Engagement Plan / Pre-Discovery Report

Big Watershed, HUC - 08020304

Lee, Monroe, Phillips, St. Francis, and Woodruff Counties, Arkansas

04/26/2016

Project Area Community List

Community Name	CID
Lee County Communities	
Lee County Unincorporated Areas [1]	050444
Aubrey, City of	050123
LaGrange, Town of	N/A
Marianna, City of [1]	050124
Moro, Town of	050125
Rondo, City of	050126
Monroe County Communities	
Monroe County Unincorporated Areas [1]	050154
Brinkley, City of [1]	050155
Fargo, Town of [1]	N/A
Phillips County Communities	
Phillips County Unincorporated Areas [1]	050166
Helena-West Helena, City of [1]	050168
Lake View, City of [1]	050169
Lexa, City of	050518
Marvell, City of	050170
St. Francis County Communities	
St. Francis County Unincorporated Areas [1]	050184
Wheatley, City of	050374
Woodruff County Communities	
Woodruff County Unincorporated Areas [1]	050468
Hunter, Town of [1]	050599

[1] Community is located within more than one HUC8 watershed.

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Acronyms and Abbreviations

AAL	Average Annualized Loss
ADEM	Arkansas Department of Emergency Management
AGFC	Arkansas Game and Fish Commission
AGISO	Arkansas Geographic Information Systems Office
AHTD	Arkansas Highway and Transportation Department
ANRC	Arkansas Natural Resources Commission
AOMI	Area of Mitigation Interest
BFE	base (1-percent-annual-chance) flood elevation
CDBG	Community Development Block Grant
CFR	Code of Federal Regulations
cfs	cubic feet per second
CID	Community Identification number
CLOMR	Conditional Letter of Map Revision
CNMS	Coordinated Needs Management Strategy
CRS	Community Rating System
CTP	Cooperating Technical Partners
DEM	Digital Elevation Model
DFIRM	Digital Flood Insurance Rate Map
EAP	Emergency Action Plan
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FTN	FTN Associates, Ltd. (State Contractor)
GIS	geographic information system
HEC-1	Hydrologic Engineering Center – Hydrologic Model Program
HEC-2	Hydrologic Engineering Center – Hydraulic Model Program
HEC-HMS	Hydrologic Engineering Center – Hydrologic Modeling System
HEC-RAS	Hydrologic Engineering Center – River Analysis System
H&H	hydrologic and hydraulic
HMP	Hazard Mitigation Plan
HUC	Hydrologic Unit Code
HUC- 8	HUC for watershed unit with average size of 700 square miles

Acronyms and Abbreviations (Cont'd)

HUC-12	HUC for watershed unit with average size of 40 square miles
HWM	high water mark
LiDAR	Light Detection and Ranging System
LOMA	Letter of Map Amendment
LOMC	Letter of Map Change
LOMR	Letter of Map Revision
Map Mod	Map Modernization
MAS	Mapping Activity Statement
MAT	Mitigation Assessment Team
MDP	Master Drainage Plan
MXD	Map Exchange Document
NFIP	National Flood Insurance Program
NHD	National Hydrologic Dataset
NRCS	Natural Resources Conservation Service
NVUE	New, Validated, or Updated Engineering
OEM	Office of Emergency Management
PMR	Physical Map Revision
Risk MAP	Risk Mapping, Assessment, and Planning
RL	Repetitive Loss
RSC	Regional Service Center
SFHA	Special Flood Hazard Area
SHMO	State Hazard Mitigation Officer
SHP	ESRI Shape File
SRL	Severe Repetitive Loss
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

I. Discovery Overview

The Federal Emergency Management Agency (FEMA) is currently implementing the Risk Mapping, Assessment, and Planning (Risk MAP) Program across the Nation. The purpose of Risk MAP is continued improvement of flood hazard information for the National Flood Insurance Program (NFIP), the promotion of increased national awareness and understanding of flood risk and the support of Federal, State, and local mitigation actions to reduce risk.

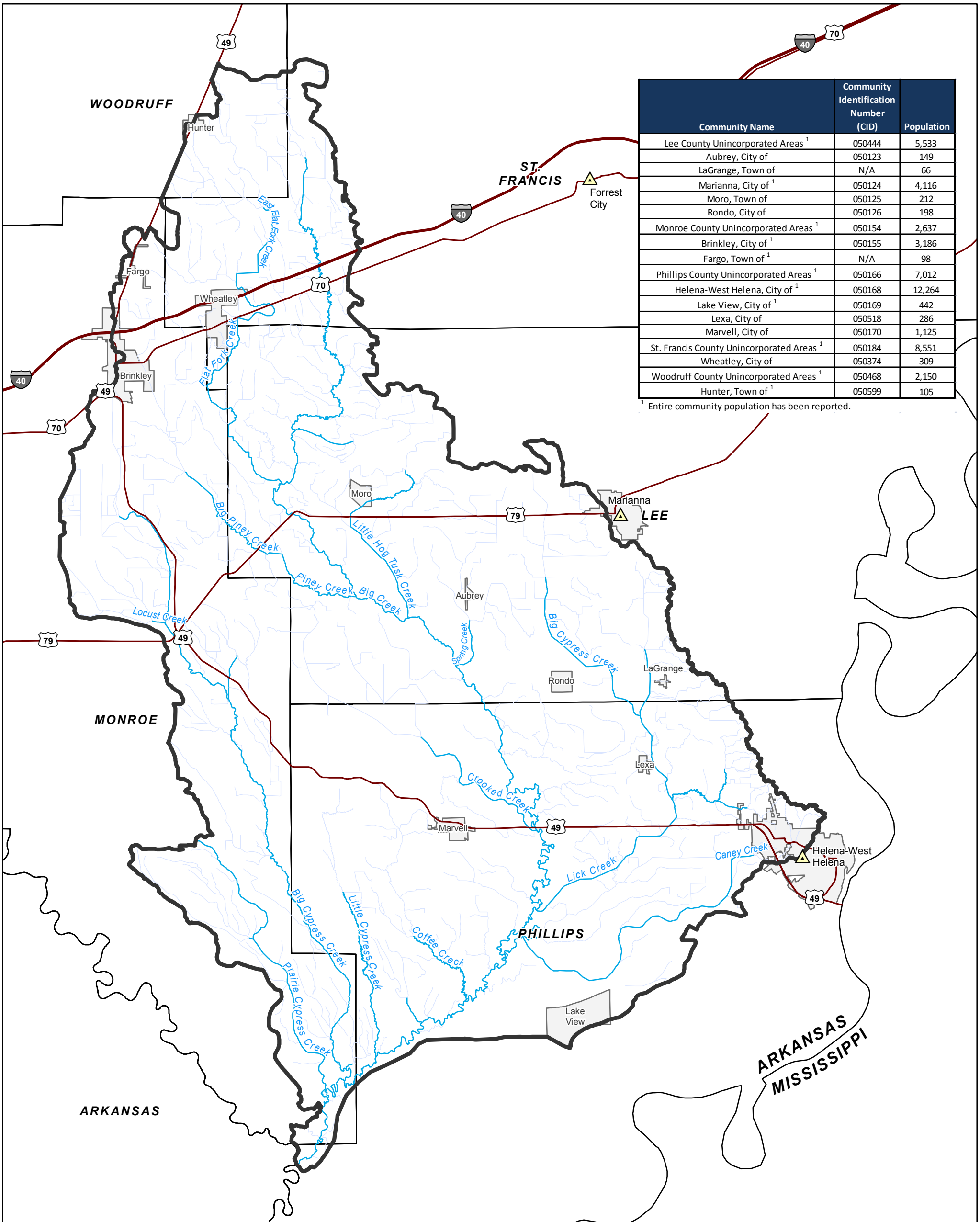
The vision and intent of the Risk MAP program is to, through collaboration with State and Local entities, deliver quality data that increases public awareness and leads to mitigation actions that reduce risk to life and property. To achieve this vision, FEMA has transformed its traditional flood identification and mapping efforts into a more integrated process of more accurately identifying, assessing, communicating, planning and mitigating flood risks. Risk MAP attempts to address gaps in flood hazard data and form a solid foundation for risk assessment, floodplain management, and provide State and Local entities with information needed to mitigate flood related risks.

The FEMA Region 6 office and the Arkansas Natural Resources Commission (ANRC) entered into a Cooperating Technical Partners (CTP) partnership agreement for implementation of Risk MAP in the State of Arkansas. As part of this partnership, the ANRC and its contractor, FTN Associates, Ltd. (FTN), began the Discovery process in the Big Watershed in October 2015 to gather local information and readily available data to determine project viability and the need for Risk MAP products to assist in the movement of communities towards resilience. The watershed location can be seen on Figure 1.

Through the Discovery process, FEMA and the State CTP can determine which areas of the Hydrologic Unit Code (HUC) 8 (HUC-8) watersheds may be examined for further flood risk identification and assessment in a collaborative manner, taking into consideration the information collected from local communities during this process. Discovery initiates open lines of communication and relies on local involvement for productive discussions about flood risk. The process provides a forum for a watershed-wide effort to understand how the included watershed community's flood risks are related to flood risk throughout the watershed. In Risk MAP, projects are analyzed on a watershed basis, so Discovery Meetings target numerous stakeholders from throughout the watershed on local, regional, State, and Federal levels.

In May 2016, ANRC, as the State CTP, will hold Discovery Meetings in this watershed. During Discovery, ANRC and FEMA will reach out to local communities to:

- Gather information about local flood risk and flood hazards;
- Obtain and ultimately review current and historic mitigation plans to understand local mitigation capabilities, hazard risk assessments, and current or future mitigation activities; and
- Include multi-disciplinary staff from within each community to participate and assist in the development of a watershed vision.



Community Name	Community Identification Number (CID)	Population
Lee County Unincorporated Areas [1]	050444	5,533
Aubrey, City of	050123	149
LaGrange, Town of	N/A	66
Marianna, City of [1]	050124	4,116
Moro, Town of	050125	212
Rondo, City of	050126	198
Monroe County Unincorporated Areas [1]	050154	2,637
Brinkley, City of [1]	050155	3,186
Fargo, Town of [1]	N/A	98
Phillips County Unincorporated Areas [1]	050166	7,012
Helena-West Helena, City of [1]	050168	12,264
Lake View, City of [1]	050169	442
Lexa, City of	050518	286
Marvell, City of	050170	1,125
St. Francis County Unincorporated Areas [1]	050184	8,551
Wheatley, City of	050374	309
Woodruff County Unincorporated Areas [1]	050468	2,150
Hunter, Town of [1]	050599	105

[1] Entire community population has been reported.

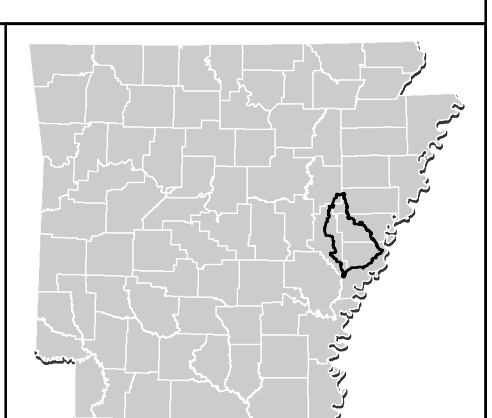
WATERSHED AND COMMUNITIES MAP

BIG
(HUC 08020304)

0 2.5 5 Miles

N W E S

- County Seat
- Interstate
- U.S. Highway
- City Limits
- County Boundary
- Major Reaches of Watershed
- Other Waters
- Large Waterbody
- Watershed



Project Location

FIGURE 1

DATE: 5/2/2016

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The results of the Discovery process will be presented in the Final Discovery Report, a watershed scale Discovery Map and the digital data that will be gathered or developed under the fiscal year 2015 CTP Agreement, EMW-2015-CA-00143, Mapping Activity Statement (MAS) 10, between FEMA and ANRC.

This document contains the Engagement Plan / Pre-Discovery Report. The digital data submitted with this report contains correspondence, exhibits to be used at the Discovery meetings, GIS data, mapping documents (PDF, shapefiles, personal geodatabases and ESRI ArcGIS 10.x Map Exchange Documents [MXDs]), or other supplemental information. Graphics in this Pre-Discovery report are available as larger format graphics files for printing and as GIS data that may be printed and used at any map scale.

i. Watershed Selection

For the Discovery process, watersheds are selected and analyzed at the HUC-8 level and evaluated using three major factors (or trifecta factors): population, topographic data availability, and risk decile. Risk decile is calculated from nine parameters including total population density, historical population growth, predicted population growth, housing units, flood policies, single claims, repetitive losses, repetitive loss properties, and declared disasters.

The Big Watershed (HUC 08020304) encompasses an area of approximately 947 square miles and extends across five counties (Lee, Monroe, Phillips, St. Francis, and Woodruff) in the eastern portion of the State. The major communities in the watershed include the cities of Brinkley, Helena-West Helena, Lake View, Marvell, and a small portion of Marianna. Smaller communities include Aubrey, Fargo, Hunter, LaGrange, Lexa, Moro, Rondo, and Wheatley.

The Big Watershed was selected by the ANRC, the State's CTP with FEMA Region 6, for the reasons summarized below.

