

Discovery Report

FEMA Region V

Little Miami River Watershed, Ohio

HUC 05090202



FEMA

Prepared by



Project Area Community List

| Community Name | CID | Community Name | CID | Community Name | CID |
|--------------------------|--------|--------------------------|--------|------------------------------|--------|
| Aberdeen, Village of | 390675 | Georgetown, Village of | 390035 | Newtown, Village of | 390230 |
| Amelia, Village of | 390915 | Greene County | 390193 | North Hampton, Village of | 390679 |
| Batavia, Village of | 390066 | Hamersville, Village of | 390676 | Norwood, City of | 390233 |
| Beavercreek, City of | 390876 | Hamilton County | 390204 | Oakwood, City of | 390415 |
| Bellbrook, City of | 390194 | Harveysburg, Village of | 390833 | Owensville, Village of | 390680 |
| Bethel, Village of | 390916 | Higginsport, Village of | 390677 | Pleasant Plains, Village of | 390562 |
| Blanchester, Village of | 390074 | Highland County | 390769 | Port William, Village of | 390852 |
| Blue Ash, City of | 390208 | Indian Hill, City of | 390221 | Ripley, Village of | 390036 |
| Bowersville, Village of | 390948 | Village of | | Riverside, City of | 390416 |
| Brown County | 390034 | Jamestown, Village of | 390881 | Saint Martin, Village of | 390911 |
| Butler County | 390037 | Kettering, City of | 390412 | Russellsville, Village of | 390912 |
| Butlerville, Village of | 390719 | Lebanon, City of | 390557 | Sardina, Village of | 390789 |
| Catawba, Village of | 390950 | Loveland, City of | 390068 | Sharonville, City of | 390236 |
| Cedarville, Village of | 390607 | Lynchburg, Village of | 390271 | Silverton, City of | 390237 |
| Centerville, City of | 390408 | Madeira, City of | 390225 | South Charleston, Village of | 390951 |
| Chilo, Village of | 390067 | Madison County | 390773 | of | |
| Cincinnati, City of | 390210 | Maineville, Village of | 390934 | South Lebanon, Village of | 390563 |
| Clark County | 390732 | Mariemont, Village of | 390226 | South Vienna, Village of | 390952 |
| Clarksville, Village of | 390820 | Martinsville, Village of | 390878 | Springfield, City of | 390063 |
| Clermont County | 390065 | Mason, City of | 390559 | Spring Valley, Village of | 390196 |
| Clifton, Village of | 390678 | Midland, Village of | 390933 | Terrace Park, Village of | 390633 |
| Clinton County | 390764 | Milford, City of | 390227 | Tremont City, Village of | 390064 |
| Dayton, City of | 390409 | Montgomery, City of | 390042 | Warren County | 390757 |
| Deer Park, City of | 390212 | Montgomery County | 390775 | Waynesville, Village of | 390565 |
| Donnelsville, Village of | 390061 | Moraine, City of | 390414 | Williamsburg, Village of | 390072 |
| Enon, Village of | 390795 | Morrow, Village of | 390561 | Wilmington, City of | 390075 |
| Evendale, Village of | 390214 | Moscow, Village of | 390070 | Xenia, City of | 390197 |
| Fairborn, City of | 390195 | Mount Orab, Village of | 390621 | Yellow Springs, Village of | 390640 |
| Fairfax, Village of | 390215 | Neville, Village of | 390641 | | |
| Fayetteville, Village of | 390788 | New Vienna, Village of | 390849 | | |
| Felicity, Village of | 390917 | Newtonsville, Village of | 390918 | | |

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I. Watershed Description

The Little Miami River Watershed is located in southwestern Ohio, with a drainage area of 1,757 square miles. The 105 mile-long Little Miami River flows into the Ohio River just east of the City of Cincinnati. The principal tributaries to the Little Miami River are Beaver Creek, Caesar Creek, Todd Fork, and East Fork Little Miami River. The headwaters originate in southeastern Clark County and flow in a southwesterly direction through Greene, Warren, Clermont, and Hamilton Counties. The watershed also drains the majority of Clinton County, along with small portions of Montgomery, Highland, Madison, Brown, and Butler 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 Little Miami River Watershed.

