

Discovery Report

*Saline River Watershed, 05140204
Franklin, Gallatin, Hamilton, Hardin, Johnson,
Pope, Saline, White, and Williamson Counties,
Illinois*

11/13/2012

Updated 2/20/2015



FEMA

Project Area Community List

Community Name
Franklin County
Thompsonville, Village of
Gallatin County
Equality, Village of
Junction, Village of
Omaha, Village of
Ridgway, Village of
Hamilton County
Broughton, Village of
McLeansboro, City of
Hardin County
Johnson County
Goreville, Village of
New Burnside, Village of
Marion, City of
Pope County
Saline County
Carrier Mills, Village of
Eldorado, City of
Galatia, Village of
Harrisburg, City of
Muddy, Village of
Raleigh, Village of
Stonefort, Village of
White County
Norris City, Village of
Williamson County
Creal Springs, City of
Marion, City of
Stonefort, Village of

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I. General Information

The Saline River Watershed drains an area of 1177 square miles covering various parts of nine Illinois counties. Saline County has 99 percent of its land area within the watershed. Three of the county's larger streams are the Saline River and two of its tributaries, Middle Fork and South Fork Saline Rivers. Before reaching the Saline River the Middle Fork flows across the county from the northwest to the southeast, and the South Fork crosses from the west to east across the southern section. In the southeast section of Saline County both streams meet, forming the Saline River which then flows into Gallatin County where it is joined by the North Fork Saline River and Cypress Ditch before completing its 27-mile journey to the Ohio River (FEMA, December 16, 2011). Figure 1 shows the Saline River and major tributaries (ISWS, March 8, 2010). There are seven HUC-10 watersheds in the Saline HUC-8, listed in Table 1. Figure 2 displays the Saline HUC-8 and HUC-10 watersheds (USGS, November 18, 2011).

Figure 1. Saline HUC8 Project Area

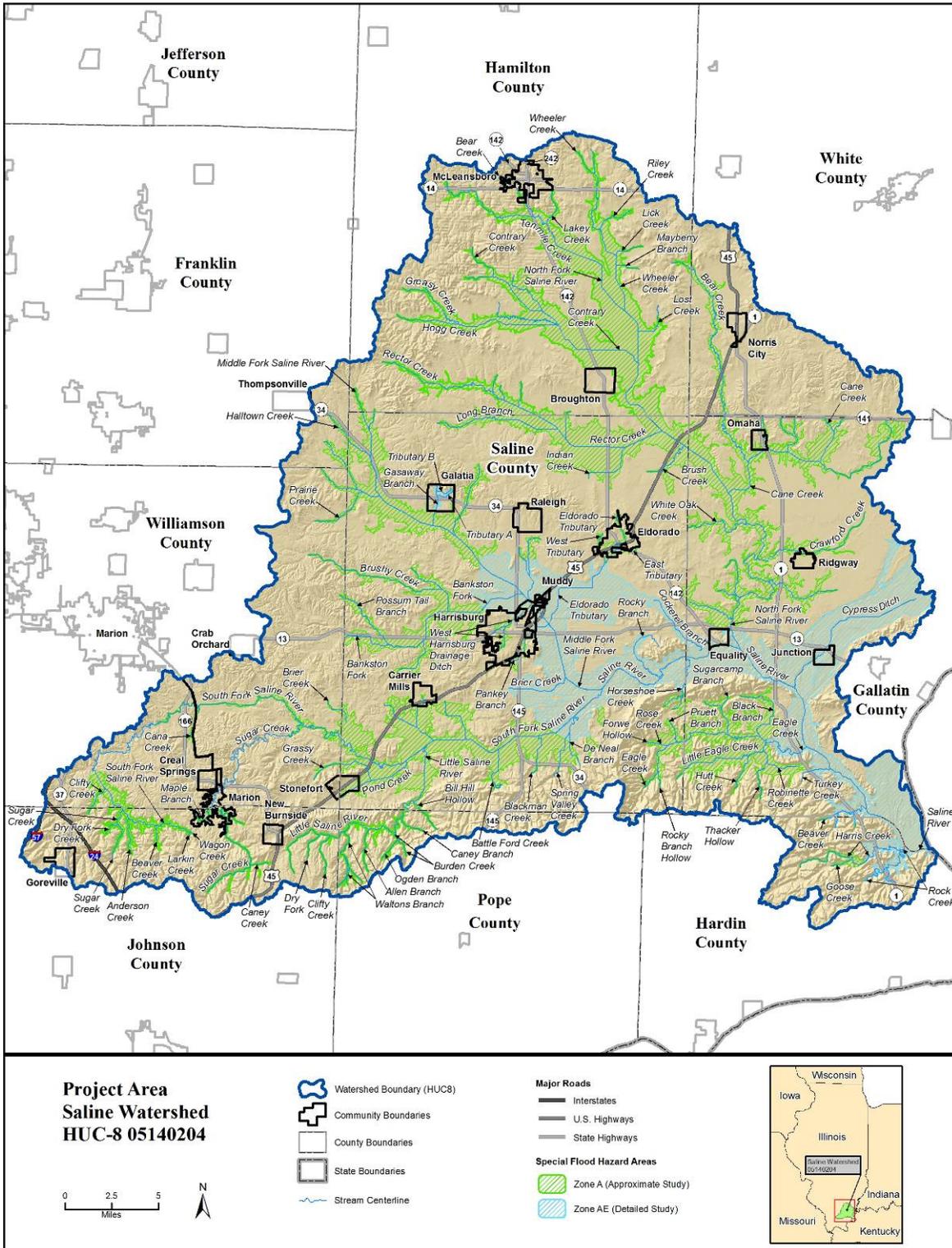
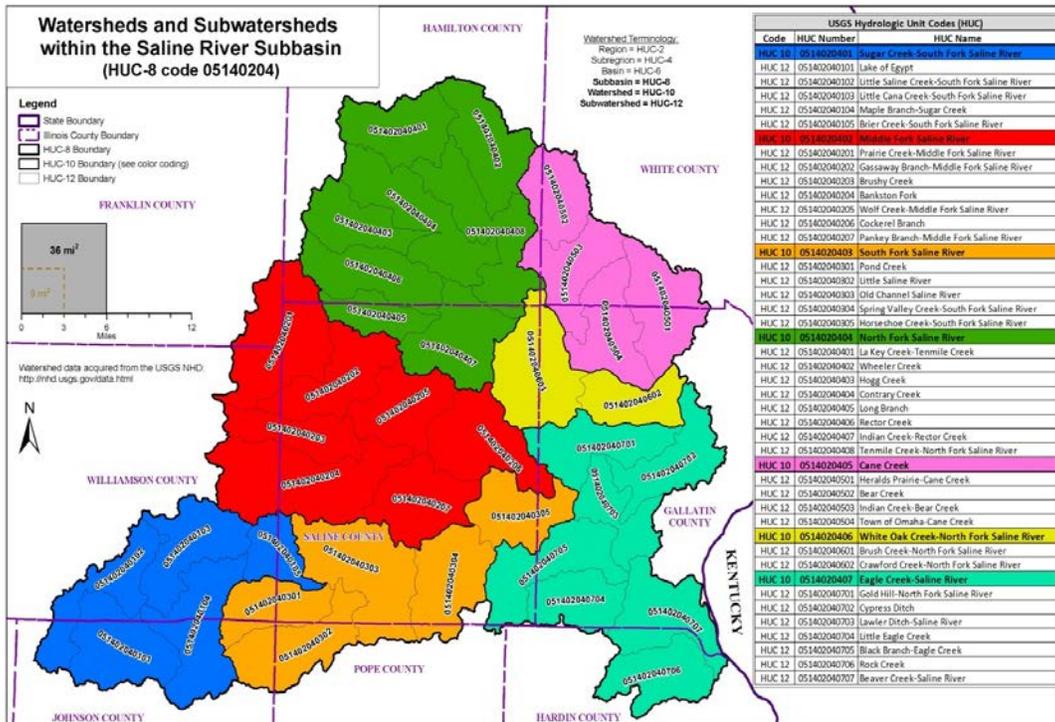


Table 1. HUC-10 Watersheds within Saline River Watershed

HUC-10	HUC-10 Name
0514020401	Sugar Creek-South Fork Saline River
0514020402	Middle Fork Saline River
0514020403	South Fork Saline River
0514020404	North Fork Saline River
0514020405	Cane Creek
0514020406	White Oak Creek-North Fork Saline River
0514020407	Eagle Creek-Saline River

Figure 2. Saline River Subbasin Watersheds and sub watersheds



Communities and Counties within the Saline River Watershed

The nine Saline River watershed counties are Saline, Gallatin, Hamilton, Williamson, Johnson, White, Hardin, Pope, and Franklin. Saline County covers one-third of the watershed land area, and Gallatin and Hamilton each occupy approximately one-fifth of the watershed land area. The chart in Figure 3 shows the percentage of watershed land area within each of the nine counties. The National Flood Insurance Program (NFIP) participation status for Saline watershed communities is given in Table 2.

