

Appendix A:
Notification Process



Shelby County Emergency Management Agency

800 Fair Road
Sidney, OH 45365
P: 937-492-5635 F: 937-492-8507
E: ShelbyCountyEMA@gmail.com

Director

Cheri Drinkwine

Executive Board

Julie Ehemann	Bruce Metz
Tim Bender	Randy Bensman
Chuck Axe	Rick Simon
	Mark Harrod

Be Prepared...

September 3, 2014

Good afternoon:

The Shelby County Emergency Management Agency invites you to be a part of the mitigation planning core group to update the Shelby County Natural Hazard Mitigation Plan. The initial meeting will take place on Tuesday, September 30 at 10:00 am at the Shelby County Agricultural Service Center, 810 Fair Road, Sidney.

The emergency management cycle includes preparing before disasters occur, working to reduce the risk of damages, supporting responders and those affected by a disaster, and rebuilding after an event to get our communities back to "normal" as soon as possible. It's an ever changing process as individuals, groups, and communities collaborate to mitigate the effects of hazards that threaten our citizen's lives, property and the environment.

Hazard mitigation planning is a method the endeavors to manage hazards by identifying the policies, capabilities, and tools necessary to implement successful and sustainable mitigation activities. Some of the benefits of mitigation planning are:

- Saves lives, protects property and the environment
- Commitment to our communities' health and safety
- Effective and speedier recovery
- Reduce future vulnerability
- Remain eligible for federal and state funding

The Shelby County EMA is working with a planning specialist, and updates to the plan are in progress. The existing plan is posted on the Shelby County website and updated drafts will be posted there, also. As noted, we will have an initial face-to-face meeting with the core group on September 30. After that, most of the activity will occur via e-mail and phone. When it's time to select projects and approve the final draft, we will meet again as a group.

If you would like to serve on the mitigation planning core group, or have any questions regarding this project, please contact me via email shelbycountyema@gmail.com or phone, 937-492-5635.

Thank you for your consideration. Your involvement will help build stronger, more resilient communities in Shelby County.

Respectfully,

Cheri Drinkwine

Cheri Drinkwine, Director
Shelby County Emergency Management Agency



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Be Prepared...

September 9, 2014

Letter sent to all businesses in Section 3.3

Dear:

The Shelby County Emergency Management Agency is in the process of updating the Shelby County Natural Hazard Mitigation Plan. Hazard mitigation is any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects. An important element of the planning process is to collaborate with the public and private sector, including our business community, to form a mitigation planning core group. You are invited to be a part of the mitigation planning core group to update the Natural Hazard Mitigation plan. The initial meeting will take place on Tuesday, September 30 at 10:00 am at the Shelby County Agricultural Service Center, 810 Fair Road, Sidney.

The emergency management cycle includes preparing before disasters occur, working to reduce the risk of damages, supporting responders and those affected by a disaster, and rebuilding after an event to get our communities back to "normal" as soon as possible. It's an ever changing process as individuals, groups, and communities work in partnership to mitigate the effects of hazards that threaten our citizen's lives, property and the environment. Hazard mitigation planning is a method the endeavors to manage hazards by identifying the policies, capabilities, and tools necessary to implement successful and sustainable mitigation activities. Some of the benefits of mitigation planning are:

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The Shelby County EMA is working with a planning specialist, and updates to the plan are in progress. The existing plan is posted on the Shelby County website and updated drafts will be posted there, also. As noted, we will have an initial face-to-face meeting with the core group on September 30. After that, most of the activity will occur via email and phone. When it's time to select projects and approve the final draft, we will meet again as a group.

If you would like to serve on the mitigation planning core group, or have any questions regarding this project, please contact me via email shelbycountyema@gmail.com or phone, 937-492-5635.

Thank you for your consideration. Your involvement will help build stronger, more resilient communities in Shelby County.

Respectfully,

Cheri Drinkwine

Cheri Drinkwine, Director

Shelby County Emergency Management Agency



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Be Prepared...

September 19, 2014

Media Release

Shelby County to Update Natural Hazards Mitigation Plan

The Shelby County Emergency Management Agency is moving ahead in helping communities become more disaster resistant by updating the existing Shelby County Natural Hazards Mitigation Plan. As part of the Disaster Mitigation Act, communities that desire to remain eligible for Federal and State mitigation funds must have an approved mitigation plan in place.

Local participation is key to the successful implementation of mitigation plans. A community planning approach will be used by a core group made up of community representatives from the public and private sector. The initial meeting for the Mitigation Planning Core Group will take place on Tuesday, September 30 at 10:00 am at the Shelby County Agricultural Services Center, 810 Fair Road, Sidney. All meetings are open to the public.

Federal and State funding was awarded to Shelby County for the plan update project. Mitigation grants used to implement mitigation strategies and activities are the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA) or the Pre-Disaster Mitigation Grant Program (PDM). Examples of eligible activities supported by mitigation dollars include: relocation, acquisitions, elevation, dry-flood-proofing, generators, wind retrofits, and safe room construction.

All county residents are welcome to review and respond to the initial and updated plans. The original plan is located on the Shelby County website and the updated plan will be posted after October 1. The plan can also be reviewed at the Shelby County Commissioner's Office in hard copy for official and public review. Please direct all comments, suggestions, or questions concerning the plan to Cheri Drinkwine, Shelby County EMA Director at shelbycountyema@gmail.com or call 937-492-5635.



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MEMORANDUM

TO: Representatives – Shelby County Political Subdivisions
FROM: Shelby County Natural Hazard Mitigation Plan Update Committee
SUBJECT: Request Form for Mitigation Projects

As you may be aware, Shelby County is in the process of updating the county's Natural Hazard Mitigation Plan. According to the Disaster Mitigation Act of 2000, the Plan must be updated every five years. The updated plan must also meet the requirements of Title 44 Code of Federal Regulations §201.6 for FEMA approval in order to remain eligible to apply for FEMA Hazard Mitigation Assistance grant programs.

To proceed with the Plan update, the County has formed a Natural Hazard Mitigation Plan Update committee. As a part of the updating and final approval requirements, each political subdivision within the County will have the opportunity to consider and formally submit to us identifiable action items that would be used to mitigate any natural disaster. To help you in this process, we are providing a list of specific mitigation planning action items that are a part of the current Mitigation Plan.

We are also enclosing a Mitigation Action Item Proposal form that should be used to submit potential mitigation action items for your community. We ask that you discuss these items with your community leaders and identify the project(s) that might benefit your community. Please be aware that the mitigation assistance grants are competitive and require a local match. This means you will be responsible for footing some of the cost of a project funded through a Federal or State grant. We are asking that the proposal form(s) be completed and returned by **January 31, 2015**. The proposed action item(s) will be submitted to the Planning Group where they will be reviewed. All approved action item proposals will be incorporated within the draft Plan update.

For the most part, all information requested on the form is fairly straight forward. The data relating to the "estimated number of people potentially affected" and the "estimated cost of the project" can be a general estimate based on the best available information at this point. If you have any questions regarding the information requested or if you wish to meet to discuss a project, please let me know.

The Board of County Commissioners, County Villages, and the City of Sidney have each signed a "Statement of Interest" indicating interest in supporting the mitigation plan. FEMA requires that the county, villages, and city each formally adopt the plan once it is approved. Townships will not have to individually adopt the plan as they are covered under the County Commissioners.

Please assist us by completing and submitting your proposals within the time frame specified. Having the eligibility of receiving funds for your proposals is of benefit to you and your community. Please let us know if you have any questions. Contact information can be found at the bottom of the Mitigation Action Item Proposal form.

Thank you.

PROPOSED MITIGATION PROJECT FOR NATURAL DISASTERS
Political Subdivisions – Shelby County, OH

Please complete the following mitigation project proposal for natural disasters. Please describe the proposed project as accurately as possible. ***One form should be used for each project proposed.*** Completed forms must be sent/faxed according to the instructions below by the deadline. The proposed projects will be reviewed locally before being submitted as part of the Plan to Ohio EMA for their review/approval. **If** mitigation funding becomes available, Ohio EMA will award grant funds according to their established priority guidelines. This process makes proposed projects *eligible* for potential funding, if available.

For what natural disaster is this project directed to mitigate? _____
(tornado, flood, severe winter storm, windstorm, hailstorm, earthquake, drought)

What specific political subdivision(s) will be served by this project? _____

Project description:

Estimated number of people potentially affected by implementing this project? ____

Estimated cost of the project? \$ _____

How will this project benefit the community? *(use separate pages, if necessary)*

Project submitted by: _____
(name/political subdivision/phone #)

Please send/fax the completed form(s) by January 31, 2015 to:

Cheri Drinkwine, Shelby County Emergency Management Agency
800 Fair Road, Sidney OH 45365,

Phone: 937-492-5635,

FAX: 937-492-8507



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Be Prepared...

Press Release

A draft of the updated Shelby County Hazard Mitigation Plan is ready for review at an Open House on Wednesday, November 16, from 4-6 pm at the Shelby County Emergency Management Agency, 800 Fair Road, Sidney. The public is welcome to review the plan at the event or view the original and updated plans on-line at shelbyco@shelbyco.net.

The plan addresses natural hazards such as flooding, severe summer and winter storms, tornado and high wind events, earthquake, drought and excessive heat. Attendees will have an opportunity to review the results of a county wide hazard risk assessment and comment on mitigation actions identified to help prevent or minimize the effects of hazard threats to the residents of Shelby County.

Moving forward, the plan will be submitted to the Ohio EMA and FEMA for review and approval. Once accepted, the plan will be adopted by the county and jurisdictions. When adopted, the plan will receive final approval by FEMA which will give all county jurisdictions potential access to federal disaster relief funds and grants for mitigation projects.

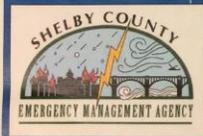
Community involvement is very important and all county residents are welcome to respond and give their feedback to the plan. Please direct all comments, suggestions, or questions concerning the plan to Cheri Drinkwine, Shelby County EMA Director at shelbycountyema@gmail.com or call 937-492-5635.

Come Join Us!

Come learn about the natural hazards that may impact Shelby County, and what the county is doing to prepare for them. Please join us on **November 16th** at the Shelby County Emergency Management Agency located at:

800 Fair Rd.
Sidney, OH 45365

At the meeting, you can learn more about the plan, and ask questions about the specific hazards that may impact our communities.



Shelby County Hazard Mitigation Plan Open House

A draft of the Shelby County Hazard Mitigation Plan is ready for review at an Open House on **Wednesday, November 16, from 4-6 pm** at the EMA offices. The public is welcome to review the plan at the event or view the original and updated plans on-line at shelbyco@shelbyco.net.

The plan addresses natural hazards such as flooding, severe summer and winter storms, tornado and high wind events, earthquake, drought and excessive heat. Attendees will have an opportunity to review the results of a county wide hazard risk assessment and comment on mitigation actions identified to help prevent or minimize the effects of hazard threats to the residents of Shelby County.