Discovery Map: *Little Miami River Watershed*

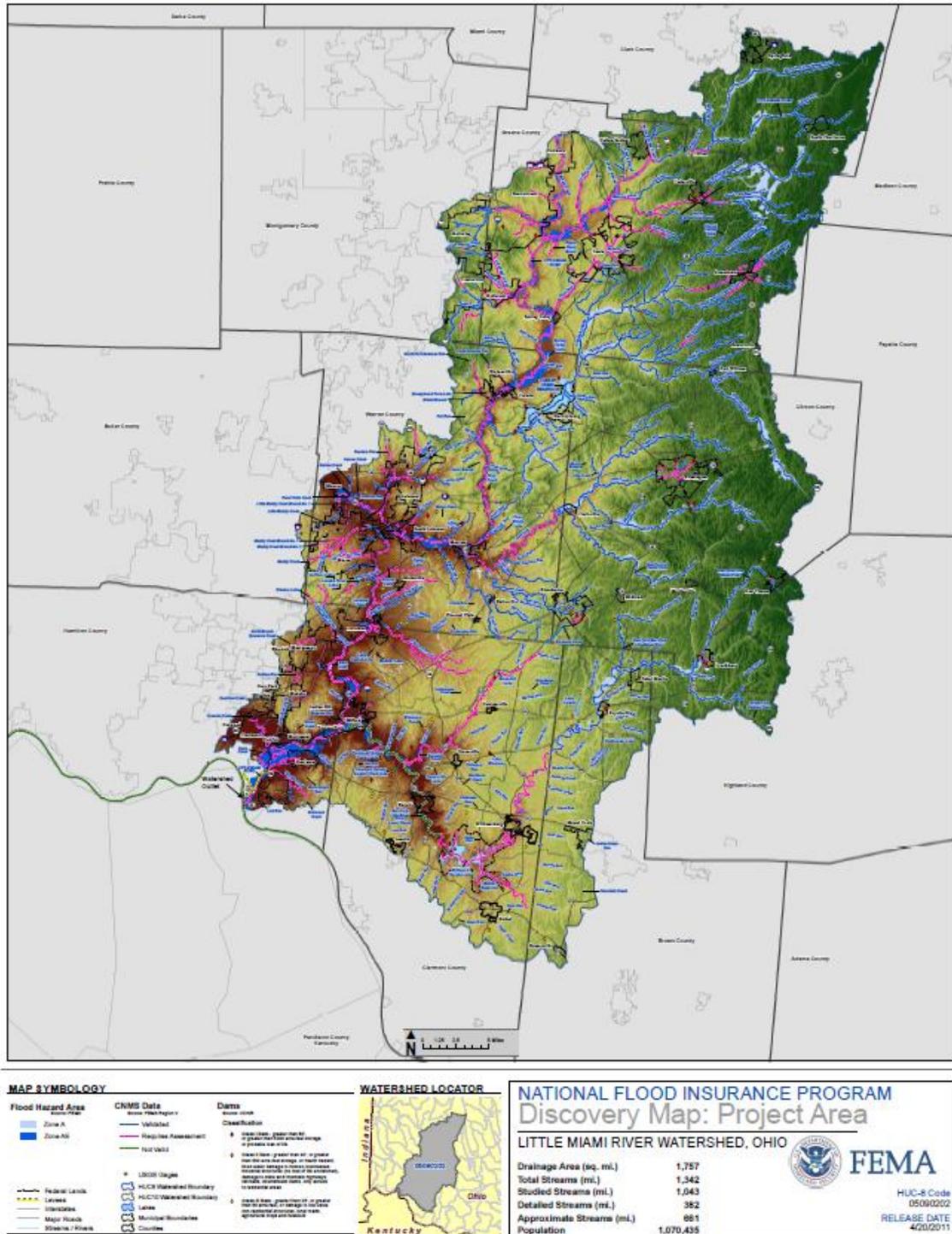


Figure 1. Project Area Map

Table 1. NFIP Participation Status

| County | Community | Participating? |
|-----------------|--------------------------|----------------|
| Brown | Aberdeen | Y |
| | Brown, Unincorporated | Y |
| | Fayetteville | N |
| | Georgetown | Y |
| | Hamersville | Y |
| | Higginsport | Y |
| | Mt. Orab | Y |
| | Ripley | Y |
| | Russellsville | N |
| | Sardina | N |
| St. Martin | N | |
| Butler | Butler, Unincorporated | Y |
| Clark | Catawba | N |
| | Clark, Unincorporated | Y |
| | Donnelsville | N |
| | Enon | Y |
| | New Carlisle | Y |
| | North Hampton | Y |
| | South Charleston | N |
| | South Vienna | N |
| | Springfield | Y |
| | Tremont City | Y |
| Clermont | Amelia | Y |
| | Batavia | Y |
| | Bethel | N |
| | Chilo | Y |
| | Clermont, Unincorporated | Y |
| | Felicity | N |
| | Milford | Y |
| | Moscow | Y |
| | Neville | Y |
| | Newtonsville | N |
| | Owensville | N |
| | Williamsburg | Y |

| County | Community | Participating? |
|------------------------|--------------------------|----------------|
| Clinton | Blanchester | Y |
| | Clarksville | Y |
| | Clinton, Unincorporated | Y |
| | Martinsville | N |
| | Midland | N |
| | New Vienna | Y |
| | Port William | N |
| | Greene | Beavercreek |
| Bellbrook | | Y |
| Bowersville | | N |
| Cedarville | | Y |
| Clifton | | Y |
| Fairborn | | Y |
| Greene, Unincorporated | | Y |
| Jamestown | | Y |
| Spring Valley | | Y |
