Pre-Discovery Report

Animas Watershed, HUC 8 - 14080104

San Juan County, New Mexico

July 7th, 2016


DEPARTMENT OF HOMELAND SECURITY
FEMA

Project Area Community List

Community Name*	CID
San Juan County Communities	350064
Aztec, City of	350065
Farmington, City of	350067

*Communities without CIDs are not included.

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The basis and format of this document is derived from FEMA Guidance and Specification, Procedure Memorandums, Operational Guidance, Regional Standard Operating Procedures, and current draft revisions and proposed guidance to include, but not limited to;

Guidance and Specifications: Appendix I - Discovery

Guidance and Specifications: Appendix M – Data Capture Standards

PM 56: Guidelines for Implementation of Coordinated Needs Management Strategy (CNMS)

PM 59: Guidance for Implementation of Watershed-Based Studies

PM 60: Guidance for Flood Risk Assessment Data Development and Analysis

Operational Guidance No. 1-11: Risk MAP Guidance for Incorporating Mitigation Planning Technical Assistance and Training into Flood Risk Projects

Operational Guidance No. 4-11: Risk MAP Meeting Guidance

FEMA Region 6 Discovery & Project Pre-Planning SOP

Any revisions or changes to this document will require FEMA Region 6 Authorization prior to implementation.

Acronyms and Abbreviations

BFE	base (1-percent-annual-chance) flood elevation
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
DFIRM	Digital Flood Insurance Rate Map
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FPA	Floodplain Administrator
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
H&H	hydrologic and hydraulic
HMP	Hazard Mitigation Plan
HUC	Hydrologic Unit Code
HWM	high water mark
NMDOT	New Mexico Department of Transportation
LiDAR	Light Detection and Ranging System
LOMA	Letter of Map Amendment
LOMC	Letter of Map Change
LOMR	Letter of Map Revision
MAT	Mitigation Assessment Team
MDP	Master Drainage Plan
MXD	Map Exchange Document
NFIP	National Flood Insurance Program
NHD	National Hydrologic Dataset
NMDHSEM	New Mexico Department of Homeland Security and Emergency

	Management
NMFMA	New Mexico Floodplain Managers Association
NVUE	New Validated or Updated Engineering
OSE	Office of the State Engineer
RAMPP	Risk Assessment, Mapping and Planning Partners
Risk MAP	Risk Mapping, Assessment, and Planning
RL	Repetitive Loss
PMR	Physical Map Revision
RSC	Regional Service Center
SFHA	Special Flood Hazard Area
SHMO	State Hazard Mitigation Officer
SHP	ESRI Shape File
SRL	Severe Repetitive Loss
NMDHSEM	New Mexico Dept of Homeland Security and Emergency Management
RGIS	Resource Geogrpahic Information System
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, Local, and Tribal 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, Local, and Tribal entities with information needed to mitigate flood related risks.

The FEMA Region 6 office, in partnership with the New Mexico Department of Homeland Security and Emergency Management (NMDHSEM) began the Discovery process in the Animas watershed in July 2016 to gather local informarion 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 in Figure 1.

Through the Discovery process, FEMA can determine which areas of the HUC8 Discovery watersheds may/will be funded 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.

i. Watershed Selection

The Animas Watershed is located in the NorthWestern corner of New Mexico covering approximately 1,371 square miles with a population of approximately 38,156 people. The Animas Watershed falls entirely within San Juan County, NM. There are two communities with jurisdictional authority within the watershed:

- Aztec
- Farmington

In addition to these communities, the watershed includes Aztec Ruins National Monument, local parks, Farmington Lake, and local reservoirs. Other areas that may be excluded from consideration if they have significant acreage are large cemeteries, U.S. Environmental Protection Agency remediation sites (CERCLA/RCRA), prison areas, and water quality or flowage easement areas.

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. Decile risk is calculated from 9 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.

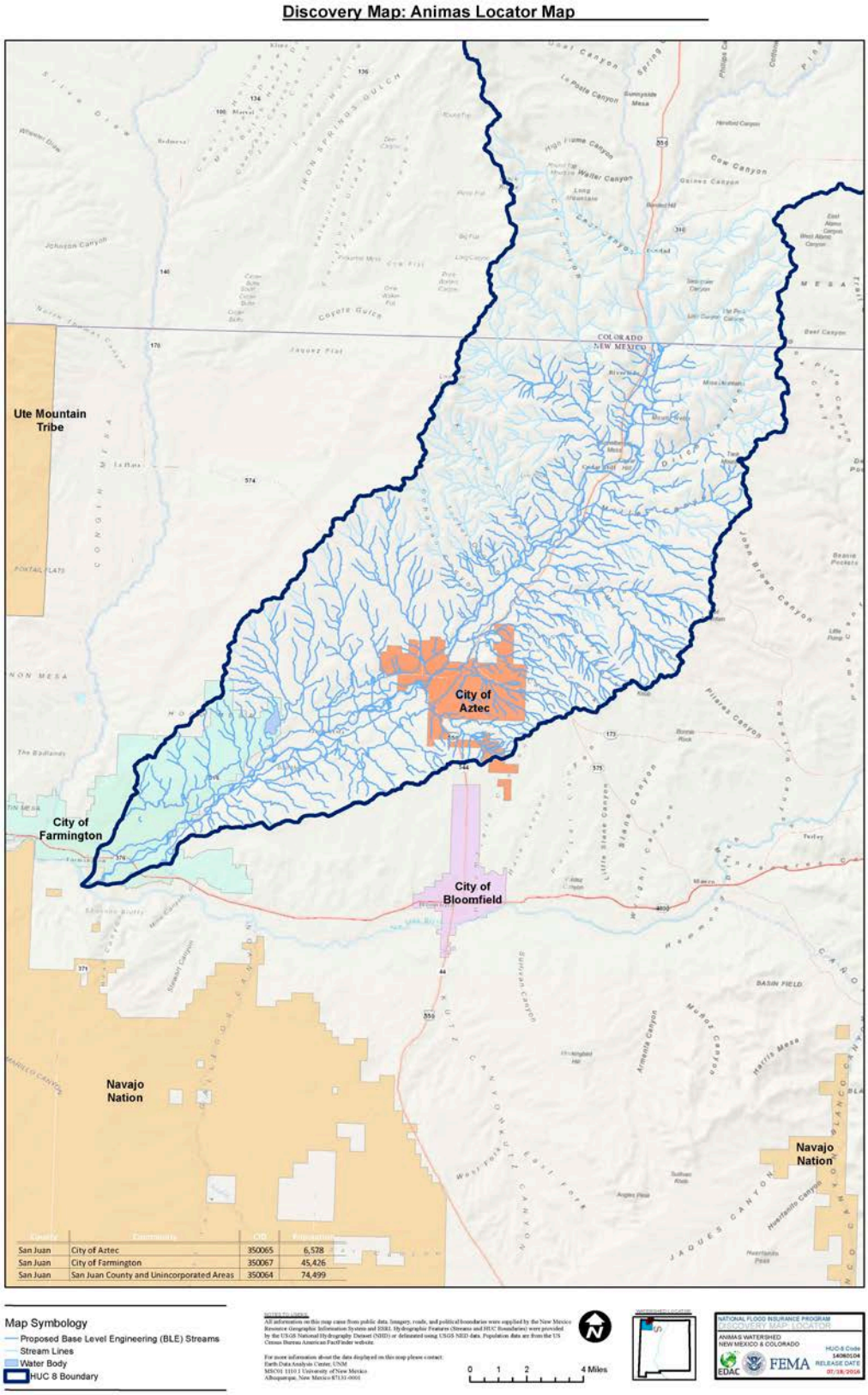
Table 1 provides a status update for each community's NFIP participation, CRS rating, and current FIRMs. San Juan County and both communities participate in the NFIP. Figure 1 shows the locations of all communities in the watershed.