Community involvement is very important and all county residents are welcome to respond and give their feedback to the plan. Please direct all comments, suggestions, or questions concerning the plan to Cheri Drinkwine, Shelby County EMA Director at:

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Appendix B:
Political Boundaries



ENGINEERS, SURVEYORS, PLANNERS, SCIENTISTS

EVANS, MECHWART, HAMBLETON & TILTON
170 MILL STREET
GAHANNA, OHIO 43230
TELEPHONE (614) 471-5150
FACSIMILE (614) 471-9286

SHELBY COUNTY, OHIO
MAP B-1
COUNTYWIDE ALL NATURAL HAZARD MITIGATION PLAN
Political Boundaries

January 2005

Job No. 2004.1605

Scale: As Noted



**Appendix C:
Watershed Maps**



ENGINEERS, SURVEYORS, PLANNERS, SCIENTISTS

EVANS, MECHWART, HAMBLETON & TILTON

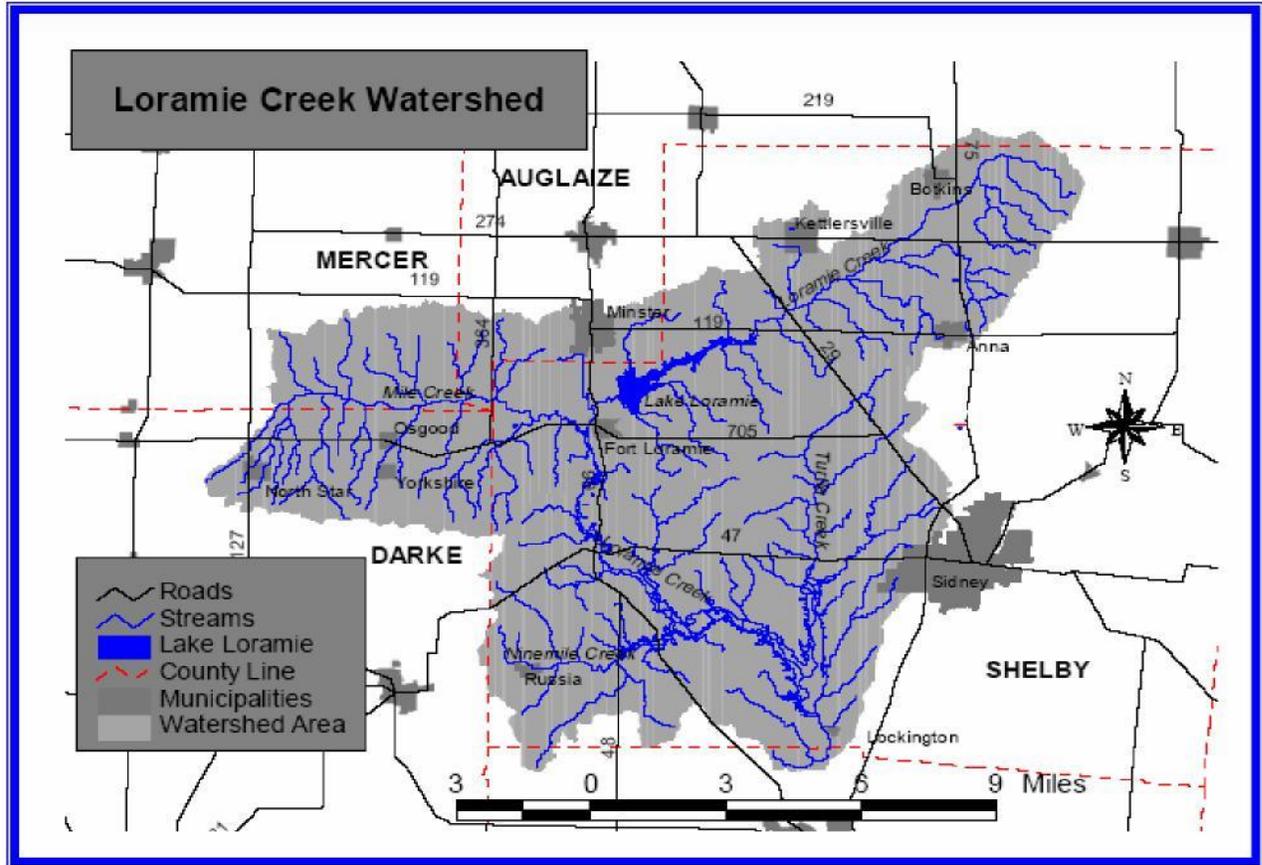
170 MILL STREET
GAHANNA, OHIO 43230
TELEPHONE (614) 471-5150
FACSIMILE (614) 471-9286

SHELBY COUNTY, OHIO
MAP C-1
COUNTYWIDE ALL NATURAL HAZARD MITIGATION PLAN
Loramie Creek Watershed

January 2005

Job No 2004 1605

Scale: As Noted





ENGINEERS, SURVEYORS, PLANNERS, SCIENTISTS

EVANS, MECHWART, HAMBLETON & TILTON

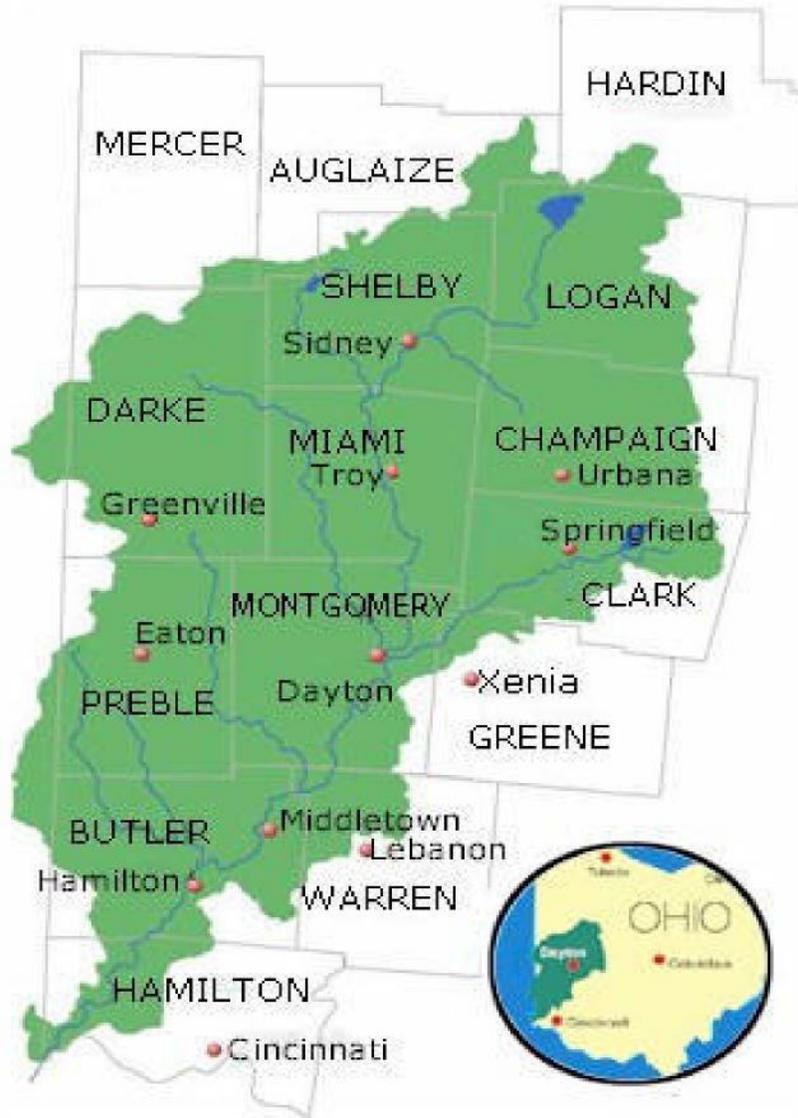
170 MILL STREET
GAHANNA, OHIO 43230
TELEPHONE (614) 471-5150
FACSIMILE (614) 471-9286

SHELBY COUNTY, OHIO
MAP C-2
COUNTYWIDE ALL NATURAL HAZARD MITIGATION PLAN
Great Miami River Watershed

January 2005

Job No 2004 1605

Scale: NTS





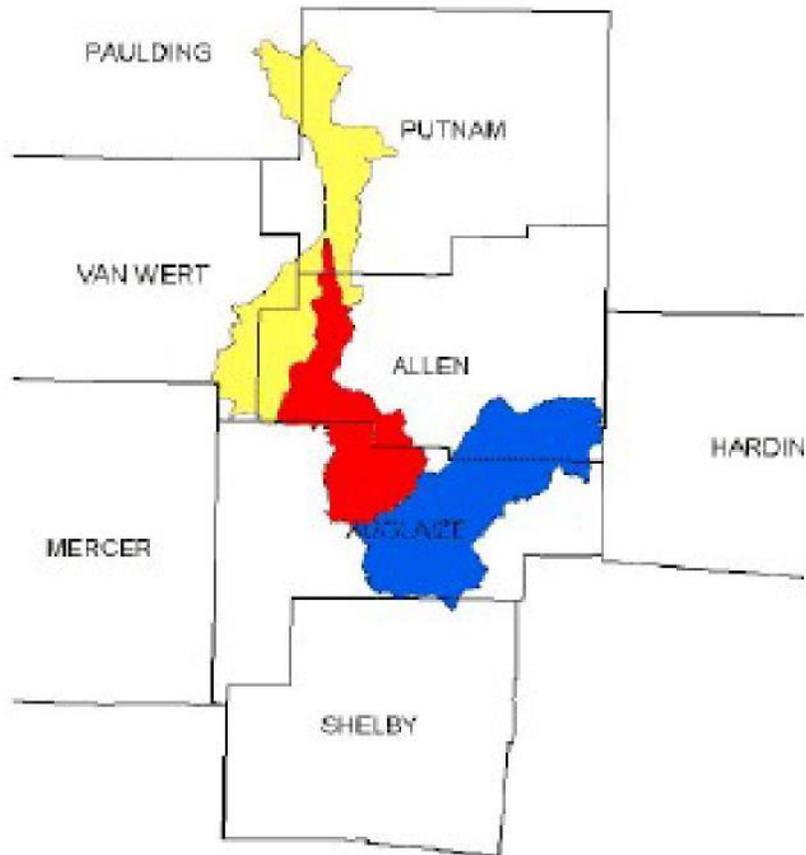
EVANS, MECHWART, HAMBLETON & TILTON
170 MILL STREET
GAHANNA, OHIO 43230
TELEPHONE (614) 471-5150
FACSIMILE (614) 471-9286

SHELBY COUNTY, OHIO
MAP C-3
COUNTYWIDE ALL NATURAL HAZARD MITIGATION PLAN
Upper Auglaize River Watershed

January 2005

Job No 2004 1605

Scale: NTS



Appendix D:
HAZUS Information and Data
for 25 and 100-year Floods

Building Data for Shelby County

General Building Stock

HAZUS estimates that there are 21,358 buildings in the region which have an aggregate total replacement value of 3,802 million (2006 dollars). Table 1 and Table 2 present the relative distribution of the value with respect to the general occupancies in Shelby County.

Table 1
Building Exposure by Occupancy Type

Occupancy	Exposure (\$1000)	Percent of Total
Residential	2,530,484	66.6%
Commercial	502,972	13.2%
Industrial	560,549	14.7%
Agricultural	49,920	1.3%
Religion	75,353	2.0%
Government	35,699	0.9%
Education	46,941	1.2%
Total	3,801,918	100.00%

Essential Facility Inventory

For essential facilities, there is 1 hospital in the region with a total bed capacity of 143 beds. There are 22 schools, 11 fire stations, 5 police stations and one emergency operation center.

25-Year Flood Information and Data (based on data from both East and West HAZUS runs)

Table 2
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure (\$1000)	Percent of Total
Residential	578,176	80.3%
Commercial	75,157	10.4%
Industrial	25,992	3.6%
Agricultural	13,049	1.8%
Religion	15,490	2.2%
Government	5,245	0.7%
Education	7,057	1%
Total	720,184	100.00%

Building Damage

General Building Stock Damage

HAZUS estimates that about 183 buildings will be at least moderately damaged. This is over 7% of the total number of buildings in the scenario. There are an estimated 47 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the HAZUS Flood technical manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 summarizes the expected damage by general building type.

Table 3: Expected Building Damage by Occupancy

Occupancy	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	0	0.00	1	100.00	0	0.00	1	0.00	0	0.00	0	0.00
Commercial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Religion	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	0	0.00	3	1.65	21	11.54	46	25.27	65	35.71	47	25.82
Total	0		4		21		46		65		47	

Table 4: Expected Building Damage by Building Type

Building Type	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
ManufHousing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00
Masonry	0	0.00	0	0.00	3	11.11	6	22.22	11	40.74	7	25.93
Steel	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Wood	0	0.00	3	1.95	18	11.69	40	25.97	54	35.06	39	25.32

Essential Facility Damage

Before the flood analyzed in this scenario, the region had hospital beds available for use. On the day of the scenario flood event, the model estimates that hospital beds are available in the region.

Table 5: Expected Damage to Essential Facilities

Classification	Total	At Least Moderate	At Least Substantial	Loss of Use
Fire Stations	11	0	0	0
Hospitals	1	0	0	0
Police Stations	8	1	0	0
Schools	27	1	0	1

Induced Flood Damage

Debris Generation

HAZUS estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories: 1) Finishes (dry wall, insulation, etc.), 2) Structural (wood, brick, etc.) and 3) Foundations (concrete slab, concrete block, rebar, etc.). This distinction is made because of the different types of material handling equipment required to handle the debris.

The model estimates that a total of 9,980 tons of debris will be generated. Of the total amount, Finishes comprises 47% of the total, Structure comprises 30% of the total. If the debris tonnage is converted into an estimated number of truckloads, it will require 399 truckloads (@25 tons/truck) to remove the debris generated by the flood.

