

# Discovery Report

FEMA Region V

Upper Ohio Shade Watershed, Ohio

HUC 05030202



# FEMA



Prepared by

The Ohio Department of Natural Resources

## Project Area Community List

<b>Community Name</b>	<b>CID</b>
Albany, Village of	390727
Athens County	390760
Athens, City of	390016
Belpre, City of	390567
Cheshire, Village of	390186
Gallia County	390185
Marietta, City of	390572
Meigs County	390387
Middleport, Village of	390388
Pomeroy, City of	390389
Racine, Village of	390390
Rutland, Village of	390670
Syracuse, Village of	390391
Washington County	390566

## ***Table of Contents***

I.	Watershed Description.....	1
II.	Project Description and Methodology.....	4
III.	Data Analysis.....	5
i.	Data that can be used for Flood Risk Products.....	7
ii.	Other Data and Information.....	8
IV.	Risk MAP Needs.....	12
i.	Floodplain Studies .....	13
ii.	Mitigation Projects.....	14
iii.	Compliance .....	15
iv.	Communications .....	15
V.	Close.....	15
VI.	Appendix – Discovery Files.....	16

## ***List of Tables***

I.	Table 1. NFIP Participation Status.....	3
II.	Table 2. Data Collection for Upper Ohio Shade.....	6
III.	Table 3. USGS Gages.....	7
IV.	Table 4. Hazard Mitigation Plan Status.....	8
V.	Table 5. Number of Repetitive Loss Structures by community.....	9
VI.	Table 6: Community Assistance Visit status by community.....	12
VII.	Table 7. Map Modernization Activity.....	12
VIII.	Table 8. Mapping Needs.....	13-14
IX.	Table 9. Areas of Mitigation Interest (AOMI).....	15