Figure 3. Percent Watershed Land Area by County

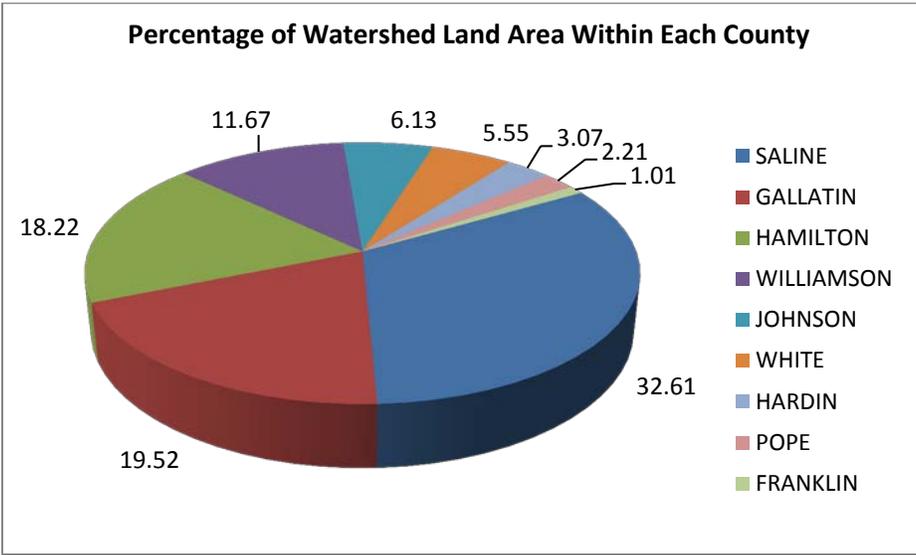


Table 2. NFIP Participation Status

County	Community	Participating
Franklin	Franklin County	Y
	Thompsonville	N
Gallatin	Gallatin County	Y
	Equality	Y
	Junction	Y
	Omaha	Y
	Ridgway	Y
Hamilton	Hamilton County	Suspended
	Broughton	Y
	McLeansboro	Y
Hardin	Hardin County	N
Johnson	Johnson County	Y
	Goreville	N
	New Burnside	N
Pope	Pope County	Suspended
Saline	Saline County	Y
	Carrier Mills	Y
	Eldorado	Y
	Galatia	Y
	Harrisburg	Y
	Muddy	Y
	Raleigh	N
	Stonefort	N
White	White County	Y
	Norris City	N
Williamson	Williamson County	Y
	Creal Springs	N
	Marion	Y

(CIS, 11/25/2014)

II. Watershed Stakeholder Coordination

Discovery

Watershed coordination meetings with community, state, and federal officials were held to share information concerning the watershed and its stakeholders.

Approximately six weeks prior to the Discovery meeting, the Federal Emergency Management Agency (FEMA) Region V conducted a project team conference call with ISWS staff and appropriate state and federal officials. During this same time a pre-Discovery meeting was held with key community watershed officials. During both the conference call and the pre-Discovery meeting, the ISWS staff provided an overview of the Risk MAP program and the Discovery process. Information concerning the Saline River and its tributaries as well as current watershed projects and mitigation efforts was exchanged between ISWS staff and officials. Pre-Discovery materials are available in Appendix A.

Following these initial coordination efforts, ISWS staff updated a contacts database using available websites and made phone calls to the communities. These calls included an overview of the Risk Map and Discovery process. An invitation list for the Discovery meeting was compiled from the information gathered during phone conversations. Approximately four weeks prior to the meetings, ISWS mailed letters to all invited stakeholders providing a background of the Risk MAP program and an invitation to attend a Discovery meeting. The contact information and invitations are available in Appendix B.

The Discovery meeting was hosted by the University of Illinois Extension Office, working in cooperation with ISWS. The meeting was held at the following place, date, and time.

Tuesday, November 29, 2011 - 1:30 PM
Southeastern Illinois College Foundation Center
540 North Commercial Street
Harrisburg, Illinois 62946

The Discovery meeting was approximately two hours long and consisted of introductory presentations followed by a break-out session in which stakeholders could review the Discovery map, ask questions, and provide comments and revisions. There were 49 attendees.

Presentations were given describing Risk MAP program goals and objectives, hazard mitigation projects, FEMA's Community Rating System (CRS), and the Discovery meeting goals and objectives. The meeting materials are available in Appendix C.

For the break-out session, Discovery maps were available for review at seven stations, and each station was staffed by ISWS personnel. After reviewing the maps and clarifying any questions, stakeholders completed comment forms that included their contact information and recommended revisions or general feedback. The meeting summary, attendance, and comments are available in Appendix D. The Discovery Maps are available in Appendix E.

Meeting participants were provided an evaluation questionnaire seeking their feedback on the Flood Risk Mapping Discovery meetings. The survey results and summary report are available in Appendix F.

Action Discovery

The Action Discovery phase provided a continuation of past Discovery efforts that focused upon more intensive coordination with communities possessing a higher mitigation action potential. The Saline Watershed Action Discovery Project emphasized reducing flood risk through mitigation actions that would ultimately result in safer communities. Prior to the start of the project the Illinois State Water Survey (ISWS) conducted a project team conference call with FEMA and appropriate state and federal officials to gather relevant information concerning the watershed communities.

Saline Watershed Action Discovery Tier 1 and Tier 2 communities were selected based upon the FEMA Community Action Potential Index (CAPI) scores, comment data collected during the Discovery phase, a draft AoMI dataset, Countywide Hazard Mitigation Plans, and input from FEMA and Illinois state agencies. Once the Tier 1 and Tier 2 watershed communities were designated contact information was updated and approximately four weeks prior to the Action Discovery meeting, ISWS sent invitations to selected communities. Prior to the Action Discovery meeting outreach began with a one-on-one phone call with the Tier 1 communities during which time unique local flood-related issues, plans, existing resources and tools, and mitigation priorities were discussed. The CAPI tier rankings, contact information and invitations are available in Appendix H.

The Saline Watershed Action Discovery meeting was held at the following place, date, and time.

Tuesday, October 28, 2014, 1:00 PM – 3:00 PM

Pruett Building
107 E. Church Street
Harrisburg, IL 62946

The Action Discovery meeting was approximately two hours in length and consisted of introductory presentations followed by a break-out session in which stakeholders reviewed and Discovery comments and Action Discovery maps, and provided information for needed community mitigation action projects.

Presentations were given describing FEMA's Risk MAP program goals, Community Rating System (CRS), Mitigation Action Tracker and mitigation ideas for local flood risk issues, and the Action Discovery meeting goals and objectives. The meeting materials and presentations are available in Appendix I.

For the break-out session, Action Discovery maps labeled with Discovery comment numbers were available for review at approximately six stations, and each station was staffed by ISWS personnel. After reviewing the maps and clarifying any questions, stakeholders updated

Discovery meeting comments and completed Mitigation Action Forms that included their contact information and recommended mitigation projects for local flood risk areas. The mitigation projects were entered into FEMA’s Mitigation Action Tracker. The meeting summary, attendance, updated comments, and Mitigation Action Forms are available in Appendix J. The Action Discovery maps are available in Appendix K.

III. Data Collection

The Discovery phase included an investigation of existing terrain, flood hazard data, and flood risk data; broad data mining for development of an initial Discovery map; and detailed data collection to refine the Discovery map which was prepared by the Illinois State Water Survey (ISWS). A list of data collected, the deliverable or product in which the data are included, the source of the data, and any pertinent comments are provided in Table 3. The information is categorized by data that can be used for flood risk products and additional data that benefited the project.

Table 3. Data for Saline Watershed

Data Types	Description	Source	Deliverable
Coordinated Needs Management Strategy (CNMS) Streams	Engineering study needs as defined by Phase 3 CNMS data	Region V Coordinated Needs Management Strategy Inventory	Discovery Map; Geodatabase
Community Boundaries	Location of community boundaries	U.S. Census 2010 Places TIGER File	Discovery Map; Geodatabase
Community Comments	Community comments collected during the discovery process	Discovery Meetings	Discovery Map; Geodatabase
Composite Risk Analysis	National Flood Risk Analysis HUC Risk Data	FEMA Region V	Discovery Map; Geodatabase
County Boundaries	Location of county boundaries	USGS Topographic Quad Maps	Discovery Map; Geodatabase
Dams	Location of dams	U.S. Army Corps of Engineers - National Inventory of Dams, 1999 (Extracted from Hazus Database)	Discovery Map; Geodatabase
EPA 303(d) Streams	Streams included in the EPA 303(d) list of impaired streams	U.S. EPA Office of Water	Discovery Map; Geodatabase
Federal Land	Location of Federally owned or administered lands	National Atlas of the United States	Discovery Map; Geodatabase

