



WV Active Flood Studies and Levee Coordination

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FEMA Region 3
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FEMA

Agenda

1. West Virginia Active Flood Study Projects
2. West Virginia Levee Updates
3. FEMA Web Resources
4. Questions



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A Lot Going on in WV! Active Mapping Projects...

Discovery/Scoping (HUC-8s)

- Coal
- Elk
- Gauley
- Lower Kanawha
- Lower New
- Upper Kanawha

Countywide Restudies

- Berkeley
- Greenbrier
- Hampshire
- Hardy
- Jefferson
- Mercer
- Monroe
- Morgan
- Pendleton
- Pocahontas
- Summers

Watershed Restudies (HUC-8s)

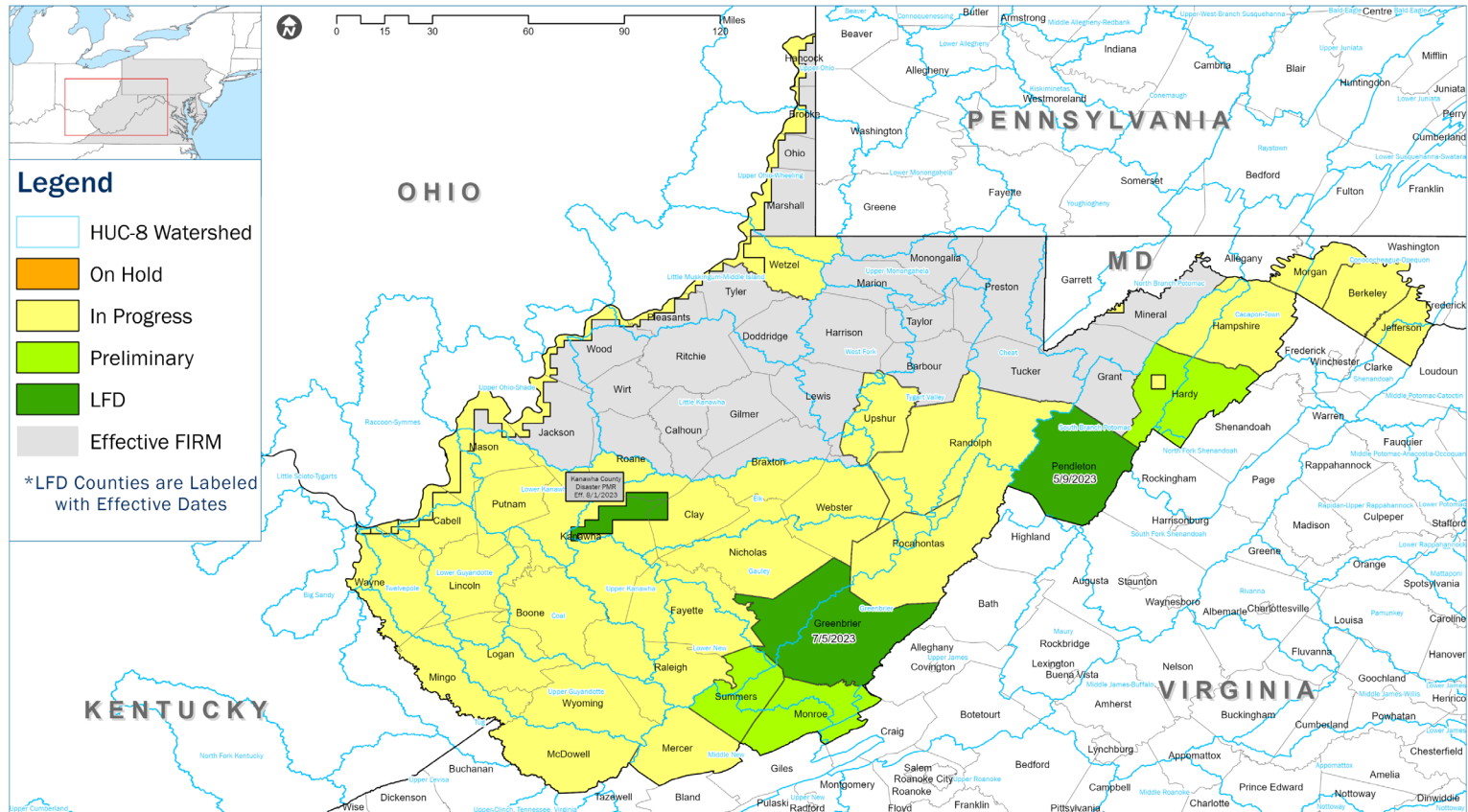
- Big Sandy
- Lower Guyandotte
- Raccoon-Symmes
- Tug
- Twelvepole
- Upper Guyandotte

Additional Projects

- Kanawha County Post-Disaster PMR
- Ohio River Restudy (Hydrology and Hydraulics)
- Randolph, Upshur, and Wetzel Counties – Advisory Flood Height Data
- LAMP Projects (Cabell/Wayne, Hardy, Mineral Counties)