Social Impact

Shelter Requirements

HAZUS estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. HAZUS also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 699 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 1,013 people (out of a total population of 47,910) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the flood is 152.01 million dollars, which represents 10.37% of the total replacement value of the scenario buildings.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

The total building-related losses were 75.41 million dollars. 1% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 57.07% of the total loss. Table 6 below provides a summary of the losses associated with the building damage.

Table 6: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
<u>Building Loss</u>		28.16	5.03	1.56	1.76	36.52
Building Content		15.15	12.54	3.04	6.86	37.59
Inventory		0.00	0.37	0.71	0.24	1.31
Subtotal		43.32	17.94	5.31	8.85	75.41
<u>Business Interruption</u>						
Income		0.00	0.05	0.00	0.03	0.08
Relocation		0.04	0.01	0.00	0.00	0.06
Rental Income		0.02	0.01	0.00	0.00	0.03
Wage		0.00	0.08	0.00	0.36	0.43
Subtotal		0.06	0.16	0.00	0.37	0.59
	Total	43.38	18.10	5.31	9.23	76.00

100-year Flood Information and Data (based on data from East and West HAZUZ runs)

Building Inventory

General Building Stock (See Table 1 above)

Essential Facility Inventory (See above)

Table 2 identifies estimated monetary losses by building occupancy within the designated hazard area (100-year floodplain).

Table 2
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure (\$1000)	Percent of Total
Residential	601,088	80.6%
Commercial	76,035	10.2%
Industrial	26,355	3.5%
Agricultural	14,041	1.9%
Religion	15,490	2.1%
Government	5,245	0.7%
Education	7,075	0.9%
Total	745,329	100.00%

Building Damage

General Building Stock Damage

HAZUS estimates that about 204 buildings will be at least moderately damaged. This is over 6% of the total number of buildings in the scenario. There are an estimated 62 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the HAZUS Flood technical manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 summarizes the expected damage by general building type.

Table 3: Expected Building Damage by Occupancy

Occupancy	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	(%)	Count	(%)								
Agriculture	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Religion	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	0	0.00	3	1.48	18	8.87	40	19.70	80	39.41	62	30.54
Total	0		4		18		40		80		62	

Table 4: Expected Building Damage by Building Type

Building Type	Count	(%)										
Concrete	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
ManufHousing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00
Masonry	0	0.00	0	0.00	1	3.33	6	20.00	13	43.33	10	33.33
Steel	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Wood	0	0.00	3	1.74	17	9.88	34	19.77	67	38.95	51	29.65

Essential Facility Damage (See Table 5 above)

Before the flood analyzed in this scenario, the region had hospital beds available for use. On the day of the scenario flood event, the model estimates that hospital beds are available in the region.

Induced Flood Damage

Debris Generation

HAZUS estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories: 1) Finishes (dry wall, insulation, etc.), 2) Structural (wood, brick, etc.) and 3) Foundations (concrete slab, concrete block, rebar, etc.). This distinction is made because of the different types of material handling equipment required to handle the debris.

The model estimates that a total of 12,315 tons of debris will be generated. Of the total amount, Finishes comprises 44% of the total, Structure comprises 31% of the total. If the debris tonnage is converted into an estimated number of truckloads, it will require 493 truckloads (@25 tons/truck) to remove the debris generated by the flood.

Social Impact

Shelter Requirements

HAZUS estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. HAZUS also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 783 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 1,175 people (out of a total population of 47,910) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the flood is 176.01 million dollars, which represents 12.01% of the total replacement value of the scenario buildings.

Building-Related Losses

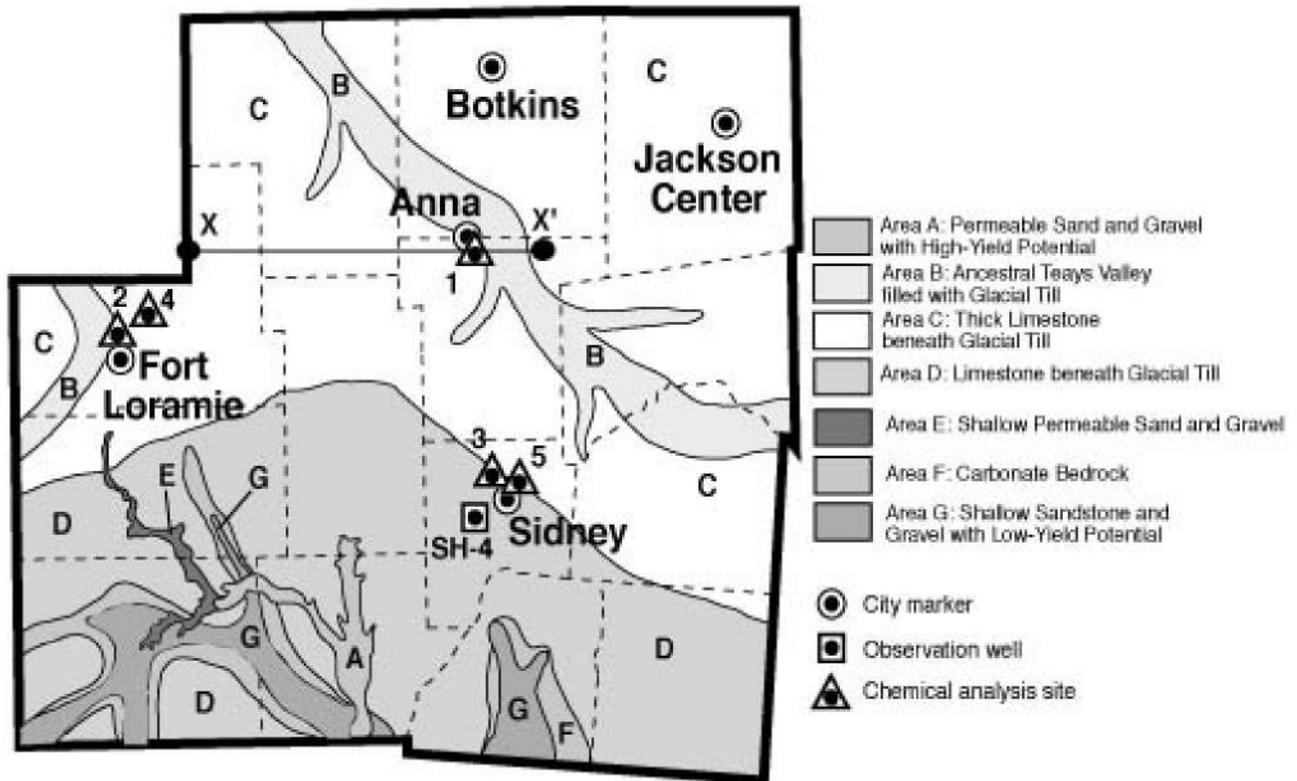
The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

The total building-related losses were 87.33 million dollars. 1% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 58.57% of the total loss. Table 6 below provides a summary of the losses associated with the building damage.

Table 6: Building-Related Economic Loss Estimates
(Millions of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss		33.52	5.77	1.87	2.07	43.22
Building Content		17.96	13.72	3.65	7.28	42.60
Inventory		0.00	0.40	0.84	0.27	1.51
Subtotal		51.47	19.88	6.36	9.62	87.33
<u>Business Interruption</u>						
Income		0.00	0.07	0.00	0.03	0.09
Relocation		0.05	0.01	0.00	0.00	0.07
Rental Income		0.02	0.01	0.00	0.00	0.03
Wage		0.00	0.09	0.00	0.39	0.48
Subtotal		0.08	0.18	0.00	0.42	0.67
	Total	51.55	20.06	6.36	10.04	88.00

**Appendix E:
Groundwater Resources**



Appendix F:
National Climatic Data Center Tables

The listings of significant events in the tables below reflect the data and information obtained from several sources. The majority of events listed are those provided by the National Climatic Data Center (NCDC), using both an earlier version as well as their most recently updated format. These data identify events from 01/01/50 thru 12/31/15 and reflect not only data specifically from Shelby County but also regional data obtained from previous NCDC listings. Additional data on specific hazards occurring within Shelby County were also obtained from news media sources and other research, as well as personal knowledge of those events.

Total numbers of hazard events in each hazard subcategory are from the most updated NCDC reports as well as personal accounts. The table below however includes both old and new NCDC data but reflect only those events causing injuries, deaths, or property and/or crop damage of \$10 K or more.

Please note that some of the data below relate to regional events and should not be considered as specific to Shelby County. Please also note that the totals for each main category hazard reflect only those totals identified by the most current NCDC listings.

Flood – 40 events

Flood – 28 events (12 with damage)

Flash Flood – 12 events (seven with damage)

Flood								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
COUNTYWIDE	11/14/1993	10:30	Flash Flood	N/A	0	0	50K	0K
COUNTYWIDE	06/16/1994	16:50	Flash Flood	N/A	0	0	50K	0K
SIDNEY	06/20/1994	16:30	Flash Flood	N/A	0	0	50K	0K
COUNTYWIDE	06/21/1995	15:00	Flash Flood	N/A	0	0	7K	10K
COUNTYWIDE	08/08/1995	19:35	Flash Flood	N/A	0	0	10K	0K
<u>SHELBY (ZONE)</u>	07/07/2003	00:12	Flood	N/A	0	0	130K	0K
FT. LORAMIE	07/08/2003 – 2 events	1715	Flash Flood	N/A	0	0	250K	0K
<u>SHELBY (ZONE)</u>	07/09/2003	02:30	Flood	N/A	0	0	180K	0K
MULTIPLE COUNTIES	05/21/2004	15:00	Flood	N/A	0	0	0	890K
<u>SHELBY (ZONE)</u>	01/05/2005	12:00	Flood	N/A	0	0	20K	0K

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
<u>SHELBY</u> <u>(ZONE)</u>	01/12/2005	00:00	Flood	N/A	0	0	20K	0K
ORAN	06/17/2015	09:52	Flash Flood	N/A	0	0	30K	0K
Totals:					0	0	797K	900K

KEY: (Use this Key for all tables)

Mag: Magnitude

N/A: Non-Applicable (Droughts, Flooding, Lightning, Temperature Extremes, Thunderstorms, Snow and Ice)

F(X): Fujita Scale Rating designation for Tornadoes in.: Inches in diameter measuring Hail

kts.: Knots measuring degree of Wind

Dth: Deaths

Inj: Injuries

PrD: Property Damage

CrD: Crop Damage

Summer Storms – 168 events

Thunderstorm Wind – 109 events (77 with damage – 5 injuries)

High Wind – nine events (four with damage)

Lightning – four events (all with damage – one injury)

Hail – 46 events (seven with damage)

Summer Storms								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
COUNTYWIDE	04/05/1985	16:40	Thunderstorm Wind	N/A	0	1	0K	0K
COUNTYWIDE	04/27/1994	03:29	Thunderstorm Wind	N/A	0	0	50K	0K
RUSSIA	06/20/1994	15:15	Thunderstorm Wind	N/A	0	0	50K	0K
SIDNEY	07/20/1994	20:05	Thunderstorm Wind	N/A	0	0	50K	0K
MULTIPLE COUNTIES	11/01/1994	20:00	Thunderstorm Wind	N/A	0	1	500K	0K
MULTIPLE COUNTIES	11/27/1994	14:00	Thunderstorm Wind	N/A	0	1	50K	0K
SIDNEY	04/11/1995	15:45	Thunderstorm Wind	N/A	0	0	30K	0K
WEST HALF	06/07/1995	21:13	Thunderstorm Wind	N/A	0	0	20K	0K