- Topographic data developed from a Light Detection and Ranging System (LiDAR) is available throughout the watershed aiding in providing quality data.
- Repetitive losses in the watershed have exceeded $3.2 million from 1978 through 2014, and there are over 780 policies. These reported values include entire counties which may or may not be wholly located in the watershed.
- Phillips County is the only county considered modernized. St. Francis County has a countywide study; however it is older. Both of these studies were completed without quality topographic data.
- The watershed includes the City of Brinkley, which experienced severe flooding in June 2014. This flooding event was a state-declared disaster.
- The communities of Helena-West Helena and Phillips County have multiple claims listed as BCX Claims, which are claims that occur outside the mapped floodplain. This indicates the need for additional review to determine if the effective maps are in need of update.
- Four of the five counties in the watershed have Hazard Mitigation Plans that are in progress: Monroe, Phillips, St. Francis, and Woodruff Counties.

FEMA looks to promote mitigation action within the watershed. After internal and partner review of the communities within the watershed, the following are overarching opportunities identified to promote community action within the watershed:

- The Big Watershed has elevation data for the watershed, which could be used by communities to pursue updated hydrologic and hydraulic studies and result in improved mapping of the Special Flood Hazard Areas (SFHAs), and

- Mitigation activities to reduce risk to life and property are being evaluated and may be underway in the watershed.

Table 1 provides the current status for each community's NFIP participation, Community Rating System (CRS) rating, and FIRMs. All five of the counties and 9 of the 13 communities are participating in the NFIP. Currently, only the communities of LaGrange, Fargo, Lexa, and Hunter do not participate in the NFIP. Additionally, the community of Helena-West Helena is listed as participating in CRS. The Cities of Brinkley and Wheatley and Monroe County have expressed and interest in learning more about CRS and the requirements to implement the program locally.

Table 1: NFIP Status of Project Area Communities.

County	Community Name	Community Identification Number (CID)	Participating Community?	CRS Rating
Lee	Lee County Unincorporated Areas [1]	050444	Yes	N/A
Lee	Aubrey, City of	050123	Yes	N/A
Lee	LaGrange, Town of	N/A	No	N/A
Lee	Marianna, City of [1]	050124	Yes	N/A
Lee	Moro, Town of	050125	Yes	N/A
Lee	Rondo, City of	050126	Yes	N/A
Monroe	Monroe County Unincorporated Areas [1]	050154	Yes	N/A
Monroe	Brinkley, City of [1]	050155	Yes	N/A
Monroe	Fargo, Town of [1]	N/A	No	N/A
Phillips	Phillips County Unincorporated Areas [1]	050166	Yes	N/A
Phillips	Helena-West Helena, City of [1]	050168	Yes	10
Phillips	Lake View, City of [1]	050169	Yes	N/A
Phillips	Lexa, City of	050518	No	N/A
Phillips	Marvell, City of	050170	Yes	N/A
St. Francis	St. Francis County Unincorporated Areas [1]	050184	Yes	N/A
St. Francis	Wheatley, City of	050374	Yes	N/A
Woodruff	Woodruff County Unincorporated Areas [1]	050468	Yes	N/A
Woodruff	Hunter, Town of [1]	050599	No	N/A

[1] Community is located within more than one HUC8 watershed.

Drainage and Flooding

The Big Watershed lies within the White River Basin and is located in Eastern Arkansas. The Big Watershed consists of flat, low-lying areas with numerous interconnected channels except for Crowley's Ridge, a geological ridge formation that makes up most of the eastern border of the watershed. During past events, local communities have experienced flooding issues, some of which is due to localized development in and around the floodplain and while other issues are due to the nature of the watershed.

The primary river in the watershed is Big Creek. Other streams in the watershed are Crooked Creek, Big Cypress Creek, Lick Creek, and Prairie Cypress Creek.

Additionally as part of FEMA's Map Modernization (Map Mod) Program, Phillips County and St. Francis County received countywide FIRMs on October 6, 2010 and February 18, 2005 respectively.

While there are no levees located within the watershed, unless they are small local farm levees privately maintained and not providing protection on the current FIRMs, there are large areas of the watershed

that show to be protected by levees located outside of the watershed. Along the western boundary of the watershed, the White River Levee System provides protection to much of the area west of Big Creek; along the southeastern boundary, the main line Mississippi River Levee system provides protection to the areas around Lake View up to Helena-West Helena.

One of the five counties within the watershed have had their FIRMs updated to a countywide and digital format through FEMA's Map Mod Program, which is referred to as “modernized”, while another county has been converted to a countywide study without digital data. The exceptions are Lee County, Monroe County, and Woodruff County, which are referred to as “non-modernized”. A summary of the community FIRM dates is included in Table 2.

Population

The population in this watershed totals 23,130 people, based on the 2010 U.S. Census. The cities of Helena-West Helena, Brinkley, Marvell, and Lake View are the highest population centers (population: 8,159; 1,595; 1,169; and 402 respectively) located within the watershed. The population numbers are based on the 2010 Census Block estimates which were used to approximate the population within the watershed. There are portions of 13 populated areas inside this watershed. Figure 2 shows the population densities (number of persons per square mile) within the Big Watershed based on 2010 U.S. Census’ Census Block Data.

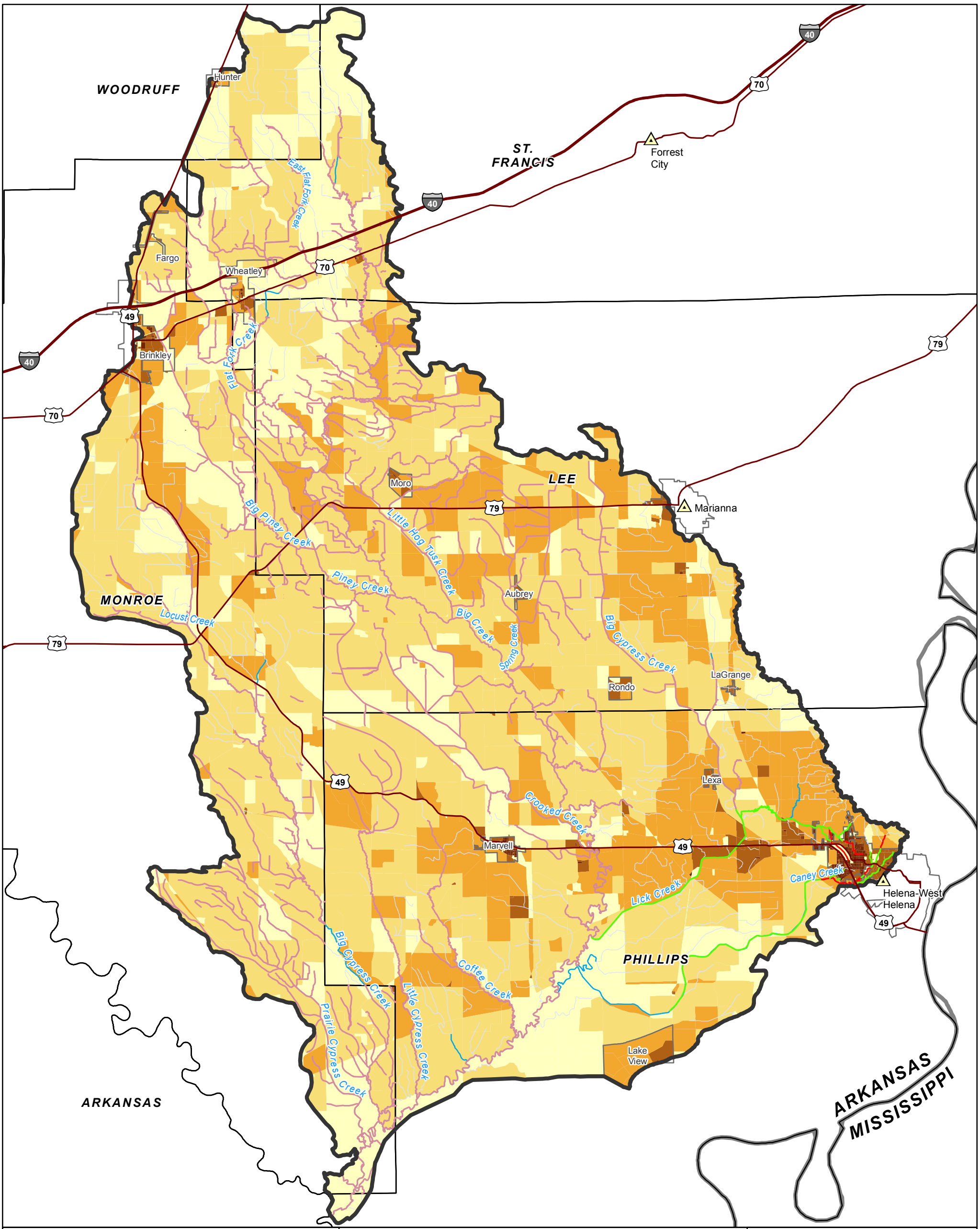
Coordinated Needs Management Strategy

Included on Figure 2, and subsequent figures, is the Coordinated Needs Management Strategy (CNMS) Inventory. CNMS provides a snapshot of the status and attributes of currently studied streams existing within FEMA’s floodplain study inventory. In general, the stream mileage shown in CNMS reflects streams that currently have effective SFHAs designated for them. CNMS does not reflect the total potential of stream miles to be studied within a watershed.

Table 2: Community FIRM Status.

County	Community Name	Community Identification Number (CID)	FIRM Date	FIRM Status
Lee	Lee County Unincorporated Areas [1]	050444	10/15/1985	Not Modernized Community Study
Lee	Aubrey, City of	050123	7/1/2009	Not Modernized Community Study
Lee	LaGrange, Town of	N/A	10/15/1985	Included as Lee County Unincorporated Areas
Lee	Marianna, City of [1]	050124	9/28/1979	Not Modernized Community Study
Lee	Moro, Town of	050125	6/1/1987	Not Modernized Community Study
Lee	Rondo, City of	050126	8/1/1988	Not Modernized Community Study
Monroe	Monroe County Unincorporated Areas [1]	050154	7/21/1999	Not Modernized Community Study
Monroe	Brinkley, City of [1]	050155	9/4/1985	Not Modernized Community Study
Monroe	Fargo, Town of [1]	N/A	7/21/1999	Included as Monroe County Unincorporated Areas
Phillips	Phillips County Unincorporated Areas [1]	050166	10/6/2010	REVISED; Modernized Countywide
Phillips	Helena-West Helena, City of [1]	050168	10/6/2010	REVISED; Modernized Countywide
Phillips	Lake View, City of [1]	050169	10/6/2010	REVISED; Modernized Countywide
Phillips	Lexa, City of	050518	10/6/2010	REVISED; Modernized Countywide
Phillips	Marvell, City of	050170	10/6/2010	REVISED; Modernized Countywide
St. Francis	St. Francis County Unincorporated Areas [1]	050184	2/18/2005	Countywide format but not considered a Modernized Countywide
St. Francis	Wheatley, City of	050374	2/18/2005	Countywide format but not considered a Modernized Countywide
Woodruff	Woodruff County Unincorporated Areas [1]	050468	2/1/1988	Not Modernized
Woodruff	Hunter, Town of [1]	050599	N/A	Included as Woodruff County Unincorporated Areas

[1] Community is located within more than one HUC8 watershed.



POPULATION DENSITY (2010)

BIG
(HUC 08020304)

FEMA

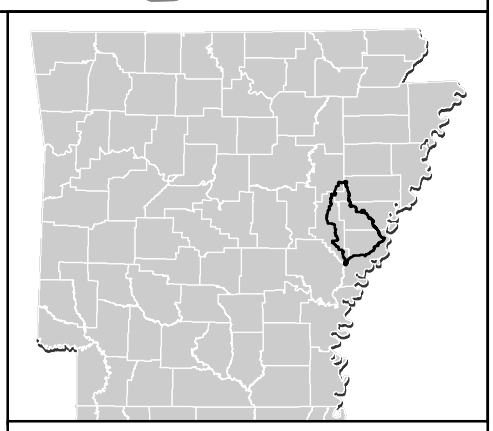
0 2.5 5 Miles

N W E S

County Seat
Interstate
U.S. Highway
City Limits
County Boundary
Major Reaches of Watershed
Other Waters
Large Waterbody
Watershed