Active Flood Study Projects in WV



FEMA REGION 3 - CURRENT REGULATORY FIRM PROJECT STATUS
WEST VIRGINIA

AS OF MARCH 31, 2023

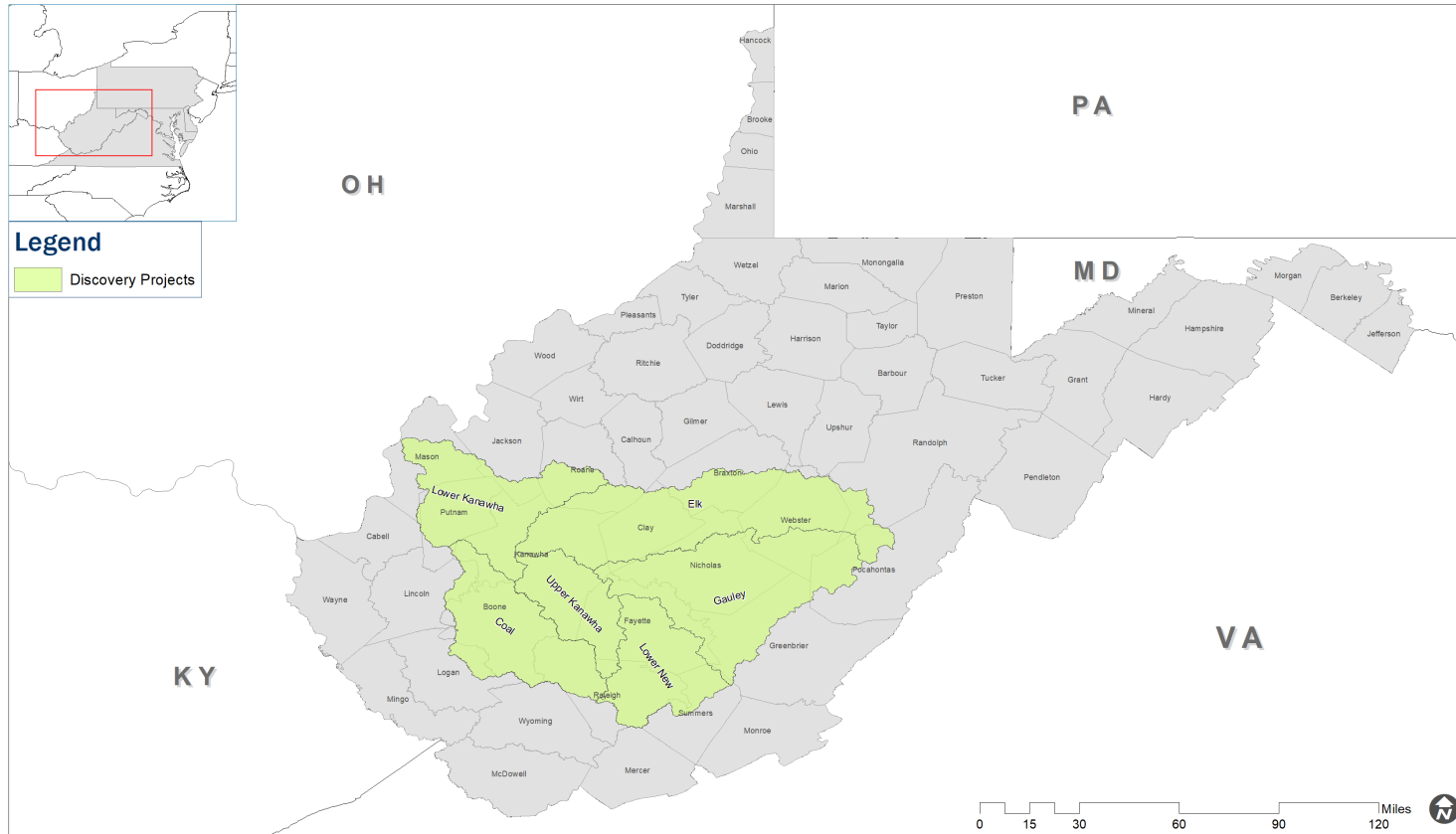
Prepared by ARC PTS JV, Regional Support Center 3 Team
Projection: Geographic NAD 83
Data Sources: ESRI, FEMA - FMPU 3/31/2023



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RiskMAP
Increasing Resilience Together