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
PLATTSVILLE	06/21/1995	14:25	Lightning	N/A	0	0	25K	0K
SIDNEY	07/15/1995	13:48	Lightning	N/A	0	0	20K	0K
COUNTYWIDE	07/26/1995	13:43	Thunderstorm Wind	N/A	0	4	60K	0K
<u>KETTLERSVILLE</u>	07/17/1996	23:15	Lightning	N/A	0	0	50K	0K
<u>SIDNEY</u>	11/07/1996	16:00	Thunderstorm Wind	50 kts.	0	0	10K	0K
MULTIPLE COUNTIES	04/06/1997	02:30	High Wind	60 kts.	0	0	19K	0K
<u>BOTKINS</u>	07/02/1997	15:50	Thunderstorm Wind	50 kts.	0	0	20K	0K
ANNA	06/19/1998	01:45	Thunderstorm Wind	58 kts.	0	0	10K	0K
<u>SIDNEY</u>	07/19/1998	19:40	Thunderstorm Wind	60 kts.	0	0	10K	0K
<u>COUNTYWIDE</u>	11/10/1998	14:05	Thunderstorm Wind	50 kts.	0	0	20K	0K
<u>JACKSON CENTER</u>	07/09/1999	17:33	Thunderstorm Wind	60 kts.	0	0	25K	0K
<u>ANNA</u>	07/31/1999	17:50	Lightning	N/A	0	1	20K	0K
<u>COUNTYWIDE</u>	07/31/1999	18:00	Thunderstorm Wind	50 kts.	0	0	10K	0K
<u>SIDNEY</u>	08/01/2000	14:54	Thunderstorm Wind	50 kts.	0	0	15K	0K
<u>SIDNEY & FT LORAMIE</u>	08/09/2000 – 2 events	15:30	Thunderstorm Wind	50 kts.	0	0	70K	0K
MULTIPLE COUNTIES	12/11/2000	21:00	Thunderstorm Wind	58 kts.	1	0	100K	0K
<u>SHELBY (ZONE)</u>	03/09/2002	14:45	High Wind	58 kts.	0	0	15K	0K
<u>RUSSIA</u>	08/11/2002	16:15	Lightning	N/A	0	0	100K	0K
<u>SIDNEY</u>	07/08/2003 – 2 events	02:35	Thunderstorm Wind	55 kts.	0	0	30K	0K
<u>PORT JEFFERSON</u>	09/26/2003	22:35	Thunderstorm Wind	90 kts.	0	0	150K	0K
MULTIPLE COUNTIES	11/12/2003	18:45	High Wind	50 kts.	0	0	63K	35K
<u>BOTKINS</u>	07/26/2005	16:22	Thunderstorm Wind	55 kts.	0	0	25K	0K

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
<u>SHELBY (ZONE)</u>	12/01/2006	09:05	High Wind	43 kts.	0	0	15K	0K
<u>SIDNEY</u>	04/14/2006	02:40	Thunderstorm Wind	50 kts.	0	0	20K	0K
<u>SIDNEY</u>	06/22/2006	14:30	Thunderstorm Wind	50 kts.	0	0	15K	0K
<u>SIDNEY</u>	06/25/2008	21:36	Hail	1.25 in.	0	0	12K	0K
<u>SHELBY (ZONE)</u>	09/14/2008	15:00	High Wind	63 kts.	0	0	5.7M	0K
<u>SIDNEY</u>	08/19/2009	18:32	Thunderstorm Wind	60 kts.	0	0	23K	0K
<u>ANNA</u>	05/23/2011	18:50	Thunderstorm Wind	67 kts.	0	0	10K	0K
<u>BOTKINS</u>	08/07/2011	14:52	Thunderstorm Wind	50 kts.	0	0	35K	0K
<u>ANNA</u>	07/01/2012	16:04	Thunderstorm Wind	50 kts.	0	0	30K	0K
<u>BOTKINS</u>	06/12/2013	23:15	Thunderstorm Wind	50 kts.	0	0	15K	0K
<u>JACKSON CENTER</u>	12/21/2013	22:09	Thunderstorm Wind	60 kts.	0	0	10K	0K
Totals:					1	8	6.7M	5K

Winter Storms – 74 events

Blizzard – two events (no damage) Ice – five events (no damage)
Cold/Wind Chill – one event (with damage) Winter Storm – 21 events (two with damage)
Frost/Freeze – one event (with damage) Winter Weather – 37 events (no damage)
Heavy Snow – six events (no damage)

Winter Storms								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
NORTHERN OHIO	12/26/1993	UNK	Extreme Cold	N/A	1	0	500K	0K
MULTIPLE COUNTIES	01/21/1995	01:00	Snow	N/A	2	6	500K	0K
MULTIPLE COUNTIES	02/11/1995	20:00	Extreme Cold	N/A	4	0	100K	0K
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
STATEWIDE	12/09/1995	12:00	Extreme	N/A	0	1	2K	0K

			Cold					
SOUTHERN AND CENTRAL OHIO	12/13/1995	04:00	Freezing Rain	N/A	0	2	25K	0K
WEST CENTRAL AND CENTRAL OHIO	12/19/1995	02:00	Heavy Snow	N/A	0	0	100K	0K
MULTIPLE COUNTIES	01/02/1996	14:00	Winter Storm	N/A	0	0	750K	0K
<u>SHELBY (ZONE)</u>	02/01/1996	18:00	Cold/Wind Chill	N/A	0	0	20K	0K
MULTIPLE COUNTIES	03/19/1996	16:00	Winter Storm	N/A	1	0	0K	0K
<u>SHELBY (ZONE)</u>	12/22/2004	10:00	Winter Storm	N/A	0	0	15K	0K
<u>SHELBY (ZONE)</u>	04/06/2007	10:00	Winter Storm	N/A	0	0	15K	0K
<u>SHELBY (ZONE)</u>	04/06/2007	04:00	Frost/Freeze	N/A	0	0	0K	540K
Totals:				N/A	0	0	60K	540K

Tornado

Tornado – six events (five with damage – three deaths, 74 injuries)

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
<u>SHELBY CO.</u>	07/28/1961	19:55	Tornado	EF3	0	22	250K	0K
<u>SHELBY CO.</u>	04/11/1965	21:00	Tornado	EF4	3	50	2.5M	0K
<u>SHELBY CO.</u>	06/08/1981	18:38	Tornado	EF2	0	2	250K	0K
Totals:					3	74	3M	0K

Drought

Drought – Two events (no damage)

Excessive Heat – No events

Earthquake

The earthquakes identified in the table below are from data obtained from the OhioSeis Network described in Section 4.8.2 of the *Shelby County Natural Disaster Mitigation Plan*. These earthquakes reflect those that have occurred since 1925 and are those greater than a magnitude of 2.0 on the Richter Scale and greater than an intensity of II measured on the Mercalli Scale. Comparisons between the Richter Scale and the Mercalli Scale can be found in section 4.8.3 of the *Shelby County Natural Disaster Mitigation Plan*

Date	Richter Scale	Mercalli Scale
10/1925	2.5	II
10/27/1928	3.0	III
03/08/1929	3.7	V
09/29/1930	2.9	III
09/30/1930	4.2	VII
03/21/1931	3.0	III
04/01/1931	3.0	III
09/20/1931	4.7	VII
10/09/1931	2.9	III
02/23/1931	3.3	IV
03/02/1937	4.9	VII
03/09/1937	5.4	VIII
03/18/1939	2.5	III
03/18/1939	3.3	IV
06/18/1939	3.1	IV
07/09/1939	2.5	II
11/13/1949	4.1	III?
01/27/1956	3.7	V
01/27/1956	3.7	V
07/26/1974	3.0	III
07/05/1983	2.1	not provided
04/04/1994	2.9	III

Appendix G:
Multi-Hazard Maps

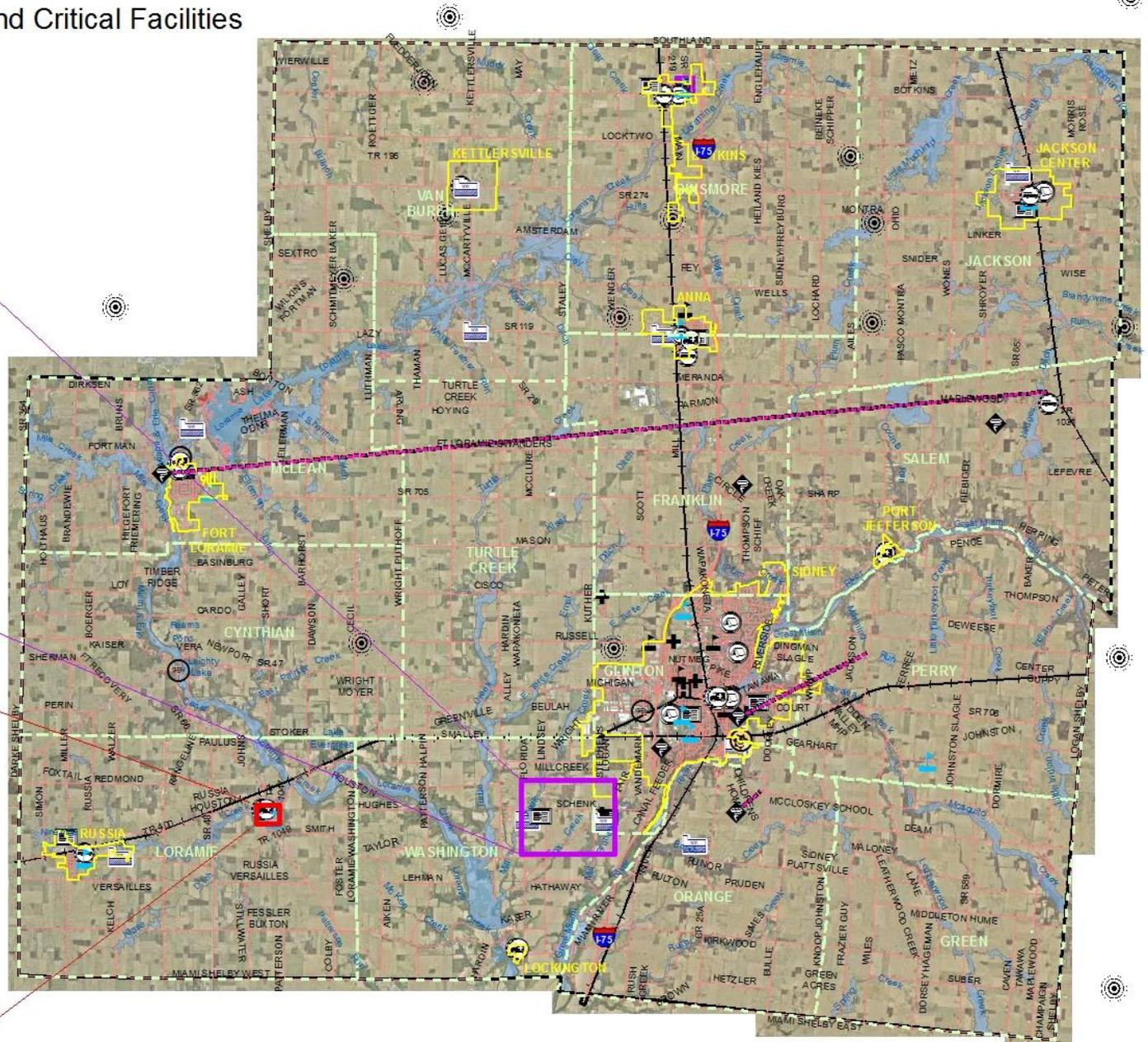
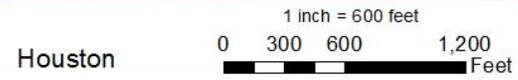
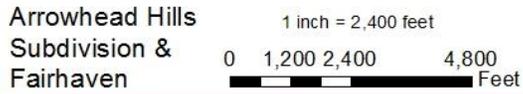
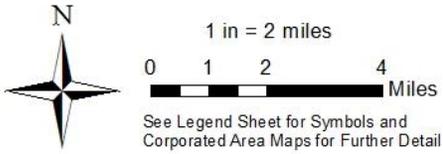
For the multi-hazard maps below not having a legend included on the page, please use the following legend:

Shelby County Hazard Locations and Critical Facilities

Legend

Critical Facilities	Flood Zone
 EOC & PD (1)	 100 Year Floodplain
 PD (4)	 0.2% Annual Chance
 SHERIFF (1)	 Tornado Locations
 FIRE (11)	 Tornado Paths
 EMS (6)	 Earthquake Locations
 HOSPITAL (1)	 Seismic Station
 SHELTER (7)	 CSX Railroad
 SCHOOL (6)	 Corporation Limits
 SCHOOL & SHELTER (10)	 Township Boundaries
 SENIOR CARE (5)	 Shelby County Boundary
 GAS GENERATOR (4)	
 WTP (8)	
 WWTP (10)	