Table 1: NFIP Status of Project Area Communities

County /Parish	Community Name	Community Identification Number (CID)	Participating Community?	CRS Rating	FIRM Date	FIRM Status	Population (2010 Census)
San Juan	Aztec	350065	Yes	9	08/05/10		6,578
San Juan	Farmington	350067	Yes	N/A	08/05/10		45,426
San Juan	San Juan	350064	Yes	8	05/01/08		126,503

The primary river in the watershed is the Animas. The Animas River rises high in the San Juan Mountains of Colorado at the confluence of the West and North forks at the ghost town of Animas Forks and flows south past the ghost towns of Eureka and Howardsville. At Silverton, the river flows into the Animas Canyon. The Durango and Silverton Narrow gauge railroad follows the river through the canyon to Durango. From Durango the river flows south into New Mexico through the town of Aztec to its confluence with the San Juan River at Farmington. The only major tributary of the Animas River is the Florida River which confluences just north of the Colorado–New Mexico border.

Figure 1: Watershed and Communities



The Animas watershed is comprised of Federal, State, and Private lands. Of the approximate 1,371 square miles that comprise the watershed, 226 of which are in New Mexico.

- 116 square miles (51%) is federal land that is unlikely to be developed
- 18 square miles (8%) is state land
- 92 square miles (41%) is private land which is distributed throughout the watershed

Population

The population in this watershed totals 38,156 people in New Mexico, based on the 2010 census. Farmington and Aztec are the watershed's highest population centers (Farmington is not entirely within the watershed). There are in total 2 populated areas inside this watershed (those with a CID Number). Figure 2 shows the population densities within the Animas Watershed based on U.S. Census Data 2010.

Risk Decile

The level of flood risk can be calculated by two methods. Risk deciles are calculated from nine parameters, including total population density, historical population growth, predicted population growth, housing units, flood policies, single claims, repetitive losses (RLs), RL properties and declared disasters.

- The City of Farmington is the largest population center in the watershed with approximately 45,426 people. Farmington is located in the SouthWestern tip of the Watershed at the confluence of the Animas and San Juan rivers. Farmington covers approximately 32 square miles.
- The City of Aztec is the second largest population center in the watershed with approximately 6,578 people. Aztec is located on the Central Southern edge of the Animas watershed. The City of Aztec covers approximately 12.6 square miles.

Figure 3 identifies the relative percent urban cover for areas within the watershed.

Population Growth

According to the US Census Bureau's American FactFinder Website (http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml) comparing 2010 Census values to 2015 Population estimates

- Farmington's population has decreased from 45,877 to 42,871 people for a decrease of 7%
- Aztec's population has decreased from 6,763 to 6,147 people for a decrease of 9%
- San Juan County's population has decreased from 130,444 to 118,737 for a decrease of 9%
- The total population for the three CID communities decreased from 183,084 to 167,755 for a decrease of 8%

Using the US Forest Service LandFire data set (http://www.landfire.gov/), the change in urban area from 2001 to 2012 was calculated. In 2001, there were 15.91 square miles of urban land cover in the Animas Watershed comprising approximately 7% of the entire watershed. In 2012, there were approximately 22.08 square miles of urban land cover comprising approximately 9% of the entire watershed.