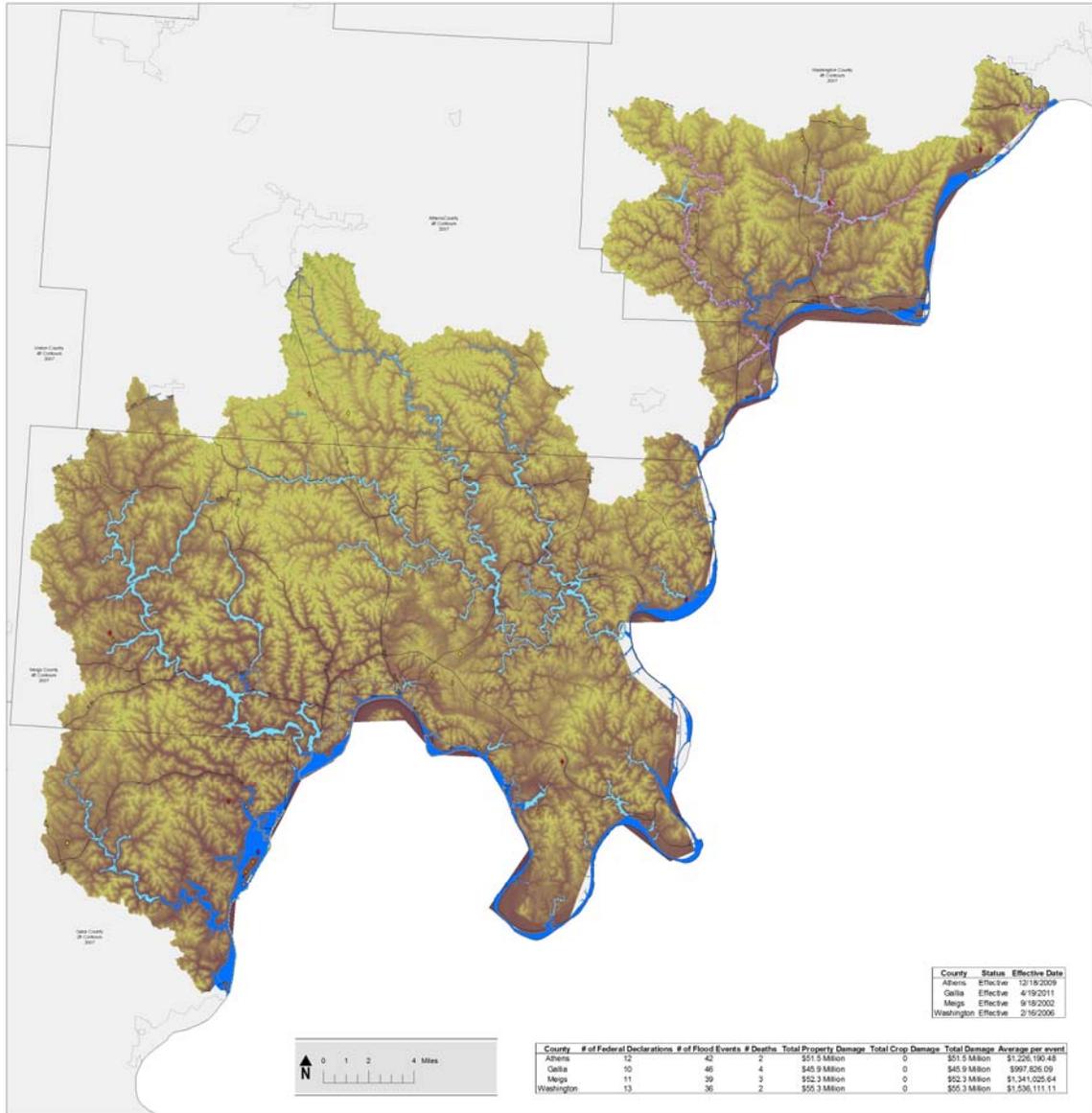
## ***List of Figures***

I.	Figure 1. Project Area Map.....	2
----	---------------------------------	---

## I. **Watershed Description**

The Upper Ohio Shade Watershed is located in southeastern Ohio and northern West Virginia, with a drainage area of 1417 total square miles of those 882 are in Ohio. This discovery report will focus on the Ohio portion of the Upper Ohio Shade Watershed. One hundred twenty-two miles of the Ohio River are located in the Upper Ohio Shade Watershed. The watershed is located just downstream of the confluence with the Muskingum River to just downstream of the confluence with George Creek in Gallia County. The principal tributaries to the Ohio River in the Upper Ohio Shade Watershed are Leading Creek, Campaign Creek, Little Hocking River and Shade River. The watershed also drains the majority of Meigs County, along with small portions of Gallia, Athens, and Washington County. The limits of the Discovery project area are presented in Figure 1. Table 1 includes the National Flood Insurance Program (NFIP) participation status of each community within the Upper Ohio Shade Watershed.

# Discovery Map: Upper Ohio-Shade Watershed



**MAP SYMBOLOLOGY**

**Flood Hazard Area**  
 Zone A  
 Zone AE

**CNMS Data**  
 Validated  
 Requires Assessment  
 Not Valid

**Dams**  
 LOMC Locations  
 USGS Gages  
 HCCB Watershed Boundary

**Other Symbols**  
 Potential Study Areas  
 Past Claims Hot Spots  
 Interstates  
 Major Roads  
 Streams / Rivers

**WATERSHED LOCATOR**

**NATIONAL FLOOD INSURANCE PROGRAM**  
**Discovery Map: Flood Risk**  
 UPPER OHIO-SHADE WATERSHED, OHIO

<b>Drainage Area (sq. mi.)</b>	<b>1417</b>
<b>Studied Streams (mi.)</b>	<b>139</b>
<b>Detailed Streams (mi.)</b>	<b>47</b>
<b>Approximate Streams (mi.)</b>	<b>92</b>

Miles excluding Meigs County

HUC-8 Code  
05030202  
RELEASE DATE  
6/30/2011

Figure 1. Project Area Map

*Table 1. NFIP Participation Status*

<b>County</b>	<b>Community</b>	<b>Participating?</b>
<b>Athens</b>	Albany, Village of	N
	Athens, City of	Y
	Athens Unincorporated	Y
<b>Gallia</b>	Cheshire, Village of	Y
	Gallia Unincorporated	Y
<b>Meigs</b>	Meigs Unincorporated	Y
	Middleport, Village of	Y
	Pomeroy, City of	Y
	Racine, Village of	Y
	Rutland, Village of	Y
	Syracuse, Village of	Y
<b>Washington</b>	Belpre, City of	Y
	Marietta, City of	Y
	Washington Unincorporated	Y

## II. Project Description and Methodology

Discovery is the process of data collection, including information exchange between all governmental levels of stakeholders, spatial data presentation, and cooperative discussion with stakeholders to better understand the area, decide whether a flood risk project is appropriate, and if so, to collaborate on the project planning in detail. At this time, Discovery processes and requirements are still being defined; however, draft guidance is available from the draft *Appendix I – Discovery (June 2011)*, the draft *Meetings Guidance for FEMA Personnel (June 2011)* and the *FY11 Discovery, Statement of Priorities (January 2011)*. In addition, there are several draft tools and templates at various stages of completion that were used to support the effort.