Shelby County Hazard Locations and Critical Facilities



City of Sidney



1 inch = 2,600 feet

0 1,300 2,600 5,200 Feet





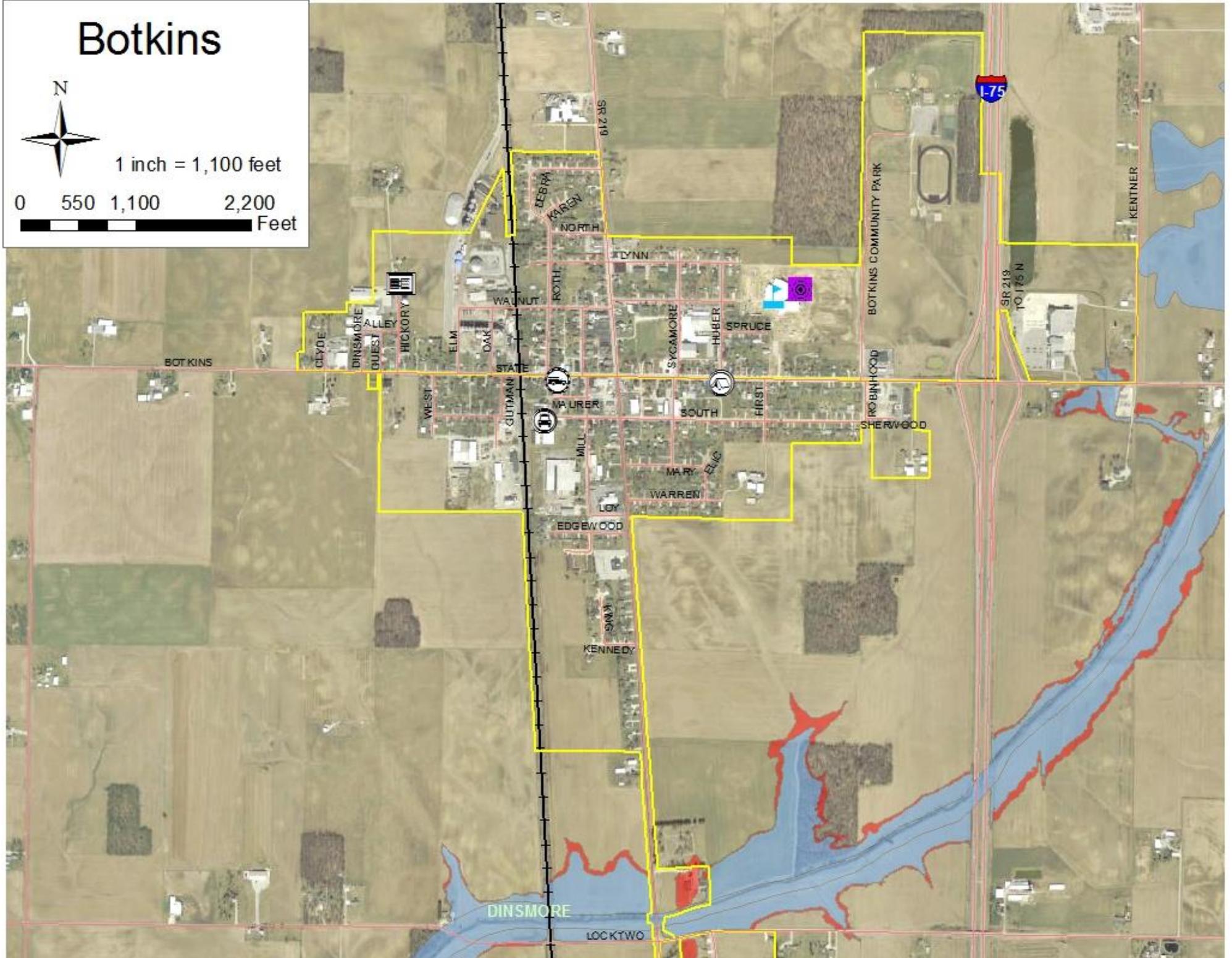
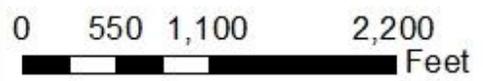
Shelby County Hazard Locations and Critical Facilities

Legend	
Critical Facilities	Flood Zone
<ul style="list-style-type: none"> EOC & PD (1) PD (4) SHERIFF (1) FIRE (11) EMS (6) HOSPITAL (1) SHELTER (7) SCHOOL (6) SCHOOL & SHELTER (10) SENIOR CARE (5) GAS GENERATOR (4) WTP (8) WWTP (10) 	<ul style="list-style-type: none"> 100 Year Floodplain 0.2% Annual Chance Tornado Locations Tornado Paths Earthquake Locations Seismic Station CSX Railroad Corporation Limits Township Boundaries Shelby County Boundary

Botkins



1 inch = 1,100 feet



BOTKINS

CLYDE
DINSMORE ALLEY
GUEST
HICKORY

ELM
DAK

WALNUT
ROTH

DEBRA
KAREN
NORTH

D'ANN
SYCAMORE
HUBER
SPRUCE

BOTKINS COMMUNITY PARK

ROBINHOOD
SHERWOOD

SR 219
10175 N

KENTNER

STATE
GUTMAN

MAURER
MILL

SOUTH
FIRST

MARY
ELIG

WARREN
LOY

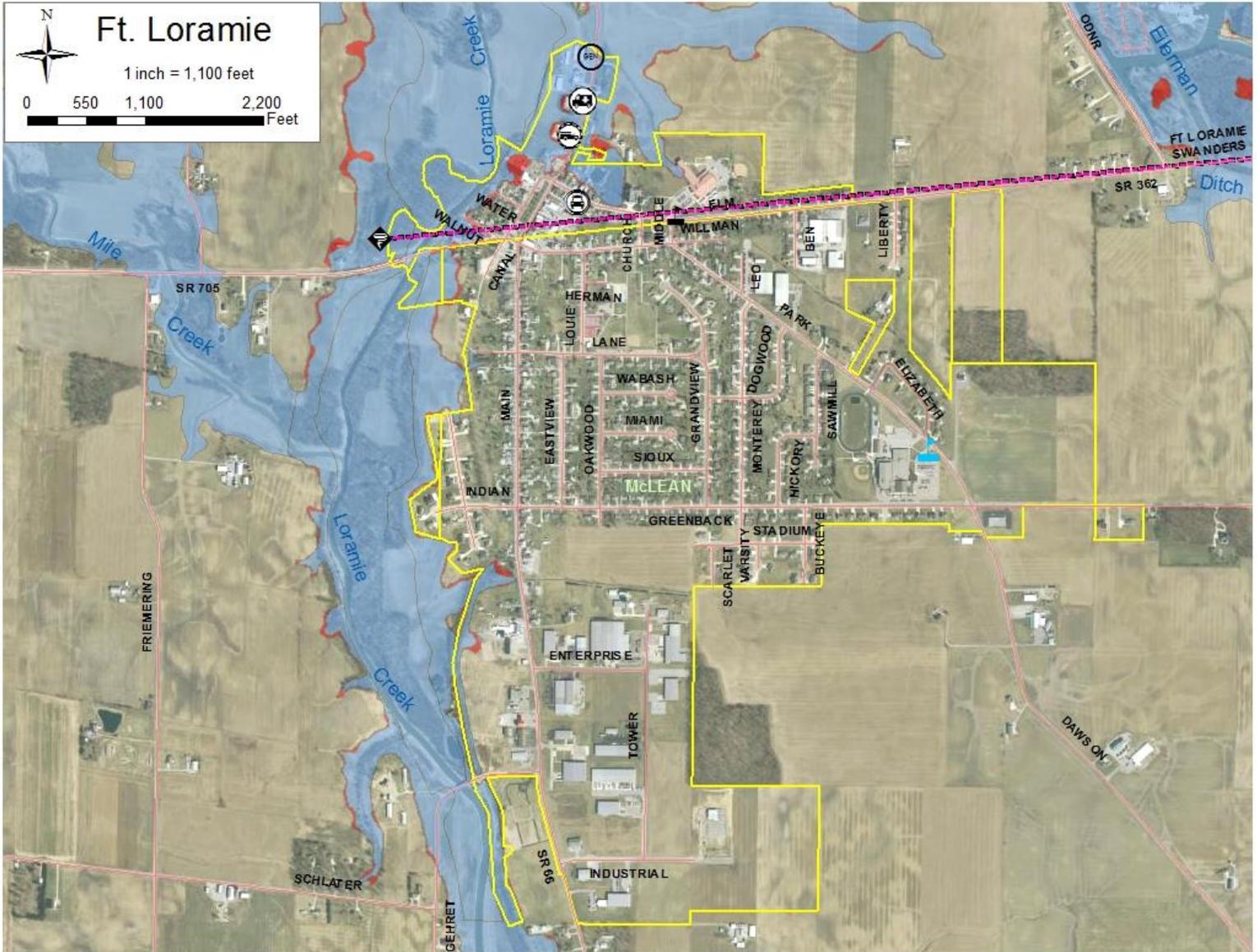
EDGEWOOD

KING
KENNEDY

DINSMORE

LOCKTWO





Shelby County Hazard Locations and Critical Facilities

Legend

Critical Facilities

-  EOC & PD (1)
-  PD (4)
-  SHERIFF (1)
-  FIRE (11)
-  EMS (6)
-  HOSPITAL (1)
-  SHELTER (7)
-  SCHOOL (6)
-  SCHOOL & SHELTER (10)
-  SENIOR CARE (5)
-  GAS GENERATOR (4)
-  WTP (8)
-  WWTP (10)

Flood Zone

-  100 Year Floodplain
-  0.2% Annual Chance
-  Tornado Locations
-  Tornado Paths
-  Earthquake Locations
-  Seismic Station
-  CSX Railroad
-  Corporation Limits
-  Township Boundaries
-  Shelby County Boundary



Shelby County Hazard Locations and Critical Facilities

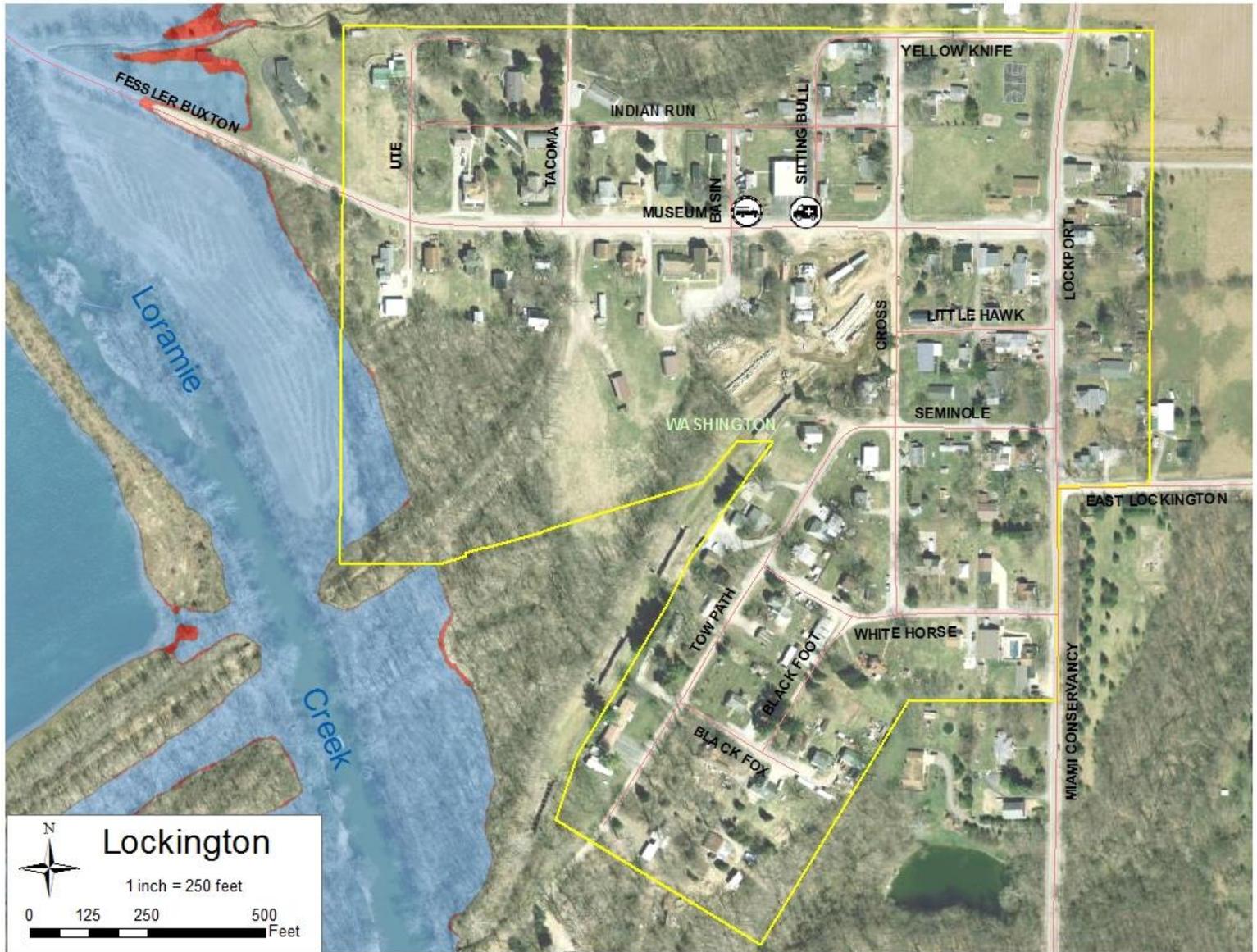
Legend

Critical Facilities

-  EOC & PD (1)
-  PD (4)
-  SHERIFF (1)
-  FIRE (11)
-  EMS (6)
-  HOSPITAL (1)
-  SHELTER (7)
-  SCHOOL (6)
-  SCHOOL & SHELTER (10)
-  SENIOR CARE (5)
-  GAS GENERATOR (4)
-  WTP (8)
-  WWTP (10)