Figure 2: Population Density in the Watershed

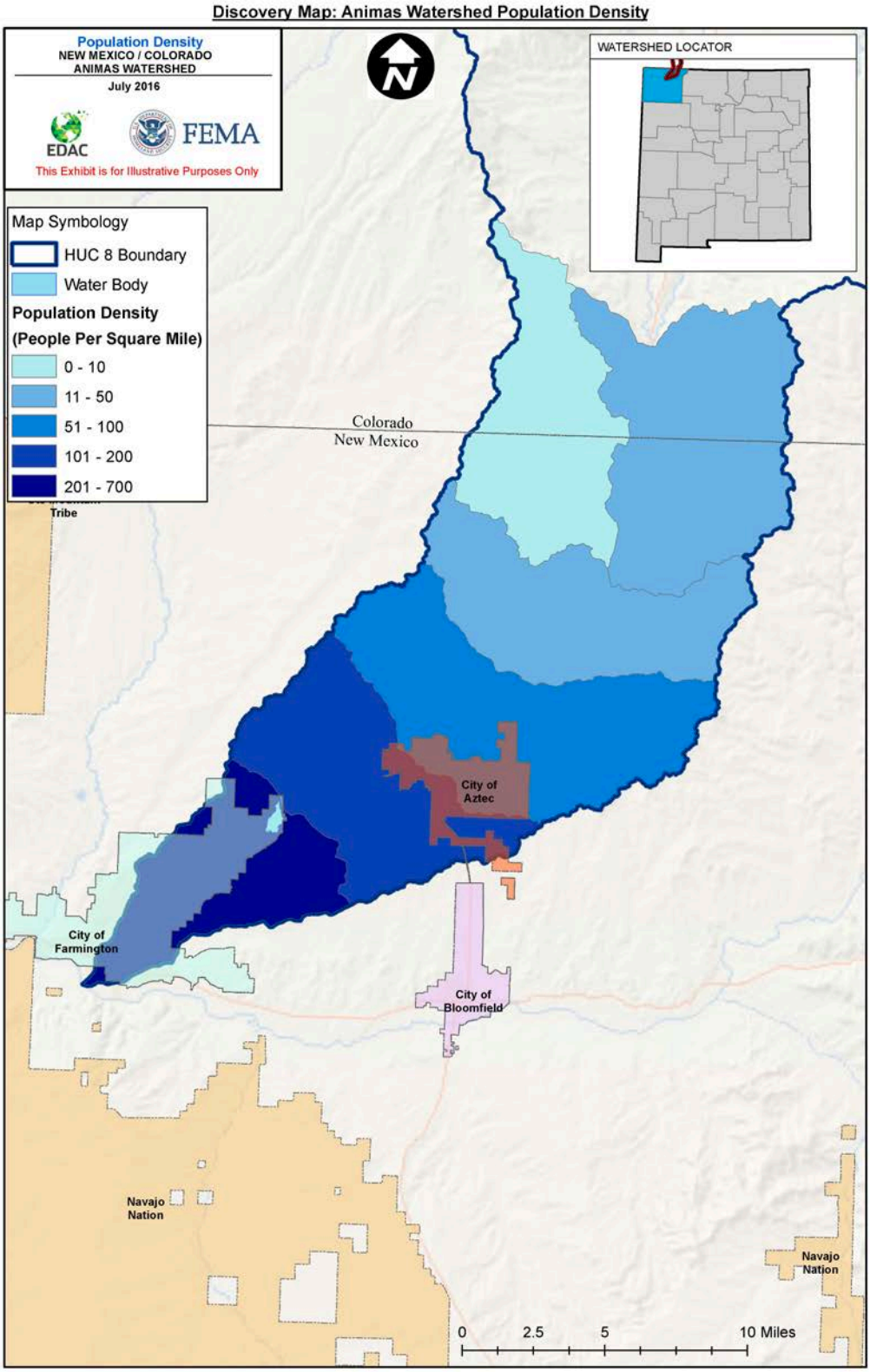


Figure 3: Current Percent Urban Coverage

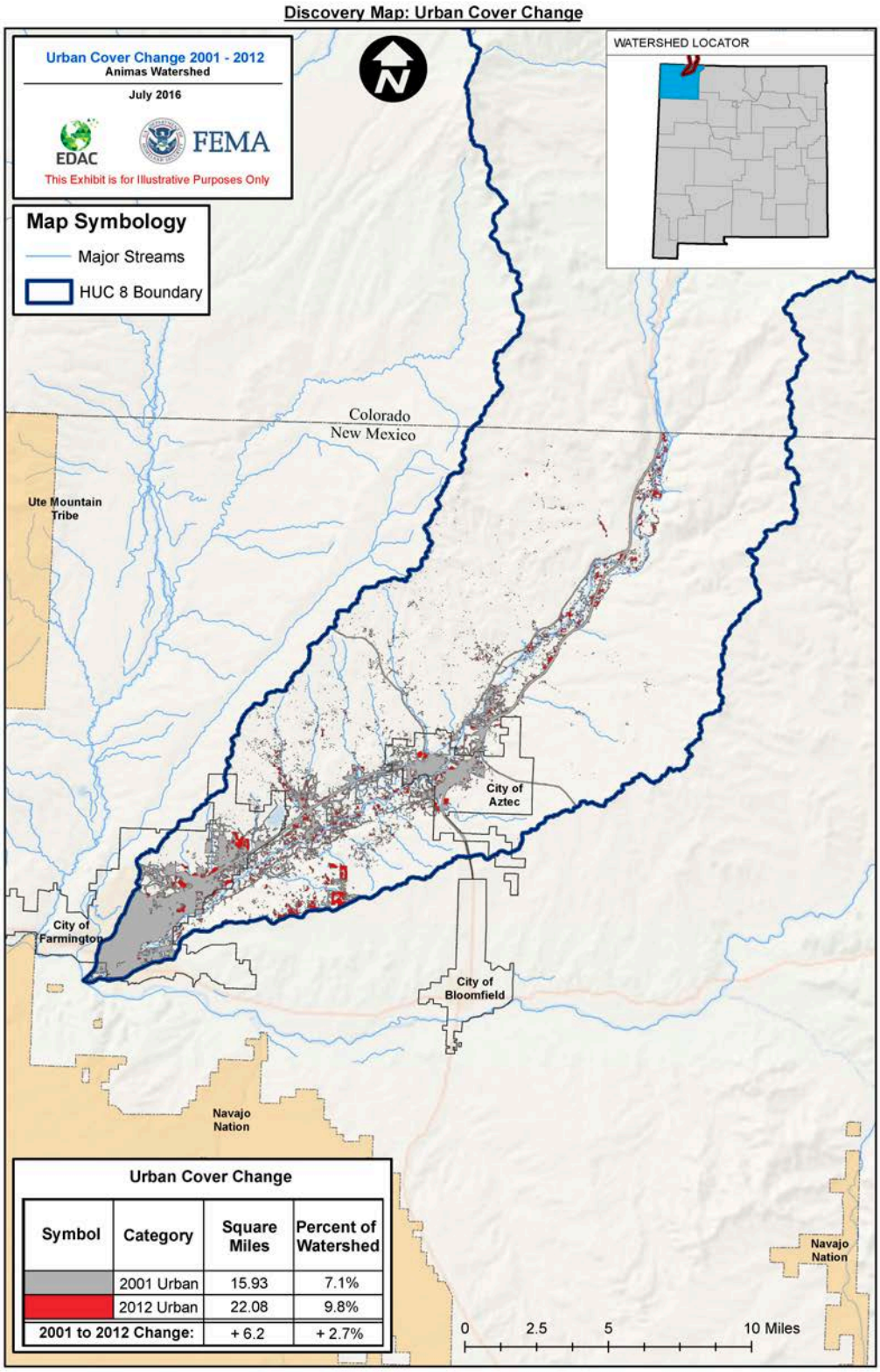


Table 2 lists the number of NFIP insurance claims for the portions of the communities within the Watershed. Figure 5 depicts the distribution of NFIP insurance claims within the Animas Watershed.

Table 2: Total NFIP Insurance Claims

Total NFIP Insurance Claims by Community	
Community	**Claims**
San Juan County	11
City of Farmington	6
City of Aztec	3

There are no Repetitive Loss (RL) or Severe Repetitive Loss (SRL) properties within the Animas Watershed. Table 3 summarizes RL and SRL claims by county and community within the Watershed.