CNMS Needs
Not Valid
Requires Assessment
Validated

Population / SqMile
0
1 - 11
12 - 136
137 - 1,452
1,453 - 44,388



Project Location

FIGURE 2

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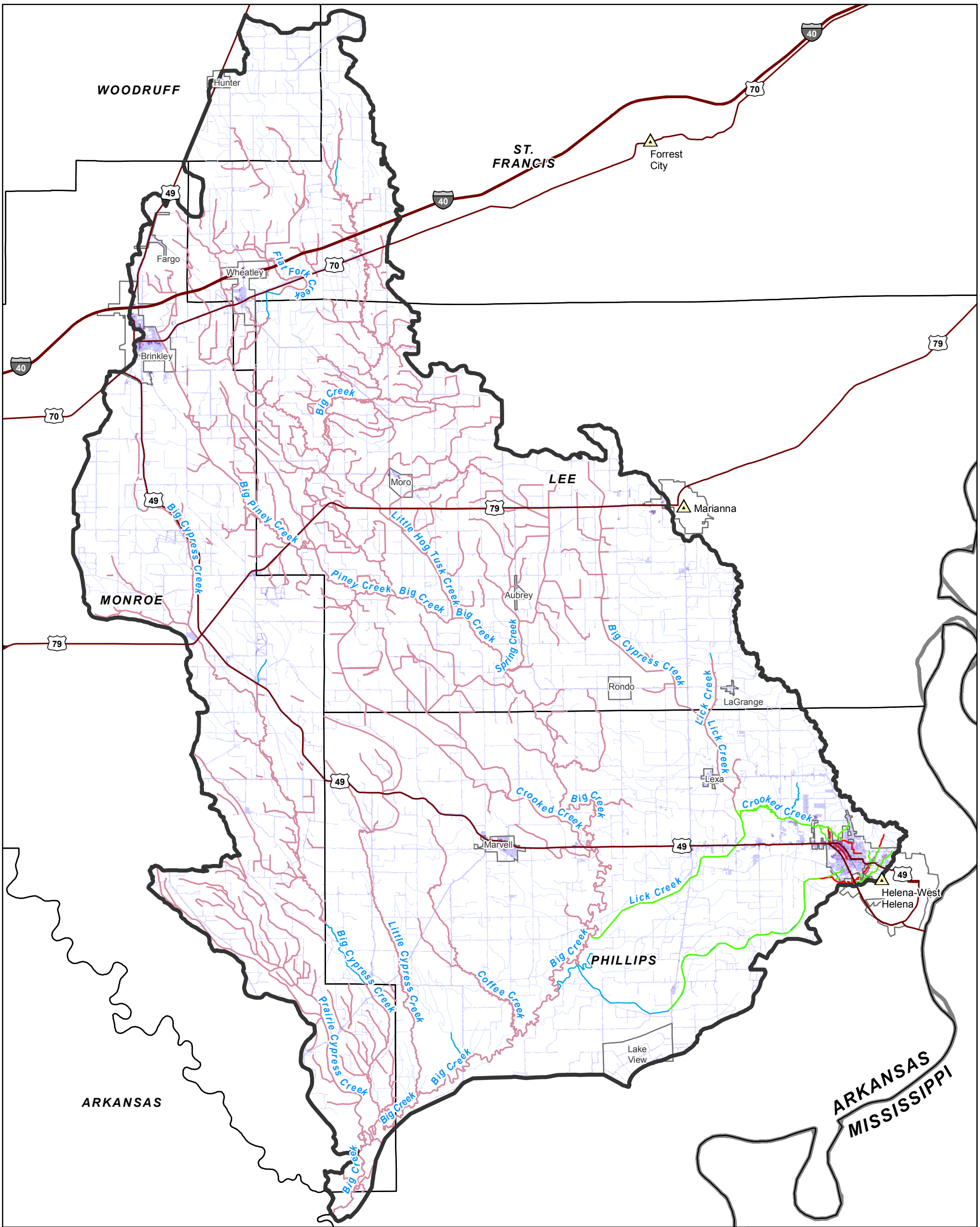
Land Use

The land use of the Big Watershed is predominantly rural land that is mostly cropland. The primary population centers within the watershed, including Helena-West Helena, Brinkley, and Marvell, occur along the Interstate 40 corridor (I-40) and US Highway 49. Along the I-40 corridor is the smaller population center in the community of Wheatley. Along the US Highway 70 corridor of the Big Watershed, is the City of Marianna and the Town of Moro. In between the communities are large stretches of active cropland. The terrain ranges from rolling hills in the north, Crowley's Ridge on the east to the large, flat areas of the Mississippi Delta towards the southern end.

Figure 3 identifies the relative percent urban cover for areas within the watershed from 2011, while Figure 4 shows the changes in the land use that have occurred in the watershed from 2006 - 2011. The landuse changes represented include a change from pasture to forest, from forest to pasture, or from pasture to residential, etc., and are displayed by HUC-12 subbasins. Therefore, Figure 4 demonstrates where changes in the watershed hydrology can be seen, either in increased or decreased runoff potential, based on the changes in landuse reflected over the past 5 years.



PERCENT IMPERVIOUS COVER (2011)

BIG
(HUC 08020304)

FEMA

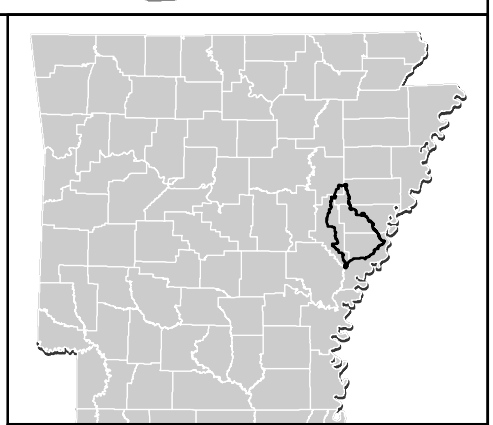
0 2.5 5 Miles

N W E S

County Seat
Interstate
U.S. Highway
City Limits
County Boundary
Major Reaches of Watershed
Other Waters
Large Waterbody
Watershed

CNMS Needs
Not Valid
Requires Assessment
Validated

Impervious Cover
1% - 25%
26% - 50%
51% - 75%
76% - 100%



Project Location

FIGURE 3

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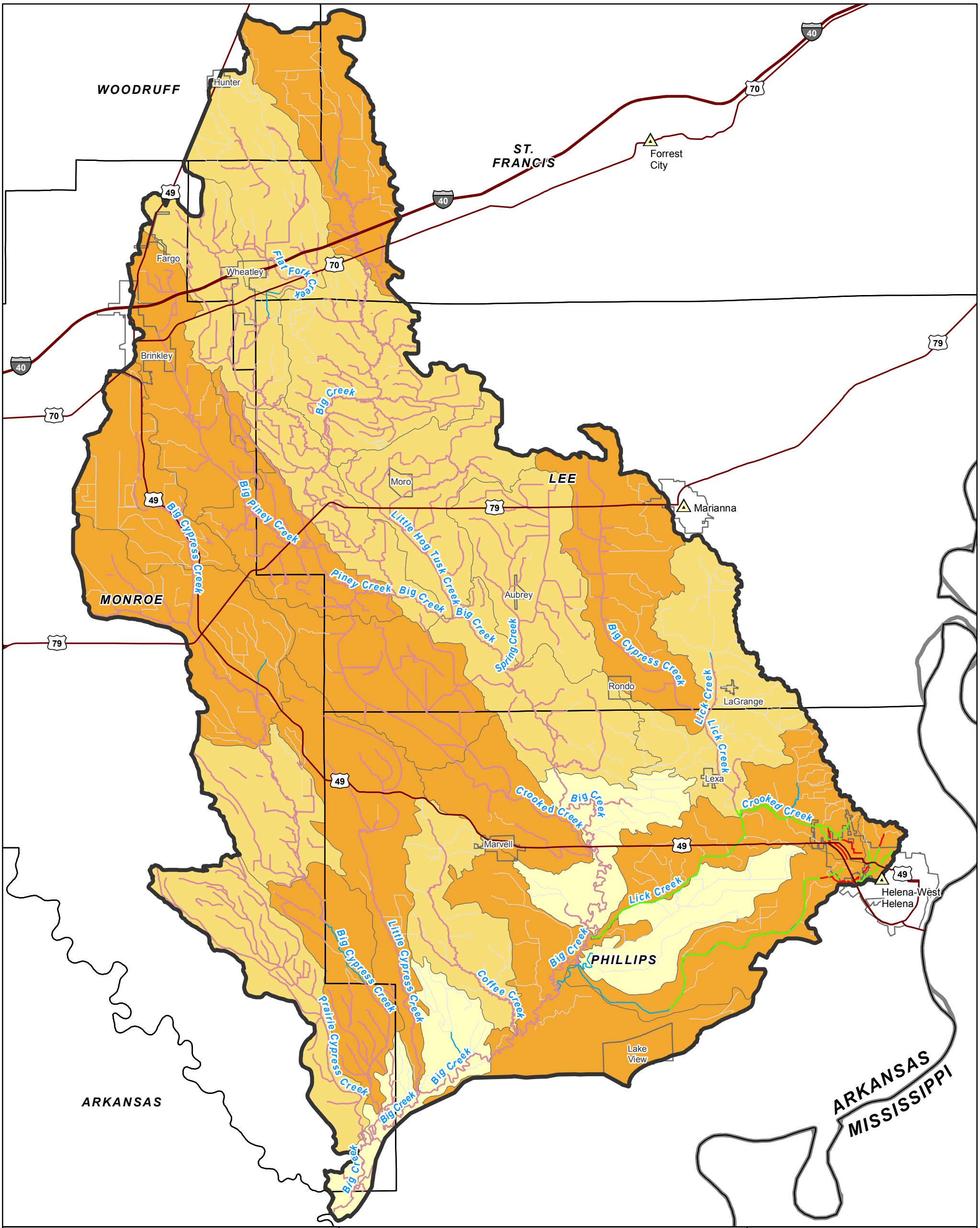


LAND USE CHANGES (2006-2011)

BIG
(HUC 08020304)

FEMA

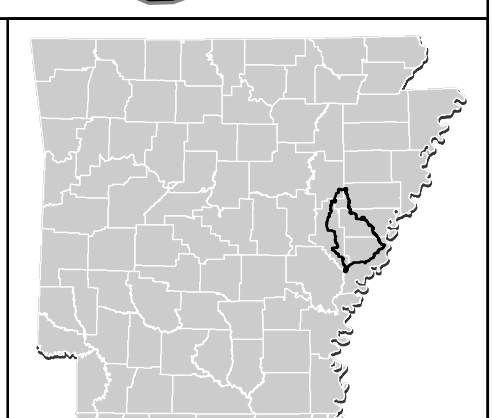
0 2.5 5 Miles

N W E S

County Seat
Interstate
U.S. Highway
City Limits
County Boundary
Major Reaches of Watershed
Other Waters
Large Waterbody
Watershed

CNMS Needs
Not Valid
Requires Assessment
Validated

Land Use Change (2006-2011)
Least
-
-
-
Most



Project Location

FIGURE 4

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Insurance Claims

Table 3 lists the number of NFIP insurance claims for the communities that touch the Big Watershed. This information is taken from the FEMA Community Information System (CIS) Reports. Due to limitations on the physical locations of the claims data, the graphical locations were developed using census block groups to approximate the locations of claims and/or loss data that can be determined. Of the insurance claims easily identified within the watershed, the majority occur in the cities of Brinkley and Helena-West Helena and in the unincorporated areas of Phillips, Monroe, and Lee Counties. The NFIP claims reported are identified either as those within the SFHA or those outside of the SFHA. Claims outside of the SFHA are identified specifically as BCX Claims, which refers to an older Zone naming convention that included Zones B, C, or X, all of which are considered outside of the SFHA. Figure 5 provides a graphical representation of the NFIP insurance claims activity within the Big Watershed.

In addition to NFIP claims activity, there are several Repetitive Loss (RL) or Severe Repetitive Loss (SRL) properties within the Big Watershed. The main concentration of these properties is in or around the city of Helena-West Helena as shown on Figure 6.

Table 4, Repetitive Loss (RL) and Severe Repetitive Loss (SRL), summarizes RL and SRL claims by county and community within the Watershed. As noted, these losses are also displayed on Figure 6 and on the Discovery Map, which will be made available at the Discovery meetings and will be included in the supplemental digital data to be provided at the conclusion of the Discovery process.

It is important to note that the flood damages that occurred during the recent flooding events (2013 – 2016) may not be documented as claims if the majority of the damage occurred to uninsured properties.

Table 3: Total NFIP Insurance Claims.

Total NFIP Insurance Claims by Community *	
Community	**Claims**
Aubrey, City of	0
Brinkley, City of [1]	11
Fargo, Town of [1]	0
Helena-West Helena, City of [1]	169
Hunter, Town of [1]	0
LaGrange, Town of	0
Lakeview, City of [1]	0
Lexa, City of	0
Marianna, City of [1]	4
Marvell, City of	0
Moro, Town of	0
Rondo, City of	0
Wheatley, City of	0
Lee County (Unincorporated Areas) [1]	21
Monroe County (Unincorporated Areas) [1]	107
Phillips County (Unincorporated Areas) [1]	44
St. Francis County (Unincorporated Areas) [1]	1
Woodruff County (Unincorporated Areas) [1]	27

* Claims reported are based on community totals and do not reflect watershed specifc numbers.