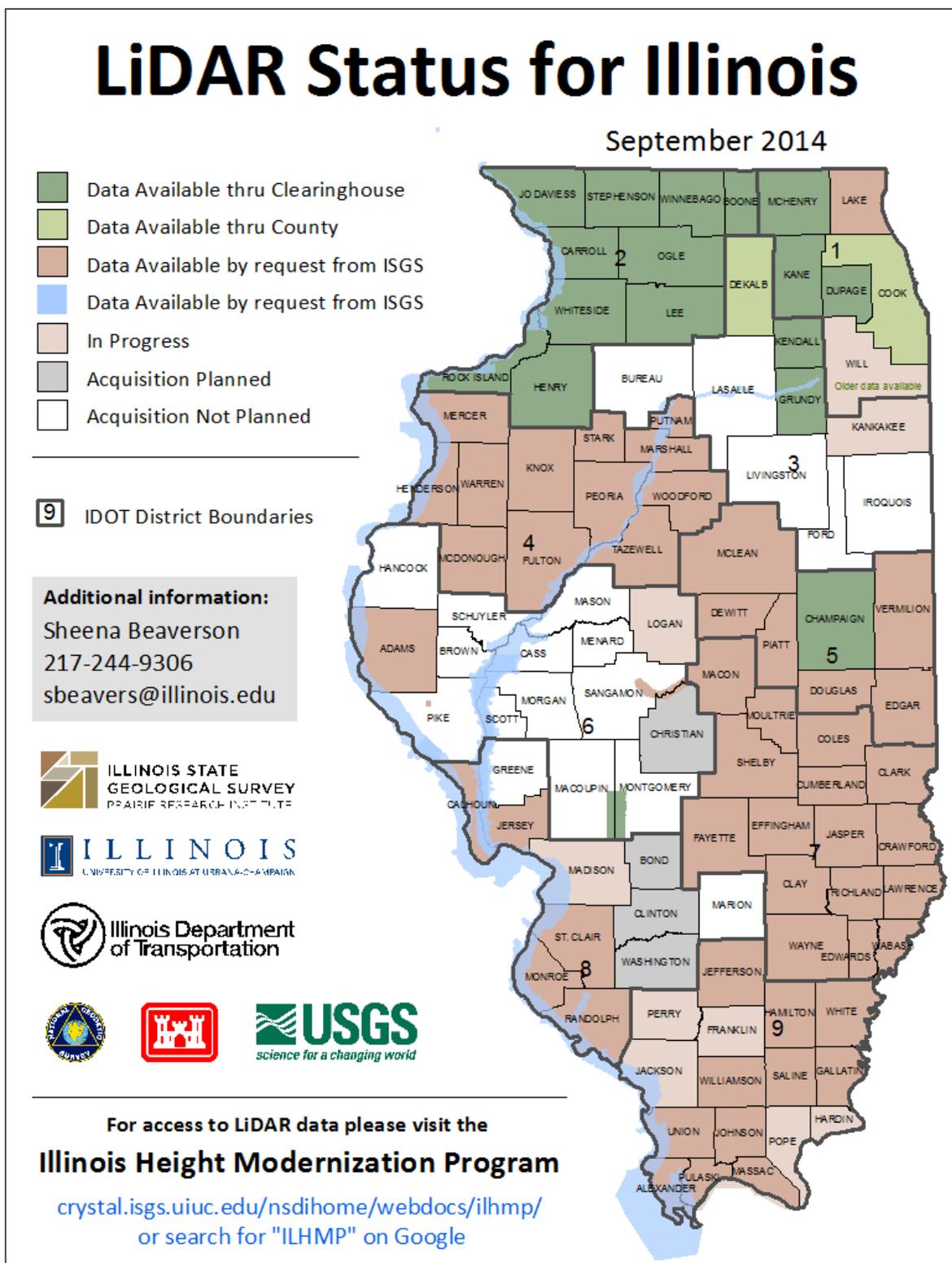
Data Types	Description	Source	Deliverable
FEMA Public Assistance Grant Program	Location of public assistance grant projects	Federal Emergency Management Agency Region 5	Discovery Map; Geodatabase
HUC 8, 10, & 12 Watershed Boundaries	Hydrologic Unit Code 8, 10, & 12 scale watershed boundaries	USGS National Hydrography Dataset	Discovery Map; Geodatabase
Letters of Map Change	Locations of letters of map change	FEMA Mapping Information Platform Database	Discovery Map; Geodatabase
Levees	Location of levees considered for accreditation status by FEMA	FEMA Midterm Levee Inventory	Discovery Map; Geodatabase
Major Roads	Location of major roads	Illinois Department of Transportation, 2010	Discovery Map; Geodatabase
Special Flood Hazard Areas	Location of special flood hazard areas	FEMA Effective NFIP Maps	Discovery Map; Geodatabase
Stream Gages	Locations of stream gauges operated by multiple agencies	United States Geological Survey (USGS)	Discovery Map; Geodatabase
Streams of Concern	Streams categorized by level of concern determined by Illinois State Water Survey (ISWS) in-house process	Region V Coordinated Needs Management Strategy Inventory \ ISWS	Geodatabase
Study Requests	Study requests collected through Discovery process and CNMS	Illinois State Water Survey	Discovery Map; Geodatabase
Wetlands	Location and type of wetlands and deep water habitats	U.S. Fish and Wildlife Service National Wetlands Inventory	Geodatabase

i. Data that can be used for Flood Risk Products

Topographic Data

As part of the Illinois Height Modernization effort, the Illinois Department of Transportation (IDOT) is leading LiDAR data acquisition for Illinois counties scheduled by IDOT district. Figure 4 displays the LiDAR status for Illinois counties as of September 2014.

Figure 4. LiDAR Status for Illinois



USGS Gages

The project team identified USGS stream gages in the watershed. The locations of the gages are shown on the Discovery map and listed in Table 4.

Table 4. USGS Stream Gages

Gage Number	Station Name and Location
03382045	LITTLE CANA CREEK NEAR CREAL SPRINGS, IL
03382100	SOUTH FORK SALINE RIVER NEAR CARRIER MILLS, IL
03382160	BANKSTON FORK NEAR CRAB ORCHARD, IL
03382170	BRUSHY CREEK NEAR HARCO, IL
03382200	MIDDLE FORK SALINE RIVER NEAR HARRISBURG, IL
03382500	SALINE RIVER NEAR JUNCTION, IL
03382510	EAGLE CREEK NEAR EQUALITY, IL

ii. Other Data and Information

Demographics

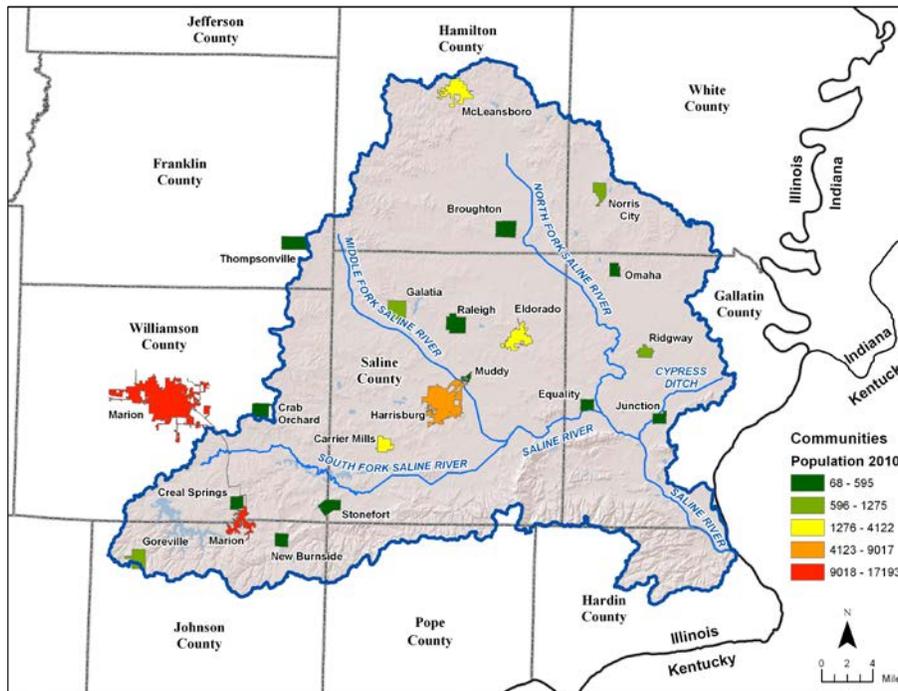
The cities of Harrisburg and Eldorado, Saline County, and McLeansboro, Hamilton County, are the largest Saline River watershed communities located entirely in the watershed with populations of 9017, 4122, and 2883, respectively. All remaining watershed communities located entirely in the watershed have populations less than 2000. Hardin and Pope Counties do not have any communities within the Saline River watershed. Figure 5 provides a map of the watershed counties showing the location of the communities. Table 5 lists the Saline River watershed counties and communities with their 2010 populations. (U.S. Census Bureau, 2010)

Table 5. Saline Watershed Communities with 2010 Census Populations

Community	Population	Community	Population
Franklin County		Saline County	
Village of Thompsonville	543*	City of Eldorado	4122
Gallatin County		City of Harrisburg	9017
Village of Equality	595	Village of Carrier Mills	1653
Village of Junction	129	Village of Galatia	933
Village of Omaha	266	Village of Muddy	68
Village of Ridgway	896	Village of Raleigh	350
Hamilton County		Village of Stonefort	297
City of McLeansboro	2883	Williamson County	
Village of Broughton	194	CDP Crab Orchard	333*
Hardin County		City of Creal Springs	543
Johnson County		City of Marion	17193*
Village of Goreville	1049	White County	
Village of New Burnside	211**	Village of Norris City	1275
Pope County			

*Community mostly located outside the Saline River watershed

Figure 5. Saline Watershed Communities Population 2010



Mitigation Plans/Status, Mitigation Projects

Multi-Hazard Mitigation Plans (MHMPs) are prepared for unincorporated and incorporated communities to help communities reduce long-term risk to life and property from natural hazards. The plans include comprehensive mitigation strategies intended to promote flood-resilient communities. The project team reviewed the mitigation strategies in available MHMPs to determine which, if any, were relevant for the Discovery process. Table 6 lists the MHMPs, their status, and their availability for review.