Table 3: Repetitive or Severe Repetitive Loss within the Watershed

Repetitive Losses/Severe Repetitive Losses By Community			
Community	**Number of Properties**	**Total Claims**	**Average Claim Per Property**
San Juan County	0	0	0
City of Aztec	0	0	0
City of Farmington	0	0	0

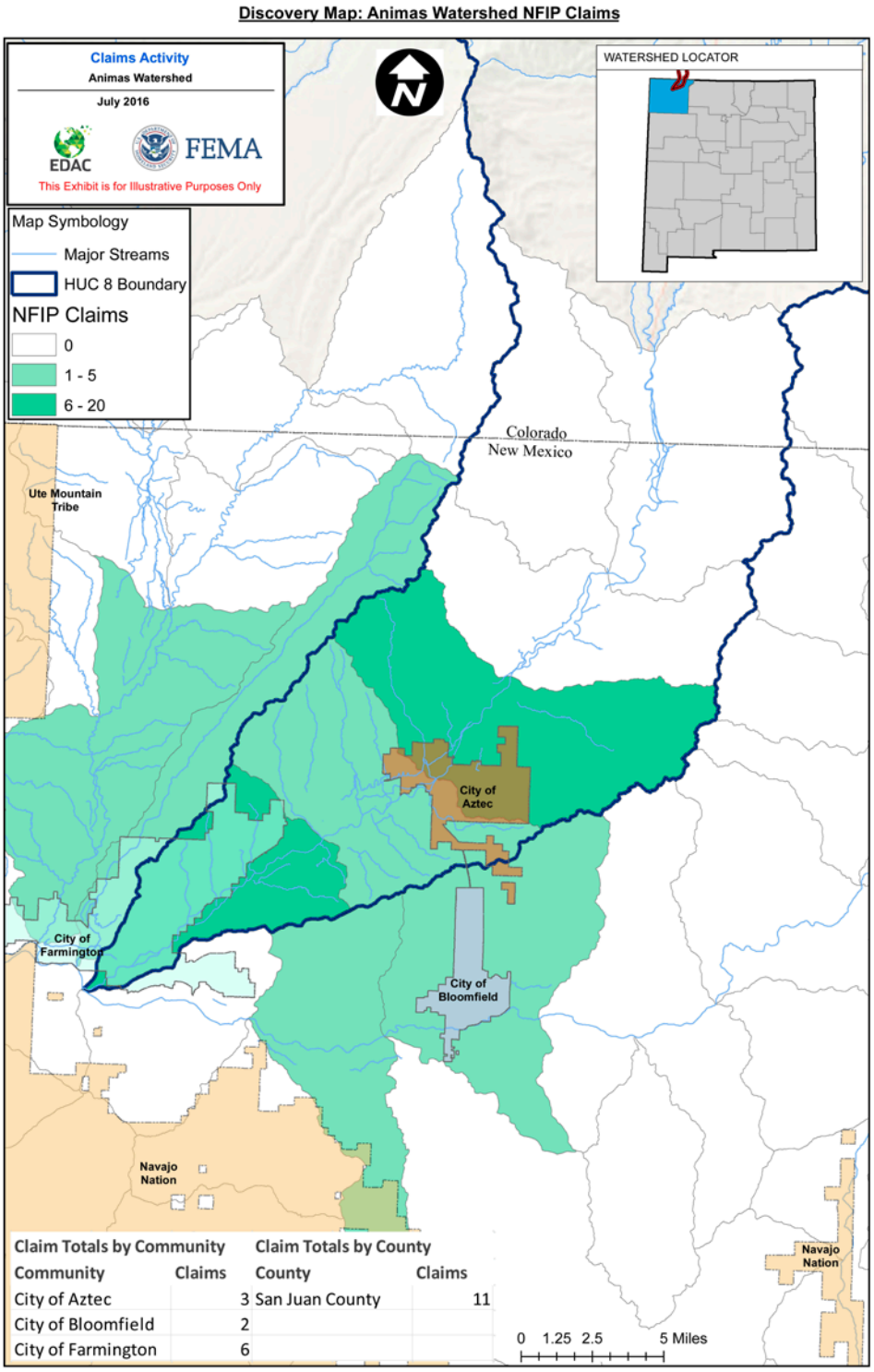
The Animas Watershed has had a history of flooding as demonstrated by numerous disaster declarations with 8 issued in the past 39 years.

Table 4 lists recent disaster declarations for multiple hazards within the watershed.

Table 4: Disaster Declarations in the Watershed

Date of Declaration	Watershed Counties Declared	For Hazard
10/29/2013	San Juan County	Disaster – Flood
6/18/2012	San Juan County	Fire Management
9/13/2010	San Juan County	Disaster – Flood
9/7/2005	San Juan County	Emergency – Hurricane
5/13/2000	San Juan County	Disaster – Fire
5/10/2000	San Juan County	Emergency - Fire
9/22/1999	San Juan County	Disaster – Severe Storms
3/2/1977	San Juan County	Emergency - Drought

Figure 4: Single Claims in the Watershed



A number of factors were used to select the Animas Watershed for Discovery. FEMA provides a risk decile that is calculated at the watershed level. The scale of risk decile ranking is 1 to 10, with 1 being the highest and 10 being the lowest ranking for a portion of the watershed.

Table 5: Watershed Risk Factor Rankings

Animas Watershed Selection Rankings
National Risk Decile: 5

Topographic Data

QL2 LiDAR data is available for 100% of the watershed.

Figure 6 provides a snapshot of Current LiDAR Availability for the Animas Watershed.

Figure 7 provides a snapshot of CNMS factors for each stream segment, the HUC 12 risk decile, and the availability of topographic data.

The Coordinated Needs Management Strategy (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 with an approximately one-mile drainage area and that currently have effective Special Flood Hazard Areas (SFHA) 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 stream within a watershed, CNMS documents certain physiological, climatological, or engineering methodological factors 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 the only 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 which are categorized as 'unverified', typically indicate that there are some factor of change since the SFHA became effective or may have a deficiency warranting restudy. CNMS stream mileage categorized as 'Requires Assessment' require further input to determine their validity – often because they represent paper inventory or non-modernized studies. 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 6 compares the NHD data to the CNMS data and summarizes the Validated NVUE stream mileage from CNMS for the watershed.