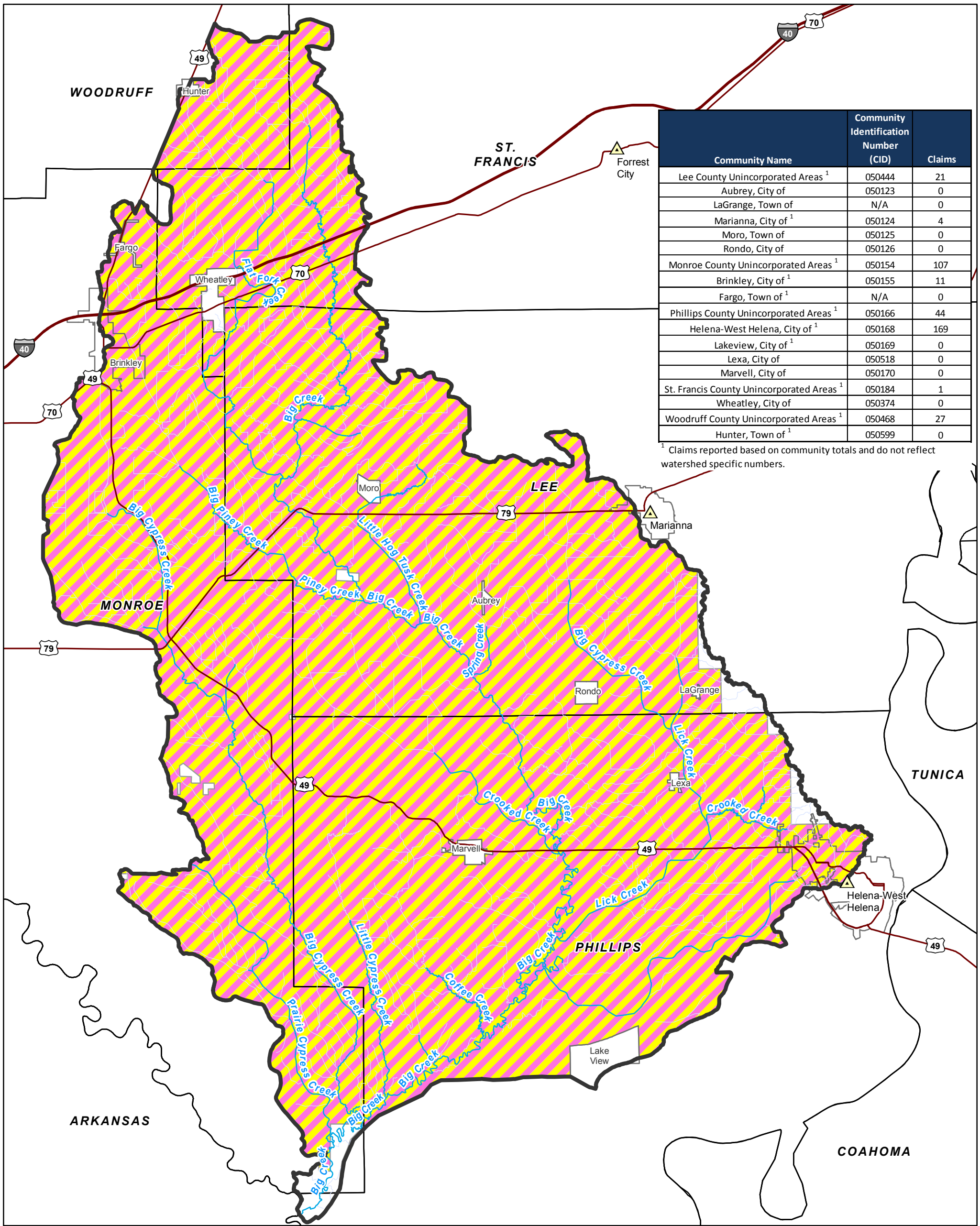
[1] Community is located within more than one HUC8 watershed.

Table 4: Repetitive and Severe Repetitive Loss.

Repetitive Losses/Severe Repetitive Losses By Community *			
Community	Number of Properties	Total Claims	Average Number of Claims Per Property
Aubrey, City of	0	0	0
Brinkley, City of [1]	2	4	2.0
Helena-West Helena, City of [1]	33	134	4.1
Fargo, Town of [1]	0	0	0
Hunter, Town of [1]	0	0	0
LaGrange, Town of	0	0	0
Lakeview, City of [1]	0	0	0
Lexa, City of	0	0	0
Marianna, City of [1]	1	2	2.0
Marvell, City of	0	0	0
Moro, Town of	0	0	0
Rondo, City of	0	0	0
Wheatley, City of	0	0	0
Lee County (Unincorporated Areas) [1]	3	10	3.3
Monroe County (Unincorporated Areas) [1]	14	38	2.7
Phillips County (Unincorporated Areas) [1]	5	21	4.2
St. Francis County (Unincorporated Areas) [1]	0	0	0
Woodruff County (Unincorporated Areas) [1]	5	10	2.0

* Claims reported are based on community totals and do not reflect watershed specifc numbers.

[1] Community is located within more than one HUC8 watershed.



Community Name	Community Identification Number (CID)	Claims
Lee County Unincorporated Areas [1]	050444	21
Aubrey, City of	050123	0
LaGrange, Town of	N/A	0
Marianna, City of [1]	050124	4
Moro, Town of	050125	0
Rondo, City of	050126	0
Monroe County Unincorporated Areas [1]	050154	107
Brinkley, City of [1]	050155	11
Fargo, Town of [1]	N/A	0
Phillips County Unincorporated Areas [1]	050166	44
Helena-West Helena, City of [1]	050168	169
Lakeview, City of [1]	050169	0
Lexa, City of	050518	0
Marvell, City of	050170	0
St. Francis County Unincorporated Areas [1]	050184	1
Wheatley, City of	050374	0
Woodruff County Unincorporated Areas [1]	050468	27
Hunter, Town of [1]	050599	0

[1] Claims reported based on community totals and do not reflect watershed specific numbers.

CLAIMS ACTIVITY

BIG
(HUC 08020304)

- County Seat
- Interstate
- U.S. Highway
- City Limits
- County Boundary
- Major Reaches of Watershed
- Other Waters
- Large Waterbody
- Watershed

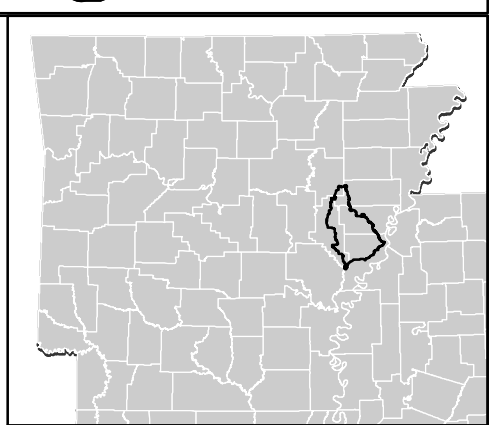
0 2.5 5 Miles

NFIP Insurance Claims

- No claims in Community
- Claims in and out of SFHA

*Claims reported are approximate, based on limited location information and watershed extents.

N W E S



Project Location

FIGURE 5

DATE: 5/2/2016

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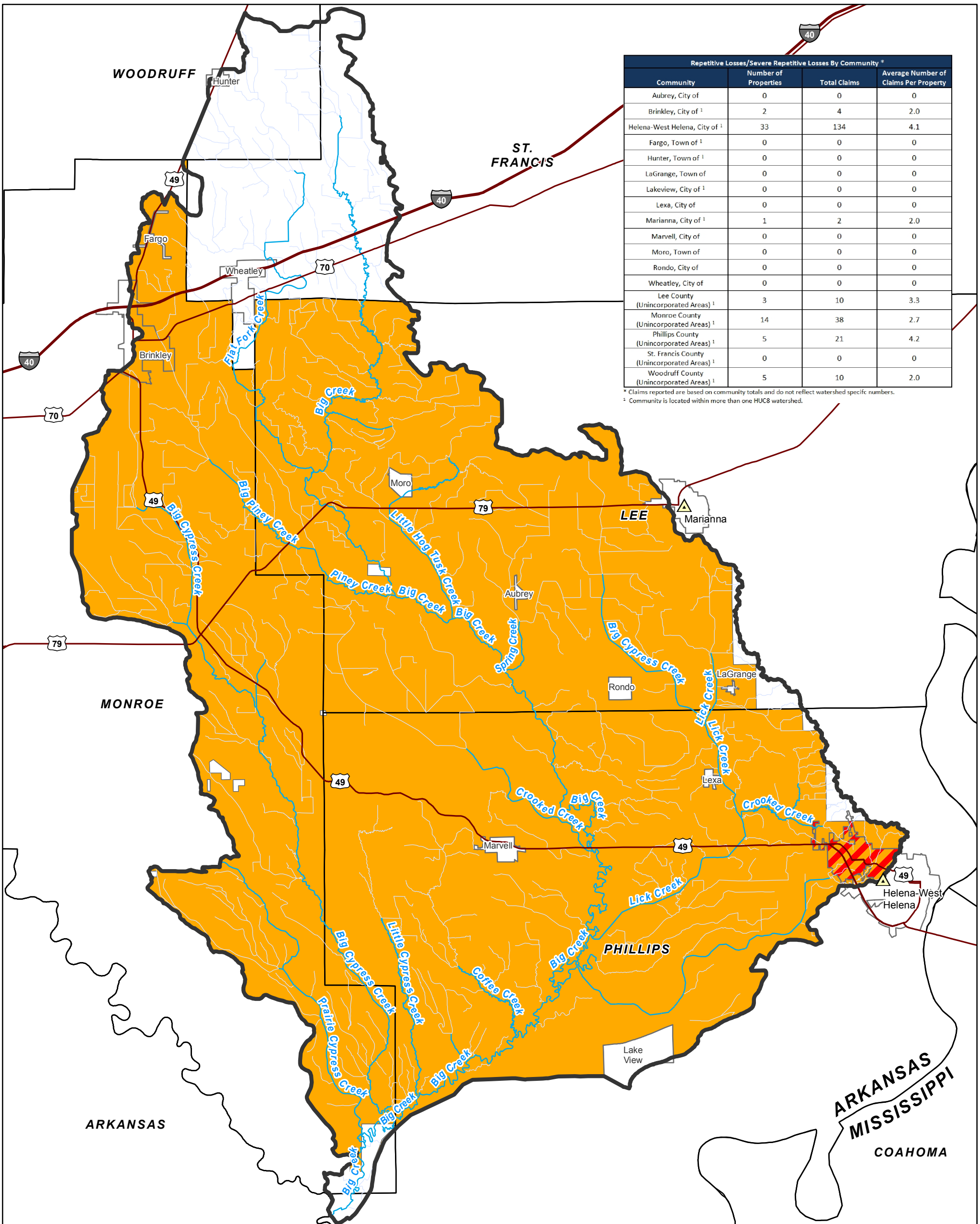


Repetitive Losses/Severe Repetitive Losses By Community *			
Community	Number of Properties	Total Claims	Average Number of Claims Per Property
Aubrey, City of	0	0	0
Brinkley, City of [1]	2	4	2.0
Helena-West Helena, City of [1]	33	134	4.1
Fargo, Town of [1]	0	0	0
Hunter, Town of [1]	0	0	0
LaGrange, Town of	0	0	0
Lakeview, City of [1]	0	0	0
Lexa, City of	0	0	0
Marianna, City of [1]	1	2	2.0
Marvell, City of	0	0	0
Moro, Town of	0	0	0
Rondo, City of	0	0	0
Wheatley, City of	0	0	0
Lee County (Unincorporated Areas) [1]	3	10	3.3
Monroe County (Unincorporated Areas) [1]	14	38	2.7
Phillips County (Unincorporated Areas) [1]	5	21	4.2
St. Francis County (Unincorporated Areas) [1]	0	0	0
Woodruff County (Unincorporated Areas) [1]	5	10	2.0

* Claims reported are based on community totals and do not reflect watershed specifc numbers.
[1] Community is located within more than one HUC8 watershed.

REPETITIVE AND SEVERE REPETITIVE LOSS CLAIMS

BIG
(HUC 08020304)

FEMA

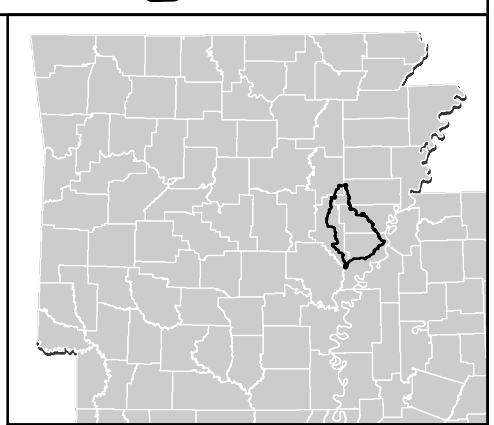
0 2.5 5 Miles

N W E S

County Seat
Interstate
U.S. Highway
City Limits
County Boundary
Major Reaches of Watershed
Other Waters
Large Waterbody
Watershed

Repetitive Losses Claims
No claims in Community
Repetitive Loss
Repetitive and Severe Repetitive Loss

*Claims reported are approximate, based on limited location information and watershed extents.



Project Location

FIGURE 6

DATE: 5/2/2016

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Disaster Declarations

The Big Watershed has had a history of flooding as demonstrated by numerous presidential disaster declarations issued in the past. Table 5, Disaster Declarations in the Watershed, lists disaster declarations for multiple hazards within the watershed.

Table 5: Disaster Declarations in the Watershed.

Watershed Counties Declared	Number of Disaster Declarations per Hazard *				
	Flood	Hurricane	Winter Storm (Ice/Snow)	Tornado	Severe Storm
Lee County	3	1	3	0	5
Monroe County	5	1	4	2	8
Phillips County	2	1	1	2	5
St. Francis County	4	1	3	2	6
Woodruff County	3	1	3	2	11

*Time period of 1967 – February 2016.

Risk Decile

The Risk Decile is calculated from nine parameters: total population density, historical population growth, predicted population growth, housing units, flood policies, single claims, repetitive losses, repetitive loss properties, and declared disasters. The scale of Risk Decile ranking is 1-10 with 1 being the highest and 10 being the lowest ranking for a portion of the watershed.

Watershed Rankings

For the Discovery process, watersheds are selected and analyzed at the HUC-8 level and evaluated using three major factors (or trifecta factors): population, topographic data availability, and risk decile. Table 6 lists the overall rankings of the Big Watershed when compared nationally and regionally to other HUC-8 watersheds. Nationally, this HUC's risk decile rating ranks between 26% and 50% of HUC-8s in the United States. This information, along with rankings of smaller HUC-12 subbasins, helps identify stream segments or locations where risk evaluation can be targeted. The combination of factors is important in the selection of a watershed for a Discovery Project.

