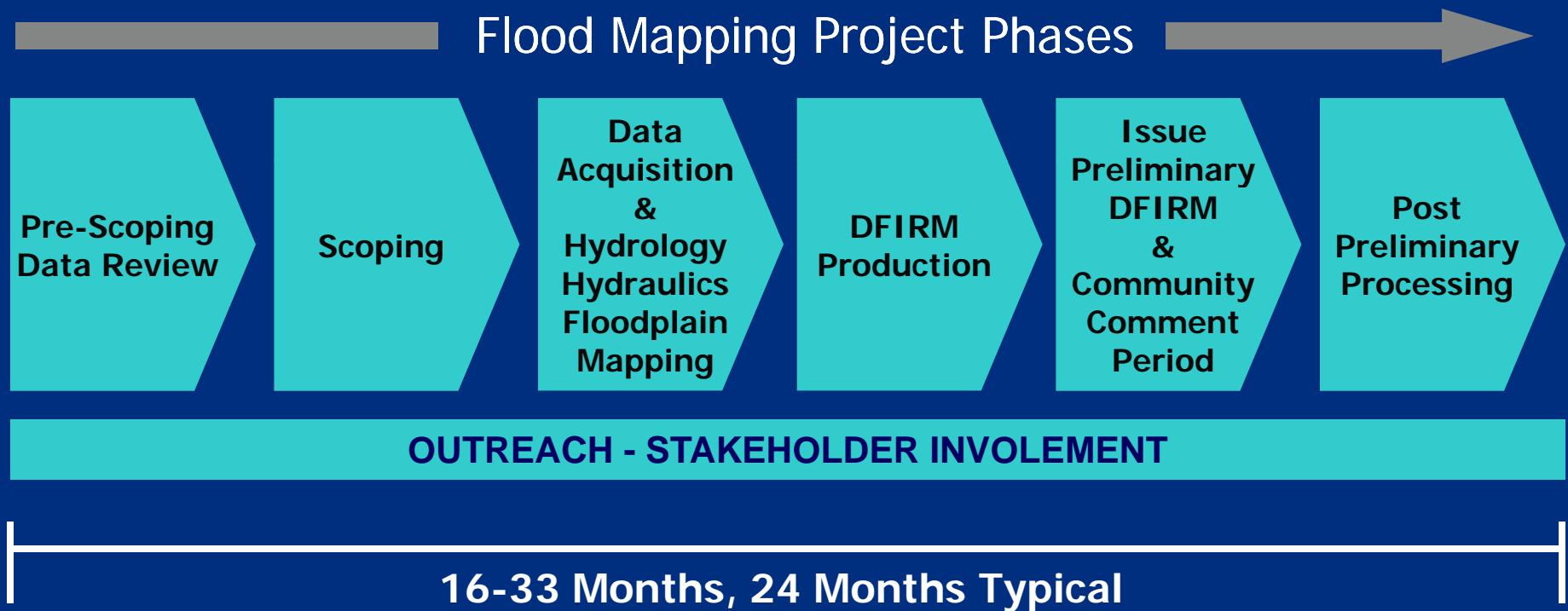


DFIRM Production

Overall Approach to DFIRM Efforts

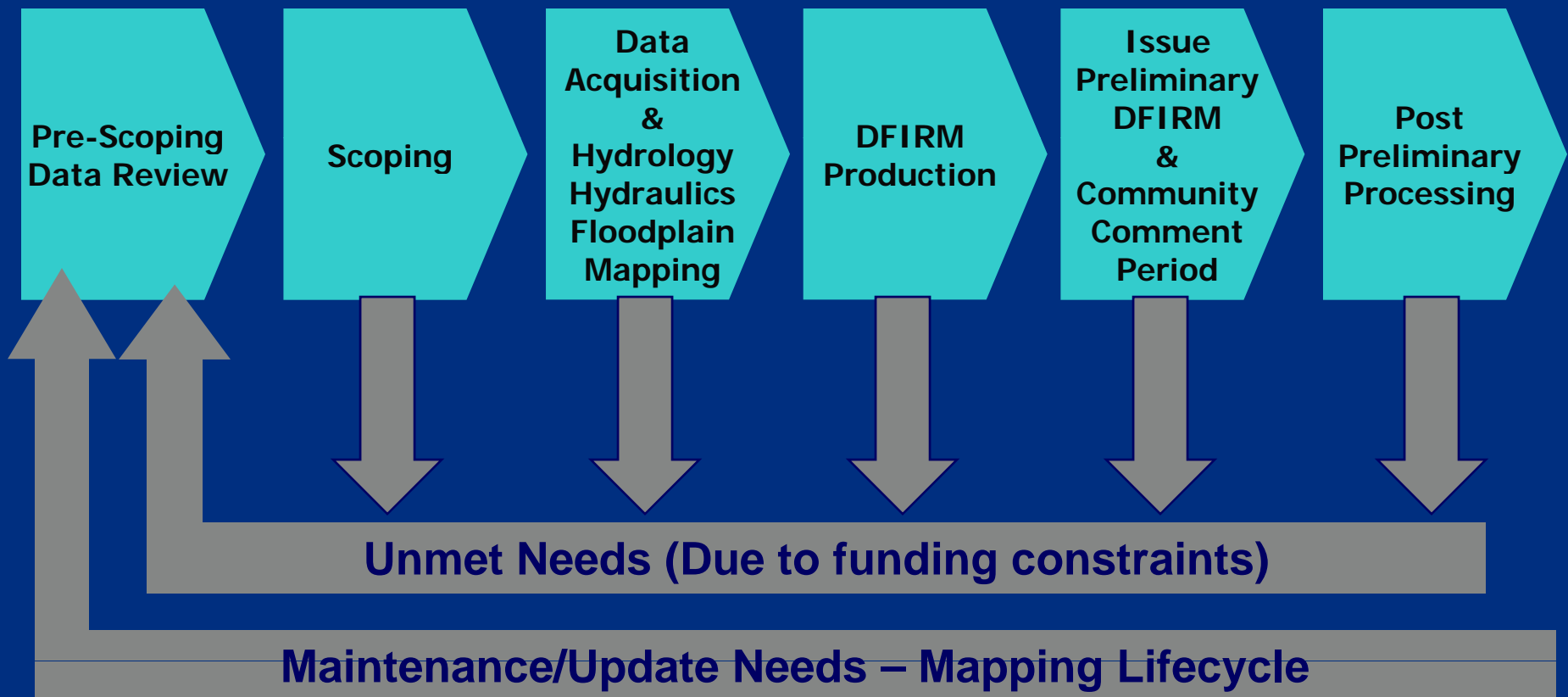
- All DFIRMs are Countywide
- All flood elevations converted from NGVD29 to NAVD88 vertical datum
- Scope of study varies by County (funding driven)
 - New H&H Study
 - Limited Detailed Study
 - Redelineation
 - Automated Approximate H&H
- All effective LOMRs incorporated into DFIRMs