Flood Zone

-  100 Year Floodplain
-  0.2% Annual Chance
-  Tornado Locations
-  Tornado Paths
-  Earthquake Locations
-  Seismic Station
-  CSX Railroad
-  Corporation Limits
-  Township Boundaries
-  Shelby County Boundary



Shelby County Hazard Locations and Critical Facilities

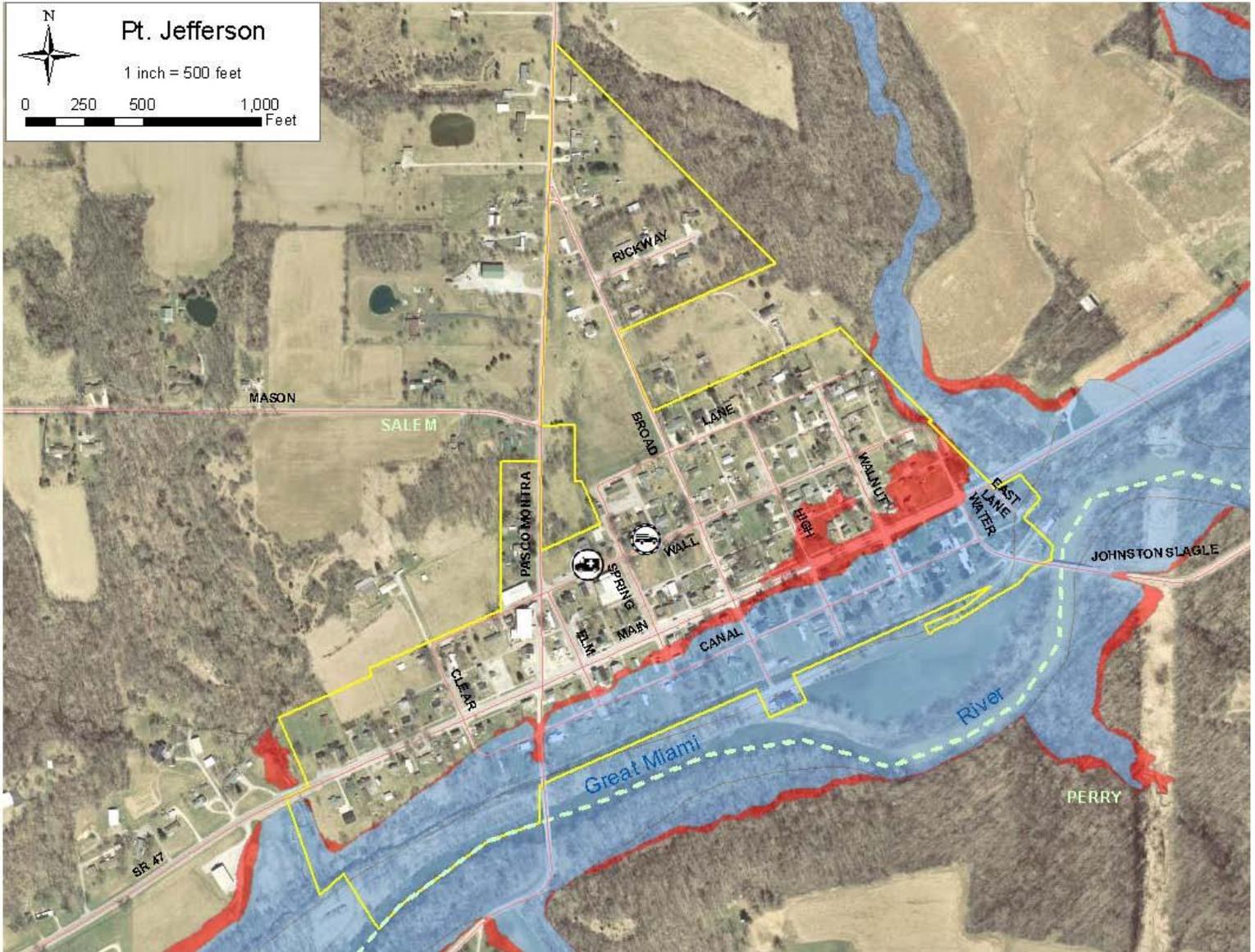
Legend

Critical Facilities

-  EOC & PD (1)
-  PD (4)
-  SHERIFF (1)
-  FIRE (11)
-  EMS (6)
-  HOSPITAL (1)
-  SHELTER (7)
-  SCHOOL (6)
-  SCHOOL & SHELTER (10)
-  SENIOR CARE (5)
-  GAS GENERATOR (4)
-  WTP (8)
-  WWTP (10)

Flood Zone

-  100 Year Floodplain
-  0.2% Annual Chance
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Shelby County Hazard Locations and Critical Facilities

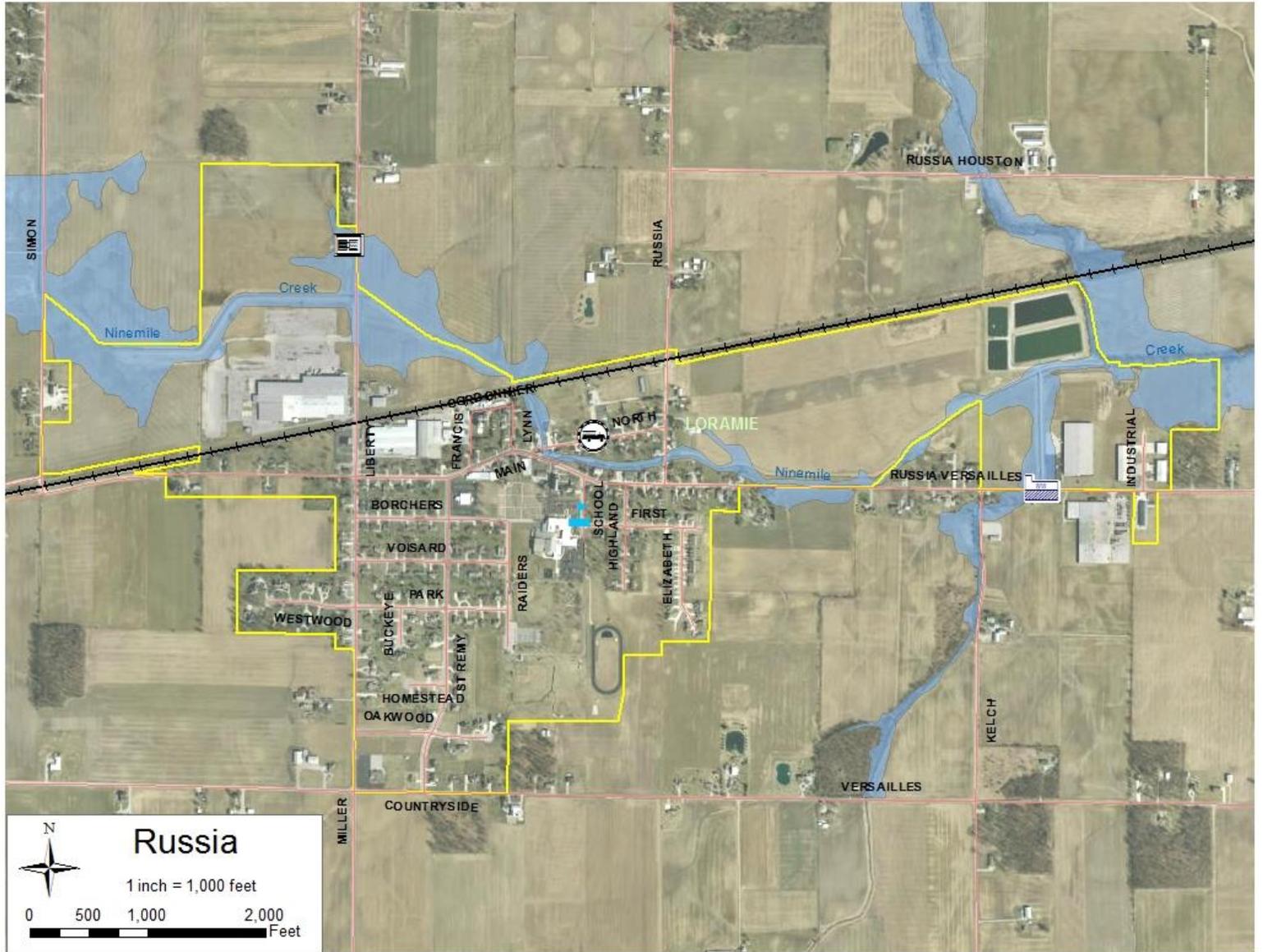
Legend

Critical Facilities

- EOC & PD (1)
- PD (4)
- SHERIFF (1)
- FIRE (11)
- EMS (6)
- HOSPITAL (1)
- SHELTER (7)
- SCHOOL (6)
- SCHOOL & SHELTER (10)
- SENIOR CARE (5)
- GAS GENERATOR (4)
- WTP (8)
- WWTP (10)

Flood Zone

- 100 Year Floodplain
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Shelby County Hazard Locations and Critical Facilities

Legend	
Critical Facilities	Flood Zone
<ul style="list-style-type: none"> EOC & PD (1) PD (4) SHERIFF (1) FIRE (11) EMS (6) HOSPITAL (1) SHELTER (7) SCHOOL (6) SCHOOL & SHELTER (10) SENIOR CARE (5) GAS GENERATOR (4) WTP (8) WWTP (10) 	<ul style="list-style-type: none"> 100 Year Floodplain 0.2% Annual Chance Tornado Locations Tornado Paths Earthquake Locations Seismic Station CSX Railroad Corporation Limits Township Boundaries Shelby County Boundary

Appendix H:
Mitigation Alternatives
Evaluation and Assessment



Shelby County Emergency Management Agency

800 Fair Road

Sidney, OH 45365

P: 937-492-5635 F: 937-492-8507

E: ShelbyCountyEMA@gmail.com

Director

Cheri Drinkwine

Executive Board

Julie Ehemann

Tim Bender

Chuck Axe

Bruce Metz

Randy Bensman

Rick Simon

Mark Harrod

Be Prepared...

March 7, 2016

MEMORANDUM

TO: Representatives – Shelby County Mitigation Planning Committee

FROM: Cheri Drinkwine, Director - Shelby County EMA
David Heinlen, Mitigation Planning Consultant

SUBJECT: Action Matrix

Greetings to all Shelby County Mitigation Plan Committee members!

The next step in our efforts to complete the County's Natural Disaster Mitigation Plan is developing an Action Matrix. An Action Matrix describes and prioritizes items and activities (mitigation alternatives) that have been identified to mitigate the natural disasters that impact the County.

An Action Matrix was created for the 2005 Plan and it is described in Section 8.0 of that Plan, located on the County's website (http://co.shelby.oh.us/CommissionersOffice/pdf/files/2005_SC_MitigationPlan.pdf). The process for evaluating the "mitigation alternatives" identified in Section 8.0 is explained in Appendix L of that Plan. The finalized Action Matrix for the 2005 Plan is located in Appendix M. As we move forward with the development of the Action Matrix for the Plan update, we will be using a similar process for identifying and prioritizing our mitigation alternatives as described below.

You will note from Appendix M that the 2005 Core Group prioritized mitigation actions for each individual hazard. From our perspective, it is suggested that we prioritize mitigation actions based on their overall importance, regardless of hazard.