| Xenia | | Y |
| Yellow Springs | Y | |
| Hamilton | Blue Ash | Y |
| | Cincinnati | Y |
| | Deer Park | N |
| | Evendale | Y |
| | Fairfax | Y |
| | Hamilton, Unincorporated | Y |
| | Indian Hill | Y |
| | Loveland | Y |
| | Madeira | Y |
| | Mariemont | N |
| | Montgomery | Y |
| | Newtown | Y |
| | Norwood | N |
| | Sharonville | Y |
| Silverton | N | |
| Terrace Park | Y | |

Table 1. NFIP Participation Status (continued)

| County | Community | Participating? |
|-------------------|-------------------------------|-----------------------|
| Highland | Highland, Unincorporated | N |
| | Lynchburg | Y |
| Madison | Madison, Unincorporated | Y |
| Montgomery | Centerville | Y |
| | Dayton | Y |
| | Kettering | Y |
| | Montgomery, Unincorporated | Y |
| | Moraine | Y |
| | Oakwood | N |
| | Riverside | Y |
| Warren | Harveysburg | N |
| | Lebanon | Y |
| | Maineville | N |
| | Mason | Y |
| | Monroe | Y |
| | Morrow | Y |
| | Pleasant Plains | N |
| | South Lebanon | Y |
| | Warren, Unincorporated | Y |
| | Waynesville | 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 (fall 2010)*, the draft *Meetings Guidance for FEMA Personnel (October 2010)* 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 February 2011 for the Little Miami River 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 Little Miami River 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)
- STARR

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 Little Miami River 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.