Table 6: Watershed Risk Factor Rankings.

Big Watershed Risk Factor Rankings			
National Risk Factor Rank:	974	Region 6 Risk Factor Rank:	284
National Risk Decile:	5	Region 6 Risk Decile:	5
Average Annualized Loss:	$1,068,000	Average Annualized Loss:	$1,068,000
National Average Annualized Loss Rank:	N/A	Region 6 Average Annualized Loss Rank:	93
National Overall Rank:	974	Region 6 Overall Rank:	157

Topographic Data

Recent acquisitions of topographic data are being made for the Big Watershed. This data is being obtained by the U.S. Army Corps of Engineers Natural Resources Conservation Service (NRCS), and it will cover the entire watershed. There will be suitable topography for the areas where detailed study modeling and floodplain mapping may be pursued.

Coordinated Needs Management Strategy

Significant streams in this watershed include Big Creek, Lick Creek, Big Cypress Creek, and Prairie Cypress Creek. The U.S. Geological Survey (USGS) provides a National Hydrologic Dataset (NHD) that can be used to identify stream miles that reflect drainage areas of 1 square mile or greater from available topographic data. The NHD stream mileage may be used to gain a sense of the total potential stream miles for a watershed. Using the NHD, there are approximately 2,360 miles of streams in the Big Watershed.

The CNMS Inventory provides a snapshot of the status and attributes of currently studied streams existing within FEMA's floodplain study inventory. In general, the stream mileage shown in CNMS reflects streams that currently have effective SFHAs designated for them. CNMS does not reflect the total potential of stream miles to be studied within a watershed.

In addition to listing the miles of studied streams within a watershed, CNMS documents certain other factors, such as physiological, climate, or engineering methods that may have changed since the date of the effective study. The stream miles shown in CNMS are attributed with an evaluation of a Validation Status and Status Type that allows an examination of the condition of a given study or group of studies. Studies which are considered Valid in CNMS are studies which contribute to the New, Validated, or Updated Engineering (NVUE) metric.

The NVUE metric is used as an indicator of the status of studies for FEMA's mapped SFHA Inventory. Those studies categorized as "Unverified" typically indicate that there are some factor(s) of change since the SFHA became effective or may have a deficiency warranting restudy; studies categorized as "Unknown" indicate streams for which an evaluation is planned, in queue, or deferred; and studies categorized as "Assessed" indicates for new or updated studies. Presently, the CNMS streams are undergoing assessment as part of the Discovery activities. CNMS aids in identifying areas to consider for study during the Discovery process by highlighting needs on a map, quantifying them (mileage), and providing further categorization of these needs in order to differentiate factors that identify the needs.

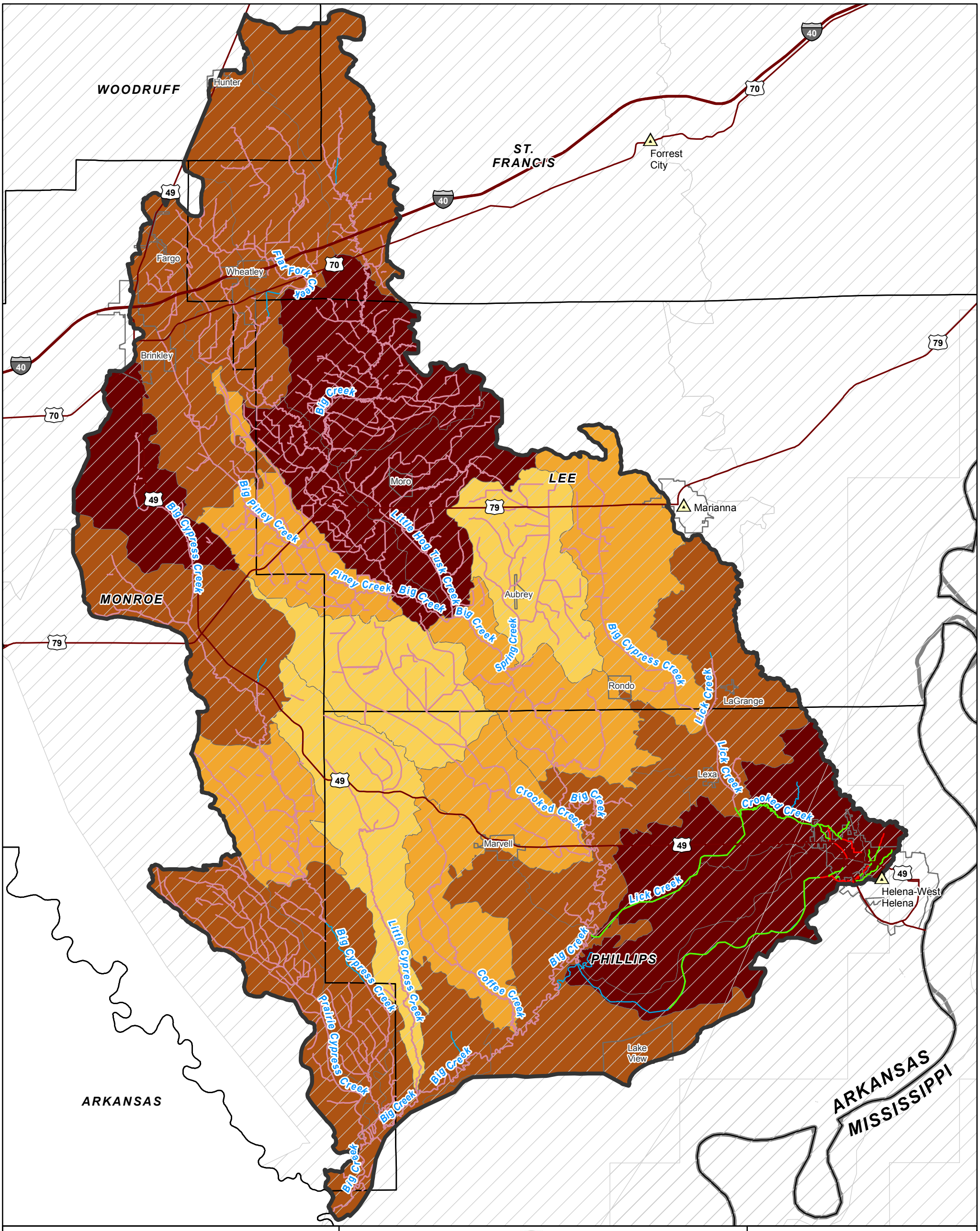
Table 7 compares the NHD data to the CNMS data and summarizes the Validated NVUE stream mileage from CNMS for the watershed.

Table 7: NVUE Approximate Stream Mileage in the Watershed.

NVUE Validation	Stream Miles
NHD Streams (streams with a drainage area of greater than 1 square mile)	2,360
CNMS Streams (streams with effective SFHA)	853.4
Stream Miles not accounted for in CNMS	1,506.6
CNMS Valid Zone AE / AH Stream Miles	34.5
CNMS Valid Zone A Stream Miles	0.0
CNMS Unverified Zone AE / AH Stream Miles	7.2
CNMS Unverified Zone A Stream Miles	0.0
CNMS Unknown Zone AE / AH Stream Miles (Requiring Further Assessment)	0.2
CNMS Unknown Zone A Stream Miles (Requiring Further Assessment)	811.5
All Stream Miles not accounted for in CNMS as there are no effective SFHAs (sum of the below)	1,506.6
Stream Miles not accounted for in CNMS that would fall in land that *could be* developed	1,506.6
Stream Miles not accounted for in CNMS that would fall in land that *could not be* developed	0

Within the Big Watershed, and using these criteria from CNMS, approximately 811.5 miles of Zone A streams and 0.2 miles of Zone AE streams were identified as being "Unknown", which will require additional review of the data to determine if these streams should be considered valid. Approximately 7.2 miles of Zone AE streams were identified as being "Unverified" and as such are candidates for updated analysis. Additionally, 34.5 miles of Zone AE streams in the watershed were characterized as being Valid and included in the NVUE metrics.

Figure 7 provides a snapshot of CNMS factors or needs for each stream segment, the HUC-12 risk decile, and the availability of topographic data. The combination of these three factors aided in the selection of the Big Watershed for a Discovery Project.



RISK, NEEDS, AND TOPOGRAPHIC DATA

BIG
(HUC 08020304)

FEMA

tn Associates Ltd.

N
W E
S

0 2.5 5 Miles

County Seat
Interstate
U.S. Highway
City Limits
County Boundary
Major Reaches of Watershed
Large Waterbody
Watershed
LiDAR Extents*

*In progress.

CNMS Validation Status
Not Valid
Requires Assessment
Validated

Density Risk Decile
High
-
-
-
Low

Project Location

FIGURE 7

DATE: 4/25/2016

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Congressional Representation

In order to achieve success with any Region 6 Risk MAP project, members of Congress and their staff members, as well as the media must be aware and understand the study process. Not only will their understanding enable them to communicate effectively about the study details and process, it allows for greater collaboration and coordination. Within the Big Watershed, there are two U.S. Senators, one member from the U.S. House of Representatives, four State Senators, and four members of the State House of Representatives.

Table 8 and Table 9 provide a tabular summary of the U.S. and State Congressionals for the Big Watershed as of February 2015, while Figures 8 - 10 provide a graphical summary of the U.S. and State Congressional district boundaries across the watershed.

In the past, U.S. Congressionals from Arkansas have either co-sponsored legislation to suspend FIRMs for Levee Maintenance or been a vocal opposition to FEMA's levee policies.

Currently, Senator Boozman serves on the Committee on Appropriations and the Committee on Environment and Public Works in the U.S. Senate. These committees influence funding and project priorities within FEMA.

The U.S. Congressionals will be provided the opportunity to participate in a Pre-Discovery Webinar that includes a high level briefing on the Discovery process and activities in Arkansas hosted by the AR CTP Team. This briefing will take place on at a later date, after the initial Discovery meetings in the watershed have been conducted.

Table 8: U.S. Congressionals (as of March 3, 2016).

U.S. Senators			
Name	**Address**	**Phone**	**Email**
John Boozman (R)	1401 W. Capitol Avenue, Plaza F Little Rock, AR 72201	(501) 372-7153	www.boozman.senate.gov/public/index.cfm/e-mail-me
Tom Cotton (R)	11809 Hinson Road Suite 100 Little Rock, AR 72212	(870) 864-8582	www.cotton.senate.gov/content/contact-tom
U.S. Representatives			
Name	**Address**	**Phone**	**Email**
Rick Crawford (R) District 1	2400 Highland Drive, Suite 300 Jonesboro, AR 72401	(870) 203-0540	https://crawford.house.gov/contact/email

Table 9: State Congressionals (as of March 3, 2016).

State Senators [1]				
District	**Name**	**Address**	**Phone**	**Email**
7	Stephanie Flowers (D)	217 South Main Street Pine Bluff, AR 71601	(870) 535-1032	stephanie.flowers@senate.ar.gov
23	Ronald Caldwell (R)	120 CR 393 Wynne, AR 72396	(501) 682-6107	ronald.caldwell@senate.ar.gov
24	Keith Ingram (D)	P.O. Box 1028 West Memphis, AR 72303	(870) 735-9580	friendsforkeith@gmail.com
28	Jonathan Dismang (R)	P.O. Box 475 Beebe, AR 72012	(501) 766-8220	dismang28@gmail.com
State Representatives [1]				
District	**Name**	**Address**	**Phone**	**Email**
12	Chris Richey (D)	P.O. Box 2356 West Helena, AR 72390	(870) 995-2499	chris.richey@arkansashouse.org
47	Michael John Gray (D)	P.O. Box 360 Augusta, AR 72006	(870) 347-6000	michael.gray@arkansashouse.org
48	Reginald Murdock (D)	P.O. Box 1071 Marianna, AR 72360	(870) 295-3208	Rkm_72360@yahoo.com
49	Marshall Wright (D)	1000 Barrow Hill Road Forrest City, AR 72336	(870) 633-3141	marshall.wright@arkansashouse.gov

[1] State Congressionals listed in numerical order by District Served.