Region V initiated a Discovery project in July 2011 for the Upper Ohio Shade Watershed. The Discovery process involved coordination with watershed stakeholders, data collection and analysis, a meeting with stakeholders in the watershed, and development of recommendations for Risk MAP projects based on an analysis of data and information gathered throughout the process.

The initial phase in the Discovery process was establishing a Project Team made up of local, state, and federal agencies. The Project Team for the Upper Ohio Shade Watershed included representatives from:

- FEMA Region V, Risk Analysis Branch
- FEMA Region V, Floodplain Management and Insurance Branch
- FEMA Region V, Hazard Mitigation Assistance Branch
- Ohio Department of Natural Resources (ODNR)
- Ohio Emergency Management Agency (OEMA)

Project Team contact information and Project Team meeting minutes are provided in Appendix A. The Project Team worked together to compile the stakeholder list for the Upper Ohio Shade watershed. Discovery Meeting invitations are presented in Appendix B. A list of the contacts made during this effort, including phone logs, notes from interviews, invitation lists, etc. are included in Appendices B and C to this document.

ODNR coordinated with community officials and other watershed stakeholders through written invitations, phone calls and follow-up emails. The coordination included giving community officials information about the Discovery process. Communities were asked to identify “Areas of Concern” which could be addressed during the Discovery Meeting (mapping needs, desired mitigation projects, etc.) and added to the Discovery Geodatabase and Final Discovery Map.

The second phase of the Discovery Project was the collection of relevant tabular and spatial data for all the communities within the watershed. The data was collected through online resources, Federal and State sources, and interviews with cooperating communities. The collected data was used to evaluate both previous and current flooding concerns, while determining the vital areas requiring mapping needs. Section IV, Data Analysis, provides a more in-depth look at the collected data.

The third phase was to hold watershed-wide Discovery Meetings and facilitate discussion and data analysis of study needs, mitigation project needs, desired compliance support, and local flood risk awareness efforts. One (1) watershed-wide Discovery Meeting was held on July 6, 2011 in Pomeroy, Ohio. The discussion was stimulated using the Discovery Geodatabase display of relevant data. Attendees, including all affected communities and selected other stakeholders, cooperatively identified possible solutions for the Areas of Concern shown on the Discovery Meeting Map. Solutions included recommendations of floodplain studies, mitigation projects, compliance issues, and ideas on how to improve the local flood risk communication programs.

Copies of the Discovery Meeting Presentations, sign in sheets, handouts, meeting notes and meeting feedback forms are presented in Appendices, C, D, E and F, respectively.

The fourth phase of the Discovery effort involved an analysis of the data and information collected and discussed at the meeting, and recommendations as to the future relationship and activities between FEMA and the watershed communities. The Final Discovery Map, presented in Appendix G indicates desired study areas and mitigation project locations, and the Discovery Report documents the results of data collection and conversation. If a Risk MAP project is to be initiated in this watershed, Discovery will be concluded with the finalization of a project scope and signed Project Charters, which indicate that all affected stakeholders agree to the terms of a funded project, including communication and data responsibilities.

### **III. Data Analysis**

Discovery data collection entailed a massive collection of tabular and spatial data for all stakeholder communities from Federal, State and Local sources. A list of the data collected, the deliverable or product in which the data are included, and the source of the data is presented in Table 2. In addition, Data Analysis is divided between two sections: one section listing the data that can be used for Risk MAP products (regulatory and non-regulatory) and, one section listing the other data and information that helped the Project Team to form a more holistic understanding of this watershed.