STARR 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. Two (2) watershed-wide Discovery Meetings were held on May 3, 2011 in Xenia, Ohio and Mason, 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, D, E, F and G, 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 H, 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 Little Miami River Watershed

| Data Types | Deliverable/ Product | Source |
|---|---|--|
| Insurance Policies | Community Fact Sheet | Community Information System (CIS) |
| Mitigation Plans Status | Community Fact Sheet | FEMA Regional Office, OEMA |
| Mitigation Projects | Community Fact Sheet | Data.gov: FEMA Hazard Mitigation Program Summary, OEMA |
| Other Hazard Plans | Community Fact Sheet | Local websites, Community Contact, OEMA |
| Repetitive Loss | Community Fact Sheet | Community Information System (CIS), OEMA |
| Zone B, C, and X Claims | Community Fact Sheet | Community Information System (CIS) |
| Letter of Map Change (LOMCs) | Community Fact Sheet (known clusters on Discovery Map Geo-Database) | Community Information System (CIS), Community Contact |
| Declared Disasters | Community Fact Sheets | Data.gov: FEMA Disaster Declarations Summary |
| Hazards | Community Fact Sheets | Community Information System (CIS) |
| Past flood claims and repetitive loss properties | Community Fact Sheet | FEMA R5 and/or ODNR |
| HUC-8 Watershed | Discovery Map Geo-Database | USGS National Hydrography Dataset (NHD) |
| HUC-12 Watersheds | Discovery Map Geo-Database | National Resource Conservation Service (NRCS) |
| Jurisdictional Boundaries | Discovery Map Geo-Database | FEMA and ODNR |
| Tribal land boundaries | Discovery Map Geo-Database | US Census Bureau and/or USGS National Atlas |
| State lands | Discovery Map Geo-Database | Ohio Department of Natural Resources (ODNR) |
| Federal lands | Discovery Map Geo-Database | USGS National Atlas |
| Transportation Major and Minor | Discovery Map Geo-Database | Montgomery County, OH and Clermont County, OH |
| Transportation Major and Minor | Discovery Map Geo-Database | Ohio's Location Based Response System (LBRS) and FEMA |
| Stream lines | Discovery Map Geo-Database | National Hydrography Dataset (NHD) and FEMA |
| Protected Areas (USFWS) | Discovery Map Geo-Database | U.S. Fish and Wildlife Service (USFWS) |
| Study Needs | Discovery Map Geo-Database | Coordinated Needs Management System (CNMS) |

Table 2. Data Collection for Little Miami River Watershed

| Data Types | Deliverable/ Product | Source |
|---|-----------------------------|--|
| Topographic data | Discovery Map Geo-Database | Ohio Statewide Imagery Program (OSIP) |
| HAZUS - Average Annualized Loss (AAL) | Discovery Map Geo-Database | STARR |
| Community or Tribal risk assessment data | Discovery Map Geo-Database | HAZUS |
| Local mitigation plans | Discovery Map Geo-Database | OEMA |
| State mitigation plans | Discovery Map Geo-Database | ODPS - Ohio Emergency Management Agency (OEMA) |
| National and Regional flood control structures | Discovery Map Geo-Database | USACE |
| Regional flood control structures | Discovery Map Geo-Database | Ohio Department of Natural Resources (ODNR) |
| Stream Gages | Discovery Map Geo-Database | U.S. Geological Survey (USGS) |
| Flooded Structures | Discovery Map Geo-Database | Ohio Department of Natural Resources (ODNR) |
| Effective study data | Discovery Map Geo-Database | FEMA's Regional Flood Hazard Layer (RFHL) |
| Orthophotography | Discovery Map Geo-Database | Ohio Statewide Imagery Program (OSIP) |
| Contacts | 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 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 Little Miami River Watershed were collected during the months of March and April (leaf-off conditions) in 2007.

USGS Gages

STARR has identified several USGS stream gages in the watershed. The locations of the gages are shown on the Discovery Map and a summary is presented in Table 3.