WOODRUFF
ST. FRANCIS
LEE
MONROE
PHILLIPS
ARKANSAS
ARKANSAS
MISSISSIPPI
COAHOMA

Hunter
Fargo
Wheatley
Brinkley
Moro
Marianna
Forrest City
Aubrey
Rondo
LaGrange
Lexa
Marvell
Helena-West Helena
Lake View

District 1

Flat Fork Creek
Big Creek
Big Piney Creek
Big Cypress Creek
Little Hog Tusk Creek
Piney Creek
Spring Creek
Lick Creek
Crooked Creek
Coffee Creek
Little Cypress Creek
Prairie Cypress Creek

U.S. Congressional Representation
U.S. House of Representatives
District 1: Rick Crawford (R)
U.S. Senate
John Boozman (R)
Tom Cotton (R)

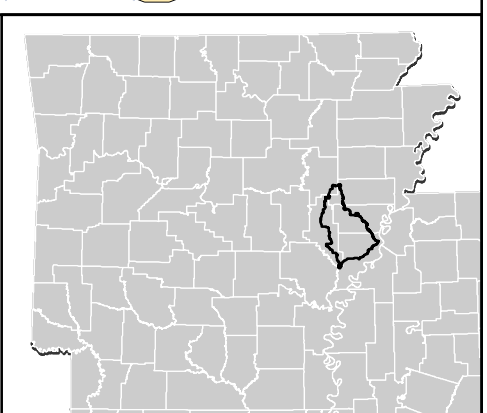
U.S. CONGRESSIONAL DISTRICTS

BIG
(HUC 08020304)

0 2.5 5 Miles

N W E S

- County Seat
- Interstate
- U.S. Highway
- City Limits
- County Boundary
- Major Reaches of Watershed
- Other Waters
- Large Waterbody
- Watershed
- Congressional District Boundaries



Project Location

FIGURE 8

DATE: 5/2/2016

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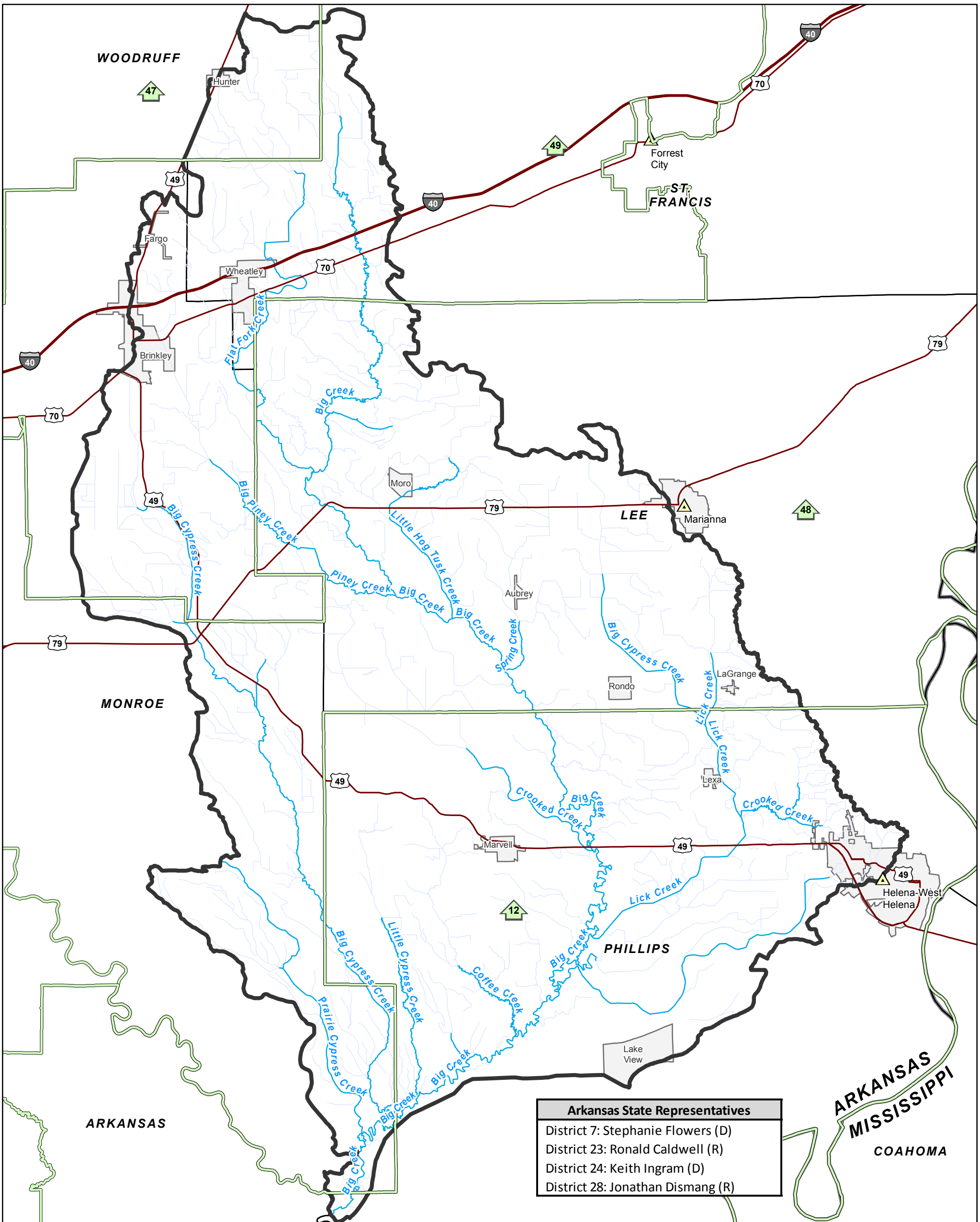

STATE HOUSE OF REPRESENTATIVE DISTRICTS

BIG
(HUC 08020304)

FIGURE 9

DATE: 5/2/2016

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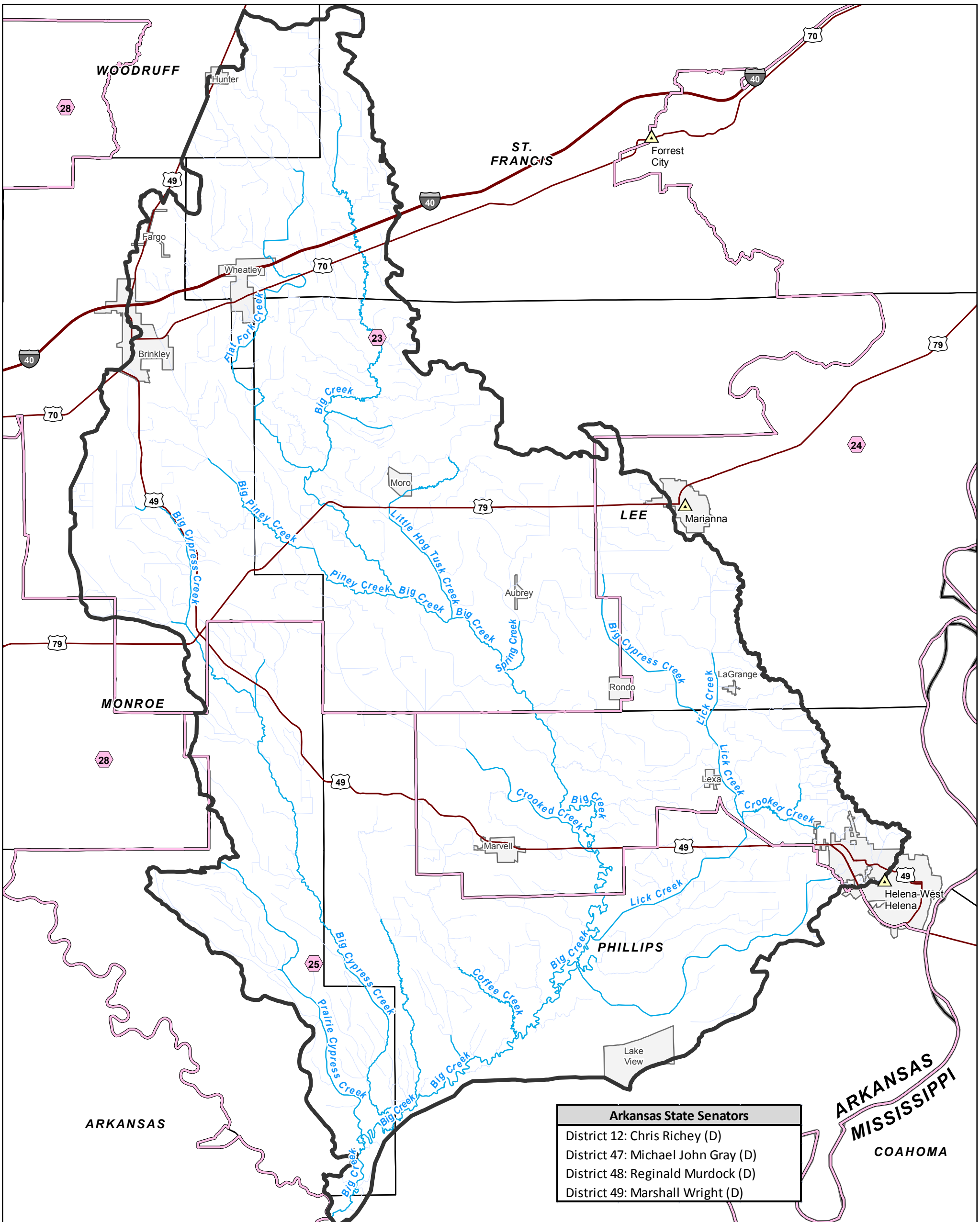


STATE SENATE DISTRICTS

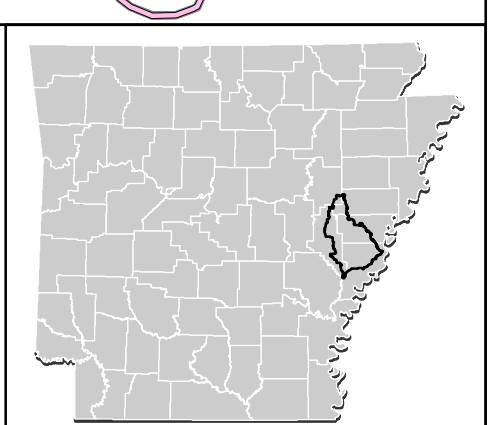
BIG
(HUC 08020304)

FEMA

0 2.5 5 Miles

N W E S

- County Seat
- Interstate
- U.S. Highway
- City Limits
- County Boundary
- Major Reaches of Watershed
- Other Waters
- Large Waterbody
- Watershed
- State Senate District Boundaries



Project Location

FIGURE 10

DATE: 5/2/2016

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II. Discovery Efforts

i. Engagement / Pre-Discovery Report

Pre-Discovery Community Engagement

The CTP Project Team identified in Table 10 below, was in contact with watershed stakeholders via letters, email, and phone calls before the Discovery meetings to request local participation. In addition to assisting in scheduling the meetings, locals were asked to help identify additional key people who should be included in the Discovery process and acquire any data that will assist in the risk identification and assessment for the Big Watershed. A detailed list of Communities, local officials, federal, state and regional agencies that will be invited to participate in the Discovery Process is included with the supplemental digital data accompanying this report.

Table 10: CTP Big Watershed Project Team.

Name	Organization	Project Role
Michael Borengasser	ANRC	CTP Coordinator / Project Manager / State NFIP Coordinator
John Bourdeau	FEMA Region 6	Project Monitor – FEMA Region 6
Lacye Blake	Arkansas Department of Emergency Management (ADEM)	State Hazard Mitigation Officer
Linda Johnson	FTN	CTP Contractor / Program Manager
Lee Beshoner	FTN	CTP Contractor / Technical Manager

In preparation for the Discovery meeting, the CTP Project Team:

- Gathered information about local flood risk and flood hazards,
- Mapped known and available Grant Activity in the Watershed,
- Mapped known and available Claims Activity in the Watershed,
- Mapped Percent Urban Cover in the Watershed,
- Mapped Density of Parcels Potentially at Risk in the Watershed,
- Mapped Urban Change from 2006 – 2011, and
- Mapped Population Density in the Watershed.

The information gathered before, during and after the Discovery meeting will be used to determine which areas of the watershed may require further study through a Risk MAP project. Discovery will also include discussions with other state and federal agencies about potential partnership opportunities, as well as enlisting their help in identifying flood risk throughout the watershed.

The State CTP's and FEMA's activity with the communities in the Big Watershed is summarized in Table 11, History of Engagement and Table 12, Hazard Mitigation Plan Status.

Table 11: History of Engagement.

Community Name	Type of Engagement	Date	Agency	Comments
Lee County Unincorporated Areas	Original Map Development	10/15/1985	FEMA	Community Based Study
Aubrey, City of	Original Map Development	7/1/2009	FEMA	Community Based Study
LaGrange, Town of	Original Map Development	9/28/1979	FEMA	Mapped as part of Unincorporated Couty Areas
Marianna, City of	Original Map Development	6/1/1987	FEMA	Community Based Study
Moro, Town of	Original Map Development	8/1/1988	FEMA	Community Based Study
Rondo, City of	Original Map Development	10/15/1985	FEMA	Community Based Study
Monroe County Unincorporated Areas	Original Map Development	7/21/1999	FEMA	Community Based Study
Brinkley. City of	Original Map Development	9/4/1985	FEMA	Community Based Study
Fargo, Town of	Original Map Development	7/21/1999	FEMA	Mapped as part of Unincorporated Couty Areas
Phillips County and Incorporated Areas	Map Modernization	10/06/2010	FEMA	REVISED; Modernized Countywide
St. Francis County and Incorporated Areas	Map Modernization	2/18/2005	FEMA	Considered "non-modernized" FIRMs
Woodruff County Unincorporated Areas	Original Map Development	2/1/1988	FEMA	Community Based Study
Hunter, Town of	Original Map Development	2/1/1988	FEMA	Mapped as part of Unincorporated County Areas
Lee County, Monroe County, Phillips County, St. Francis County, Woodruff County	LIDAR	2014 - 2015	FEMA/USGS	Topography newer than effective FIRM; LIDAR collection was part of Chicot and Desha Counties collection
Aubrey, City of	CAC/CAV	2006 / 2011	ANRC/FEMA	Findings Eng: Serious / Other: Minor
Marianna, City of	CAC/CAV	2002 / 2006 2008 / 2012	ANRC/FEMA	Findings Enf: Minor
Moro, Town of	CAC/CAV	2006 / 2011	ANRC/FEMA	Findings Eng: Serious / Enf: Minor
Rondo, City of	CAC/CAV	2006 / 2008	ANRC/FEMA	Findings None

Table 11. History of Engagement (continued).