Overview of the Mapping Process

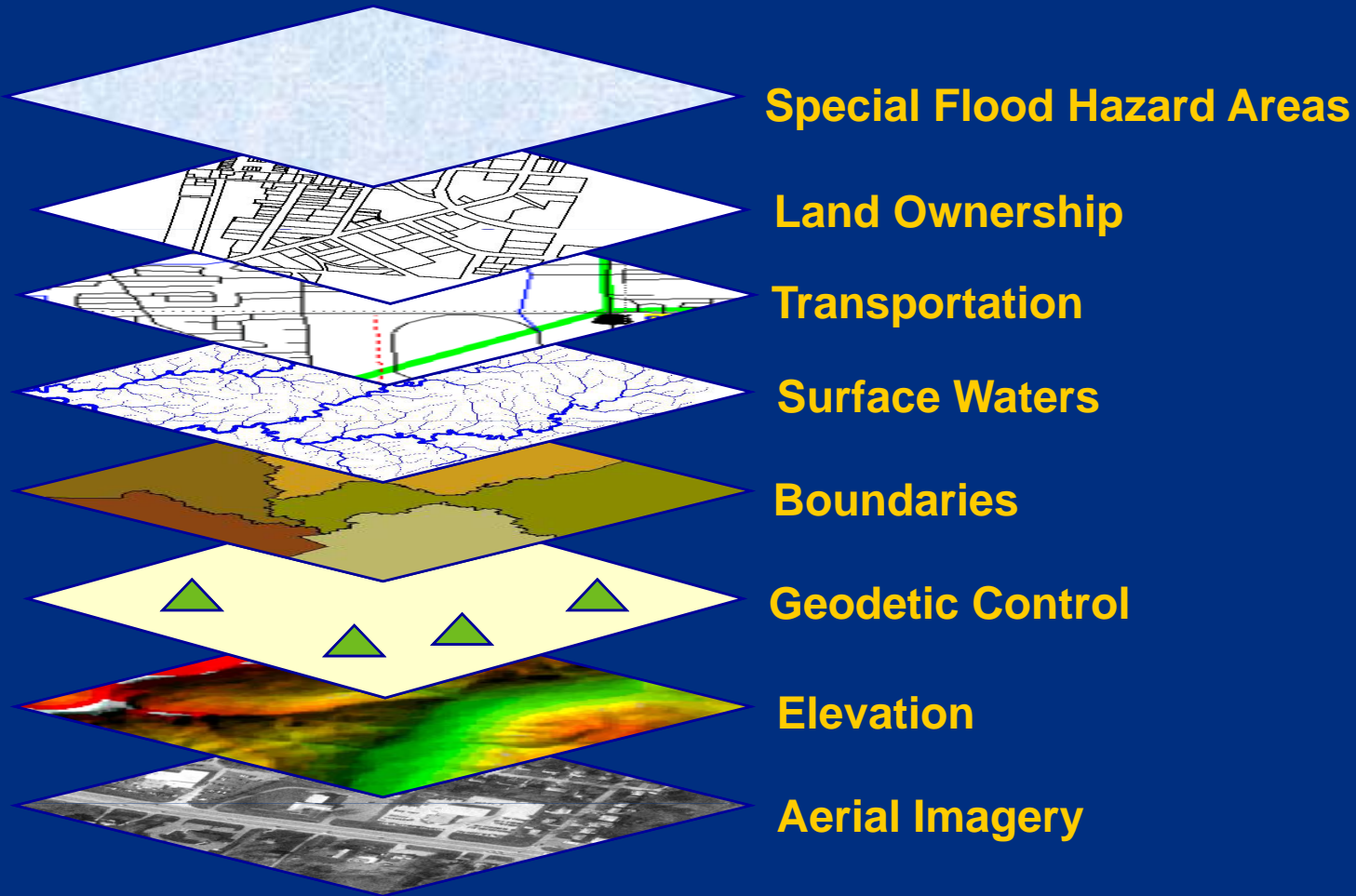


Overview of the Mapping Process

Flood Mapping Project Phases



GIS technology allows for the combination of multiple data layers to create DFIRMs