Table 6: NVUE Approximate Stream Mileage in the Watershed

NVUE Validation	Stream Miles
NHD Streams (streams with a drainage area of greater than one square mile)	729.31
CNMS Streams (streams with effective SFHA)	230
Stream Miles not accounted for in CNMS	660
CNMS Valid Zone AE / AH	14.64
CNMS Valid Zone A	17.99
CNMS Unverified Zone AE / AH	14.79
CNMS Unverified Zone A	0
CNMS Zone AE / AH Requiring Further Assessment or in the process of being studied	0
CNMS Zone A Requiring Further Assessment	69.12

Figure 5: Current LiDAR Availability for the Animas Watershed

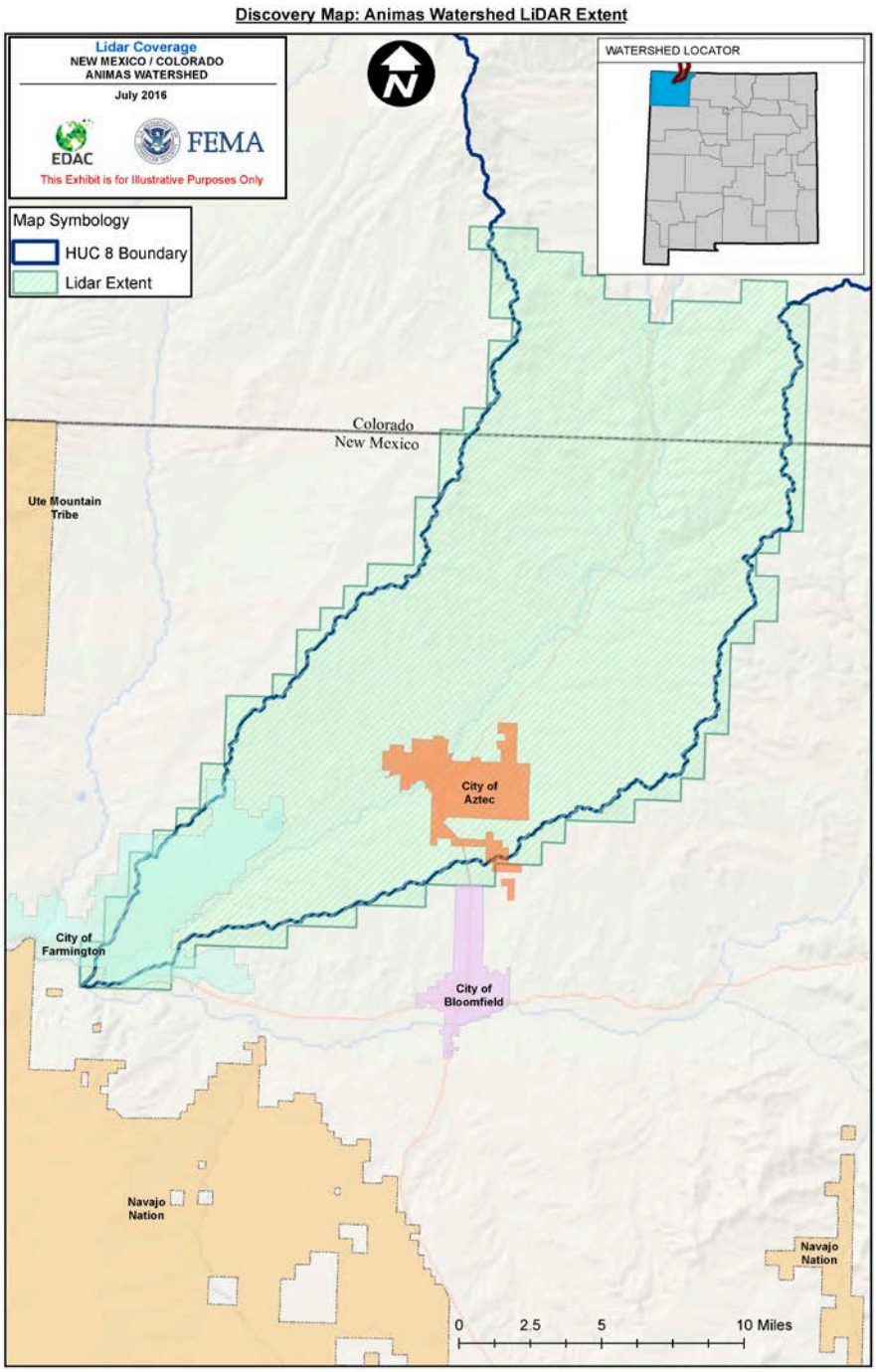
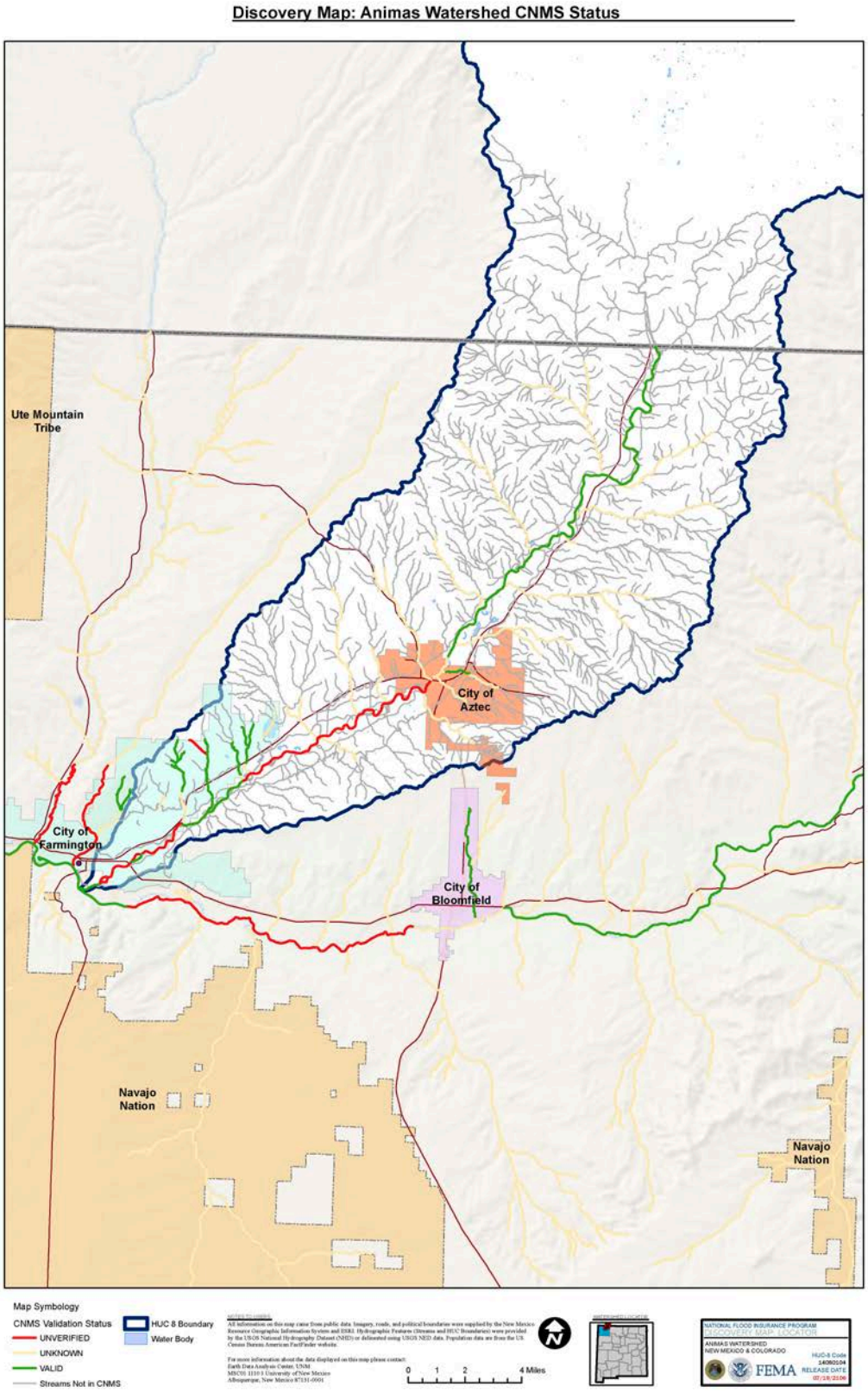