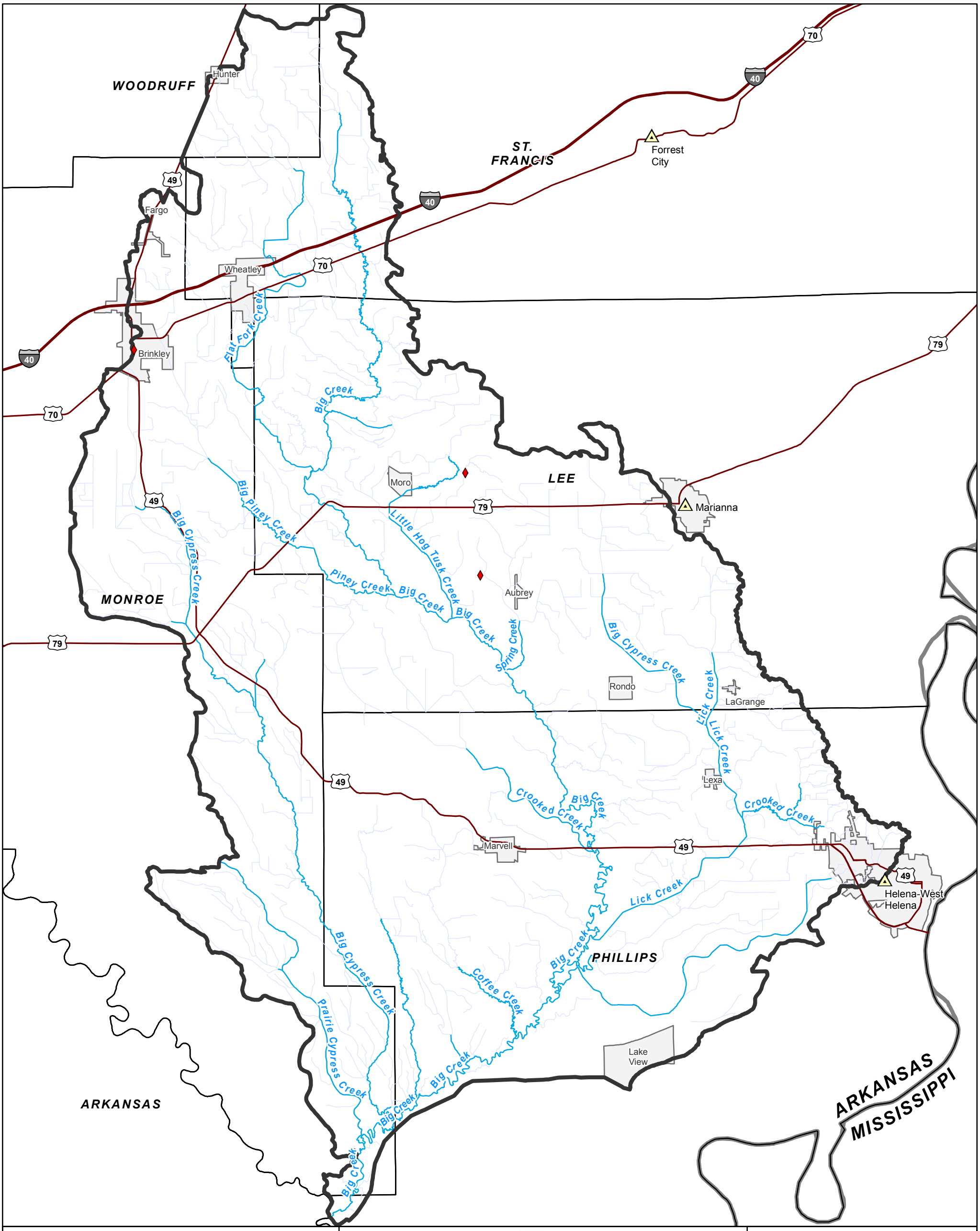
Community Name	Type of Engagement	Date	Agency	Comments
Lee County Unincorporated Areas	CAC/CAV	2006 / 2008 2011 / 2012	ANRC/FEMA	Findings: None
Brinkley, City of	CAC/CAV	2001 / 2003 2006 / 2008 2011 / 2013	ANRC/FEMA	Findings: Serious
Monroe County Unincorporated Areas	CAC/CAV	2001 / 2006 2008 / 2011 2012	ANRC/FEMA	Findings: Serious
Helena-West Helena, City of	CAC/CAV	2006 / 2008 2011 / 2013	ANRC/FEMA	Findings: Minor
Lake View, City of	CAC/CAV	2003 / 2006 2008 / 2011 2013	ANRC/FEMA	Findings: Minor
Marvel, City of	CAC/CAV	2006 / 2008 2011 / 2013	ANRC/FEMA	Findings: Serious
Phillips County Unincorporated Areas	CAC/CAV	2006 / 2011 2013	ANRC/FEMA	Findings: Serious
Wheatley, City of	CAC/CAV	2007 / 2008 2011 / 2012	ANRC/FEMA	Findings: Minor
St. Francis County Unincorporated Areas	CAC/CAV	2001 / 2007 2008 / 2011 2015	ANRC/FEMA	Findings: Minor
Woodruff County Unincorporated Areas	CAC/CAV	2004 / 2010 2011 / 2015	ANRC/FEMA	Findings: Serious

Table 12: Hazard Mitigation Plan Status (as of February 2016).

Community Name	Hazard Mitigation Plan Name	Plan Status	Plan Expires
Lee County	None	None	N/A
Monroe County	Monroe County	Plan in Progress	N/A
Phillips County	Phillips County	Plan in Progress	N/A
St. Francis County	St. Francis County	Plan in Progress	N/A
Woodruff County	Woodruff County	Plan in Progress	N/A
State of Arkansas	State of Arkansas All-Hazards Mitigation Plan	Current	09/04/2016

The CTP Project Team encourages the counties and communities to be diligent in the process of updating their Hazard Mitigation Plans (HMPs) if they are not already under development. Representative(s) from ADEM are available to discuss grant opportunities and/or general assistance that may be available for their HMPs.

Figure 11 displays the locations and types of mitigation grant activity in the Big Watershed. Proposed mitigation activities and potential property acquisitions will be identified during Discovery through input from the local communities. There may be additional grants being pursued at both the state and local level within the watershed that have not been identified.



GRANT ACTIVITY

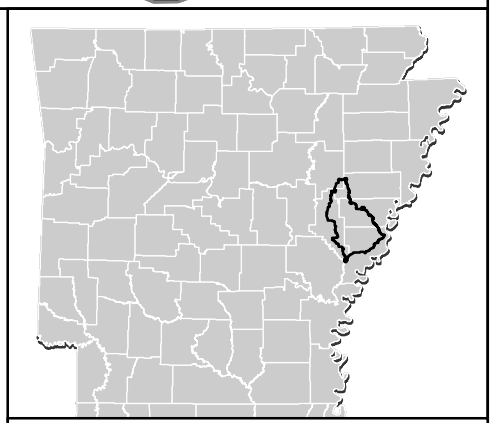
BIG
(HUC 08020304)

FEMA

0 2.5 5 Miles

N W E S

County Seat
Interstate
U.S. Highway
City Limits
County Boundary
Major Reaches of Watershed
Other Waters
Large Waterbody
Watershed
HMGP Grants (Safe Rooms) (3)
Property Acquisition (0)
Public Assistance Grants (0)



Project Location

FIGURE 11

DATE: 4/25/2016

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ii. Pre-Discovery Data Collection

For the Big Watershed's Engagement / Pre-Discovery Report and Map, multiple datasets were used. The following tabular summary of the data collected is presented in Table 13 in order to document the data used and its sources. All data collected and used during the Discovery activities will be provided to the communities at the Discovery project close-out.

Table 13: Data Collection for the Watershed.

Data Types / Description	Deliverable/Product	Source
Average Annualized Loss (AAL) Data	Discovery Map Geodatabase	FEMA
State, County, and Community Boundaries	Discovery Map Geodatabase	AHTD / AGISO
U.S. and State Congressional Staff and Boundaries	Discovery Map Geodatabase and Supporting Documents	State of Arkansas / personal communications / AGISO
Effective Flooding (National Flood Hazard Layer, effective geo-referenced non-modernized panels)	Discovery Map Geodatabase and supporting digital dataset	FEMA / ANRC
Topographic Data boundaries (available and in progress)	Discovery Map Geodatabase and supporting digital dataset	FEMA / NRCS
Wildlife Management Area boundaries	Discovery Map Geodatabase	AGFC / U.S. Forest Service / U.S. Fish and Wildlife Service
Watersheds (HUC-8 & -12)	Discovery Map Geodatabase	USGS NHD
Census Blocks	Discovery Map Geodatabase	U.S. Census Bureau
Claims / Loss Data	Discovery Map Geodatabase	FEMA
Contacts	Spreadsheet / Supporting Documents	Local Web Sites / State of Arkansas / ANRC / FEMA / personal communications
Community Rating System (CRS)	Discovery Report	FEMA's "Community Rating System Communities and Their Classes"
CNMS Data	Discovery Map Geodatabase	FEMA / AR CTP
Levees	Discovery Map Geodatabase	USACE / FEMA
Dams	Discovery Map Geodatabase	ANRC / AGISO / USACE
Grant Locations	Discovery Map Geodatabase, Supporting Documents	FEMA / ADEM
Letters of Map Change (LOMC)	Discovery Map Geodatabase	FEMA
Stream Gages	Discovery Map Geodatabase	USGS
Structures / Bridges	Discovery Map Geodatabase	FEMA / U.S. Census Bureau / AHTD / AGISO

Table 13: Data Collection for the Watershed (continued).

Data Types / Description	Deliverable/Product	Source
Transportation Lines	Discovery Map Geodatabase	AHTD
Disaster Declarations	Supporting Documents	FEMA / ADEM
HMPs and Mitigation Activities	Supporting Documents (copies of HMPs not included)	FEMA / ADEM / ANRC / AR CTP
Imagery	Supporting Documents	AGISO

iii. Discovery Meeting

As part of the process for the Big Watershed, Discovery meetings will be held at strategic locations in the Watershed on May 18, 2016. Meeting times and locations are shown in Table 14. Each meeting will be customized to suit the stakeholders present and to allow interaction of the CTP and Project Team with the Discovery meeting attendees. The Discovery meetings are intended to provide the opportunity to learn about the Risk MAP Program, and discuss and document any concerns and mitigation interests for the Big Watershed.

Table 14: Project Discovery Meeting Times and Locations.

Meeting	Date and Time	Location
1	Wednesday May 18, 2016 9:00 – 11:00 AM	UAMS Research Center 1393 Hwy 242 South Helena–West Helena, AR 72390 (Intersection of US Hwy 49 and State Hwy 242)
2	Wednesday May 18, 2016 2:00 – 4:00 PM	Monroe County Judge's Office 717 N. 11th Street Clarendon, AR 72029

The Discovery Meetings will be led by Mike Borengasser, ANRC CTP Coordinator, as well as various other Discovery Meeting personnel from ADEM and FTN. The Discovery Meetings will include a brief introduction to the Risk MAP program and the initial results of the Discovery Activities. Community representatives and stakeholders will have the opportunity to collectively talk with the Hazard Mitigation Team (ADEM) and the Risk Identification Team (ANRC / FTN) to review past projects, discuss current projects, and evaluate project opportunities that are specific to mitigation actions. Base Level Engineering (BLE) analysis and mapping are being prepared for the watershed and will be discussed and provided to the communities in a follow-up meeting once the Discovery Report has been completed. Important items for discussion may include some or all of the following at the respective meeting venues:

- Community Benefits and Grant Opportunities – Floodplain-related grants; risk, needs, and topographic availability; RL/SRL properties; Letters of map change (LOMCs); landuse changes over the last 5 years; and single claims.
- Mitigation Planning and Mitigation Activities – Mitigation plans, understanding Risk MAP and determining risk.
- NFIP Information – Effective FIRMs, Flood Insurance Study (FIS), and LOMCs.
- Risk Identification and Communication - Maps of risk/need/topographic availability, LOMCs, population density in the watershed, urban change in the watershed, estimated dollar exposure of parcels near SFHA areas, high-water marks, and low water crossings.
- Base Level Engineering (BLE) – Analysis and data review, usage, and applicability.

During Discovery, community representatives and stakeholders will be encouraged to actively contribute information about concerns in the Watershed by identifying relevant locations on the large watershed map and then providing a short explanation on the comment form. Discovery will allow attendees and the project team to work together to listen, discuss, and document any notable items for the watershed. Members of the Project Team (ANRC, ADEM, and FTN) will note their availability to answer questions and engage the attendees after the Discovery meeting. During each Discovery Meeting, the Project Team members will request that attendees provide any additional information within 30 days of the meeting.

Prior to the Discovery Meetings the Big Watershed Engagement Plan / Pre-Discovery Report will be distributed in hard copy to the community CEO's and will be available to download at http://www.riskmap6.com/ and http://www.floodplain.ar.gov.

Additional copies of the Big Watershed Engagement Plan / Pre-Discovery Report will be made available at the Discovery Meeting along with several large format watershed maps to be used for discussion and identifying areas of concern in the Watershed. Information collected from the communities will be compiled into a final Discovery Report.

iv. Discovery Implementation (TO BE COMPLETED POST-DISCOVERY)

The communities / organizations represented at the Discovery Meetings are included in Table 15 and the communities NOT represented at the Discovery Meetings are included in Table 16.