Table 6. MHMPs: Status and Availability

County	MHMP	Hazus	Issue Date	Expiration Date	Available for Review
Franklin	Update in Progress	Y	9/25/2009	9/25/2014	Y
Gallatin	Update in Progress	Y	1/15/2010	1/15/2015	Y
Hamilton	N	N/A	N/A	N/A	N/A
Hardin	N	N/A	N/A	N/A	N/A
Johnson	Y	Y	4/08/2011	4/08/2016	Y
Pope	N	N/A	N/A	N/A	N/A
Saline	Y	Y	06/11/2013	6/11/2018	Y
White	Update in Progress	Y	7/16/2009	7/16/2014	Y
Williamson	Update in Progress	Y	11/20/2008	11/20/2013	Y

(IEMA, 11/24/2014)

Community Rating System (CRS)

No communities in the Saline Watershed participate in the CRS program.

Floodplain Management/Community Assistance Visits (CAVs)

As the state coordinating agency for the National Flood Insurance Program, the Illinois Department of Natural Resources, Office of Water Resources, conducts Community Assistance Visits (CAVs) as part of their floodplain management programs. A CAV typically consists of a tour of the floodplain to assess any recent construction activities, a review of the local permitting process, and evaluation of the local floodplain ordinance. A meeting with the local floodplain official is held to discuss the NFIP, the local permitting process, any recent flood events, training opportunities, and any program deficiencies. Table 7 lists the communities in the watershed and the date of their latest CAV or Community Assistance Call (CAC).

Table 7. Recent CAV/CACs

Community	CAV	CAC
Franklin County	9/14/2006	4/1/2008
Gallatin County	6/11/2004	8/18/1997
Junction, Village of	N/A	6/29/1998
Omaha, Village of	N/A	9/18/2000
Ridgway, Village of	N/A	7/16/1993
Broughton, Village of	N/A	9/29/2000
Johnson County	6/25/2004	8/16/1996
Muddy, Village of	N/A	5/18/1994
White County	4/6/2006	9/17/1998
Williamson County	6/25/2004	8/16/1996
Marion, City of	9/1/2011	N/A

(CIS, 11/24/2014)

Levees

Levees exist in the study area to provide the county with some degree of protection against flooding.

The Harrisburg Local Flood Protection Project Levee was erected north and east of Harrisburg in an effort to protect the city from flooding on the Middle Fork Saline River created by Ohio River backwater. The U.S. Army Corps of Engineers (USACE), Louisville District, levee project at Harrisburg was completed in June 1950 and consists of approximately 3.8 miles of earth levee, 0.12 miles of concrete wall, two pumping plants, and other necessary appurtenances (Saline County FIS).

Based on data submitted by the USACE Louisville District on December 21, 2011, the Harrisburg Local Flood Protection Project Levee was granted accredited status by FEMA. FIRM panels 17165C0119C, 17165C0125C, and 17165C0182C will be revised to reflect the accredited status of this levee.

Regulatory Mapping

As part of FEMA’s Map Modernization program, ISWS has recently updated several of the countywide FIRMs throughout the state of Illinois. Many of these maps are effective or in the final stages of map adoption. While these maps are in a digital format, they do not necessarily reflect newer hydrologic or hydraulic study information and therefore may not be the most accurate representation of flood risk within the watershed. Table 8 lists the Map Modernization activity in the Saline watershed.

Table 8. Digital Flood Insurance Rate Map Status

County	Status	Effective Date
Franklin	Effective	11/18/2009
Gallatin	Effective	12/2/2011
Hamilton	Not Funded	N/A
Hardin	Effective	11/2/2011
Johnson	Not Funded	N/A
Pope	Not Funded	N/A
Saline	Effective	12/16/2011
White	Effective	2/16/12
Williamson	Effective	8/4/2008

(CIS, 11/24/2014)

IV. Risk MAP Needs and Recommendations

The project team presented the Discovery map and discussed the results of the data collection and analysis with the watershed stakeholders during the Discovery meetings. The community information collected during the meeting was integrated with the other data sets. This section addresses the areas of concern and interest within the Saline watershed that could be addressed with Risk MAP projects.

i. Methodology

To provide a basis for prioritizing mapping needs in the watershed, a screening methodology was used to rank streams based on several criteria. The method used in Illinois to identify streams of concern is to perform a spatial analysis of the data to determine where there are combinations of potentially unverified engineering data, high risk, and community concerns. Three sources of information were used for this initial screening task: the Coordinated Needs Management Strategy (CNMS) Phase III geospatial database, the FEMA National Flood Risk Analysis HUC Risk Data spatial data, and the information collected from stakeholders at the Discovery meeting.

The CNMS contains data for stream reaches and classification of stream reached based upon the engineering analyses used to determine the floodplain boundaries. The classification system uses specific criteria to assess if acceptable methods were used for the engineering analyses and if the analyses are based upon current data. Stream reaches are identified on the basis of the classification system as “VALID,” “UNKNOWN,” or “UNVERIFIED.”

The FEMA National Flood Risk Analysis HUC Risk Data spatial data were used to provide relative risk ranking. It is a Census Block Group GIS layer that contains aggregated flood claims data along with ten weighted parameters used to compute relative national risk (1 to 10 with 1 being highest risk) by Census Block Group.

A spatial data layer of areas of known flooding issues was created from the comments collected at the Discovery meeting. All comments are captured as a point feature class. Comments that reflect a study request are also shown as polygons. Both feature classes are shown on the Discovery map with the corresponding comment number. The full text of the comments collected throughout the Discovery process is in Appendix D.

A subset of stream segments was created by combining those stream segments identified as having engineering analyses that may no longer be valid (CNMS unverified) and any stream segment where comments collected indicate that the Special Flood Hazard Area (SFHA) mapping is inaccurate or inadequate. This subset of stream segments was then intersected with the HUC Risk Data and separated into two categories: high concern for those segments which flow through Census Block Groups with Risk Rankings between 1 and 5 and medium concern for those segments which flow through Census Block Groups with Risk Rankings between 6 and 10. Stream segments outside the combined set were categorized as low concern. Table 9 shows the categorization scheme. The entire list of study needs including stream names, floodplain zones, stream lengths, and categories of concern are provided in Appendix G. Final ranking of CNMS scores are stored in the geodatabase as well as a GIS feature class derived from the CNMS named Streams of Concern.

Table 9. Streams of Concern Categorization

Level of Concern	CNMS Status	Study Request	FEMA Risk Decile
<i>High</i>	Unverified	Yes/No	1-5
	Unknown	Yes	1-5
<i>Medium</i>	Unverified	Yes/No	6-10
	Unknown	Yes	6-10
	Valid	Yes	1-10
<i>Low</i>	Valid	No	n/a
	Unknown	No	n/a

ii. Study and Mapping Needs

While Digital Flood Insurance Rate Maps (DFIRMs) have been produced for many counties in the watershed, there are still study and mapping needs. Using input from community stakeholders and available data, ISWS has listed streams of concern with relatively higher needs as compared to currently mapped streams in the Saline HUC8. There are no census blocks with a Risk Decile between 1 and 5, so the streams of concern have either a medium or low level of concern. Streams with a “medium” level of concern are listed in Table 10.

One goal of the floodplain mapping program is to have a high quality, model-based floodplain mapped for all streams that drain a greater than approximately 1 square mile or more in an urban or urbanizing area and for streams in rural areas that drain 10 square miles or more. The streams listed in Table 10 are the highest ranking stream reaches for updated study based on the data collected during this Discovery process; there are other mapping needs in the Saline HUC8. Additional needs are documented in CNMS. Appendix G lists all streams of concern, including streams that ranked as medium and low based on the system explained under the methodology section. Streams of concern are shown in Figure 6.

During the Discovery Meeting representatives from the City of Eldorado expressed great concern about the revised floodplain mapping in the environs of the community (see comment number 49). Concern was expressed about the quality of the topographic data used to delineate the SHFA in the effective DFIRM (12/16/2011). Also, the community discovered that the Illinois Department of Transportation (IDOT) had built several new structures in the past one to two years.

Following the Discovery Meeting, the Illinois State Water Survey produced the report titled *Hydrologic and Hydraulic Modeling and Floodplain Mapping for Eldorado Tributary, East Tributary and West Tributary Saline County, Illinois*, dated May 13, 2013 for the Federal Emergency Management Agency (FEMA) under EMC-2012-CA-7014. The study incorporated as-built drawings of the structures identified by the City of Eldorado into a HEC-RAS hydraulic model based on regional regression equations, and was mapped using topographic data from spring 2011 LiDAR flights. The study and resultant mapping was incorporated into the FIRM and Flood Insurance Study (FIS) effective October 2, 2014.