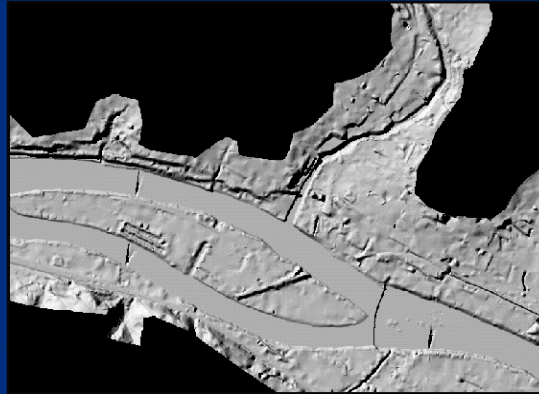


Basic Components of a Flood Map



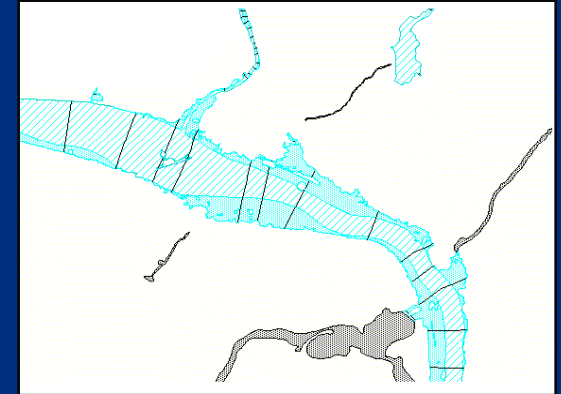
Base

+



Topography

+



Flood Data

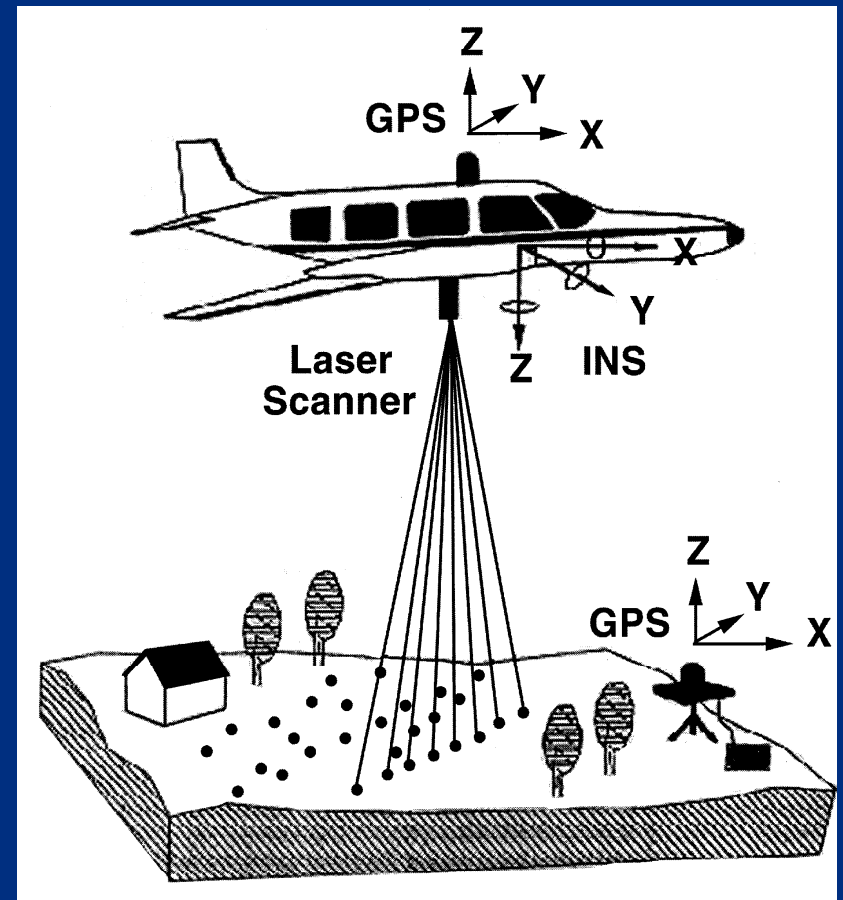
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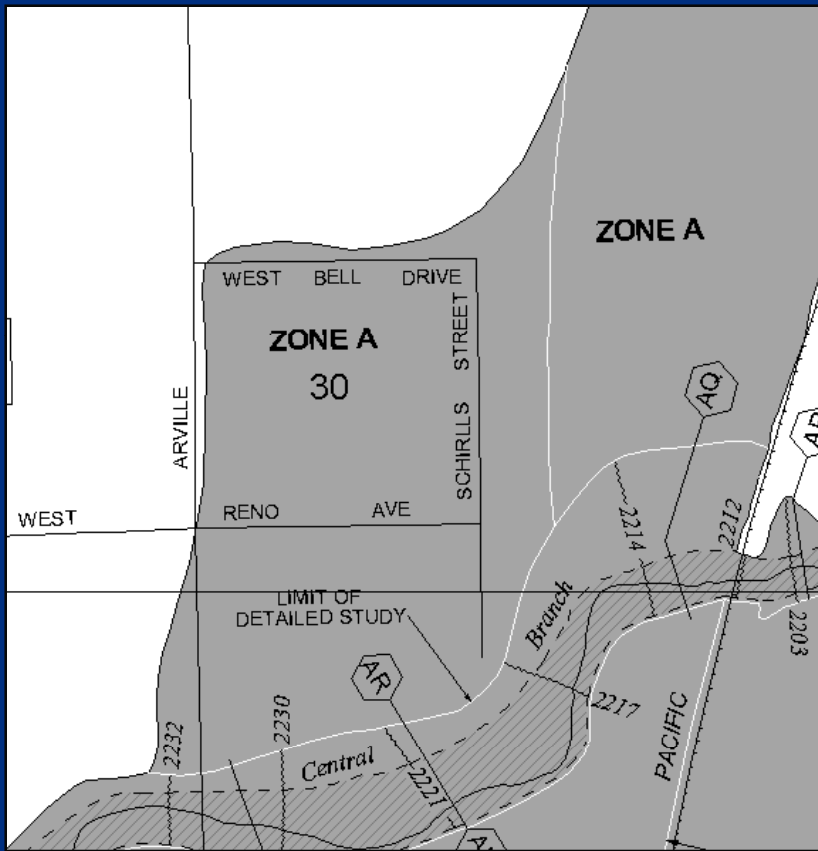
Digital
FIRM