Table 3. USGS Gages

| Gage Number | Station Name and Location | Years of Record (Peaks) |
|--------------------|--|--------------------------------|
| 03246500 | East Fork Little Miami River at Williamsburg, OH | 21 |
| 03247050 | East Fork Little Miami River near Batavia, OH | 30 |
| 03246200 | East Fork Little Miami River near Marathon, OH | 15 |
| 03247500 | East Fork Little Miami River at Perintown, OH | 91 |
| 03248000 | Little Miami River at Plainville, OH | 14 |
| 03245500 | Little Miami River at Milford, OH | 87 |
| 03244000 | Todd Fork near Rochester, OH | 22 |
| 03242500 | Little Miami River near Fort Ancient, OH | 17 |
| 03242350 | Caesar Creek near Wellman, OH | 10 |
| 03242300 | Caesar Creek at Harveysburg, OH | 16 |
| 03242200 | Anderson Fork near New Burlington, OH | 15 |
| 03242050 | Little Miami River near Spring Valley, OH | 41 |
| 03242150 | Caesar Creek near Xenia, OH | 15 |
| 03241500 | Massies Creek at Wilberforce, OH | 57 |
| 03241000 | South Fork Massie Creek near Cedarville, OH | 14 |
| 03240000 | Little Miami River near Oldtown, OH | 57 |
| 03240500 | North Fork Massie Creek at Cedarville, OH | 14 |
| 03239000 | Little Miami River near Selma, OH | 25 |
| 03239500 | North Fork Little Miami River near Pitchin, OH | 25 |

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, Mitigation Projects

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 | Hazus | Hazard Mitigation Plan | Issue Date | Expiration Date |
|--------------------------------------|-------|------------------------|------------|-----------------|
| Brown County | Y | Y | 2007 | 2012 |
| Butler County | Y | Y | 2006 | 2011 |
| Clark County | Y | Y | 2006 | 2011 |
| Clermont County | Y | Y | 2004 | 2009 |
| Clinton County | N | Y | 2006 | 2011 |
| Monroe Township (Clermont Co.) | Y | Y | 2005 | 2010 |
| Greene County | N | Y | 2007 | 2012 |
| Hamilton County | N | Y | 2007 | 2012 |
| Highland County | N | Y | 2007 | 2012 |
| Village of Fairfax (Hamilton County) | Y | Y | 2010 | 2015 |
| Madison County | N | Y | 2006 | 2011 |
| Warren County | N | Y | 2009 | 2014 |

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. An estimated total of 17 critical facilities within the watershed are considered at-risk and should be identified as an Area of Mitigation Interest. 16 of the structures are located in Warren County.

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.

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, thirty-four (34) 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.

Existing mitigation projects identified by the communities are presented on the Discovery Map. An example of a recent mitigation project that has occurred within the Little Miami River Watershed was an acquisition of residential properties along Little Duck Creek in the Village of Fairfax. These properties were located within the 1-percent-annual-chance floodplain and sustained substantial damage during a flash flood event in July 2001. The project was funded by several grants from the Hazard Mitigation Grant Program for the acquisition and removal of structures in the problem area. Additional grants were also provided to floodproof other structures within the problem area. In addition, there have been substantial education and outreach efforts for this area, including the installation of a river warning system. Also, USACE has relocated the downstream Duck Creek channel to help alleviate flooding problems in the area.

A historical mitigation project along the Little Beaver Creek was also identified by the City of Kettering. This mitigation project was funded through the Hazard Mitigation Grant Program.

Coordinated Needs Management Strategy (CNMS) and NFIP Mapping Study Needs
Analysis of the CNMS data for the Little Miami River Watershed is completed. Analyzed studies have been identified as “VALID” or “UNVERIFIED”. The current CNMS geospatial data is presented on the Final Discovery Map.

Socio-Economic Analysis

Development within the Little Miami River Watershed ranges from very developed to rural. The majority of the land within the watershed west of the Little Miami River is developed, especially near its confluence with the Ohio River, while the eastern portion of the watershed is still relatively undeveloped with narrow steep valleys. Approximately 1 million residents live within the Little Miami River Watershed (2010 Census). The median age in the watershed is in the late 30's, and around 13% of the population over 65 years old. Between 3-6% are non-English speakers, and less than 1% are Native American. Approximately 85% of the population graduated high school, and about 25% have a college degree. Around 66% of residents over the age of 16 that desired employment were working, with a median income between \$27,000 and \$36,000 annually. The top three industries employing residents include:

- Educational, health, and social services
- Manufacturing
- Retail trade.