The Action Matrix of our Plan update will be presented in two parts. The main portion of the matrix identifies and prioritizes the mitigation actions selected from the 2005 Plan. A second component will be placed under "New Action Projects." These projects will be those mitigation actions proposed by County political subdivisions as well as those added by the Committee for inclusion within the matrix.

The current proposed Action Matrix is included as a part of this mailing.

The enclosed updated matrix consolidates those mitigation actions that are applicable to multiple hazards. This breakdown, in the "Priority" column, lists the numerical priority from the 2005 Plan for each applicable hazard type. With the exception of "Priority," the remaining information for each "Mitigation Action" reflects that which being proposed for your consideration. We will discuss the need for any modifications of this information at our forthcoming meeting. This is our first major objective.

The second major objective in developing the updated Action Matrix is prioritizing those "Mitigation Actions" determined to be necessary for our 5-year planning cycle. As mentioned previously, we will be using a numerical method for assessing priority to each action.

We have also enclosed the listing of "mitigation actions" on a form that we will use for prioritizing along with instructions to assist you in assessing the mitigation actions. Completing the assessments is our next step.

To complete your assessment, download the form on your computer, fill in your assessment numbers, save the file and attach it to a return e-mail to shelbycountyema@gmail.com. Please return your completed form by March 25.

Your efforts in completing this assessment are deeply appreciated. Once the assessments have been tabulated, we will send the overall rankings to you. We would like to meet with the committee on **Tuesday, April 5, at 10:00 am at the Ag Building, 810 Fair Road, Sidney** to discuss the results and finalize the Action Matrix. The final Action Matrix will then be incorporated within the draft Plan in preparation for submitting to the general public for their review.

Action Matrix – Proposed

Priority (2005)	Hazard Type	Mitigation Action	Start Date	End Date	Lead Agencies	Resources	Status	Remarks
WS – 23.1 SS – 17.3 F – 12.6 T – 16.3 D – 11.6 E – 9.1	All Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes, Drought, Earthquakes)	Develop education programs associated with multiple natural hazards and how to prepare for them prior to their occurrence	June 2016	June 2021	SCEMA	Existing	Ongoing	Continued from previous Plan
WS – 19.6 SS – 18.7 F – 13.0 T – 17.0	Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Develop a public education program for informing residents about the benefits of having NOAA radios and Family Disaster Plans, which will help them better respond to an emergency situation	Jan. 2016	Dec. 2021	SCEMA	Existing	Ongoing	Continued from previous Plan
WS – 19.2 SS – 16.1 F – 12.5 T – 16.1	Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Develop an outreach program for informing citizens of designated shelter locations.	Jan. 2016	Dec 2021	SCEMA, Village of Anna	Existing	Ongoing	Continued from previous Plan
WS – 18.5 SS – 17.4 F – 13.0 T – 14.5	Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Provide back-up generators and the necessary hook-ups for critical facilities, which need to maintain continuous power to protect human health and life.	Jan. 2016	Dec 2021	SCEMA, County, City, Villages (village of Anna)	grants	Ongoing	Continued from previous Plan
SS – 19.5 F – 13.9 T – 16.9	Multiple Hazards (Summer Storms, Flooding, Tornadoes)	Seek funding for early warning systems, such as sirens and reverse 9-1-1, to warn residents of approaching severe weather	Jan. 2016	Dec 2021	SCEMA	grants	Ongoing	County contracts with HyperReach
WS – 16.5 SS – 15.5 F – 11.2 T – 12.1	Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Develop a tree maintenance program for trimming and pruning trees to help prevent damage from falling limbs.	Jan. 2016	Dec 2021	Villages, townships, City (including new request from Perry Twp.)	Existing, grants	Ongoing	Continued from previous Plan
WS – 18.4 SS – 17.3 F – 11.9 T – 14.5	Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Develop a usable advisory system for residents so they know traveling in severe weather is at their own risk.	Jan. 2016	Dec 2021	SCEMA, SO	Existing	Ongoing	Newspaper, radio, social media
SS – 15.4 F – 12.2 T – 11.5	Multiple Hazards (Summer Storms, Flooding, Tornadoes)	Develop education programs for developers, contractors and communities concerning alternate methods for keeping basements dry. (Develop educational information for general public concerning alternate methods for keeping basements dry.)	Jan. 2016	Dec 2021	SCEMA	Existing	Modified	.
D – 10.3 E – 10.4	Multiple Hazards (Droughts, Earthquakes)	Develop a County contingency plan to furnish those homes on wells in rural and unincorporated areas with a back-up water supply					?	Recommend deletion, addressed in EOP
14.8	Flooding	Develop a river and stream maintenance program for removing debris and log jams from drainage ways	Jan. 2016	Dec 2021	County Engineer	grant	Ongoing	Continued from previous Plan
N/A	Flooding	Seek funding to update Flood Insurance Rate Maps	N/A	N/A	N/A	FEMA	Completed	Apr 2, 2015
11.9	Droughts	Develop a public education program for residents for restrictions on open burning and water usage during drought conditions.	Jan. 2016	Dec 2021	Fire services	Existing	Completed	Addressed in State and Local regulations/ordinances.
11.6	Droughts	Develop a public education program on the hazards associated with drought and extreme heat						Recommend deletion, addressed above
N/A	Winter Storms	Seek funding for additional salt storage facilities and loading equipment for townships.						Recommend deletion
N/A	Flooding	Seek funding for auto sandbag filling equipment.	N/A	N/A	N/A	grant	Completed	
N/A?	Flooding	Encourage communities to join the National Flood Insurance Program, which would allow residents to purchase flood insurance.	Jan. 2016	Dec 2021	Flood Plain Manager		Ongoing	Continued from previous Plan
12.6	Flooding	Elevate or otherwise address flood prone structures within the base elevation of the 100- year floodplain.	Jan. 2016	Dec 2021	SCEMA, city, villages, townships	grant	Ongoing	Continued from previous Plan
N/A?	Tornadoes	Provide permanent shelters for mobile home parks and campgrounds, where citizens may seek safety from severe weather.						Recommend deletion.
N/A	Tornadoes	Develop a public education program for informing residents of an "All clear" message that sounds when a severe weather warning expires.						Recommend deletion.

New Action Projects

Priority	Hazard Type	Mitigation Action	Start Date	End Date	Lead Agencies	Resources	Status	Remarks
TBD (To Be Determined)	Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Develop evacuation plan for the Sidney Senior Center	Jan 2016	Dec 2021			New	
TBD	Flooding	Recommend corrective action for repetitive loss structures	Jan 2016	Dec 2021	SCEMA, property owner		New	
TBD	Tornadoes	Develop regulations to require concrete safe rooms to be included in new building construction.. (Encourage the construction or installation of safe rooms in new and existing construction).	June 2016	June 2021	Building owner, homeowners	Existing, grant	Modified/ New	
TBD	Flooding	Develop depth analysis grids to reduce flooding impacts on the Sidney WWTP	June 2016	June 2021	City of Sidney	Existing, grant	New	
TBD	Flooding	Develop depth analysis grids to reduce flooding impacts to Sheriff's Office	June 2016	June 2021	City of Sidney, County, Sheriff's Office	Existing, grant	New	
TBD	Flooding	Develop depth analysis grids to reduce flooding impacts to South Main Street roadways in Sidney (possible portable coffer dam)	June 2016	June 2021	City of Sidney	Existing, grant	New	
TBD	Flooding	Develop depth analysis grids to reduce flooding impacts to structures on Riverside Drive in Sidney	June 2016	June 2021	City of Sidney	Existing, grant	New	
TBD	Flooding	Develop depth analysis grids to reduce flooding impacts to structures along Plum Creek Tributary 4 and Sidney-Freyburg Road near Ohio 119 (10-15 structures)	June 2016	June 2021	County	Existing, grant	New	
TBD	Flooding	Develop depth analysis grids to reduce flooding impacts to structures along Plum Creek Tributary 2, Lochard Road and Loramie-Swanders Road (8-10 structures)	June 2016	June 2021	County	Existing, grant	New	
TBD	Flooding	Develop depth analysis grids to reduce flooding impacts to structures along Loramie Creek Tributary 12 along Blanke Road near SR 29 (5-10 structures)	June 2016	June 2021	County	Existing, grant	New	
TBD	Flooding	Develop plans to replace, modify, or expand culverts along the Hull Creek railroad in the Village of Botkins	June 2016	June 2021	Village of Botkins	Existing, grant	New	
TBD	Flooding	Seek sources of funding to minimize storm water drainage problems in the Village of Jackson Center	June 2016	June 2021	Village of Jackson Center	Existing, grant	New	
TBD	Flooding	Improve storm water drainage in the Village of Fort Loramie	June 2016	June 2021	Village of Ft. Loramie	Existing, grant	New	
TBD	Flooding	Develop plan to replace, modify, or expand culverts along OH-705 in the Village of Fort Loramie	June 2016	June 2021	Village of Ft. Loramie	Existing, grant	New	
TBD	Flooding	Construct community shelter/safe rooms in the Village of Fort Loramie	June 2016	June 2021	Village of Ft. Loramie	Existing, grant	New	

Instructions for Assessing Mitigation Actions

For each of the four topics (technically feasible, frequency of hazard risk, activities reduce risk, and funding available), place your numerical assessment in each column for each mitigation action. Use a rating from 1 to five (5 being considered highest and most important. You may also leave boxes blank if you cannot answer the question.) Consider the following explanations for each assessment topic:

Is the action technically feasible?

Do you feel that the frequency of the hazard justifies the “action.” **NOTE:** For “All” and “Multiple” Hazard Types, consider the action as being performed concurrently

Will the action reduce risk to the citizens of Shelby County?

Should the action be pursued even if funding is not available? **NOTE:** State and federal funding for the “larger ticket items” may be available on a “percentage funding” basis. The “percentage” varies depending upon the individual grant, but never at 100%.

Hazard Type	Mitigation Action	Technically Feasible	Frequency of Hazard Risk	Activities Reduce Risk	Funding Available	Total
All Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes, Drought, Earthquakes)	Develop education programs associated with multiple natural hazards and how to prepare for them prior to their occurrence					
Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Develop a public education program for informing residents about the benefits of having NOAA radios and Family Disaster Plans, which will help them better respond to an emergency situation					
Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Develop an outreach program for informing citizens of designated shelter locations. (including new request from Village of Anna)					
Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Provide back-up generators and the necessary hook-ups for critical facilities, which need to maintain continuous power to protect human health and life (including new request for Village of Anna WTP)					
Multiple Hazards (Summer Storms, Flooding, Tornadoes)	Seek funding for early warning systems, such as sirens and reverse 9-1-1, to warn residents of approaching severe weather					
Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Develop a tree maintenance program for trimming and pruning trees to help prevent damage from falling limbs. (including new request from Perry Twp.)					
Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Develop a usable advisory system for residents so they know traveling in severe weather is at their own risk.					
Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Develop evacuation plan for the Sidney Senior Center					
Multiple Hazards (Summer Storms, Flooding)	Develop education programs for developers, contractors and communities concerning alternate methods for keeping basements dry					
Multiple Hazards (Droughts, Earthquakes)	Develop a County contingency plan to furnish those homes on wells in rural and unincorporated areas with a back-up water supply					
Flooding	Develop a river and stream maintenance program for removing debris and log jams from drainage ways					
Droughts	Develop a public education program for residents for restrictions on open burning and water usage during drought conditions					
Droughts	Develop a public education program on the hazards associated with drought and extreme heat					
Winter Storms	Seek funding for additional salt storage facilities and loading equipment for townships.					
Flooding	Encourage communities to join the National Flood Insurance Program, which would allow residents to purchase flood insurance.					
Flooding	Elevate flood prone structures above the Base Flood Elevation, which is the elevation of the 100- year floodplain.					
Tornadoes	Provide permanent shelters for mobile home parks and campgrounds, where citizens may seek safety from severe weather.					
New Action Projects						
Flooding	Develop corrective actions for repetitive loss structures					

Hazard Type	Mitigation Action	Technically Feasible	Frequency of Hazard Risk	Activities Reduce Risk	Funding Available	Total
Tornadoes	Encourage the construction or installation of safe rooms in new and existing construction					
Flooding	Develop depth analysis grids to reduce flooding impacts on the Sidney WWTP					
Flooding	Develop depth analysis grids to reduce flooding impacts to Sheriff's Office					
Flooding	Develop depth analysis grids to reduce flooding impacts to South Main Street roadways in Sidney (possible portable coffer dam)					
Flooding	Develop depth analysis grids to reduce flooding impacts to structures on Riverside Drive in Sidney					
Flooding	Develop depth analysis grids to reduce flooding impacts to structures along Plum Creek Tributary 4 and Sidney-Freyburg Road near Ohio 119 (10-15 structures)					
Flooding	Develop depth analysis grids to reduce flooding impacts to structures along Plum Creek Tributary 2, Lochard Road and Loramie-Swanders Road (8-10 structures)					
Flooding	Develop depth analysis grids to reduce flooding impacts to structures along Loramie Creek Tributary 12 along Blanke Road near SR 29 (5-10 structures)					
Flooding	Develop plans to replace, modify, or expand culverts along the Hull Creek railroad in the Village of Botkins					
Flooding	Seek sources of funding to minimize storm water drainage problems in the Village of Jackson Center					
Flooding	Improve storm water drainage in the Village of Fort Loramie					
Flooding	Develop plan to replace, modify, or expand culverts along OH-705 in the Village of Fort Loramie					
Flooding	Construct community shelter/safe rooms in the Village of Fort Loramie					
Droughts	Develop a public education program for residents for restrictions on open burning and water usage during drought conditions					
Droughts	Develop a public education program on the hazards associated with drought and extreme heat					
Winter Storms	Seek funding for additional salt storage facilities and loading equipment for townships.					
Flooding	Encourage communities to join the National Flood Insurance Program, which would allow residents to purchase flood insurance.					
Flooding	Elevate flood prone structures above the Base Flood Elevation, which is the elevation of the 100- year floodplain.					
Tornado	Provide permanent shelters for mobile home parks and campgrounds, where citizens may seek safety from severe weather.					