LiDAR Technology to Develop Accurate Ground Elevations for Flood Mapping

- Light Detection and Ranging (LiDAR)
- Airborne Laser System
 - Fixed Wing
 - Helicopter
- Potential for High Level accuracy (1 foot range)



Modernized DFIRMs



Vector
Base Map



DOQ/Raster
Base Map

Cooperating Technical Partners (CTPs)

- CTPs are at both community and state level
- Support mapping efforts and provides funding for study (e.g., data)
- Takes ownership of entire re-mapping effort or portions of the efforts
- Leverage local resources and knowledge of the flood hazards

Maryland's Approach to Map Modernization

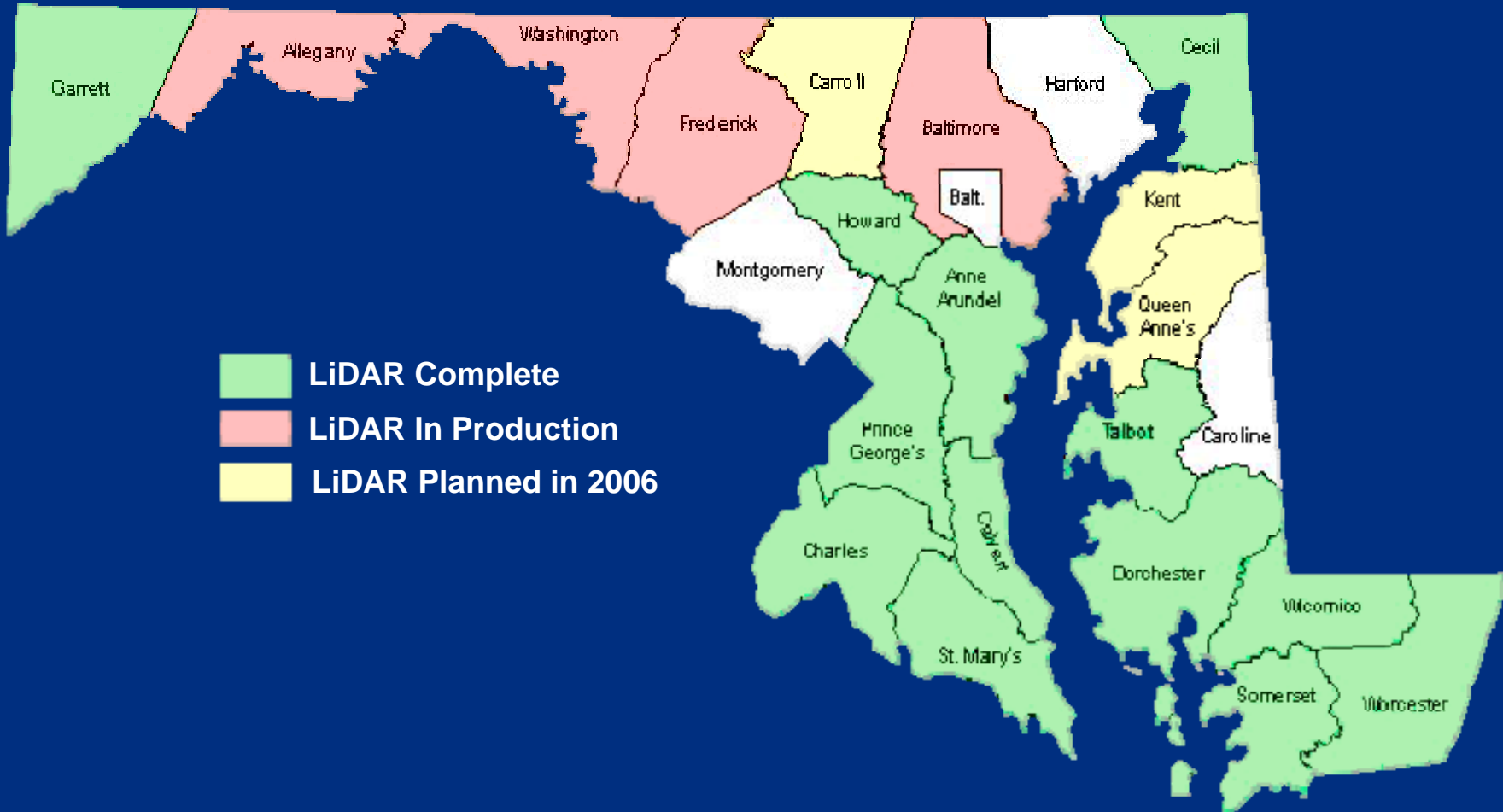
- Maryland is a FEMA Cooperating Technical Partner
 - Maryland Department of the Environment (MDE) is the lead agency
- Maryland Department of Natural Resources is a State Partner
 - Manages Geospatial Data
 - Acquires LiDAR Data
- Other State Partners Supporting LiDAR and Data Development
 - Maryland Emergency Management Agency
 - Maryland State Geographic Information Committee
 - Maryland Department of Transportation
 - University of Maryland, Baltimore County
 - Salisbury University
 - Numerous Local Jurisdictions