Figure 6: CNMS Streams



II. Discovery Efforts

i. Engagement Plan

Pre-Discovery Community Engagement

Table 7 provides the members of the Regional Project Team was made up of the following staff.

Table 7: Regional Project Team

Organization	Name/E-Mail
FEMA R6 – Risk Analysis (Engineering & Mapping)	Jerry Clark
FEMA R6 – Risk Analysis (Mitigation Planning)	Lisa Jennings
FEMA R6 – Flooplain Management & Insurance	Mayra Diaz
FEMA R6 – Hazard Mitigtation Assistance	
State of NM– NFIP Coordinator	Bill Borthwick
State of NM – State Hazard Mitigation Officer	Wendy Blackwell
State of NM – *{As Needed}*	
Production and Technical Services Contractor – RAMPP	
Production and Technical Services Contractor – RAMPP	
Contractor - EDAC	Shirley Baros
Contractor – EDAC	Brian Keller
Contractor – EDAC	Shawn Penman

FEMA and the Regional Project Team were in contact with all Watershed stakeholders via letters, email, and phone calls before this Discovery meeting to request local participation. In addition to assisting scheduling the meeting, 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 Animas *W*atershed. A detailed list of Communities, local officials, federal, state and regional agencies that were invited to participate in the Discovery Process is included with the supplemental digital data accompanying this report.

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

- Gathered information about local flood risk and flood hazards
- Reviewed mitigation plans to understand local mitigation capabilities, hazard risk assessments, current or future mitigation activities, and areas of mitigation interest

- Encouraged communities within the watershed to develop a vision for the watershed's future
- Used all information gathered to determine which areas of the watershed may require further study through a Risk MAP project

The Regional Project Team began outreach efforts to the local governments within the Watershed, Congressional and public officials, to inform them of the Discovery process and to invite them to participate and contribute information about the Watershed about water resource concerns. The following are key steps that were taken before the Discovery workshops:

- Initial Coordination meeting with FEMA, the State of New Mexico (NFIP and SHMO) and contract personnel to set the stage for co-participation and sharing of the meeting. Establish potential meeting times and locations
- Information and invitation letters mailed to the CEO, email invitation to other key personnel communities and other local stakeholders
- Initial calls by Bill Borthwick, NFIP Coordinator and Brian Keller to request information that may be pertinent to the watershed.
- CTP-EDAC follow up with email with meeting information
- Follow up email by CTP-EDAC to remind particpants of meeting time/location/purpose.
- FEMA coordinates internally for meeting attendees to support the project
- Congressional briefing before the meeting
- Pre-Discovery Webinar before the meeting

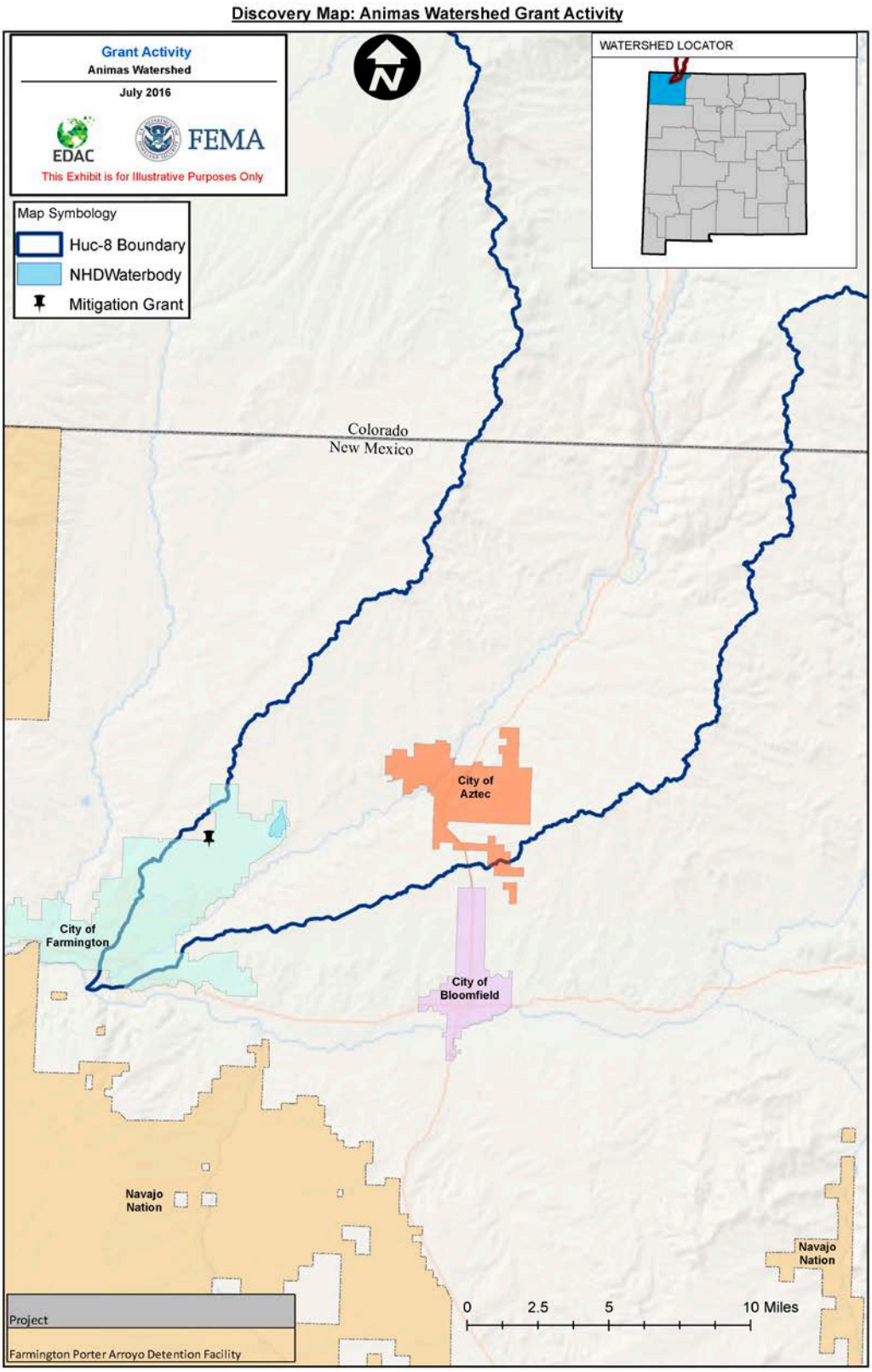
Table 8 provides the mitigation plan status of the watershed communities.