*Table 2. Data Collection for Upper Ohio Shade Watershed*

<b>Data Types</b>	<b>Deliverable/ Product</b>	<b>Source</b>
<b>Mitigation Plans Status</b>	Table in Report	FEMA Regional Office, OEMA
<b>Mitigation Projects</b>	Table in Report	Data.gov: FEMA Hazard Mitigation Program Summary, OEMA
<b>Repetitive Loss</b>	Table in Report	Community Information System (CIS), OEMA
<b>Declared Disasters</b>	Discovery Maps	Data.gov: FEMA Disaster Declarations Summary
<b>Past flood claims and repetitive loss properties</b>	Table in Report	FEMA R5 and/or ODNR
<b>HUC-8 Watershed</b>	Discovery Map Geo-Database	USGS National Hydrography Dataset (NHD)
<b>HUC-12 Watersheds</b>	Discovery Map Geo-Database	National Resource Conservation Service (NRCS)
<b>Jurisdictional Boundaries</b>	Discovery Map Geo-Database	FEMA and ODNR
<b>State lands</b>	Discovery Map Geo-Database	Ohio Department of Natural Resources (ODNR)
<b>Federal lands</b>	Discovery Map Geo-Database	USGS National Atlas
<b>Transportation Major and Minor</b>	Discovery Map Geo-Database	FEMA
<b>Stream lines</b>	Discovery Map Geo-Database	National Hydrography Dataset (NHD ) and FEMA
<b>Study Needs</b>	Discovery Map Geo-Database	Coordinated Needs Management System (CNMS)
<b>Topographic data</b>	Discovery Map Geo-Database	Ohio Statewide Imagery Program (OSIP)
<b>HAZUS - Average Annualized Loss (AAL)</b>	Discovery Map Geo-Database	STARR
<b>Local mitigation plans</b>	Discovery Map Geo-Database	OEMA
<b>State mitigation plans</b>	Discovery Map Geo-Database	ODPS - Ohio Emergency Management Agency (OEMA)
<b>Regional flood control structures</b>	Discovery Map Geo-Database	Ohio Department of Natural Resources (ODNR) and FEMA
<b>Stream Gages</b>	Discovery Map Geo-Database	U.S. Geological Survey (USGS)
<b>Flooded Structures</b>	Discovery Map Geo-Database	Ohio Department of Natural Resources (ODNR)
<b>Effective study data</b>	Discovery Map Geo-Database	FEMA's County DFIRM Data
<b>Orthophotography</b>	Discovery Map Geo-Database	Ohio Statewide Imagery Program (OSIP)
<b>Contacts</b>	Excel spreadsheet	Local websites, State/FEMA updates

## i. Data that can be used for Flood Risk Products

### Topographic and Imagery Data

As shown on the Final Discovery Map, LiDAR elevation data and digital orthophotography is available for the project area provided by the Ohio Geographically Referenced Information Program (OGRIP), as part of the Ohio Statewide Imagery Program (OSIP). The goal of OSIP I was to develop and maintain a seamless statewide base map. OSIP is an initiative partnered by several State Agencies (i.e. ODOT, ODNR) through OGRIP. Data from this project forms the foundation of the statewide base map, and was developed primarily to support multi-use applications, including homeland security, emergency management, economic development, and the business of government. The digital orthophotography consists of MrSID Images produced at 1-foot pixel resolution at a 30:1 compression ratio. The LiDAR elevation data consists of Digital Elevation Model (DEM) raster tiles acquired to meet +/- 1-foot vertical accuracy. This is suitable for rectification of digital orthophotography and for the creation of 2- and 5-foot contours (with the addition of 3D compiled breaklines). OSIP products within the Upper Ohio Shade Watershed were collected during leaf-off conditions between 2006 and 2008. In February 2011, Ohio initiated a continuation of the OSIP program. OSIP II imagery will be acquired beginning in spring 2011 and continuing through 2014. For OSIP II county specific acquisition information as of May 9, 2011, see Appendix H.

### USGS Gages

ODNR has identified a USGS stream gage in the watershed. The location of the gage is shown on the Discovery Map and a summary is presented in Table 3.

*Table 3. USGS Gages*

<b>Gage Number</b>	<b>Station Name and Location</b>	<b>Years of Record (Peaks)</b>
03159540	Shade River near Chester Ohio	44

### Average Annualized Loss (AAL) Data

FEMA has conducted a Level 1 Hazus flood analysis to determine average annualized losses (AAL) for the project area. This analysis was based on USGS 30-meter DEM data and Hazus software default inventory data. The Hazus riverine hydrology analysis used default USGS regression equations to estimate the peak flows for selected return periods and the USGS topographic data to conduct normal depth calculations for flood depth grids. The loss estimation for the AAL data was then conducted to produce loss calculations at the U.S. census block level.