Maryland's Approach to Map Modernization

- Develop LiDAR data statewide through partnerships
- Use automated technology to create “live models” and redelineate with LiDAR data
 - Correct known modeling errors
 - Incorporate LOMRs
 - Correct discrepancies between old and new data
- Convert all Approximate Zone A to Limited Detail Studies with BFEs
- Take over maintenance including issuance of LOMCs
- House the data

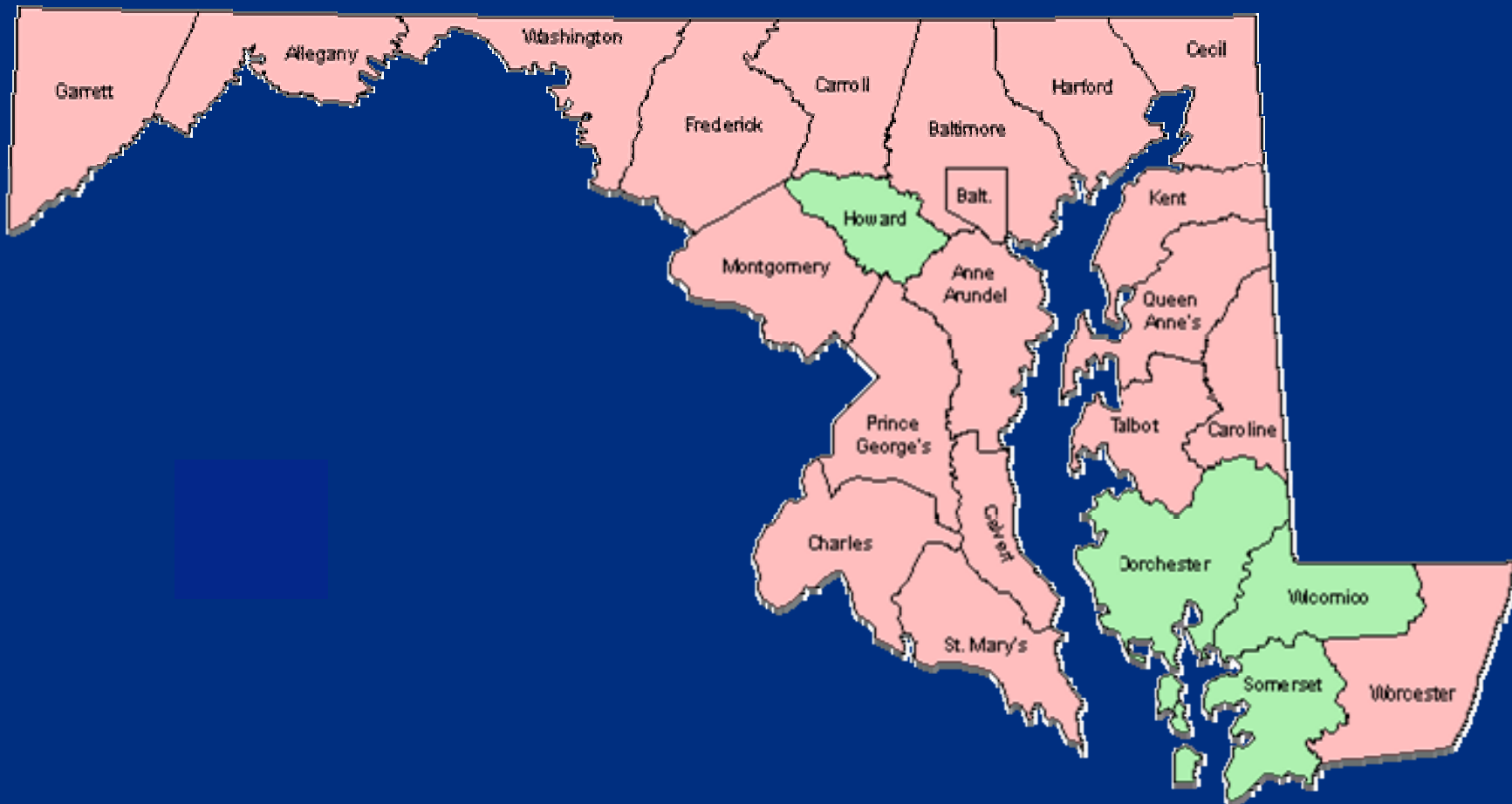
Maryland's Approach to Map Modernization