Community Rating System (CRS)

The City of Kettering is the only community in the Little Miami River Watershed that participates in the CRS program.

Levees

Several levees exist along the Ohio River; however, only portions of these levee systems are in the Little Miami River Watershed. Levees exist around the Cincinnati Municipal Lunken Airport located in Hamilton County at the mouth of the Little Miami River at the Ohio River. These levees were not shown as providing protection from the 1-percent-annual-chance flood on the February 2010 Hamilton County and Incorporated Areas Digital Flood Insurance Rate Maps (DFIRM).

Floodplain Management/Community Assistance Visits

Based on information provided by ODNR, the following communities have open CAV's: City of Beavercreek, Village of Fairfax, Greene County, Hamilton County, City of Lebanon, Warren County, and the City of Xenia.

Regulatory Mapping

Little Miami River Watershed communities have all had recent countywide map updates as part of FEMA's Map Modernization Program. The effective dates of the most recent county-wide projects are presented on the Discovery Map and below in Table 6. The effective data is a combination of both detailed and approximate analysis with varying vintage dates.

Table 5. Map Modernization Activity

| County | Status | Effective Date |
|-------------------|---------------|-----------------------|
| Brown | Effective | 9/29/2010 |
| Butler | Effective | 12/17/2010 |
| Clark | Effective | 2/17/2010 |
| Clermont | Effective | 3/16/2006 |
| Clinton | Effective | 5/3/2010 |
| Greene | Effective | 3/17/2011 |
| Hamilton | Effective | 2/17/2010 |
| Highland | Effective | 3/3/2011 |
| Madison | Effective | 6/18/2010 |
| Montgomery | Effective | 1/6/2005 |
| Warren | Effective | 12/17/2010 |

Community Fact Sheets

To help guide the data analysis process, a Fact Sheet was developed for each community within the watershed (Appendix I). Each Fact Sheet summarizes the demographic, social, and industrial characteristics and flood-study information for each community.

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 Little Miami River 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 of the counties located in the Little Miami River Watershed 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 Little Miami River have been identified in Table 6. The specific locations of these Study Areas are presented on the Final Discovery Map.

Table 6. Mapping Needs

| FLOODING SOURCE | STUDY LENGTH (miles) | STUDY TYPE |
|------------------------------|-------------------------|-------------|
| Bares Run | 0.7 | APPROXIMATE |
| Beaver Creek | 9.8 | DETAILED |
| Berkshire Creek | 0.7 | APPROXIMATE |
| Brewster's Run | 2.5 | DETAILED |
| Brushy Fork | 0.9 | APPROXIMATE |
| Caesar Creek | 8.9 | DETAILED |
| Centerville Tributary | 2.6 | DETAILED |
| Cloverlick Creek | 2.9 | APPROXIMATE |
| Dry Run 2 | 2.5 | DETAILED |
| East Fork Little Miami River | 71.4 | DETAILED |
| East Fork Todd Fork | 19.1 | DETAILED |
| First Creek | 0.9 | APPROXIMATE |
| French Run | 1.6 | DETAILED |