The AAL data is symbolized on the Discovery Map as varying levels of risk. During the Discovery meeting, the Level 1 analysis results will be validated by stakeholders to identify potential sites for Refined Analyses.

## ii. Other Data and Information

### Mitigation Plans/Status

Hazard Mitigation Plans (HMPs) are prepared to assist communities to reduce their risk to natural hazard events. The plans are used to develop strategies for risk reduction and to serve as a guide for all mitigation activities in the given county or community. The available HMPs obtained and reviewed for this Discovery Project are presented in Table 4.

*Table 4. Hazard Mitigation Plan Status*

County/Community	County	Hazus	Hazard Mitigation Plan	Issue Date	Expiration Date
Athens County	Athens	N	Y*	11/14/2007	11/29/2012
Amesville	Athens	N	Y*	2/21/2006	2/21/2011
Athens	Athens	N	Y	5/29/2007	5/29/2012
Trimble	Athens	N	Y*	11/7/2006	11/7/2011
Gallia County	Gallia	N	Y*	1/19/2006	1/19/2011
Meigs County	Meigs	N	Y*	5/30/2006	5/30/2011
Washington County (Belpre, Marietta)	Washington	N	Y	11/29/2007	11/29/2012

*\*Hazard Mitigation plan is expired.*

Critical facilities are the facilities that can impact the delivery of vital services, cause greater damages to other sectors of a community, or put special populations at risk. The assessment of the flood risk posed to critical facilities within the watershed is an important aspect of the HMPs. Critical facilities that are located within the 1-percent-annual-chance floodplain were quantified and identified as at-risk structures. The exact number of critical facilities that are considered at-risk is not quantifiable due to the limited detail presented in the HMPs. The number of critical facilities estimated to be within the 1-percent-annual-chance floodplain was determined by overlaying Hazard Maps included in the HMP's with the latest flood hazard data. However, the risk of flood damage is limited by the detail and accuracy of the most recent flood map.

A repetitive loss structure is a term associated with the National Flood Insurance Program (NFIP). For Flood Mitigation Assistance (FMA) program purposes, a repetitive loss structure is one that is covered by a flood insurance contract under the NFIP, that has suffered flood damage on two or more occasions over a 10-year period, ending on the date when a second claim is made, in which the cost to repair the flood damage, on average, equals or exceeds 25% of the market-value of the structure at the time of each flood loss event. In terms of the Community Rating System (CRS) of the NFIP, a repetitive loss property is any property, which the NFIP has paid two or more flood claims of \$1,000 or

more, in any given 10-year period since 1978. A repetitive loss structure is important to the NFIP, since structures that flood frequently put a strain on the flood insurance fund. It should also be important to a community because of the disruption and threat to residents' lives by the continual flooding.

Specific details regarding repetitive loss structures within the floodplain were not made available in the available HMPs. The locations of repetitive loss structures presented on the Discovery Map were determined by rectifying the HMP's Hazard Maps to the Discovery Map's base map data. The exact locations and numbers of repetitive loss structures have been summarized with caution due to the lack of detail in the HMPs and Hazard Maps. Areas that have suffered multiple repetitive losses are some of the most important areas of mitigation interest. The general locations of identified structures with repetitive losses have been represented on the Flood Risk Discovery Map Panels with a gray point symbol.

**Table 5: Number of Repetitive Loss Structures by community**

<b>Community</b>	<b>County</b>	<b># Rep Loss Structures</b>
Albany, Village of	Athens	0
Athens, City of	Athens	0
Athens Unincorporated	Athens	43
Cheshire, Village of	Gallia	4
Gallia Unincorporated	Gallia	35
Meigs Unincorporated	Meigs	28
Middleport, Village of	Meigs	0
Pomeroy, City of	Meigs	36
Racine, Village of	Meigs	0
Rutland, Village of	Meigs	23
Syracuse, Village of	Meigs	2
Belpre, City of	Washington	43
Marietta, City of	Washington	289
Washington Unincorporated	Washington	127

Numerous locations of roads overtopping during flood events were identified during the data collection and Discovery Meeting process.

Numerous dams exist within the watershed, but are not mentioned in the HMPs as flood control structures. According to the ODNR database, seven (7) Class I dams are located within the watershed and owned/operated by state or federal agencies.