FEMA Discovery Projects in WV



DISCOVERY PROJECTS WEST VIRGINIA - REGION 3

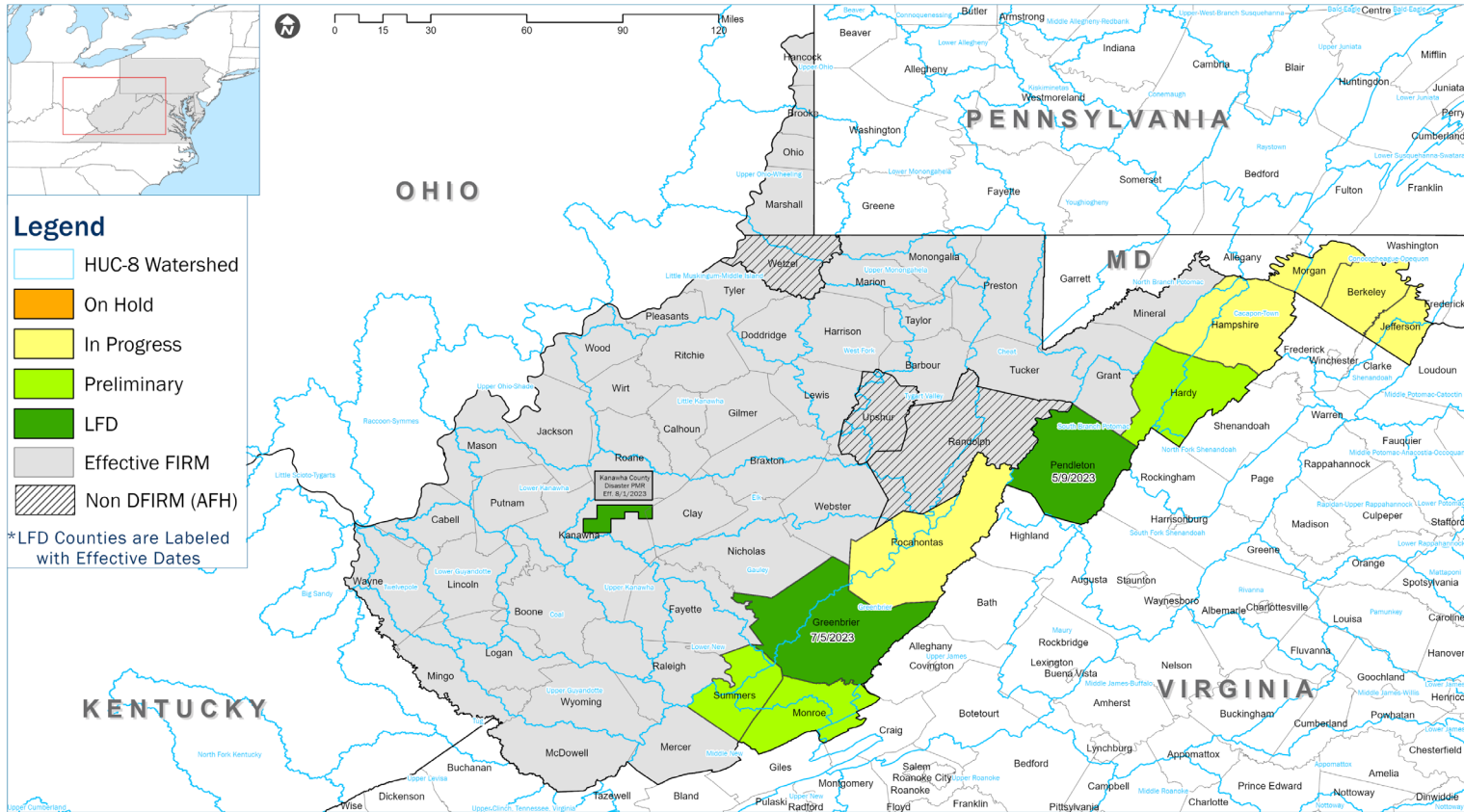
AS OF 3/31/2023



DATA SOURCES: ESRI, FEMA, USACE NLD



WV CTP Projects



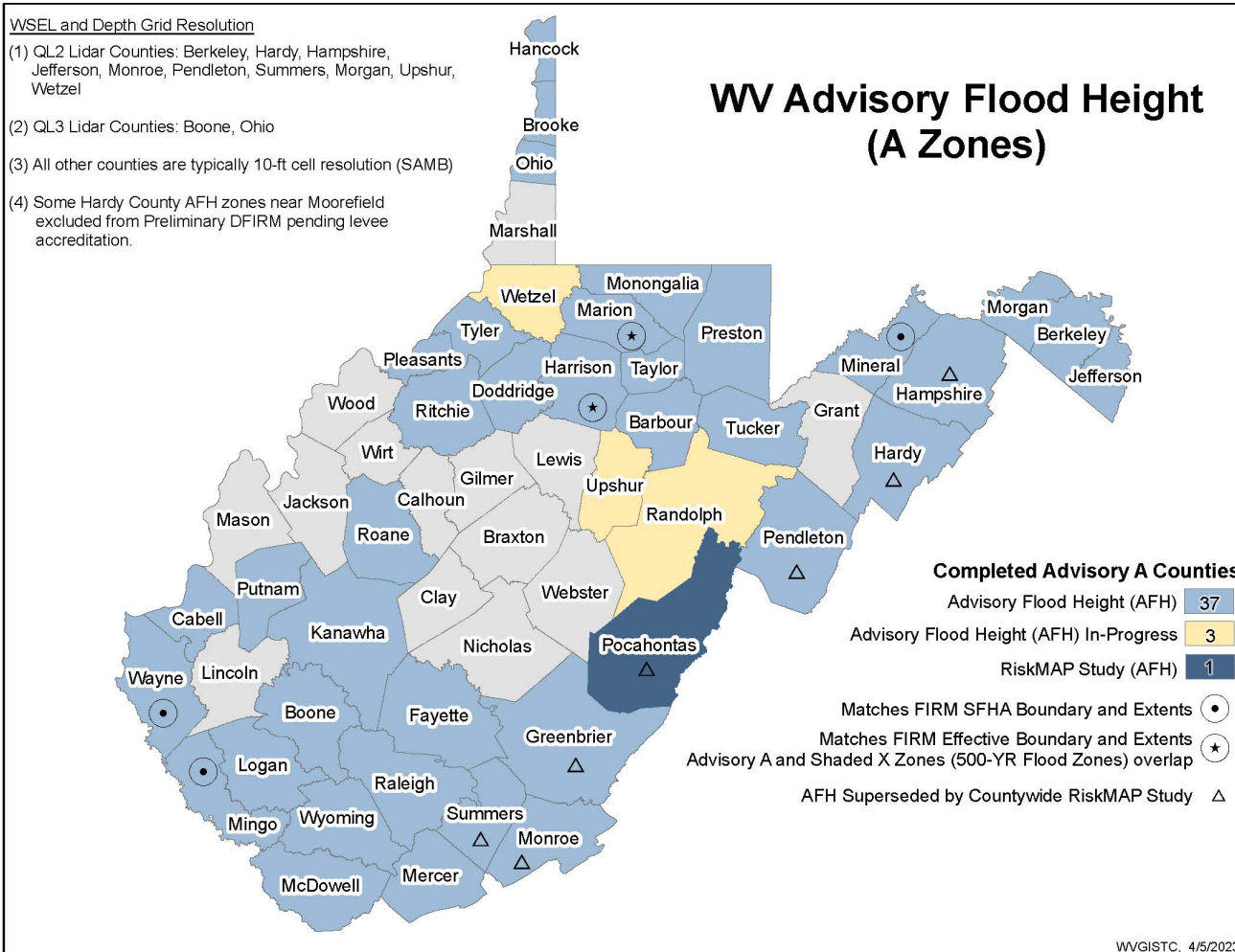
FLOOD STUDY PROJECT STATUS WEST VIRGINIA - REGION 3

AS OF MARCH 31, 2023

Prepared by ARC PTS JV, Regional Support Center 3 Team
Projection: Geographic NAD 83
Data Sources: ESRI, FEMA - FMPU 3/31/2023