Prior to the Discovery Meeting, the City of Harrisburg had funded new studies of Pankey Branch and West Harrisburg Ditch as well as technical data to support accreditation of the levee system. At the time of Discovery FEMA had funded Physical Map Revisions to incorporate these studies.

For the FIRM and FIS effective October 2, 2014, the Illinois State Water Survey incorporated MT2 Case 11-05-5865P which was issued a 316-PMR. The study by Holscher Engineering included West Harrisburg Drainage Ditch.

Also, a positive NFIP Levee System Evaluation Report Letter and the Levee System Evaluation Report were provided to FEMA Region V by the U.S. Army Corps of Engineers (USACE) stating that the Harrisburg, Illinois Flood Protection Project met the requirements necessary to be included in the NFIP by FEMA. In a letter dated February 22, 2012 FEMA notified the City of Harrisburg that the USACE documentation and data were reviewed for completeness and based on receipt of the information, the minimum certification criteria outlined in 44 CFR Section 65.10, had been met for the Harrisburg Local Flood Protection Project (LFPP). Mapping was updated to fully accredit the levee system on the FIRM. The areas landward of the levee will continue to be mapped as shaded Zone X and an updated note will be placed in those areas of the revised FIRM panel(s) warning of the flood risk that still exists. An interior Drainage Analysis

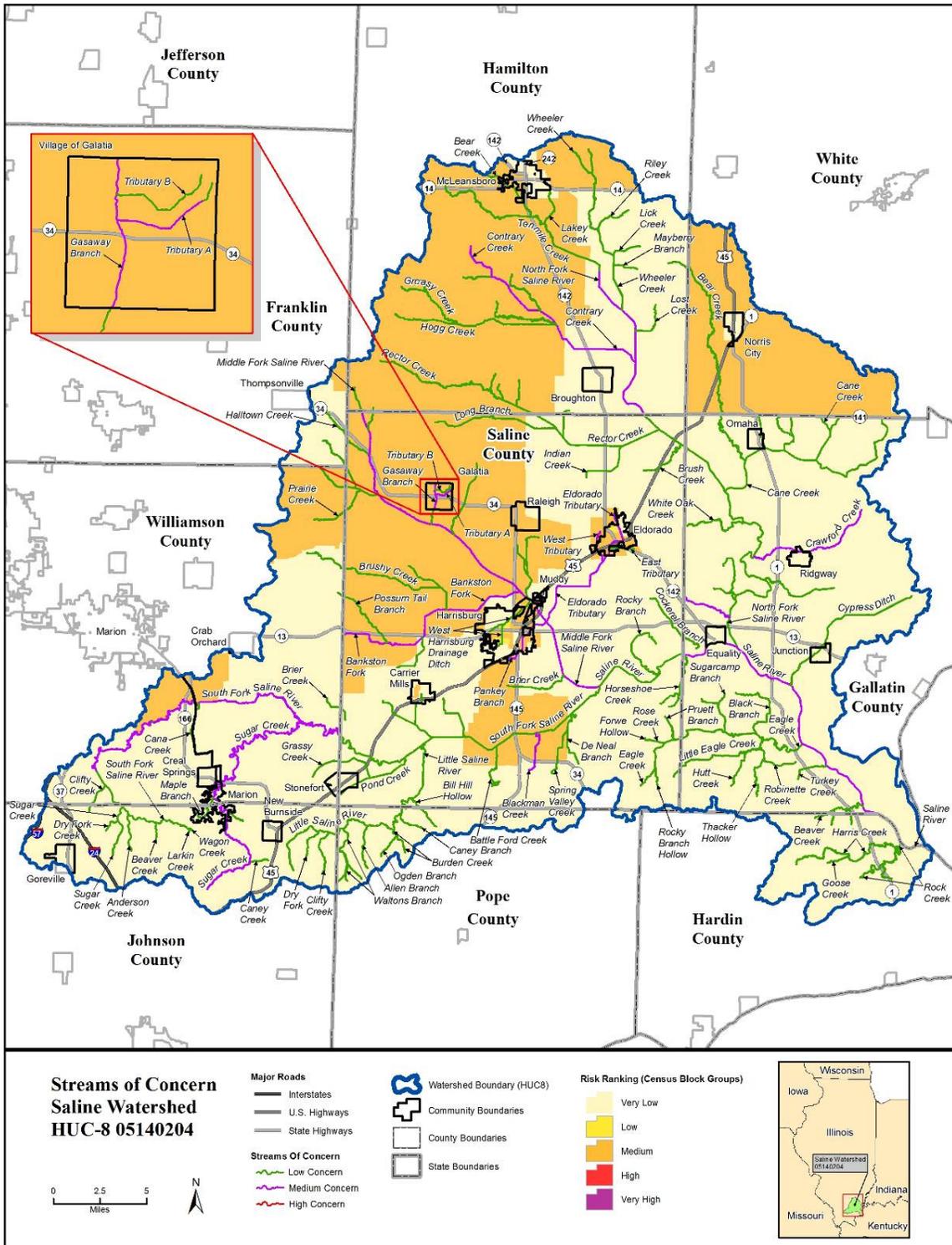
performed by the USACE as part of this Levee Evaluations was also incorporated for Pankey Branch as part of the October 2, 2014 revision.

Detailed information on both the City of Eldorado and City of Harrisburg mapping changes are documented in the Technical Support Data Notebook-Project Narrative supporting the October 2, 2014 FIS and FIRM for EMC-2011-CA-7012 and EMC-2012-CA-7014.

Table 10. Streams of Concern (Level of Concern Medium)

Flooding Source	Study Length (Miles)	Current SFHA Zone
Bankston Fork	12.12	A
Blackman Creek	2.67	A
Contrary Creek	12.53	A
Crawford Creek	7.55	A
Eldorado Tributary	8.88	A
Gasaway Branch	1.51	AE
Middle Fork Saline River	22.10	A
North Fork Saline River	9.49	A
NP	3.28	A
Pankey Branch	3.58	A
Saline River	20.14	X
South Fork Saline River	16.65	A
South Fork Saline River	8.13	X
Sugar Creek	8.79	A
Sugar Creek	2.46	A
Sugar Creek	11.88	X
Tributary A	0.92	AE
West Tributary	1.92	A

Figure 6. Streams of Concern



iii. Mitigation Projects

In the Discovery meetings, community stakeholders identified several locations in which mitigation projects could reduce the impacts of flooding. Topics of mitigation interest included levees, roads that frequently flood, significant riverine erosion, at-risk essential facilities, streamflow constriction, and recent and/or future development. The following mitigation projects were identified during the Discovery meeting. The last column of Table 11, Comment Number, is also shown on the Discovery Map next to the community comment symbol.

Table 11. Mitigation Projects

Community	Subject(s)	Project	Status	Comment Number
Equality, Village of /Gallatin County	Inaccurate Floodplain Map	Floodplain remapping	Incomplete	11A; 11B; 17B
Hamilton County	Road Overtopping	Norris City County Road Elevation	Incomplete	3F
Harrisburg, City of	At-Risk Essential Facilities	Missouri Street Elevation	Complete (10/28/2014)	42
Harrisburg, City of	Business Area Flooding	Property Buyouts; Pumping Station Construction	Incomplete	MAF 4, 11, 12
Harrisburg, City of	Road Overtopping	Drainage improvement or elevation Route 145	Incomplete	39B
Galatia, Village of	Overtopped road	Repair or replace culverts on Route 34 and State Street	State Street Complete; Route 34 Incomplete	18 E
Galatia, Village of	At-Risk Essential Facilities	Flash flooding of Village Sewer Plant and Utility Barn	Incomplete	MAF 8
Gallatin County	Stream Gages Needed	Inundation mapping and flood warning	Incomplete	15 B; MAF 2; MAF 6; MAF 22
Gallatin County	Areas of Mitigation Success	Mitigation of 15-20 properties	In Progress	15C
Gallatin County	At-Risk Essential Facilities	Southeast Illinois Electric Coop has power lines in the floodplain	Incomplete	17 A
Hardin County	Overtopped road	Raise Route 1	Incomplete	39A
Ridgway, Village of	Areas of Mitigation Success	Two possible buyouts	Pending (10/28/2014)	10E
Ridgway, Village of	Floodplain Management	Study needed on Crawford Creek Zone A floodplain.	Incomplete	12A; MAF 3
Ridgway, Village of	At-Risk Essential Facilities	Elevate road leading to the sewer plant.	Incomplete	10D

Community	Subject(s)	Project	Status	Comment Number
Ridgway, Village of	Flood Control	Repair Collapsed Storm Sewers	Two Collapsed Sewers Repaired (10/28/2014)	10C
Ridgway, Village of	Flood Control	Creek Clean Up	Crawford Creek cleaned. (10/28/2014)	10B
Saline County	At-Risk Essential Facilities	Old and current landfills in the floodplain	Incomplete	34,38
Saline County	Overtopped Roads	Repair or replace culverts on Route 34 south of Harrisburg and throughout the County.	Incomplete	3A, 3D, 3E, 39 C, MAF 21
Saline County	Remapping Project	Remap with new elevations due to mining subsidence	Incomplete	28, MAF 5
Williamson County	Overtopped Roads	Replace culverts and / or elevate the roads	Incomplete	MAF 200

Community Mitigation Projects

Following the Action Discovery meetings, comments were reviewed and additional community outreach was conducted to help identify high priority community mitigation projects within the Saline River watershed area. The high priority mitigation projects are described in the following narratives.