**Appendix I:
Action Matrix**

Priority	Hazard Type	Mitigation Action	Start Date	End Date	Lead Agencies	Resources	Status	Remarks
1	Flooding	Encourage communities to join the National Flood Insurance Program, which would allow residents to purchase flood insurance.	Jan. 2016	Dec 2021	Floodplain Manager		Ongoing	Continued from previous Plan
2	All Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes, Drought, Earthquakes)	Develop education programs associated with multiple natural hazards and how to prepare for them prior to their occurrence	June 2016	June 2021	SCEMA	Existing	Ongoing	Continued from previous Plan
3	Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Develop a public education program for informing residents about the benefits of having NOAA radios and Family Disaster Plans, which will help them better respond to an emergency situation	Jan. 2016	Dec. 2021	SCEMA	Existing	Ongoing	Continued from previous Plan
4	Tornadoes	Encourage the construction or installation of safe rooms in new and existing construction.	June 2016	June 2021	Building owner, homeowners	Existing, grant	Modified/ New	
5	Flooding	Develop depth analysis grids to reduce flooding Impacts for: Great Miami Watershed: <ul style="list-style-type: none"> on the Sidney WWTP South Main Street in Sidney (possible portable coffer dam) Sheriff's Office structures along Plum Creek Tributary 4 and Sidney-Freyburg Road near Ohio 119 (10-15 structures) structures along Plum Creek Tributary 2 and Lochard Road and Loramie-Swanders Road (8-10 structures) structures on Riverside Drive (Sidney) Loramie Creek Watershed: <ul style="list-style-type: none"> Loramie Tributary 12 along Blanke Road near SR 29 (5- 10 structures) 	June 2016	June 2021	City of Sidney, County, FEMA	Existing, grant	New	
6	Multiple Hazards (Summer Storms, Flooding, Tornadoes)	Seek funding for early warning systems, such as sirens and county-wide emergency notification system, to warn residents of approaching severe weather	June 2016	Dec 2021	SCEMA	Existing, grants	Ongoing	County contracts with HyperReach
7	Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Provide back-up generators and the necessary hook-ups for critical facilities, which need to maintain continuous power to protect human health and life.	June 2016	Dec 2021	SCEMA, County, City, Villages (village of Anna)	grants	Ongoing	Continued from previous Plan
8	Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Develop emergency plan for the Sidney Senior Center.	June 2016	Dec 2021	SCEMA, Senior Center	Existing	New	
9	Flooding	Recommend corrective action for repetitive loss structures	June 2016	Dec 2021	SCEMA, property owner	grant	New	
10	Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Develop a tree maintenance program for trimming and pruning trees to help prevent damage from falling limbs.	June 2016	Dec 2021	Villages, townships, City (including new request from Perry Twp.)	Existing, grants	Ongoing	Continued from previous Plan
11	Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Develop an outreach program for informing citizens of designated shelter locations.	June 2016	Dec 2021	SCEMA, Village of Anna	Existing	Ongoing	Continued from previous Plan
12	Flooding	Develop a river and stream maintenance program for removing debris and log jams from drainage ways	June 2016	Dec 2021	County Engineer	grant	Ongoing	Continued from previous Plan
13	Flooding	Develop plan to replace, modify, or expand culverts along OH-705 in the Village of Fort Loramie	June 2016	June 2021	Village of Ft. Loramie	Existing, grant	New	
14	Flooding	Improve storm water drainage in the Village of Fort Loramie	June 2016	June 2021	Village of Ft. Loramie	Existing, grant	New	
15	Flooding	Construct community shelter/safe rooms in the Village of Fort Loramie	June 2016	June 2021	Village of Ft. Loramie	Existing, grant	New	
16	Multiple Hazards (Summer Storms, Flooding, Tornadoes)	Develop educational information for general public concerning alternate methods for keeping basements dry.	June 2016	Dec 2021	SCEMA	Existing	Modified	
17	Flooding	Elevate or otherwise address flood prone structures within the base elevation of the 100- year floodplain.	June 2016	Dec 2021	SCEMA, city, villages, townships	grant	Ongoing	Continued from previous Plan
18	Flooding	Develop plans to replace, modify, or expand culverts along the Hull Creek railroad in the Village of Botkins	June 2016	June 2021	Village of Botkins	Existing, grant	New	
19	Flooding	Seek sources of funding to minimize storm water drainage problems in the Village of Jackson Center	June 2016	June 2021	Village of Jackson Center	Existing, grant	New	
N/A	Flooding	Seek funding to update Flood Insurance Rate Maps	N/A	N/A	N/A	FEMA	Completed	Apr. 2, 2015

N/A	Droughts	Develop a public education program for residents for restrictions on open burning and water usage during drought conditions.	N/A	N/A	Fire services	Existing	Completed	Addressed in State and Local regulations/ordinances.
N/A	Flooding	Seek funding for auto sandbag filling equipment.	N/A	N/A	N/A	grant	Completed	
N/A	Tornadoes	Develop a public education program for informing residents of an "All clear" message that sounds when a severe weather warning expires.	N/A	N/A	N/A	N/A	Deleted	No "all clear" message system exists
N/A	Winter Storms	Seek funding for additional salt storage facilities and loading equipment for townships.	N/A	N/A	N/A	N/A	Deleted	Not considered a mitigation activity
N/A	Multiple Hazards (Droughts, Earthquakes)	Develop a County contingency plan to furnish those homes on wells in rural and unincorporated areas with a back-up water supply	N/A	N/A	N/A	N/A	Deleted	Addressed in the EOP
N/A	Droughts	Develop a public education program on the hazards associated with drought and extreme heat	N/A	N/A	N/A	N/A	Deleted	Addressed as a part of existing education programs
N/A	Tornadoes	Provide permanent shelters for mobile home parks and campgrounds, where citizens may seek safety from severe weather.	N/A	N/A	N/A	N/A	Deleted	Not considered as feasible
N/A	Multiple Hazards (Winter Storms, Summer Storms, Flooding, Tornadoes)	Develop a usable advisory system for residents so they know traveling in severe weather is at their own risk.	N/A	N/A	N/A	N/A	Deleted	Addressed in educational program

Appendix J: References

General References

- “State and Local Mitigation Planning How-To Guide: Understanding Your Risks, Identifying Hazards and Estimating Losses,” FEMA Document #386-2, August 2001.
- “Countywide All Natural Hazards Mitigation Plan,” Licking County, Ohio, November 2003.
- www.fsa.usda.gov – Farm Service Agency
- www.dnr.state.oh.us – Ohio Department of Natural Resources (ODNR)
- www.dnr.state.oh.us/forestry/Urban/ - ODNR's Urban Forestry Program
- www.census.gov – Main US Census website
- www.odod.ohio.gov/research/Productlisting.html - Ohio Department of Development
- www.ncdc.noaa.gov – National Climatic Data Center
- <http://geohazards.cr.usgs.gov> – Earthquake Info
- <http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms> – NCDC storm events database
- http://edcscgs9.cr.usgs.gov/glis/hyper/guide/1_250_lulcfig/states/OH.html - State of Ohio Land Use Cover
- www.omunileague.org/ohiocities.htm - Links to websites for Ohio Cities and Villages
- www.fema.gov/library/drcys.shtm - Federally Declared Disasters by Calendar Year.
- www.ccao.org/1008.htm - Links to Ohio County Websites
- www.naco.org/Template.cfm?Section=Home – National Association of Counties
- <http://www.tornadoproject.com/alltorns/ohtorn2.htm#P> – Tornadoes by state
- <http://www-agecon.ag.ohio-state.edu/programs/exurbs/c> - Land use info
- <http://neic.usgs.gov/neis/> - United States Geological Survey National Earthquake Information Center
- <http://maps.epa.gov> – United States Environmental Protection Agency Enviromapper
- http://www.epodunk.com/counties/oh_county.html - Ohio county info
- <http://www.city-data.com> – United States city data
- <http://en.wikipedia.org/wiki/> - Free encyclopedia information for Ohio communities.
- http://www.crh.noaa.gov/iwx/program_areas/climate/TornadoMaps/main.html - Historical pathways of tornadoes in Ohio counties
- <http://www.drought.noaa.gov> - NOAA Drought information center
- <http://www.drought.unl.edu/dm/monitor.html> - Drought monitor map
- www.wowworks.com/wowcity/ohcounty.htm - State, regional, county, city and community guide
- www.osuedc.org/profiles/pdf - Ohio State University Extension Data Center
- <http://ohioline.osu.edu/> - Ohio State University Extension College of Food, Agriculture and Environmental Sciences
- www.nass.usda.gov/census/ - United States Census of Agriculture
- www.puc.state.oh.us – Public Utilities Commission of Ohio
- www.oh.nrcs.usda.gov – United States Department of Agriculture National Resource Conservation Service
- <http://pubs.usgs.gov/fs/> - U.S. Geological Survey Fact Sheets
- www.naturalhazards.org - Natural Hazards Education and Research Cooperative (NHERC)
- <http://www.legislature.state.oh.us/> - Manufactured Home regulations
- <http://mitigationplan.org> – Hazard Mitigation Planning

County References

- <http://www.anna.k12.oh.us/About/History/html/earthquakes.htm> - Anna Schools
- www.shelbycountyhistory.org - Shelby County Historical Society
- www.ohiohistorycentral.org - Ohio Historical Society
- www.jacksoncenter.com - Village of Jackson Center
- www.sidneyoh.com - City of Sidney
- <http://www.botkinsohio.com> - Village of Botkins

- <http://co.shelby.oh.us/> - Shelby County Website
- www.miamiconservancy.org - Miami Conservancy District
- www.loramievalleyalliance.org - Loramie Valley Alliance
- miami.osu.edu/wq/wq.html - Middle Great Miami River Watershed Alliance
- <http://www.sidneyshelbychamber.com/> - Sidney Shelby Chamber of Commerce
- <http://www.visitsidneyshelby.com/> - Sidney Visitors Bureau
- <http://www.downtownsidney.com/> - Sidney Mainstreet
- <http://www.epa.state.oh.us/dsw/tmdl/AuglaizeRiverUpperTMDL.html> - Upper Auglaize River Watershed
- <http://www.the911site.com/news/pjo-flood-07-08-03.htm> - Port Jefferson Flood 2003
- <http://www.bright.net/~scares/> - SCARES Mobile Unit
- <http://www.shelbyswcd.org/> - Shelby County Soil and Water Conservation District
- <http://www.shelbycopark.org/> - Shelby County Park District
- <http://www.meccainc.org/LLIA/AboutLLIA.htm> - Lake Loramie Valley Improvement Association
- <http://www.sidneydailynews.com/> - Sidney Newspaper
- www.shelby-ema.com – Shelby County EMA

**Appendix K:
Resolutions**