Status of LiDAR Data Development



Maryland's Approach to Map Modernization

First County DFIRMs to be produced by the State



Maryland's Approach to Map Modernization

Stay tuned for more information regarding the State's Map Modernization Program.

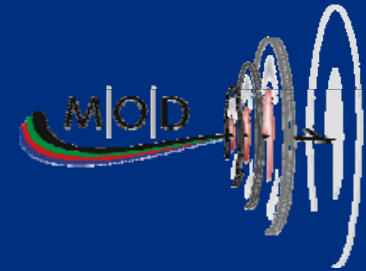
Presentation by Mark Flick later today

Map Modernization Program



Mapping Information Platform (MIP)

Mapping Information Platform (MIP)



- Portal for FEMA Mapping Partners and Map Users
- Provides tools (e.g., DFIRM Tools, WISE) for DFIRM data development and mapping
- Tracks DFIRM work efforts to better manage tasks and budgets
- Allows for storage and distribution of GIS flood hazard data

www.hazards.fema.gov

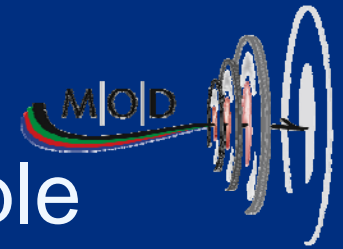
Mapping Information Platform (MIP) - Map Viewer



Layers currently available:
Effective DFIRM (flood hazard Zones), Q3, other hazard layers, roads, corporate limits, imagery/base map.

Future Layers:
Preliminary DFIRMs, LOMCs, all DFIRM spatial layers and Metadata files.

Mapping Information Platform (MIP) - Map Viewer Example



Home » Map Viewer

Basic **Advanced** * This map is for advisory purposes only.

Floods

Street Map **Aerial Photo**

Clicking on the map centers on that point.

Legend Identify

- USGS Digital Ortho-Quadrangles
- USGS
- Q3 Flood Hazards
- Special Flood Hazard Areas
- Flood Data Availability
- Q3 Available
- DFIRM Available
- States
- Counties
- Counties
- Zip Code Zone
- Zip Code Zone

Map Modernization Program



Multi-Year Flood Hazard Identification Plan (MHIP)

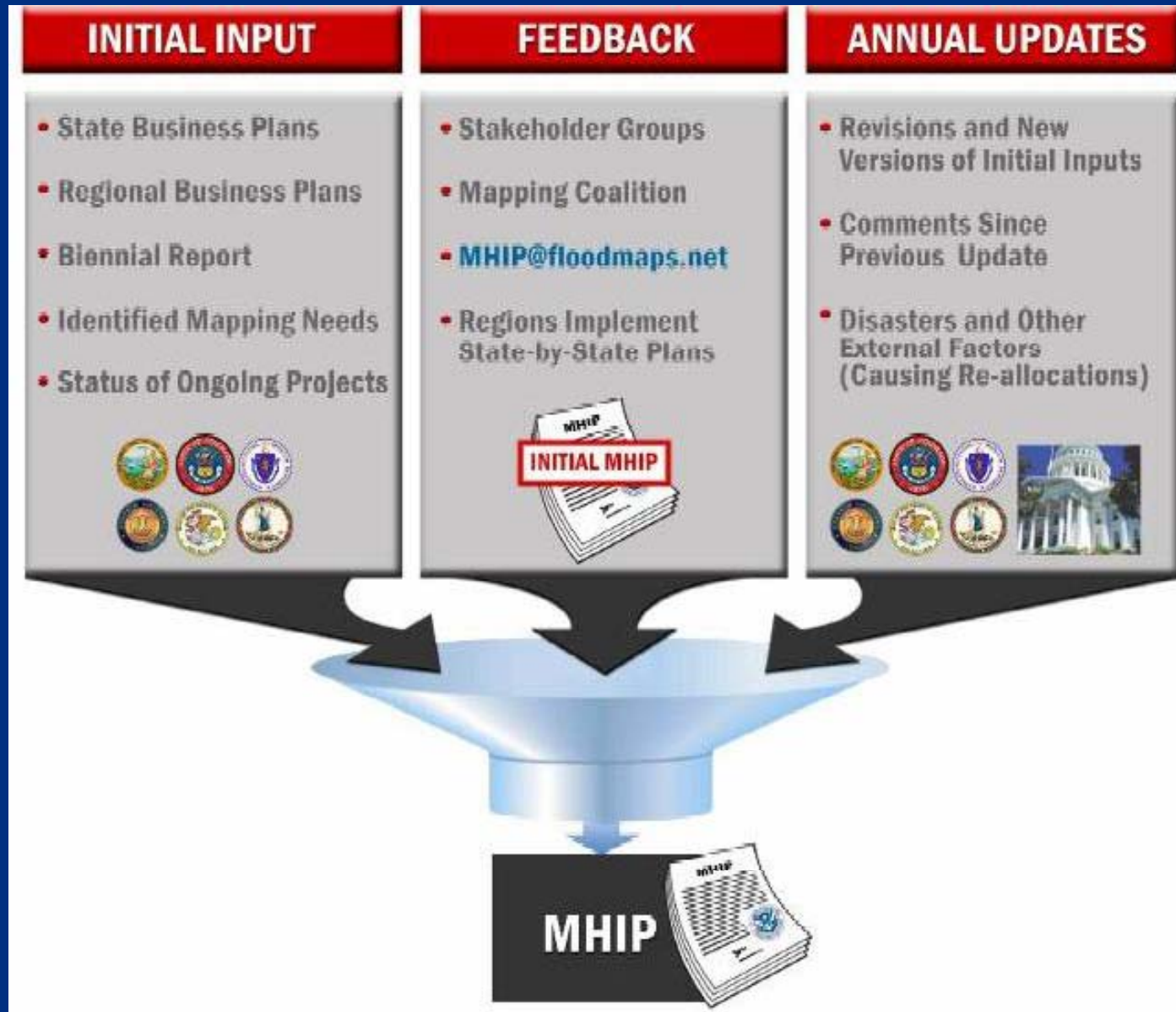
Multi-Year Flood Hazard Identification Plan (MHIP)