West Harrisburg Flooding – Harrisburg, IL Mitigation Action Forms 4, 11, 12

On March 18 and 19, 2008 Saline County experienced torrential spring storms with rainfall amounts totaling approximately 11 inches. Pump stations within the City of Harrisburg were unable to handle the huge amounts of water. Damage and property loss from the storms were estimated at \$16.8 million in Harrisburg alone. Countywide, at least nine homes were considered destroyed and at least 30 homes and 44 businesses had water over the first floor. Businesses lost inventory and were closed for days while flood waters surrounded their buildings. Similar floods due to extreme rainfall amounts had also occurred in 1982 and 1983 in Harrisburg.

Since 2008 major flooding in Harrisburg occurred again in 2011 and in April 2013. The main area of flooding is in the West Harrisburg region on North Webster, North Jackson, and Small Streets. The flooding affects 6 businesses and approximately 40 residences. The businesses are located on the north side of Small Street.

The current pumping station was installed in 1939 and the watershed has undergone numerous changes since that time that have caused the water to flow more rapidly to the station. The fast moving water also carries debris to the west Harrisburg Flood Pumping Station and the pumping station becomes clogged from the runoff.

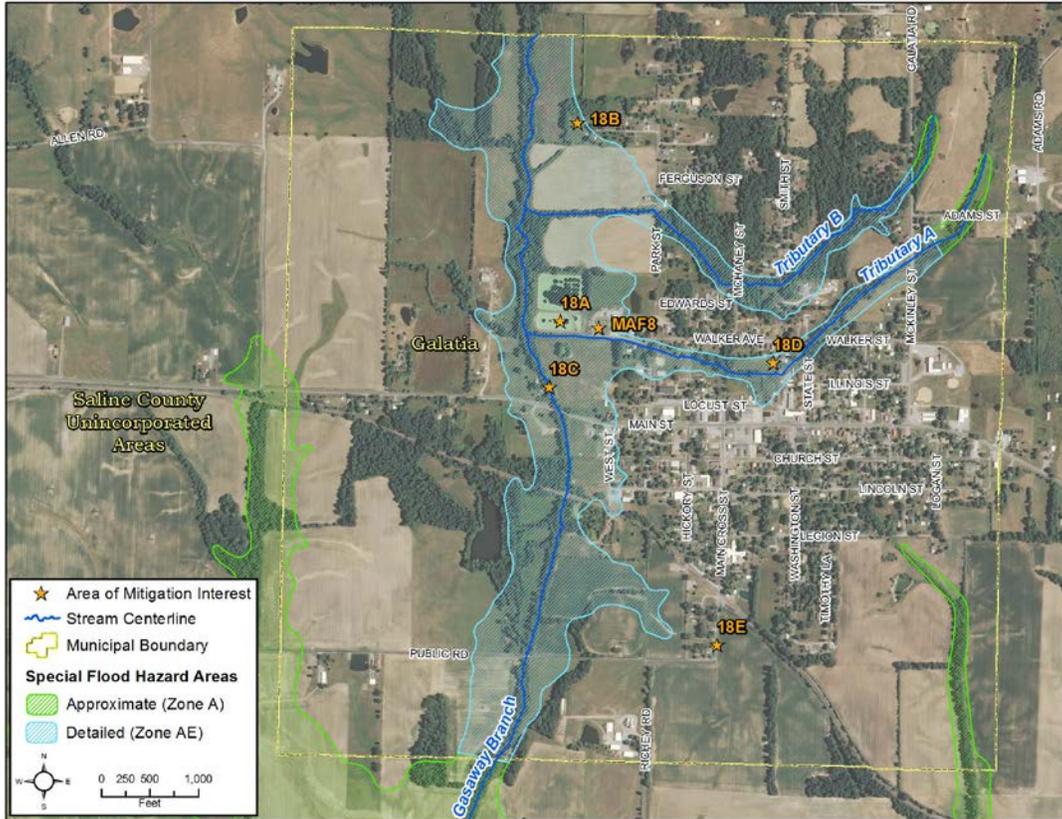
**Flash Flooding and Street Overtoppings – Village of Galatia
Mitigation Action Form 8, Comment Form 18D, 18E**

The Village of Galatia is located in the northwestern section of Saline County. Gasaway Branch, and Tributaries A and B are sources of flooding within the Village.

Flash flooding resulting in overland flow affects Utility Road in the Northwest section of Galatia where the Village of Galatia sewer plant and village utility yard are located. The utility barn at the sewer plant floods with up to 2 feet of water. The Village needs to relocate the Village of Galatia utility barn and also needs to clean and clear trees and obstructions from Gasaway Branch and Tributary A and B. The Village of Galatia has been cleaning Tributary A.

In November 2011 State Street was identified at the Saline Watershed Discovery Meeting as a street within the Village of Galatia that overtopped due to culverts that needed to be replaced. The comment was updated October 28, 2014 to note that the Village of Galatia has hired a contractor and installed 60 feet of 4 foot round culvert to eliminate the flood risk.

Main Cross Street (Route 34) is frequently overtopped due to culverts that need to be replaced. This mitigation need was first identified November 28, 2011 at the Saline Watershed Discovery Meeting. Comment 18E was updated October 28, 2014 stating that the community did clean ditches downstream of the Main Cross Street overtopping location to alleviate the flooding. The community still seeks mitigation funding for this project.

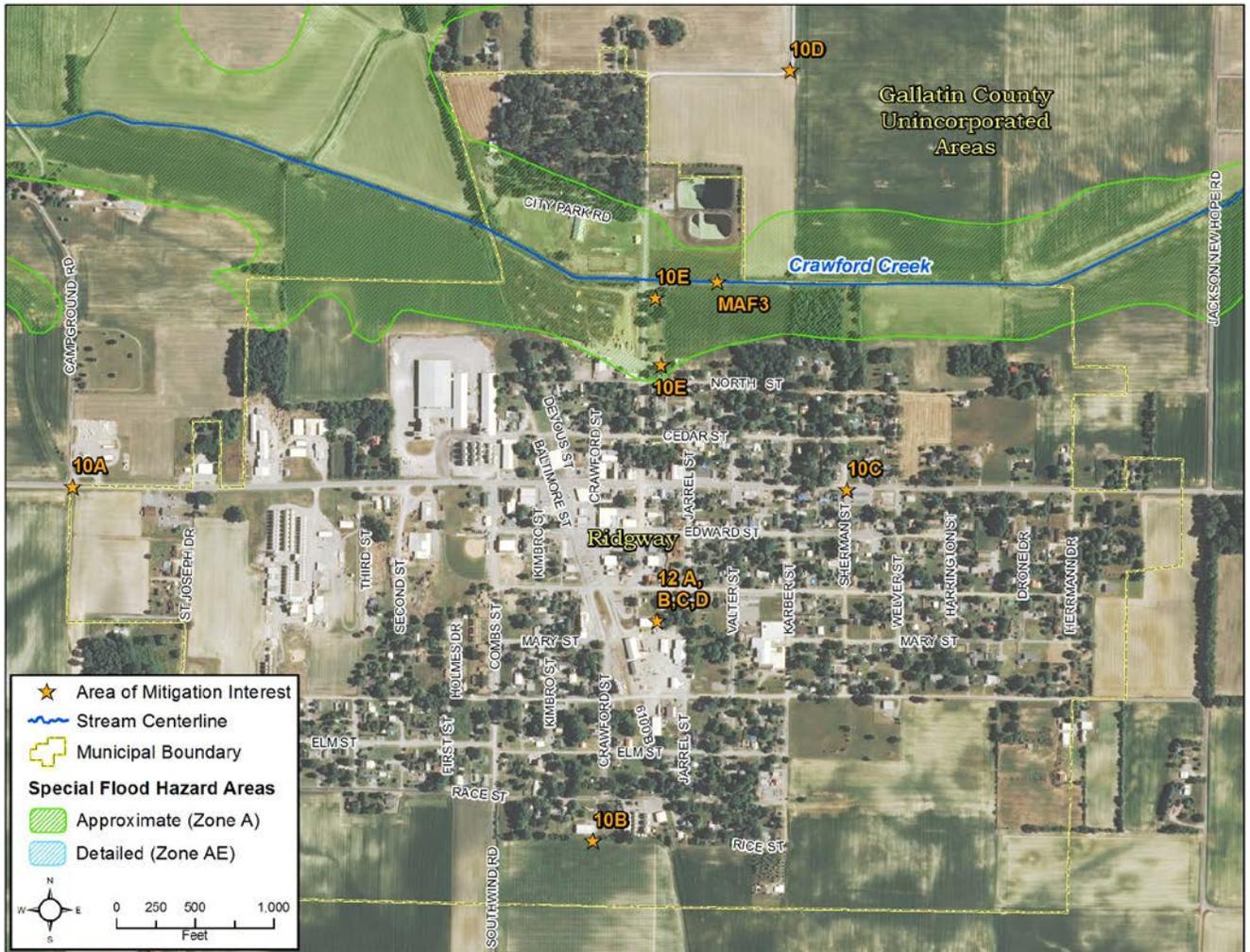


Gasaway Branch and Tributaries A and B / Village of Gallatia, Saline County

Remapping Project – Ridgway, IL, Gallatin County
Mitigation Action Form 3, Comment Forms 10A, 10B, 10C, 10D, 10E, 12A, 12B

Within the Village of Ridgway a new study along Crawford Creek is needed to change the area from Zone A to detailed AE to help with floodplain management and various other flood risk issues. Creeks and ditches need cleaning for flood control. Crawford Creek has been recently cleaned by the Village.