The overall goals of the reviewed HMP's were found to be consistent; however, specific methods for implementation of these goals and locations of specific projects were not readily available. These goals include:

- Educate the citizens of each county to increase awareness of flooding and where to seek safety during flood events
- Provide adequate shelters where citizens can seek safety from severe weather and flooding
- Improve the warning systems and radio communications throughout the county
- Expedite the clean up process through coordination and equipment acquisition
- Update countywide NFIP maps
- Purchase or flood proof repetitive loss structures
- Develop map of infrastructure concerns

Some of the county's/community's HMPs included the locations and number of repetitive loss structures while other plans left this information out. This inconsistency in information holds true with the location and number of critical facilities found within the 1-percent-annual-chance floodplain.

### **Successful Mitigation Projects**

According to the HMP for Meigs County, in the late 1990's, eighteen homes received funding from the Hazard Mitigation Grant Program. The homes were elevated to above the Base Flood Elevation (BFE). In 2000, the area saw flooding again however now since the house was elevated, no water entered the home.

### **Coordinated Needs Management Strategy (CNMS) and NFIP Mapping Study Needs**

Three of the four Upper Ohio Shade Watershed Counties have been analyzed using CNMS data. Analyzed studies have been identified as "VALID" or "UNVERIFIED". The current CNMS geospatial data is presented on the Final Discovery Map.

### **Community Rating System (CRS)**

There are no CRS communities in the Upper Ohio Shade Watershed.

### **Levees**

No levees have been identified within the Upper Ohio Shade watershed within FEMA's Mid-Term Levee Inventory database

### **Floodplain Management/Community Assistance Visits**

FEMA uses a number of key tools to determine a community's compliance with the minimum regulations of the National Flood Insurance Program. Among them are Community Assistance Visits (CAVs), the Letter of Map Change (LOMC) process, and Submit-for-Rates. These tools help assess a community's implementation of their Flood Damage Reduction Regulations and identify any floodplain management deficiencies and violations. The CAV is a visit to a community by a FEMA staff member or staff of a state agency on behalf of FEMA that serves the dual purpose of providing technical assistance to the community and assuring that the community is adequately enforcing its floodplain management regulations. Potential violations may be identified during the CAV visit as a

result of touring the floodplain, inspecting community permit files, and meeting with local appointed and elected officials. For most recent CAV information, see Table 6.

Active CAV's are the communities that are currently going through the CAV process. Communities that have gone through a CAV and have provided all the necessary information to show they are in compliance are listed as Closed. FEMA CAV's can be indicative of unresolved issues and has been turned over to FEMA for follow up and possible enforcement action against the community if the outstanding issues are not resolved. Communities with FEMA referred CAV's include the Cities of Belpre and Marietta, the Village of Racine and Washington County<sup>1</sup>.

Violations can also be discovered when LOMR-F applications depict a non-compliant structure based on elevation data; or can be found through Submit-for-Rate requests, which occur when a structure applies for flood insurance but has been identified as being two or more feet below Base Flood Elevation (BFE). Elevation comparisons identified through LOMR-F applications and Submit-for-Rates imply structures were not built compliantly.

Communities with Submit-for-Rate issues include Gallia, Meigs and Washington Counties, Cities of Athens, Pomeroy, Belpre and Marietta as well as the Village of Middleport<sup>1</sup>. If administrative problems or potential violations are identified, the community will be notified and given the opportunity to correct those administrative procedures and remedy the violations to the maximum extent possible within established deadlines. FEMA or the state will work with the community to help them bring their program into compliance with NFIP requirements. In extreme cases where the community does not take action to bring itself into compliance, FEMA may initiate an enforcement action against the community. No Risk MAP needs regarding compliance were identified.