- Collaborative 5-Year Road Map for Modernization of Flood Maps
- Studies primarily determined by claims paid, repetitive loss, data leveraged, growth factor, age of maps
- Contains flood hazard quality standards for DFIRM (Section 7)
- Projected flood map update progress through FY-2010

http://www.fema.gov/fhm/mh_main.shtm

Multi-Year Flood Hazard Identification Plan (MHIP)



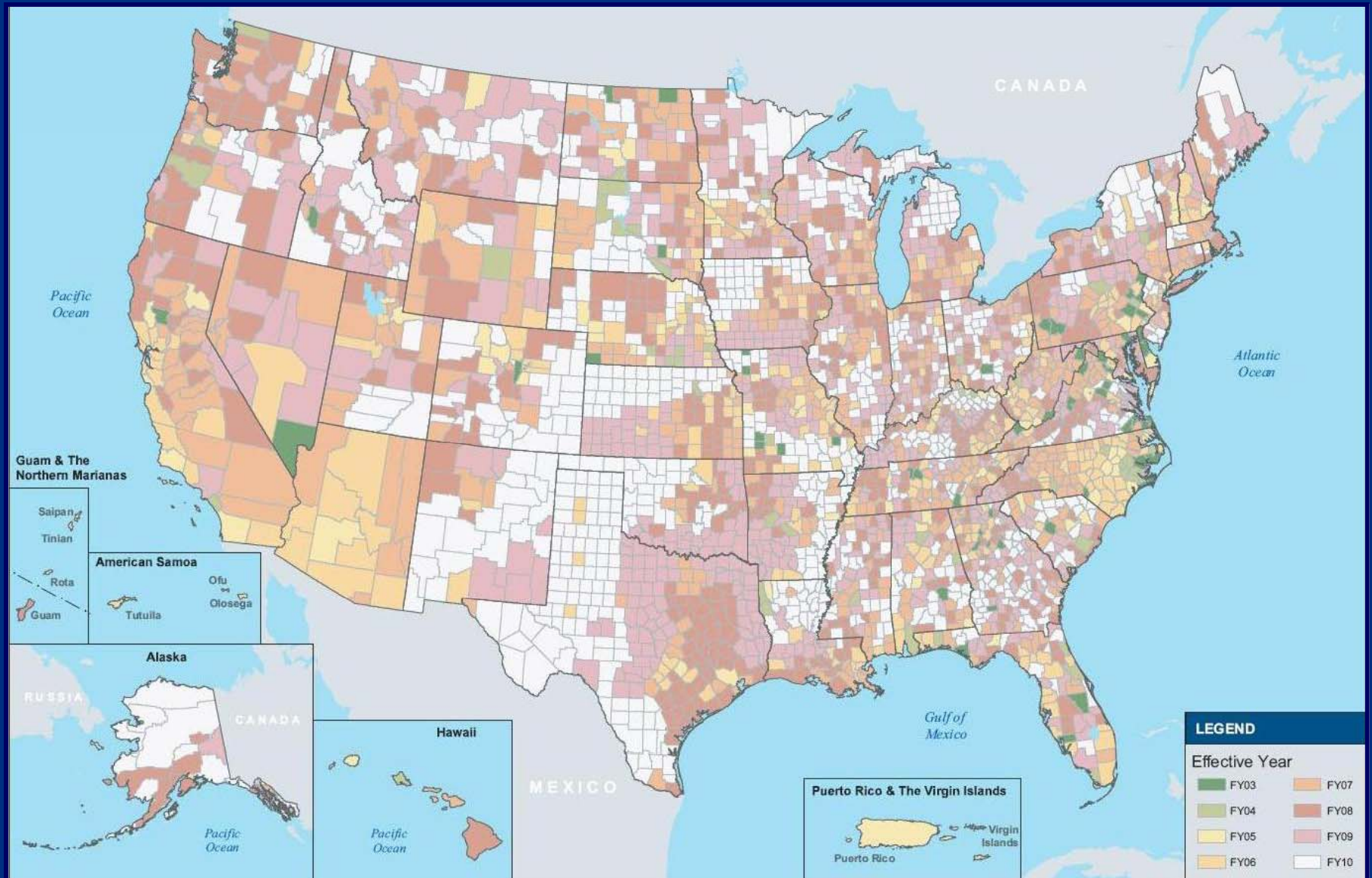
Multi-Year Flood Hazard Identification Plan (MHIP)