Table 8: Mitigation Plan Status

Community Name	Community Mitigation Action:	Hazard Mitigation Plan Name:	Plan Status:	Plan Approved	Plan Expires
City of Farmington		San Juan HMP	Approved	11/26/2013	11/26/2018
City of Aztec		San Juan HMP	Approved	11/26/2013	11/26/2018
San Juan County		San Juan HMP	Approved	11/26/2013	11/26/2018

Figure 8 displays the locations and types of mitigation grant activity in the Animas Watershed which have been approved by FEMA. This map only shows approved grant activity. There may be additional grants being pursued at both the state and local level within the watershed.

Figure 7: Grants Activity



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Pre-Discovery Congressional and Media Engagement

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. Working with FEMA External Affairs to inform both legislators and the media will improve credibility and opens the door to understanding risk in a more holistic, comprehensive manner. An initial contact briefing of the legislators will occur approximately 2 weeks prior to the Discovery meeting. After expressing interest, Senator Udall's office was briefed personally by NFIP Coordinator Bill Borthwick.

Table 8 provides congressional information.

Table 9: Congressional Information

U.S. Senator		Term Expiration	FEMA History of Engagement
Senator Tom Udall		2019	
Senator Martin Heinrich		2019	
U.S. Representative	**District Number**	**Term Expiration**	**FEMA History of Engagement**
Repr. BenRay Lujan	3	2017	

Relevant Committee Membership

- Senator Tom Udall
  - Senate Committee on Appropriations
- Senator Martin Heinrich
  - None
- Representative BenRay Lujan
  - None

Contact information for the community and additional stakeholders can be found with the supplemental digital data.

Tribal Engagement

The State of New Mexico and Earth Data Analysis Center coordinated with FEMA Region VI Tribal Liason Officer when communicating with representatives from the Navajo Nation.

ii. Pre-Discovery Data Collection

Table 10 provides information regarding collected data for the watershed.

Table 10: Data Collection for the Watershed

Data Types	Deliverable/Product	Source
Contacts	Table	Local Web Sites, State/FEMA Updates
Community Assistance Visits	Discovery Report	Community Information System (CIS)
Community Rating System (CRS)	Discovery Report	FEMA's "Community Rating System Communities and Their Classes"
San Juan County Low Water Crossings	Discovery Map Geodatabase	San Juan County
Boundaries: State	Discovery Map Geodatabase	US Census/RGIS
Boundaries: County	Discovery Map Geodatabase	US Census/RGIS
Boundaries: Community	Discovery Map Geodatabase	FEMA NFHL
Boundaries: Tribal	Discovery Map Geodatabase	US Census
Boundaries: Forest Service Ranger District	Discovery Map Geodatabase	USFS
Boundaries: NM Senate Districts	Discovery Map Geodatabase	NM Secretary of State
Boundaries: NM House Districts	Discovery Map Geodatabase	NM Secretary of State
Boundaries: US House Districts	Discovery Map Geodatabase	US Census
CNMS Status	Discovery Map Geodatabase	FEMA CNMS
Critical Infrastructure: Hospitals	Discovery Map Geodatabase	CASA/NM Broadband
Critical Infrastructure: Law Enforcement	Discovery Map Geodatabase	CASA/NM Broadband
Critical Infrastructure: Public Schools K-12	Discovery Map Geodatabase	CASA/NM Broadband
Critical Infrastructure: Fire Departments	Discovery Map Geodatabase	CASA/NM Broadband
Critical Infrastructure: Emergency Operations Centers	Discovery Map Geodatabase	CASA/NM Broadband
Demographics: Population by political boundary	Discovery Map Geodatabase	US Census American FactFinder
Demographics: Population by HUC-12 boundary	Discovery Map Geodatabase	FEMA Region VI
Elevation: Hillshade	Discovery Map Geodatabase	RGIS
Elevation: LiDAR Footprints	Discovery Map Geodatabase	NM 3DEP Subcommittee
Critical Habitat	Discovery Map Geodatabase	USFWS

Data Types	Deliverable/Product	Source
Hydrology: HUC-8 Boundaries	Discovery Map Geodatabase	USGS NHD
Hydrology: HUC-10 Boundaries	Discovery Map Geodatabase	USGS NHD
Hydrology: HUC-12 Boundaries	Discovery Map Geodatabase	USGS NHD
Hydrology: Streams	Discovery Map Geodatabase	USGS NHD
Hydrology: Stream Gages	Discovery Map Geodatabase	USGS
Hydrology: Lakes	Discovery Map Geodatabase	USGS NHD
Hydrology: Dams	Discovery Map Geodatabase	NM Dam Safety Office
Land Cover	Discovery Map Geodatabase	Landfire
Land Ownership	Discovery Map Geodatabase	BLM/RGIS
NFIP: NFIP Status	Discovery Map Geodatabase	FEMA
NFIP: CRS Status	Discovery Map Geodatabase	FEMA
NFIP: Claims	Discovery Map Geodatabase	FEMA Region VI
NFIP: Letters of Map Amendment	Discovery Map Geodatabase	FEMA Region VI
NFIP: Letters of Map Revision	Discovery Map Geodatabase	FEMA Region VI
NFIP: Policies	Discovery Map Geodatabase	FEMA Region VI
NFIP: Grants	Discovery Map Geodatabase	FEMA Region VI
NFIP: RL/SRL Properties	Discovery Map Geodatabase	FEMA Region VI
Transportation: Roads	Discovery Map Geodatabase	US Census
Transportation: Airports	Discovery Map Geodatabase	USGS GNIS
County Seats	Discovery Map Geodatabase	RGIS

iii. Discovery Meeting

One Discovery meetings will be held in Aztec on July 28th, 2016. Workshop times and locations are shown in Table 11. Each Workshop site will be prepared with a series of stations, envisioned to be an interactive setting for the Regional Project Team and Discovery Workshop attendees to listen, discuss and document any issues for the Watershed.