Table 15: Communities and Organizations Represented at the Discovery Meetings.

Community/Organization Represented		

Table 16: Communities Not Represented at the Discovery Meetings.

Community Not Represented	

v. Data Gathering Overview

Information about the Big Watershed was gathered prior to the Discovery Meetings and is documented in Table 13. The data collected in pre-discovery was obtained from FEMA or other public and/or national datasets.

Table 17 will be completed following the Discovery Meeting as part of the Final Big Watershed Discovery Report and will summarize the documentation collected at, and after, the Discovery Meeting specific to a flooding source and/or community area.

Table 17: Data Collection Summary - During and After Discovery Meeting.

Information Provided By	Flooding Source	Discovery Workshop Comment Summary

At the conclusion of the Discovery process all supporting information, data and files for the Final Discovery Report will be provided digitally in a directory structure comparable to the example provided below.

08020304\Big Watershed Discovery

\General

- Discovery Metadata – XML
- Project Narrative - PDF

\Correspondence

\Project_Discovery_Initiation

- Pre-Discovery Newsletter
- Engagement / Pre-Discovery Report – Word/PDF

\Discovery_Meeting (to be completed after the Discovery Meeting)

- Meeting Invitations – Word/PDF
- Meeting Attendance Records – PDF
- Risk MAP Action Survey
- Other

\Post_Discovery (to be completed after the Discovery Meeting)

- Discovery Map(s) Final - PDF
- Discovery Report - Final - PDF

\Spatial_Files

- BigWaterhsed.gdb
    - Source Citations (L_Sources)
    - Political Areas (DCS_S_Pol_AR)
    - Transportation (DCS_Trnsport_Ln)
    - HUC-8 (DCS_S_HUC)
    - Discovery Map (DCS_Discovery_Map)
    - Claims data
    - Structures (bridges, dams)
    - Grant locations
    - Streams
    - Other supplemental data

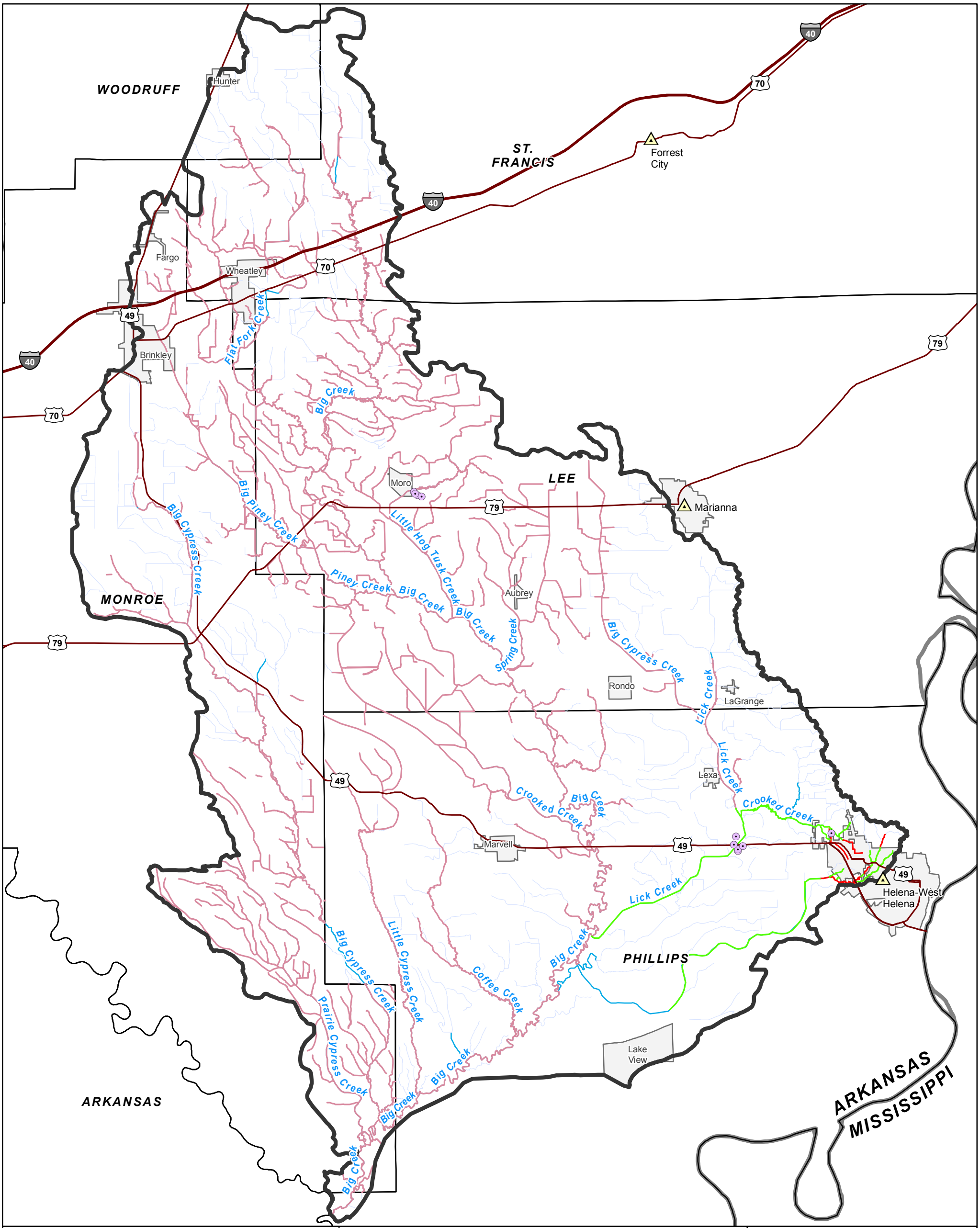
\Supplemental_Data

- All other data collected during Discovery
    - Congressional Briefing

III. Watershed Findings

The NFIP claims reported have been identified as either within the SFHA or those outside of the SFHA, which are identified specifically as BCX Claims, claims that occur outside of the SFHA in Zones B, C, or X. In addition, there are also several locations of RL/SRL within the Big Watershed. Of the insurance claims easily identified within the watershed, the majority occur in the cities of Brinkley and Helena-West Helena and in the unincorporated areas of Lee and Phillips Counties. Figures 5 and 6 show the claims activity and the RL/SRL claims respectively.

Letters of Map Amendment (LOMA), Letters of Map Revisions (LOMRs), and Conditional LOMRs (CLOMR), referred to collectively as Letters of Map Change (LOMCs), are also distributed throughout the watershed, and again are concentrated in the same areas where claims have occurred. LOMCs are often an indicator that the SFHA mapping needs to be reviewed for accuracy. Please refer to Figure 12 for the location of these LOMCs.



LETTER OF MAP CHANGE (LOMC) ACTIVITY

BIG
(HUC 08020304)

- County Seat
- Interstate
- U.S. Highway
- City Limits
- County Boundary
- Major Reaches of Watershed
- Other Waters
- Large Waterbody
- Watershed

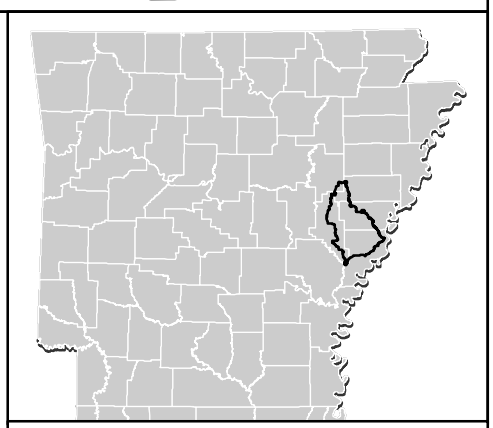
0 2.5 5 Miles

- Letter of Map Amendment (LOMA) (20)
- Letter of Map Revision (LOMR) (0)
- LOMR - Fill (LOMR-F) (0)
- LOMR - Floodway (LOMR-FW) (0)

CNMS Validation Status

- Not Valid
- Requires Assessment
- Validated

N W E S



Project Location

FIGURE 12

DATE: 4/25/2016

C:\Big\08020304\template\Discovery_Figure_12.mxd

i. CNMS Analysis

A CNMS analysis is being performed along with the Discovery Meeting. This information will be populated as completed prior to the final Discovery report. Table 18 shows the detailed study streams in the Big Watershed that have failed one or more validation elements during the CNMS stream reach level validation process. The CNMS validation elements attempt to identify changes to the Physical Environment, Climate and Engineering Methodologies since the date of the Effective Analysis (different from the Effective issuance date). Per the CNMS validation process, the study is considered as having a need or assigned an "Unverified" status, if one of seven critical (C) elements fail, or if four or more of the ten (10) secondary (S) elements fail during stream reach level validation. The "unverified" status may also have been identified as a community identified need during the Scoping Process that was not able to be addressed during Map Modernization or that was identified during the Map Modernization Project.

Table 18: "Unverified" Detailed Streams per CNMS Analysis.

Stream Name	City and/or County	Validation Status	Failed CNMS Elements
In progress			

*Community request during Map Mod.

Table 19 provides a description of the validation elements that failed as identified in the CNMS database.

Table 19: CNMS Category Descriptions.

Element Name	Element Description	Issue being identified by the Element
In progress		

IV. Watershed Options (TO BE COMPLETED POST-DISCOVERY)

In conjunction with the assessment of risk, need, and the availability of topographic data, as well as the input of stakeholders within in this Watershed, future projects within the Big Watershed are recommended. Both FEMA and their CTP Partner, ANRC, look to promote mitigation action within the watershed. After internal and partner review of the communities within the watershed, the following are overarching opportunities have been identified to promote community action within the watershed.

Table 20 lists some potential needs in the Watershed and actions that could be taken under each of the areas discussed during the Discovery meetings, including:

- Risk Identification and Communication – traditional flood studies and data updates,
- NFIP Community Actions – insurance-related mitigation or information,
- Mitigation Planning and Mitigation Actions – items related to planning updates,
- Community Benefits and Grant Opportunities – discuss potential opportunities specific to property acquisition.

Table 20: Potential Watershed Activities.

Risk Identification and Communication
•
Risk Identification and Communication
• .
NFIP Community Actions
•
Mitigation Planning and Mitigation Actions
•
Community Benefits and Grant Opportunities
•

Table 21 provides specific evaluation guidelines for streams or areas that could benefit from additional study that have been identified during Discovery. Any FEMA-based metrics that would be met if the need or issue was addressed is identified, as well as any current FEMA map actions that would affect the activity. Any comments or concerns raised by a stakeholder during the Discovery process that could be tied to one of the needs or actions for the Watershed are included. Some needs/actions may be listed that were not raised by any specific community but were identified as general improvements that could be made in the Big Watershed to meet general FEMA regional goals based on the information gathered during Pre-Discovery and Discovery.

Needs are identified as being on the critical path as high, medium, or low priority or as a task that could be assigned to a State or local community to complete. These definitions are also included in Table 21.

- **High** – The local community would immediately benefit from the action and FEMA's metrics would also be met.
- **Medium** – The local community would benefit over the longer term from the action and a portion of FEMA's metrics may be met.
- **Low** – The local community activities can continue without this revision and FEMA's metrics are not affected.
- **Community Action** – The activity would be more appropriate as a community-led action rather than a FEMA-led action.
- **AOMI_ID** – The Area of Mitigation Interest (AOMI) shapefile prepared for the Big Watershed provides the spatial location of the information collected and is provided in the Big Watershed Flood Risk Database developed in association with the Discovery Report.

Table 21: Metrics and Rankings of Needs (TO BE COMPLETED POST-DISCOVERY).

Priority	Description of Need Evaluation Guide **High** – Local community would immediately benefit from the action, and FEMA's metrics would also be met **Medium** – Local community would benefit over the longer term from the action, and a portion of FEMA's metrics may be met **Low** – Local community activities can continue without this revision, and FEMA's metrics are not impacted **Community Action** – Activity would be more appropriate as a community-led action rather than a FEMA-led action				
	Location of Need / Project	**Details**	**Impacts From Any Current Map Actions**	**FEMA Metric or Community Benefit**	**Evaluation**
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					

i. Project Prioritization (TO BE COMPLETED POST-DISCOVERY)

During the Discovery process, flood risk projects are intended to be initiated and cataloged at the HUC-8 level. This means that when a project is initiated, all flood hazards within the HUC-8 will be evaluated to determine the project scope within that HUC-8 boundary. Evaluation means that risk, need, available data, and desired output products are assessed for the entire HUC-8. Evaluation does not mean the actual development of new or updated flood risk products, only the assessment of what products would be required to fulfill the identified needs in light of the level of risk. Unmet needs will be cataloged in the Coordinated Needs Management Strategy Database (CNMS).

Once the entire HUC-8 has been evaluated, FEMA Region 6, using input and recommendation from the Big Watershed Project Team and specifically the ANRC, who is the CTP of FEMA, will select the project tasks necessary to respond to the identified levels of risk and need. The CTP and the Region are expected to maximize the amount and usefulness of project work to be performed in any HUC-8, but is not expected to perform every project task and meet all needs in every watershed.

As a result of the Discovery process projects may be identified as being high priority projects for consideration in the FY16 (2016-2017) FEMA grant cycle based on current / planned community projects and cost-sharing capabilities.