Map Production Funding Distribution FY 04 – FY 08

Region	FY04 Funding ¹	FY05 Funding ¹	FY06 Funding ²	FY07 Funding ²	FY08 Funding ²
1	\$4,206,000	\$5,315,000	\$5,661,000	\$5,827,500	\$5,827,500
2	\$9,420,000	\$11,475,000	\$12,087,000	\$12,442,500	\$12,442,500
3	\$9,752,000	\$12,047,000	\$12,852,000	\$13,230,000	\$13,230,000
4	\$35,722,000	\$35,725,000	\$38,097,000	\$39,217,500	\$39,217,500
5	\$12,798,000	\$17,222,000	\$18,207,000	\$18,742,500	\$18,742,500
6	\$17,583,000	\$23,159,000	\$26,775,000	\$27,562,500	\$27,562,500
7	\$7,411,000	\$10,115,000	\$10,710,000	\$11,025,000	\$11,025,000
8	\$5,432,000	\$6,908,000	\$7,191,000	\$7,402,500	\$7,402,500
9	\$11,462,000	\$13,517,000	\$15,453,000	\$15,907,500	\$15,907,500
10	\$4,572,000	\$5,849,000	\$5,967,000	\$6,142,500	\$6,142,500
Total	\$118,358,000	\$141,332,000	\$153,000,000	\$157,500,000	\$157,500,000

FEMA Region III -- Less than 9% of National Budget

Multi-Year Flood Hazard Identification Plan (MHIP) The Big Picture



Multi-Year Flood Hazard Identification Plan (MHIP)

Quality Standards for Each Risk Classes

Risk Class	Characteristics	Typically Achieved By	Delineation - Reliability of the Flood Boundary ¹
A	High population and densities within the floodplain, high anticipated growth	Zones AE, VE, AO, AH	± 0.5 foot / 95%
B	Medium population and densities within the floodplain, modest anticipated growth	Zones A and AE	± 1.0 foot / 95%
C	Low population and densities within the floodplain, small or no anticipated growth	Zones A and AE	± ½ contour / 90%
D	Undetermined risk; likely subject to flooding	Zone D	N/A
E	Minimal risk of flooding; area not studied	(area not mapped)	N/A

¹ Difference between the ground elevation (from topographic data) and computed flood elevation.

Multi-Year Flood Hazard Identification Plan (MHIP)

Section 7 Quality Standards

- DFIRMs that do not pass the standard will not be counted towards the Map Modernization goals
- Mapping partners will verify that DFIRMs meet the standards
- The NSP will conduct random audits

Multi-Year Flood Hazard Identification Plan (MHIP) http://www.fema.gov/fhm/mh_main.shtm

The screenshot shows a Microsoft Internet Explorer browser window displaying the FEMA website. The address bar shows the URL http://www.fema.gov/fhm/mh_main.shtm. The page features the FEMA logo and navigation tabs for Disaster Communities, Emergency Personnel, Education & Training, News Media, and Regions. A search bar is located on the left side. The main content area is titled "Flood Hazard Mapping" and "Multi-Year Flood Hazard Identification Plan". It includes a banner image with the text "collaborative planning high quality timely products" and a "Read it here" button. Below the banner, there are four tabs: "What is it?", "How is it Prepared?", "What is Included?", and "How is it Updated?". A "Click here to Comment on MHIP" link and a "Download the MHIP Fact Sheet" link are also visible. The footer of the browser shows "Done" and "Internet".

FEMA

Disaster Communities Emergency Personnel Education & Training News Media Regions

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Flood Hazard Mapping

Flood Hazard Mapping

Multi-Year Flood Hazard Identification Plan

collaborative planning high quality timely products

Read it here

What is it? How is it Prepared? What is Included? How is it Updated?

Click here to Comment on MHIP

Download the MHIP Fact Sheet

The FEMA Flood Map Store

Map Modernization Program



LOMAs/LOMRs

Letters of Map Change (LOMCs)

- Even with modernized, up-to-date maps LOMCs will still be required
 - Letters of Map Amendments (LOMAs)
 - Letters of Map Revision Based on Fill (LOMR-Fs)
 - Letters of Map Revision (LOMRs)
- Internet applications and processes being developed through the MIP
 - e-LOMA will be available by the end of this year
 - All LOMCs available on Web

<http://store.msc.fema.gov>

- Stay Tuned for LOMC Presentation Later Today

Map Modernization



Questions?