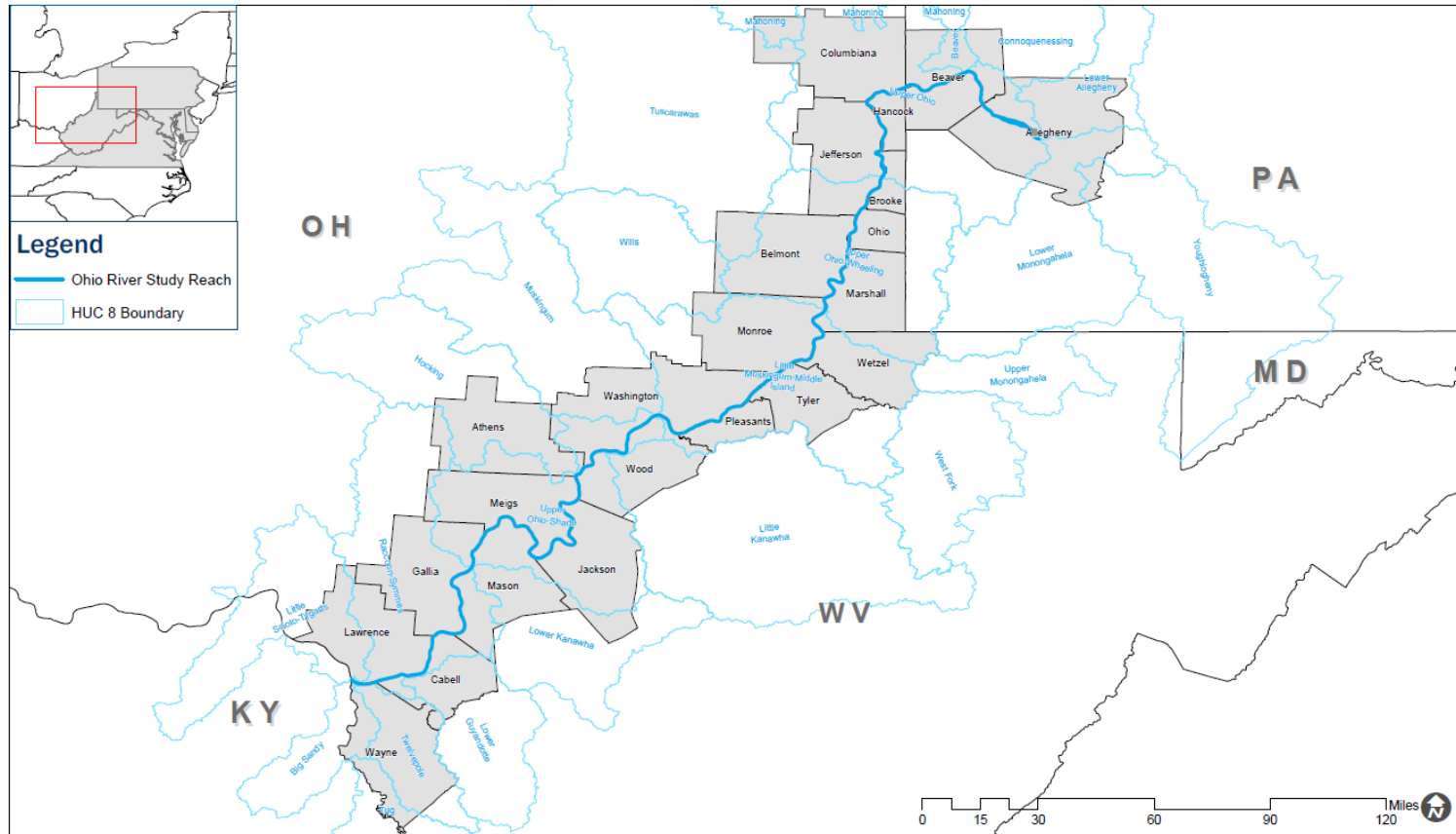


Advisory Flood Heights (A Zones)



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Ohio River Restudy



OHIO RIVER STUDY

AS OF 3/31/2023



DATA SOURCES: ESRI, FEMA, USACE NLD



Ohio River Restudy

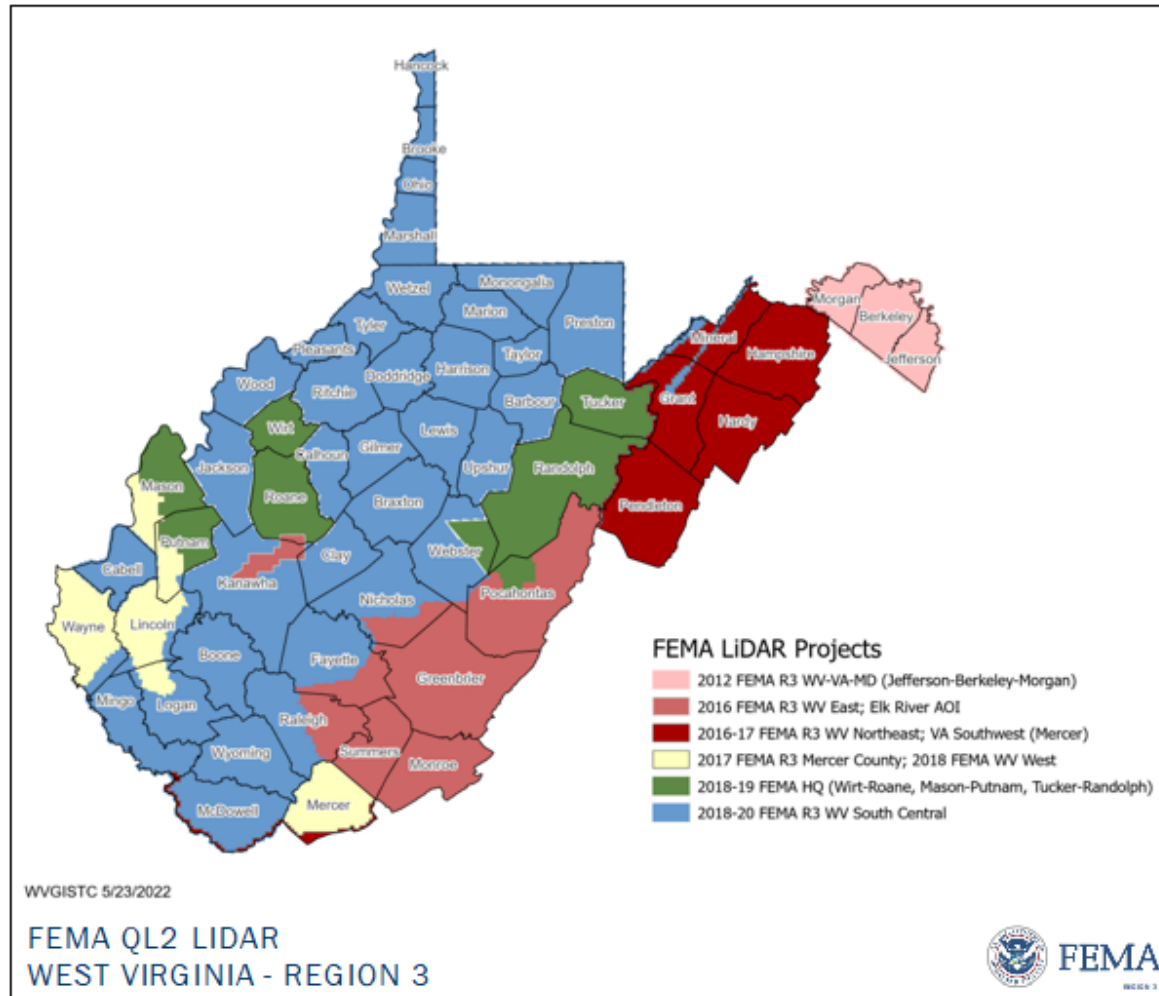
- ▶ Updated hydrologic and hydraulic study being conducted by USACE Pittsburgh and Huntington Districts in PA, OH, and WV