---

<sup>1</sup> This list may not encompass all communities within the watershed with violations. Similarly, communities may have additional violations not addressed above

**Table 6: Community Assistance Visit status by community**

<b>County</b>	<b>Community</b>	<b>CID</b>	<b>Recent CAV date</b>	<b>CAV Status*</b>
<b>Athens</b>	Athens County	390760	4/4/2000	C
	Albany	390727	NP	NP
	Athens	390016	3/14/2008	A
<b>Gallia</b>	Gallia County	390185	6/27/2006	C
	Cheshire	390186	4/30/2009	C
<b>Meigs</b>	Meigs County	390387	3/22/2000	C
	Middleport	390388	5/17/1994	-
	Pomeroy	390389	11/17/1993	-
	Racine	390390	5/22/2002	F
	Rutland	390670	7/13/2000	C
	Syracuse	390391	7/13/2000	-
<b>Washington</b>	Washington County	390566	1/27/2000	F
	Belpre	390567	1/30/2003	F
	Marietta	390572	4/21/1997	F

\*A= Active, C= Closed and F= Referred to FEMA, NP = Non Participating

### **Regulatory Mapping**

Upper Ohio Shade Watershed communities have all had recent countywide map updates as part of FEMA’s Map Modernization Program except for Meigs County. The effective dates of the most recent county-wide projects are presented on the Discovery Map and below in Table 7. The effective data is a combination of both detailed and approximate analysis with varying vintage dates.

**Table 7. Map Modernization Activity**

<b>County</b>	<b>Status</b>	<b>Effective Date</b>
<b>Athens</b>	Effective	12/18/2009
<b>Gallia</b>	Effective	1/19/2011
<b>Meigs</b>	Effective	9/29/2002 (not modernized)
<b>Washington</b>	Effective	2/16/2006

## **IV. Risk MAP Needs**

The results of the data collection and analysis were thoroughly discussed at the Discovery Meeting. The following sections include issues and situations that exist in the Upper Ohio Shade Watershed communities that can be considered Risk MAP Needs, to be addressed with Risk MAP projects. Details and background on all issues can be found in the interview notes, meeting notes, and other files included in the appendices.

## i. Floodplain Studies

All counties located in the Upper Ohio Shade Watershed with the exception of Meigs County have undergone recent countywide DFIRM projects; however, not all of these projects included new Zone A studies and some approximate flood hazards were digitally converted.

As shown on the Final Discovery Map, recent LiDAR and imagery data meeting FEMA’s Guidelines and Specifications have been developed for the entire Discovery Project Area.

As shown on the Final Discovery Map, numerous study reaches have been classified as “UNVERIFIED” during the CNMS process.

At the Discovery Meeting, several areas were identified by community officials as needing an updated detailed or approximate study.

Based on the results of the Stakeholder Coordination, Data Analysis and Discovery Meeting, proposed Study Areas in the Upper Ohio Shade have been identified in Table 8. The specific locations of these Study Areas are presented on the Final Discovery Map. A complete list of mapping needs is located in Appendix G.

*Table 8. Mapping Needs*

FLOODING SOURCE	STUDY LENGTH (miles)	STUDY TYPE	PRIORITY
Ohio River	0.38	Detailed	Very High Priority
Mile Run	1.59	Digital Conversion Approximate	High Priority
Ohio River	56.10	Redelineated	Medium Priority
Little Leading Creek	9.25	Approximate	Medium Priority
Leading Creek	19.85	Approximate	Medium Priority
Forest Run	0.40	Detailed	Medium Priority
Davis Creek	1.19	Digital Conversion Approximate	Medium Priority
West Branch Shade River	15.17	Approximate	Medium Priority
Thomas Fork	4.18	Approximate	Medium Priority
Tanner Run	1.17	Approximate	Medium Priority
Sugar Run	0.52	Approximate	Medium Priority
Storys Run	0.60	Detailed	Medium Priority
Spruce Creek	0.59	Approximate	Medium Priority
Shade River	18.77	Approximate	Medium Priority
Peach Fork	1.21	Approximate	Medium Priority
Mud Fork	7.00	Approximate	Medium Priority
Middle Branch Shade River	13.73	Approximate	Medium Priority
Little Leading Creek	1.45	Detailed	Medium Priority