The Village suffers from a multitude of flooding issues which includes collapsed storm sewers and flooded streets. Two collapsed storm sewers have recently been repaired by the Village. During the April 2011 flood the street leading to the sewer plant overtopped with 2 feet of water. Flooding of this street has not occurred since then but there has not since been a flood of that magnitude within the Village. According to the Village President, two possible buyouts are pending.

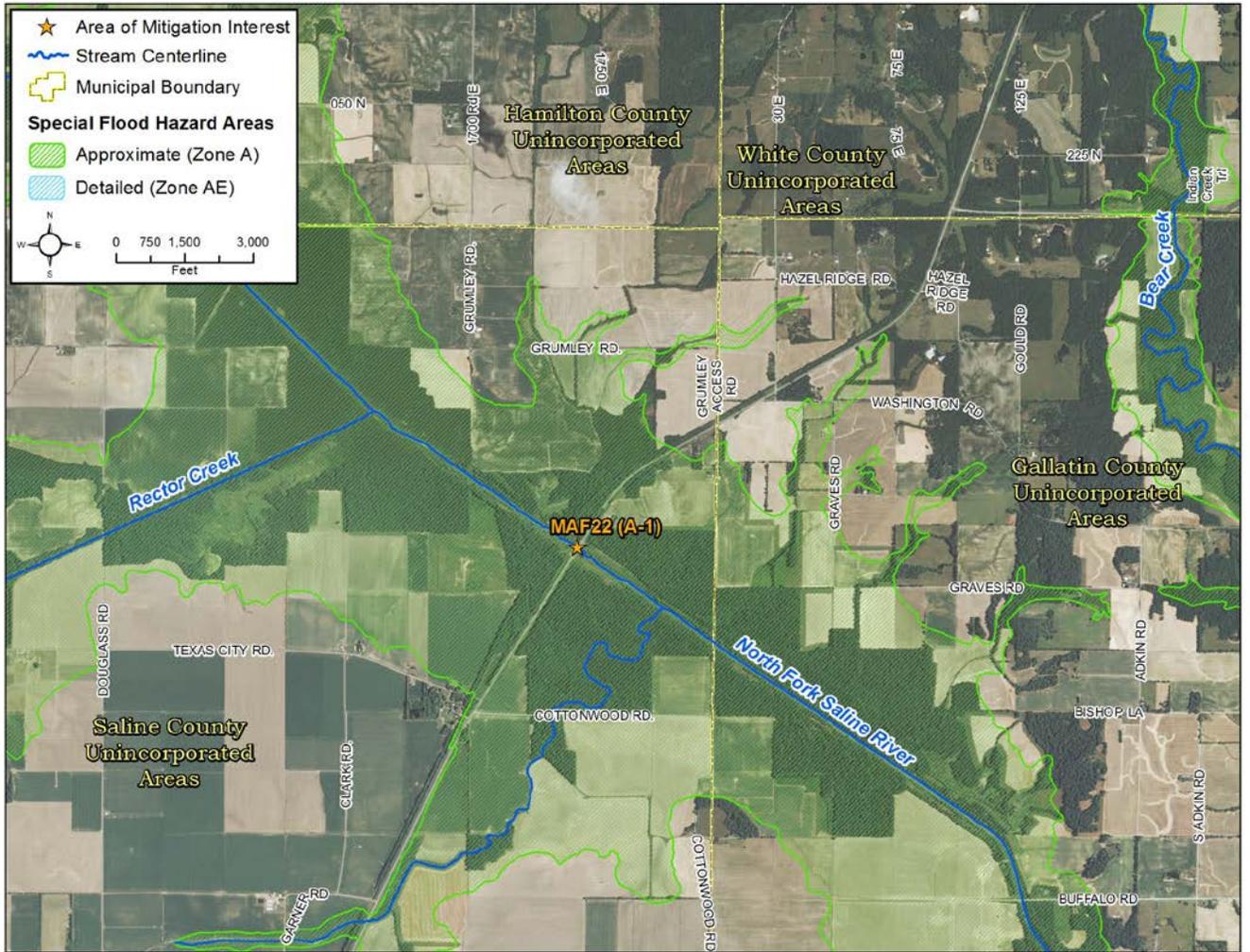


Crawford Creek / Village of Ridgway, Gallatin County

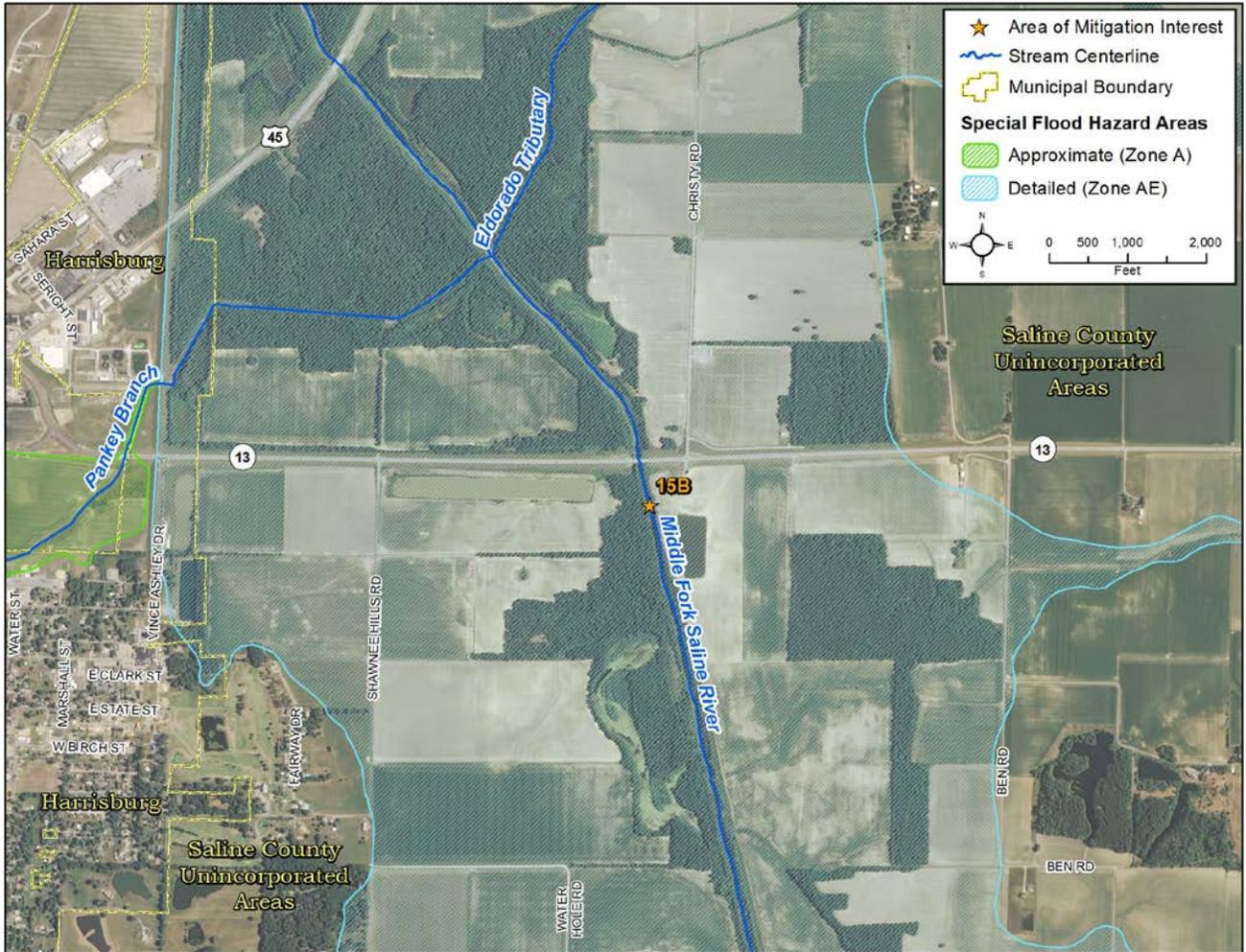
**Stream Gages – Village of Equality, Gallatin County, Saline County
 Comment 15B, Mitigation Action Forms 2, 6, 22**

Two locations have been proposed for the installation of stream gages on the North Fork Saline River and the main stem Saline River. One location is in the northeastern corner of Saline County where the North Fork Saline River and Highway 1 intersect. The other location is south of the Village of Equality on Forrest Road where the Saline River intersects. The Village of Equality is located in west-central Gallatin County and the Saline River forms the southern boundary of the Village. The stream gages are needed on the Saline River for elevation and warning purposes. The addition of river gages would enable inundation mapping during events and a recorded history of events and data.