WV County	Number of Communities
Brooke	4
Cabell	3
Hancock	4
Jackson	3
Marshall	5
Mason	6
Ohio	2
Pleasants	3
Tyler	3
Wayne	3
Wetzel	3
Wirt	1
Wood	4
Total	44



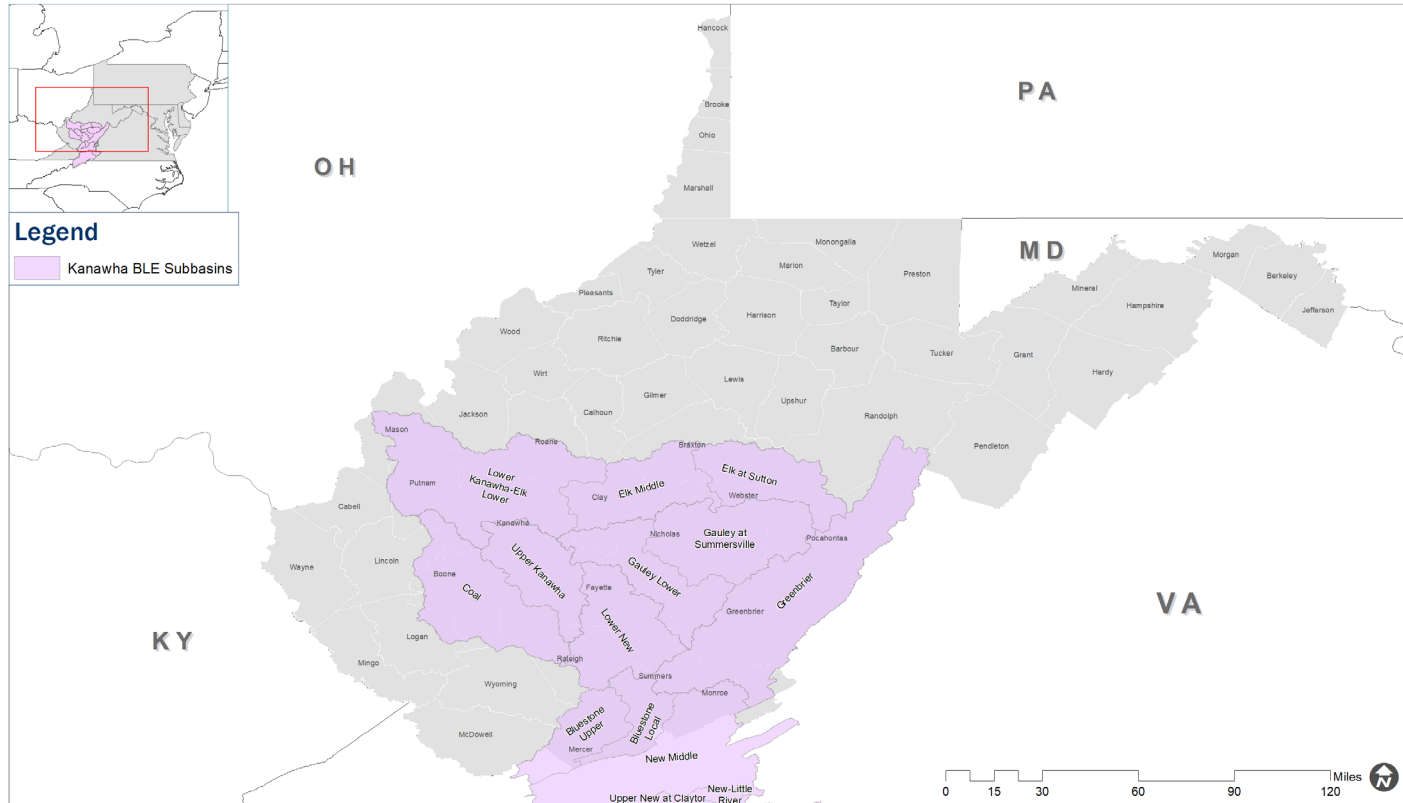
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LiDAR By Year Flown