**Table 8. Mapping Needs**

FLOODING SOURCE	STUDY LENGTH (miles)	STUDY TYPE	PRIORITY
Leading Creek	7.77	Approximate	Medium Priority
Unnamed Stream	9.52	Approximate	Medium Priority
Horse Cave Creek	3.47	Approximate	Medium Priority
Guyan Run	0.74	Detailed	Medium Priority
Groundhog Creek	2.31	Detailed	Medium Priority
East Branch Shade River	6.11	Approximate	Medium Priority
Dexter Run	1.96	Approximate	Medium Priority
Cooks Run	0.81	Detailed	Medium Priority
Tributary of Little Leading Creek	1.09	Approximate	Medium Priority
Tributary of Middlebranch Shade River	0.37	Approximate	Medium Priority
Tributary of Leading Creek	1.39	Approximate	Medium Priority
Tributary of Little Leading Creek	0.28	Approximate	Medium Priority
Tributary of Middlebranch Shade River	0.42	Approximate	Medium Priority
Tributary of Shade River	0.28	Approximate	Medium Priority
Tributary of Shade River	0.80	Approximate	Medium Priority
Tributary of Leading Creek	0.64	Approximate	Medium Priority
Tributary of Shade River	0.62	Approximate	Medium Priority
Tributary of Middlebranch Shade River	1.30	Approximate	Medium Priority
Tributary of Little Leading Creek	0.53	Approximate	Medium Priority
Tributary of Thomas Fork	0.81	Approximate	Medium Priority
Tributary of Middlebranch Shade River	0.38	Approximate	Medium Priority
Tributary of Shade River	0.54	Approximate	Medium Priority
Tributary of Parker Run	1.06	Approximate	Medium Priority
East Branch Little Hocking River	4.37	Digital Conversion Approximate	Medium Priority
Little Hocking River	8.57	Digital Conversion Approximate	Medium Priority
Middle Branch Shade River	15.65	New Approximate	Medium Priority
West Branch Little Hocking River	17.12	Digital Conversion Approximate	Medium Priority
Ohio River	40.56	Redelineated	Medium Priority
Hocking River	15.51	Redelineated	Medium Priority

## ii. Mitigation Projects

Three potential mitigation projects were identified by the communities (Table 9), including:

- Area near the newly constructed US 33 interchange has increased flooding(City of Athens)
- Village of Racine- area of frequent floods effecting residential and commercial structures
- City of Pomeroy- Front Street- area of frequent floods effecting residential and commercial structures.

*Table 9: Areas of Mitigation Interest (AOMI)*

<b>Community</b>	<b>County</b>	<b>Flooding Source</b>	<b>Comments</b>
<b>Athens</b>	Athens	Unknown	US 33 interchange is causing flooding
<b>Racine</b>	Meigs	Ohio River	Meigs Co. stated that there is frequent flooding in res. & com. structures.
<b>Pomeroy</b>	Meigs	Ohio River	Flooding on Front St- Pomeroy

### iii. Compliance

While communities have referred CAV’s no Risk MAP needs regarding compliance issues were identified.

### iv. Communications

Invitations to the Discovery meeting were sent on June 14, 2011 to the identified stakeholders within Upper Ohio Shade watershed. The stakeholders were all interested in learning more about how to provide flood risk information to residents. Community representatives indicated the need to be informed of the results of the Discovery process and opportunities for public input during the process. The compilation of all the information and data gathered during the Discovery process was provided to the Upper Ohio Shade watershed stakeholders on December 1, 2011.

### v. Close

Community Stakeholders were interested in learning about the Discovery process and Risk MAP and how they can begin to develop resiliency to flood events. They identified several areas for map updates and areas in which they could use additional FEMA support. The information gathered in the Discovery process provided invaluable data for analysis and identifying the most flood-prone and at-risk areas. Local officials will now be more aware of risks in their area; therefore, state and federal agencies will be able to focus their resources on the most feasible projects. The local officials in the Upper Ohio Shade Watershed would benefit from the implementation of Risk MAP projects.

## vi. Appendix - Discovery Files

The Discovery Report appendices are stored digitally under their respective folders on the FEMA Mapping Information Platform (MIP).

The Discovery Report Appendices and the Discovery GIS Geodatabase are also available for download from the following FTP site:

[ftp://ftp.dnr.state.oh.us/Water/Public/Risk\\_MAP/Discovery/Upper\\_Ohio\\_ShadeWS/](ftp://ftp.dnr.state.oh.us/Water/Public/Risk_MAP/Discovery/Upper_Ohio_ShadeWS/)

Appendix A - Project Team Contact Information & Meeting Minutes

Appendix B - Stakeholder Contact Information & Meeting Invitations

Appendix C - Discovery Meeting Presentations

Appendix D - Discovery Meeting Sign-In Sheets & Handouts

Appendix E - Discovery Meeting Notes & Comments

Appendix F - Discovery Meeting Participant Feedback

Appendix G - Discovery Maps & Mapping Needs

Appendix H - OSIP II Update