According to the Floodplain Manager for the Village of Equality flooding has historically been an ongoing problem for the village. Significant floods that have affected Equality occurred in 1937, 1949, 1963, 1997 and 2011. The 1963 and 1997 floods were estimated to be a 50 year



Stream Gages proposed in Mitigation Action Form 22 (A-1)



Middle Fork Saline River/Stream Gage proposed in Community Comment 15B

High Water Marks, Illinois Department of Natural Resources, Office of Water Resources (IDNR, OWR) –Cities of Harrisburg and Eldorado, Saline County and the Villages of Equality, Omaha, Ridgway, Old Shawneetown and City of Shawneetown, Gallatin County

Due to the rain events on Thursday, April 3, 2014, flooding occurred in the cities of Harrisburg and Eldorado in Saline County. In order to gain a better understanding of the magnitude of the flooding event, the Illinois Department of Natural Resources, Office of Water Resources (IDNR,OWR), requested that the communities set high water marks in the areas that experienced a significant amount of flooding.

Gallatin County also experienced some flash flooding on April 3, 2014 and set high water marks at roadway intersections in six communities within the county for IDNR to survey. According to the IDNR, OWR the high water marks for the communities were set one or two days following the flooding event. Gallatin County officials plan to use these elevations to develop a new Saline River gage which will assist the county in preparing for future floods. The high water marks in both Saline and Gallatin Counties were surveyed by IDNR, OWR using an automatic level, NGIS benchmarks, and Vertical Datum 88. The data collected is found in the following table.

Saline and Gallatin Counties High Water Mark Data – April 3, 2014 Flooding Event

Community	Survey ID	Location Description	High Water Mark	High Water Mark Elevation *	Water Elevation at Time of Survey *	Survey Date
Harrisburg	H1	Route 34 (North Main Street) - between Harrisburg Veterinary Clinic and Catherine's Fabric and More	Nail on telephone pole 35.5" above actual water line	364.34	361.38	4/24/2014
Harrisburg	H2	SW Corner of intersection of Small Street and Century Estate Hydrant next to Century Apartment Sign	Hydrant Bolt 5.5" above actual water line	360.92	360.46	4/24/2014
Harrisburg	H3	On Small Street in front of Bethel's Martial Arts Academy	Nail on Telephone pole 24" above actual water line; 17" above high water mark	362.55	361.13	4/24/2014
Harrisburg	H4	On Seright Street in front of Secretary of State DMV office	Sign 26.5" above actual water line; 24" above high water mark	363.01	361.01	4/24/2014
Harrisburg	H5	On East Oral Street near vacant lot of car dealership	Nail on telephone pole 24" above actual water line; 20.5" above high water mark	362.81	361.1	4/24/2014
Harrisburg	H6	On Rollie Moore Drive (a frontage road near Walmart)	Ribbon tied to chain link fence 24" above actual water line	362.94	360.94	4/24/2014
Harrisburg	H7	On Rollie Moore Drive (a frontage road near Walmart)	Hydrant at the entrance to the Citgo Gas Station; Hydrant bolt 25.5" above actual water line	363.24	361.12	4/24/2014

Community	Survey ID	Location Description	High Water Mark	High Water Mark Elevation *	Water Elevation at Time of Survey *	Survey Date
Eldorado	E1	Trolley Road and Richardson Street	Yellow Tape	Not Found	N/A	4/23/2014
Eldorado	E2	Trolley Road at Cummin's Diesel	Yellow Tape	381.07	N/A	4/23/2014
Eldorado	E3	Public Road by Tri County Chemical	Yellow Tape	379.01	N/A	4/23/2014
Eldorado	E4	Grand Avenue at Tri County Chemical	Yellow Tape	Not Found	N/A	4/23/2014
Eldorado	E5	Temple Street and Ballard Street	Yellow Tape	Not Found	N/A	4/23/2014
Eldorado	E6	Jefferson Street by Fountain View Nursing Home	Yellow Tape	386.81	N/A	4/23/2014
Eldorado	E7	Johnson Street and end of Madison Street	Yellow Tape	402.27	N/A	4/23/2014
Eldorado	E8	Illinois Avenue and Benton Street	Yellow Tape	392.68	N/A	4/23/2014
Eldorado	E9	Route 45 intersection at the light by Huck's	Yellow Tape	379.76	N/A	4/23/2014
Eldorado	E10	Fourth Street by Clearwave buildings (610 Fourth Street)	Yellow Tape	384.21	N/A	4/23/2014
Eldorado	E11	Fourth Street by Colonial Terrance Funeral Home	Yellow Tape	386.8	N/A	4/23/2014
Omaha	G1	First Street and Harvig Avenue at N37-53-292 and W88-18-027	Orange X	Not Found	N/A	4/24/2014
Omaha	G2	Route 1 and Cane Creek Bridge Deck at N37-52-967 and W88-17-898	Orange X	367.56	N/A	4/24/2014
Ridgway	G3	Route 1 Spur and Wabash Valley Propane at N37-47-948 and W88-16-362	Orange X	372.54	N/A	4/23/2014

Equality	G4	Sewer Pump Road and North Calhoun Street at N37-44-469 and W88-20-200	Orange X	356.58	N/A	4/23/2014
Equality	G5	South McHenry and West Locust at N37-43-976 and W88-20-861	Orange X	359.15	N/A	4/23/2014
Equality	G6	Bridge Deck Forest Road at N37-43-806 and W88-20-905	Orange X	364.36	N/A	4/23/2014
Junction	G7	Bridge Deck and Texaco Road at N37-43-747 and W88-14-329	Orange X	358.27	N/A	4/23/2014
Junction	G8	Sawmill Road and 10175 Seeley at N37-43-258 and W88-13-755	Orange X	361.29	N/A	4/23/2014
Old Shawneetown	G9	31 Culvert West Edge of Town at N37-42-031 and W88-08-555	Orange X	350.36	N/A	4/23/2014
Old Shawneetown	G10	Holman Road and Market Street at N37-41-644 and W88-08-360	Orange X	Not Found	N/A	4/23/2014
Old Shawneetown	G11	Washington Street / Old Route 13 at N37-41-779 and W88-08-099	Orange X	353.25	N/A	4/23/2014
Shawneetown	G12	New Haven Road (short bridge) at N37-45-360 and W88-10-998	Orange X	362.65	N/A	4/23/2014
Shawneetown	G13	New Haven Road (long bridge) at N37-45-996 and W88-10-91	Orange X	360.71	N/A	4/23/2014

* Vertical Datum NAVD 88

**Overtopped Roads – Williamson County / Saline Watershed
Comment 29**

Unincorporated Williamson County has ten overtopped road locations within the Saline River watershed. All of the locations are impassable and signed when they are overtopped. The current is quite swift. Most of these locations would involve both drainage structure improvements and grade raises to eliminate the overtopping. Williamson County does not have the resources to carry out the improvements with their current level of funding by the state. The table below gives the location of the overtopped road, water depth at peak, and notes provided by the Williamson County Engineer.

Location	Water Depth at Peak in Feet	Notes
South Market Road approximately 1.2 miles north of Lake of Egypt Road	1 - 1.5	There is a three span bridge and water will overtop the road just north of it on the approach pavement.
Wards Mill Road just south of Canaville Road	3 - 4	There is a bridge and the water will overtop 1/4 mile of roadway including the bridge.
Canaville Road just east of Wards Mill Road.	2 - 3	The water will overtop the road through roughly a 3/8 mile section of the road.
Moake School Road ½ mile north of Canaville Road	1 - 3	There is a bridge and the water overtops about a 3/8 mile section of the road and bridge.
Saline River Road just north of Tune Road	2 - 3	The water will overtop approximately a 3/8 mile section of this road.
Old Creal Springs Road just north of IL 166	2 - 4	The water overtops approximately a 3/8 mile section of roadway.
East Ellis Road just east of the Old Creal Springs Road	1 - 2	Water overtops close to 3/8 mile stretch of this road.
Saraville Road 3.5 miles south of IL 13.	0.5 - 1.5	A short section of this road overtops in heavy rain events.
Stonefort Road just north of Palzo	0.5 – 1.5	The water overtops the road just north of the bridge
Dykersburg Road about a half mile north of Will Scarlet Road	2 - 3	This road overtops more than a ½ mile section with very toxic acid water in heavy rain events.

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VI. Appendices and Tables

- Appendix A: Pre-Discovery Meeting Contacts & Materials
- Appendix B: Stakeholder Contact Information & Meeting Invitations
- Appendix C: Discovery Meeting Attendance & Handouts
- Appendix D: Discovery Meeting Summary & Comments
- Appendix E: Discovery Maps
- Appendix F: Discovery Meeting Participant Feedback
- Appendix G: Comprehensive List of Mapping Needs
- Appendix H: Action Discovery Pre-Meeting Materials
- Appendix I: Action Discovery Meeting Materials
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- Appendix K: Action Discovery Maps