FEMA

FEMA 2D Modeling Pilot



FEMA 2D DATA MANAGEMENT PILOT WEST VIRGINIA - REGION 3

AS OF 3/31/2023



DATA SOURCES: ESRI, FEMA, USACE NLD



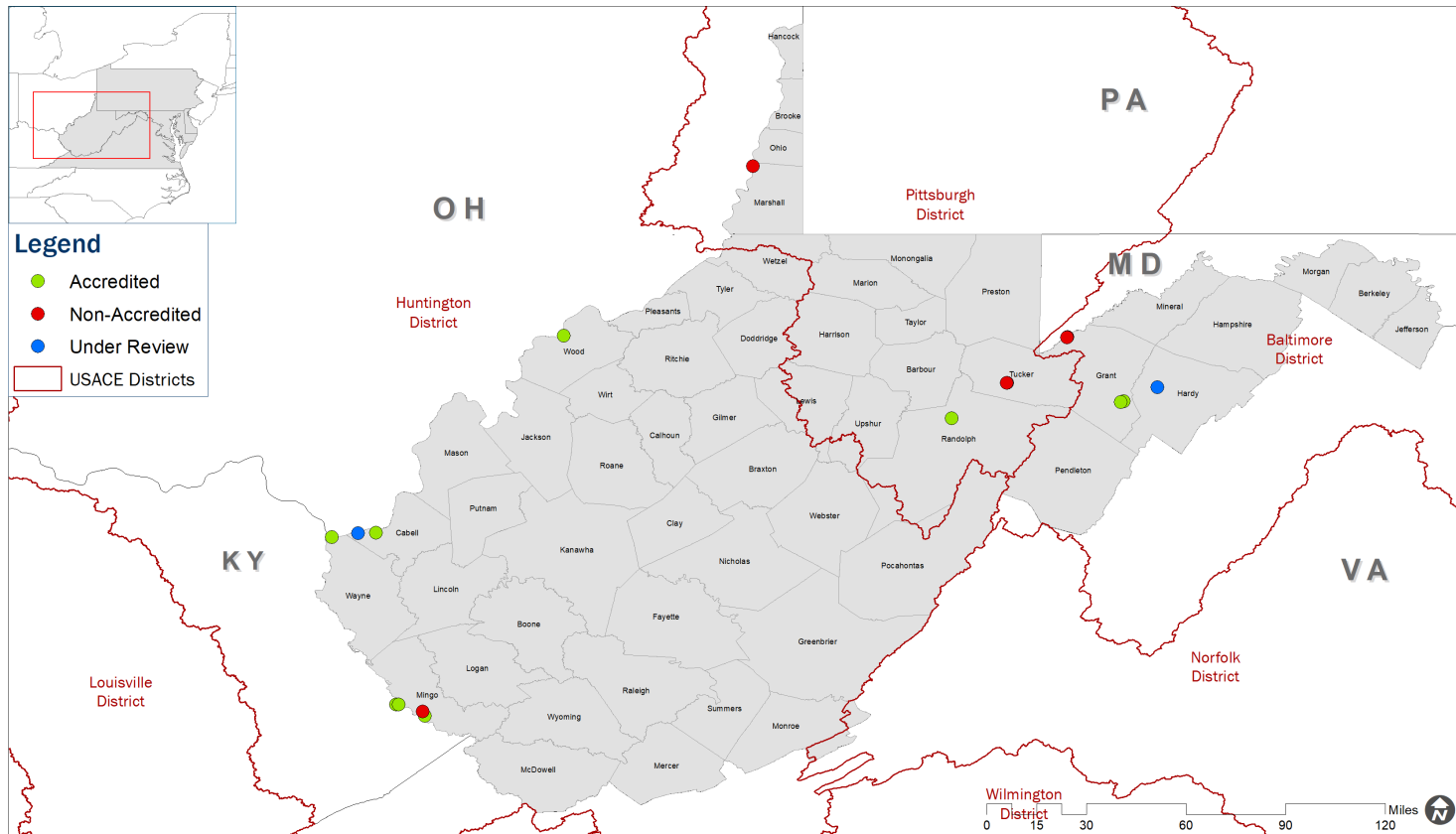
FEMA

WV LEVEE UPDATES



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Levee Accreditation Status



LEVEE ACCREDITATION STATUS WEST VIRGINIA - REGION 3

AS OF 3/31/2023



DATA SOURCES: ESRI, FEMA, USACE NLD

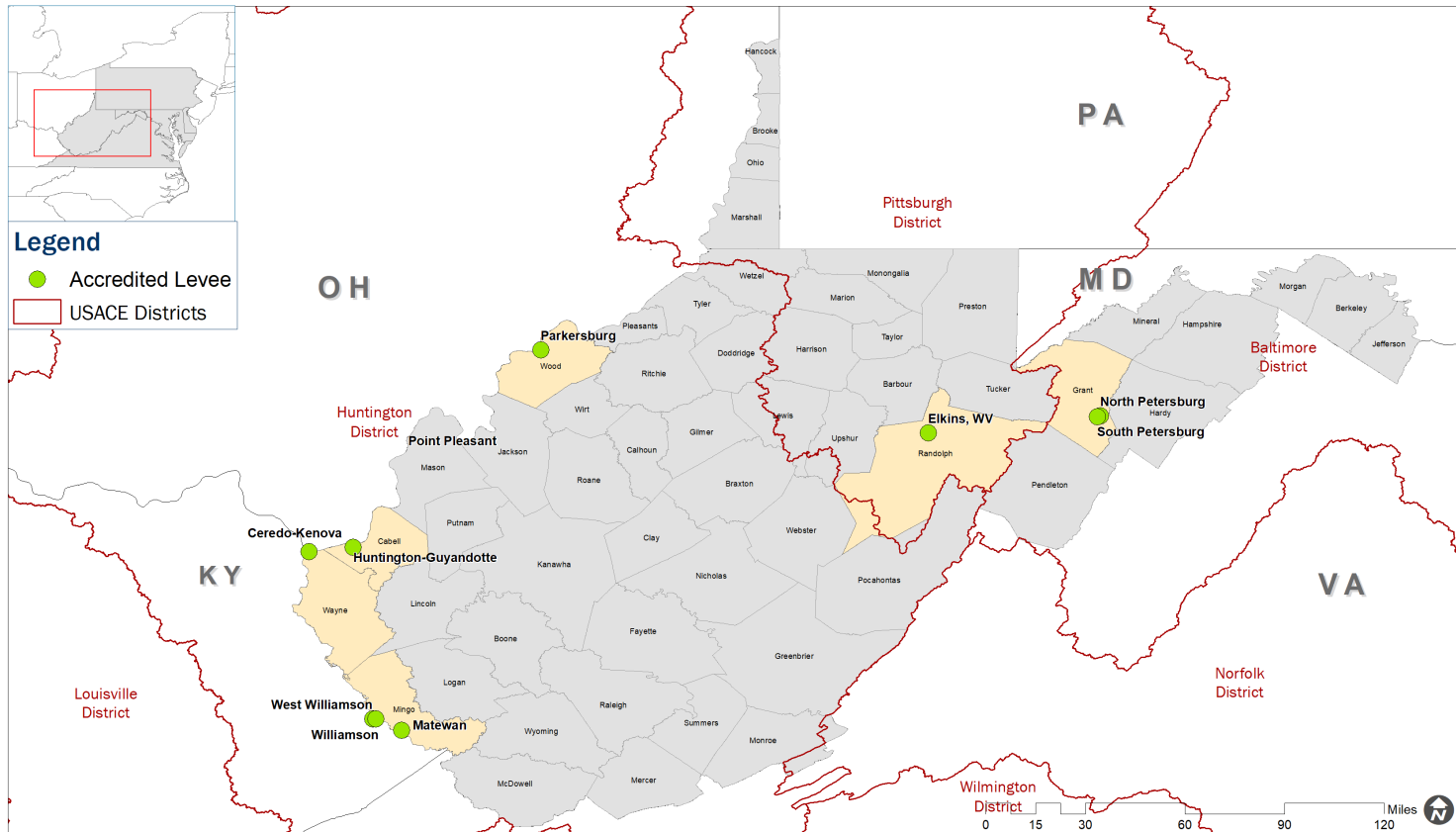


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Accredited Levee Systems

Name of Levee System	County	Accreditation Date
Huntington, WV, LPP - Guyandotte	Cabell	11/19/2020
North Petersburg	Grant	3/23/2022
South Petersburg	Grant	3/23/2022
Matewan, WV, LPP	Mingo	3/14/2016
West Williamson, WV, LPP	Mingo	10/13/2015
Williamson, WV, LPP	Mingo	3/14/2016
Elkins, WV	Randolph	12/29/2017
Ceredo-Kenova, WV LPP	Wayne	9/2/2016
Parkersburg, WV, LPP	Wood	10/22/2021