| FLOODING SOURCE | STUDY LENGTH (miles) | STUDY TYPE |
|---|-------------------------|-------------|
| Glady Creek | 0.8 | DETAILED |
| Lake Chetac Creek | 4.4 | DETAILED |
| Little Beaver Creek | 0.5 | APPROXIMATE |
| Little Duck Creek | 1.4 | DETAILED |
| Little Miami River | 105.4 | DETAILED |
| Little Muddy Creek | 9.4 | DETAILED |
| Little Sugar Creek | 4.6 | DETAILED |
| Massies Creek | 10.3 | DETAILED |
| Muddy Creek Branch No. 2 | 0.9 | DETAILED |
| New Germany Branch | 3.1 | DETAILED |
| North Branch Sycamore Creek | 6.3 | DETAILED |
| North Fork | 2.3 | DETAILED |
| O'Bannon Creek | 4.5 | DETAILED |
| Pattison Creek | 0.8 | APPROXIMATE |
| Polk Run | 5.7 | DETAILED |
| Possum Run | 2.5 | DETAILED |
| Right Bank Tributary to Obannon Creek | 1.8 | APPROXIMATE |
| Salt Run | 0.9 | APPROXIMATE |
| Shawnee Creek | 7.0 | DETAILED |
| Shawnee Creek Tributary | 1.6 | DETAILED |
| Shawnee Park Tributary | 1.8 | DETAILED |
| Simpson Creek | 3.6 | DETAILED |
| Stonelick Creek | 12.7 | APPROXIMATE |
| Sycamore Creek | 3.3 | DETAILED |
| Tributary to East Fork Little Miami River | 2.5 | APPROXIMATE |
| Tributary to Mad Creek | 3.4 | DETAILED |
| Tributary to O'Bannon Creek | 2.0 | APPROXIMATE |
| Tributary to Right Bank Tributary to O'Bannon Creek | 1.3 | APPROXIMATE |
| Tributary to Sugar Creek | 3.1 | APPROXIMATE |
| Union Run | 3.5 | DETAILED |
| Unnamed Tributary No. 1 to Muddy Creek | 4.1 | DETAILED |
| Unnamed Tributary to Turtle Creek | 1.8 | DETAILED |
| Whites Corner Tributary | 1.2 | DETAILED |

ii. Mitigation Projects

Representatives from Greene County identified a currently ongoing mitigation project along Massie Creek near the Water Treatment Plant in Xenia, Ohio. This grant application was submitted in 2011.

Two potential mitigation projects were identified by the communities, including:

- Union Run in Mason, Ohio (currently Zone A)
- Turtle Creek in Lebanon, Ohio (currently Zone AE)

In addition, the Little Duck Creek study reach was found to be “UNVERIFIED” in CNMS due to structures outside the SFHA having repetitive flood loss. A new study of this area would provide useful information in this area where future Hazard Mitigation Grant projects are being planned.

The Beaver Creek study reach, in the City of Fairborn, was identified as a location of nuisance flooding. Representatives of Fairborn identified these locations as potential future mitigation areas.

iii. Compliance

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. Open CAVs can be indicative of unresolved violations. Communities with open CAVs include the City of Beavercreek, the Village of Fairfax, Green County, Hamilton County, the City of Lebanon, Warren County, and the City of Xenia¹. 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 potential LOMR-F violations include Butler County, the City of Fairborn, and Hamilton County¹. Communities with Submit-for-Rate issues include Butler County, Montgomery County, and the Village of Ripley¹. 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,

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

FEMA may initiate an enforcement action against the community. No RiskMAP needs regarding compliance were identified.

iv. **Communications**

The local officials were all interested in learning more about how to provide flood risk information to residents. Community representatives indicated the need to be kept informed about the results of the Discovery process and opportunities for public input throughout the process.

V. **Close**

Local officials in the communities were interested in the Discovery process and Risk MAP and open to learning more about 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 information for analyzing and identifying the most flood-prone and at-risk areas. Local officials will now be more aware of risks in their area, and state and federal agencies will be able to focus their resources on the most feasible projects. The local officials in the Little Miami River 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) at:

\\05090202\Discovery\Project_Discovery_Initiation\Discovery_Report\

The Discovery Report appendices are also available for download from the following FTP site:

FTP link: <ftp://ftptmp.stantec.com>

Login name: s0914122223

Password: 5176145

Appendix A - Project Team Contact Information & Meeting Minutes

Appendix B - Stakeholder Contact Information & Meeting Invitations

Appendix C - Phone Logs

Appendix D - Discovery Meeting Presentations

Appendix E - Discovery Meeting Sign-In Sheets & Handouts

Appendix F - Discovery Meeting Notes & Comments

Appendix G - Discovery Meeting Participant Feedback

Appendix H - Discovery Maps

Appendix I - Community Fact Sheets

Appendix J - NDEP & NDOP Updates

Appendix K - Discovery Deliverables QAQC