Accredited Levee Systems (Cont'd)



ACCREDITED LEVEES WEST VIRGINIA - REGION 3

AS OF 3/31/2023



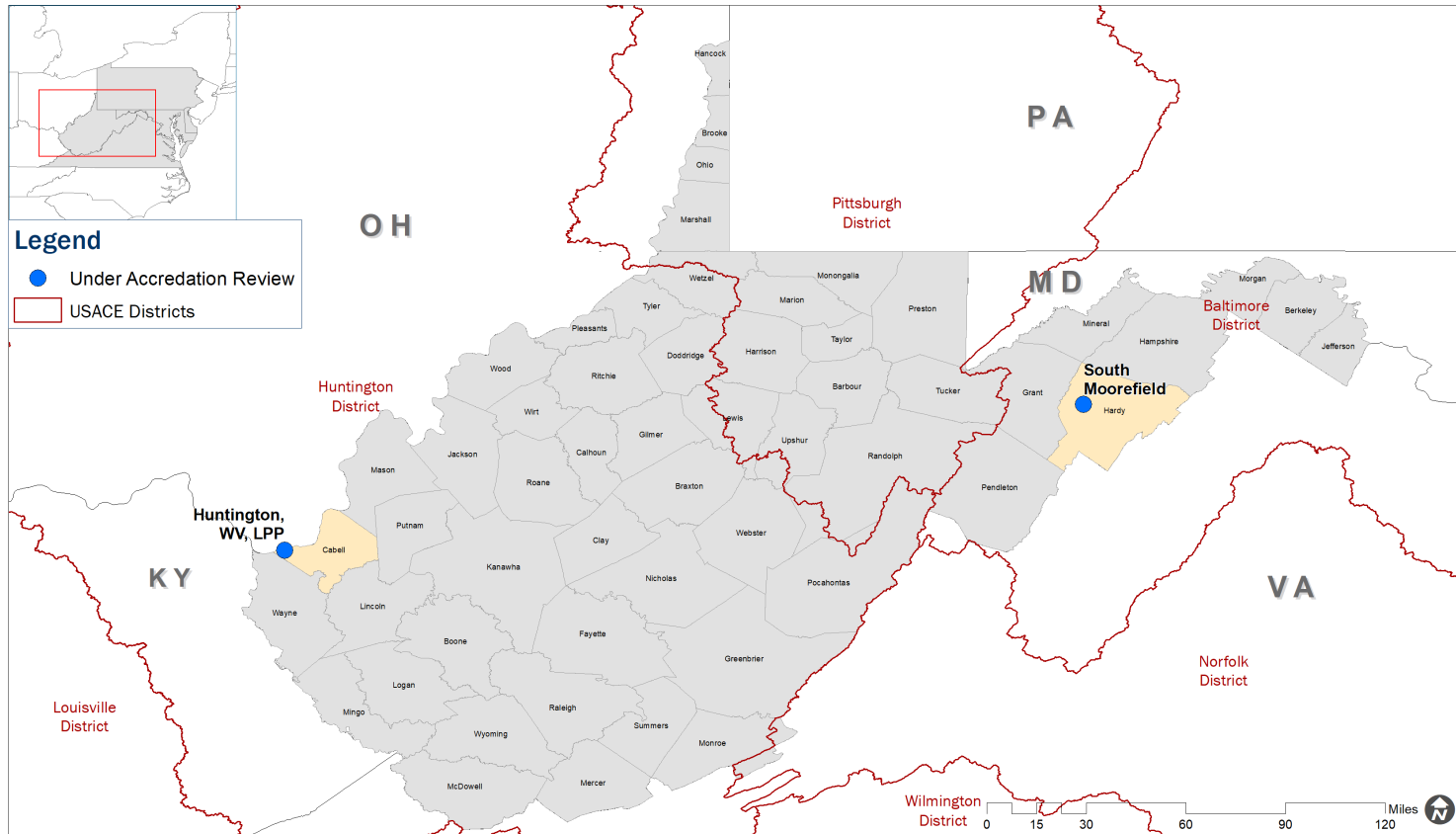
DATA SOURCES: ESRI, FEMA, USACE NLD



Levees Under Accreditation Review

Name of Levee System	County
Huntington WV, LLP	Cabell and Wayne
South Moorfield	Hardy

Levees Under Accreditation Review (Cont'd)



LEVEES UNDER ACCREDITATION REVIEW WEST VIRGINIA - REGION 3

AS OF 3/31/2023



DATA SOURCES: ESRI, FEMA, USACE NLD

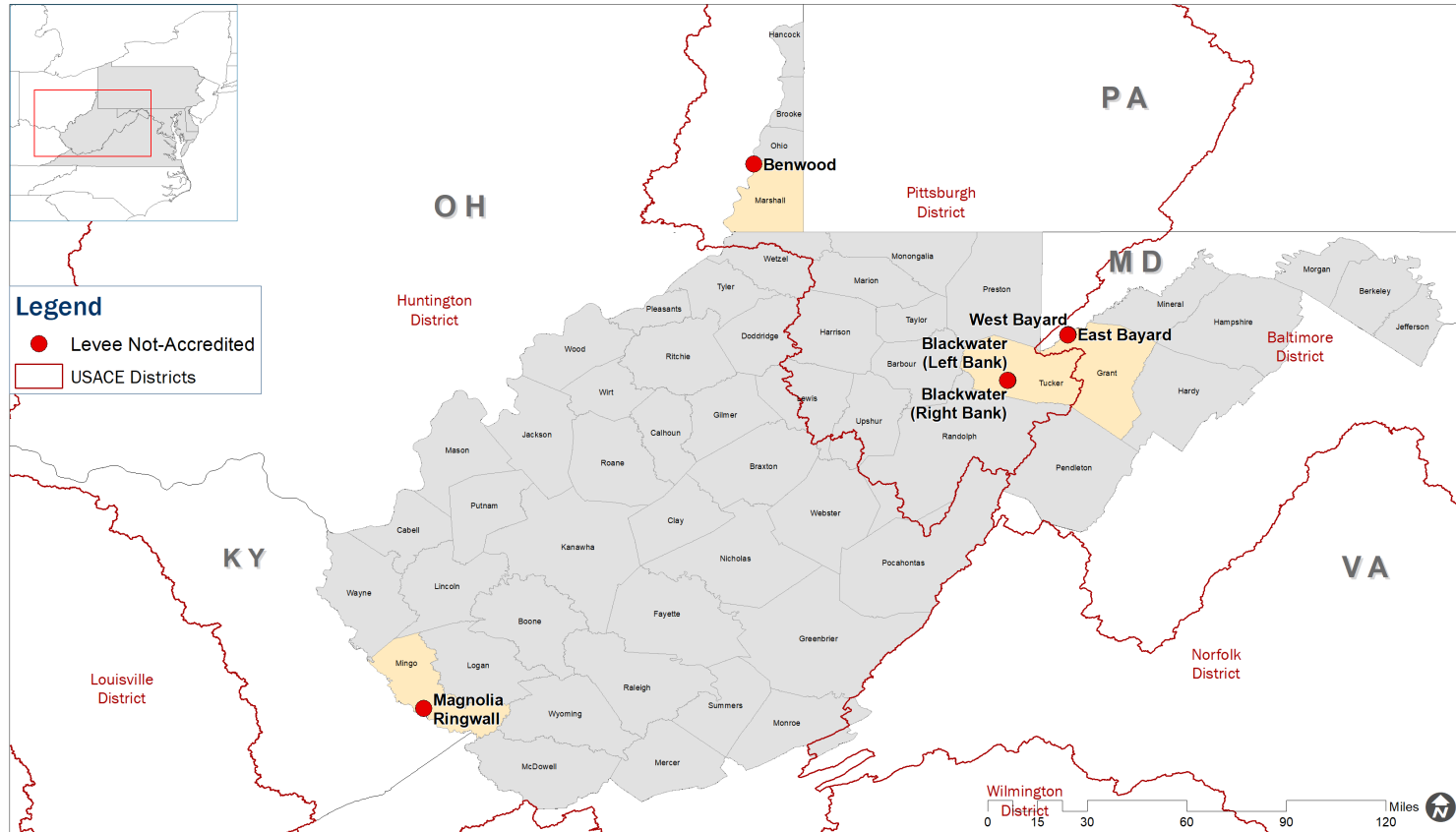


Non-Accredited, Correctly Mapped Levee Systems

Name of Levee System	County
East Bayard	Grant
West Bayard	Grant
Benwood-Left Bank Ohio River	Marshall
Magnolia Ringwall, WV	Mingo
Blackwater River Levee (Left Bank)	Tucker
Blackwater River Levee (Right Bank)	Tucker



Non-Accredited, Correctly Mapped Levee Systems (Cont'd)



NON-ACCREDITED AND MAPPED CORRECTLY
WEST VIRGINIA - REGION 3

AS OF 3/31/2023



DATA SOURCES: ESRI, FEMA, USACE NLD



Future Levee Construction

Milton, WV Flood Risk Reduction Project

- Lower Mud Flood Risk Reduction Project in Milton, WV (Cabell County)
- Designed for 0.4% annual chance event (250-year) protecting 600+ res./bus. structures, public structures, personal property, and critical infrastructure
- CLOMR submitted August 2021 for proposed levee (updating to 2D modeling)
- More information from the USACE:
<https://www.lrh.usace.army.mil/Missions/Civil-Works/Current-Projects/Lower-Mud/>



1D versus 2D Modeling

- ▶ **1D requires the objective determination of values at cross-sections for a particular reach**
- ▶ **2D uses a mesh and associated data layers to define the hydraulic values**

Hydraulic Variables	1D	2D
Flow direction	Assumed by user (one avg)	Computed (multidimensional)
Flow paths	Assumed by user (one per reach)	Computed (many)
Channel roughness	Assumed constant between cross sections	Assumed at each element
Ineffective (blocked) flow areas	Assumed by user	Computed
Flow contraction and expansion through bridges	Assumed by user	Computed
Flow velocity	Averaged at each cross section Assumed in one direction	Magnitude and direction Computed at each element
Flow distribution	Assumed based on conveyance	Computed based on continuity
Water surface elevation	Assumed constant across cross sections	Computed at each element
Momentum	Not accounted for	Computed at each element



Location of FEMA Region 3 Study Details

A platform called Mit Maps shows much of the information FEMA is working on in the Mitigation Division

[FEMA Region 3 Mitigation Mapping Platform](https://fema.maps.arcgis.com/apps/MapSeries/index.html?appid=a3449dd1568d47bf9353f809d91d3741)

<https://fema.maps.arcgis.com/apps/MapSeries/index.html?appid=a3449dd1568d47bf9353f809d91d3741>



Where Can You Access New Flood Study Data?

- ▶ **Easiest place to view and download data is the WV Flood Tool**
[WV Flood Tool](http://mapwv.gov/flood) (mapwv.gov/flood)
- ▶ **Other places to view products are:**
 - Preliminary FEMA Products: [FEMA's Preliminary Study Viewer](https://fema.maps.arcgis.com/apps/webappviewer/index.html?id=035833316dfd495eb0073bc446bcfc88)
<https://fema.maps.arcgis.com/apps/webappviewer/index.html?id=035833316dfd495eb0073bc446bcfc88>
 - Effective FEMA Products: [FEMA's National Flood Hazard Layer](https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd)
<https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd>
 - FIS, FIRM, GIS Data, Other Flood Risk Products: [Map Service Center](https://msc.fema.gov)
<https://msc.fema.gov>

Contact Information

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