Table 11 provides meeting times and location.

Table 11: Project Discovery Workshop Times and Locations

Workshop	Date and Time	Location
1	Thursday, July 28th, 2016 1pm-5pm	San Juan County Emergency Operations 209 S. Oliver St, Aztec, NM

Attendees will rotate around the following five Discovery stations:

- Community Benefits and Grant Opportunities *(Grants station)* – Maps of current floodplain-related grants; risk, needs and topographic availability; RL/SRL properties; letters of map change (LOMCs); urban changes over the last 5 years; and single claims. The station also had handouts on various FEMA grant programs.
- Mitigation Planning and Mitigation Activities *(Planning station)* – Handouts on mitigation plans, understanding Risk MAP and determining risk.
- NFIP Community Actions *(Compliance and Mitigation station)* – Effective FIRMs, FIS and LOMCs; maps of RL/SRL properties; single claims; and urban changes over the last 5 years.
- Risk Identification and Communication *(Mapping station)* – 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.
- Coordination with Colorado CTP Discovery Team.

At each station, attendees will be asked to actively contribute information about concerns in the Watershed by identifying a relevant location on the large watershed map and then providing a short explanation on the comment form. The activity at the stations is intended to be interactive where attendees and staff at the stations work together to listen, discuss, and document any topical items for the watershed. Members of the Regional Project Team (FEMA, NMDHSEM, and EDAC) will be at the stations to answer questions and engage the attendees. During each workshop, Regional Project Team members requested that attendees provide any additional information within 2 weeks of the workshop.

Each station will be equipped with a series of large-format watershed maps with an aerial photo of the Watershed displayed, along with community boundaries and road names to assist in identifying areas of concern. Additionally, the stations will have several 11-inch by 17-inch laminated maps of the watershed with information related to that station's content.

Information sheets were collected at each station for locations that were identified and labeled on the Discovery watershed maps. These information sheets are included in the external files included with this report.

Information below is incomplete and will be compiled after the Discovery Meeting .

iv. Discovery Implementation

All Discovery Workshops were attended by local stakeholders. A full list of attendees is provided in the sign-in sheets included with the supplemental digital data accompanying this report. Some attendees included:

- Local community elected officials and councilpersons
- Local floodplain managers, emergency management staff, community planners, public works staff
- Add other notable attendees

{***If applicable***} It should be noted that no community officials attended the Discovery Workshops from the Mescalero Apache Tribe or Otero County.

The Workshops afforded personal, interactive communication with attendees at each station. The Project Team interviewed attendees and discussed areas of positive mitigation and areas of continuing concern for the Watershed as a whole. As attendees visited each station, they not only discussed their own local concerns but also listened to the concerns of others in the Watershed.

Attendees were polled by the FEMA Project Monitor as they exited the Workshop. Verbal feedback from the attendees indicated they felt the Workshop was an opportunity to express their issues and concerns for the Watershed. Many attendees were appreciative of the chance to speak with the various Regional Project Team members from FEMA and the State of New Mexico. The community perception conveyed to FEMA was that attendees felt more engaged in the process to determine where needs and projects may be identified.

v. Data Gathering Overview

Outline and discuss the following items here:

- *Tabularize the data that has been gathered and from whom in this section*
- *Scan and include all Data Gathering Forms (Appendix D)*
- *Include overview maps with discussion points indicated that correspond to the Data Gathering Forms (Appendix D)*
    - *Include all digital data (DVD in hard copy for Region) used in preparation of the Exhibits, to include the MXD files for future use.*
- *What additional data is outstanding from communities?*
- *Who is the POC for that data?*
- *Were any non-participating communities interested in joining NFIP?*
- *Participant Feedback Form (if used/applicable)*

- *What questions were raised that require additional follow up*

Information about the Name of Watershed Watershed was gathered both prior to the Discovery Workshops and interactively during the Workshops. {*If Applicable*} For this watershed, Name of County County submitted data prior to the discovery Workshop. Much of data collected in pre-discovery was obtained from FEMA or other national datasets. Additional data was collected from {*if applicable*, list sources} , DETCOG, SETPRC, SRA and local communities via their public web sites. Table 13summarizes the data collected prior to the Discovery Workshop and the primary sources of the data.

During the pre-discovery process phone calls were made to local FPAs, Emergency Managers, and Mitigation planners to collect current and proposed mitigation actions. This data was collected in spreadsheets and will be used by FEMA to track mitigation actions within the region. The final spreadsheets are included in the supplemental digital data.

Table 8: Data Collection Summary – Pre-Discovery Workshop

Data Location	Data Custodian	Data Set Description
Watershed-wide	FEMA	Effective FIRM and FIS and backup information available from FEMA's Map Service Center and FEMA Library
Watershed-wide	FEMA	LOMC locations from FEMA's Map Service Center and FEMA Library
Watershed-wide	FEMA, ***{if applicable}*** Name of County County	Locations of RL/SRL properties and Claims
Watershed-wide	FEMA, ***{if applicable}*** Name of County County	Location of Grants being funded
Watershed-wide	FEMA	Participation in the NFIP, Community Rating System (CRS) ratings
Watershed-wide	FEMA	Disaster Declarations
Watershed-wide	FEMA	CNMS information
Watershed-wide	FEMA	AAL data
Watershed-wide	FEMA, TWDB/	High water marks (HWMs) and associated reports
Watershed-wide	FEMA	Approved HMPs
Watershed-wide	FEMA, , LSU	Location of available or planned areas of updated LiDAR or other topographic data
Watershed-wide	FEMA, U.S. Census, , LADOTD, DETCOG	Transportation features
Watershed-wide	FEMA, U.S. Census, , USGS	Populated places and population characteristics
Watershed-wide	USGS	Watershed HUC (8 & 12) boundaries, NHD streams, stream gage information, land use and land cover
Watershed-wide	USDA	NAIP Imagery
Watershed-wide	Local FPAs, Mitigation Planners and Emergency Managers, FEMA	Mitigation Actions identified by local stakeholders and collected by phone call
{Add other sources as needed}		

At the Discovery Workshop stations, attendees completed data information sheets and placed stickers on the hard copy maps to identify the approximate locations of their concern within the Watershed. This information was later captured in GIS format (ESRI Personal Geodatabase, point features named "*Other_Community_Concerns")* and the data from the forms was matched with each point location on the watershed maps. Data from all of the stations were compiled into a single data set. The watershed collection maps with the sticker locations as well as the individual comment forms are included in the supplemental digital data accompanying this report.

Table 14Table 14 summarizes the comments that were made at each of the stations. If the same comment was made at different stations by the same attendee, it is only listed once. If multiple attendees made the same comment, the "Information Provided By" column lists more than one attendee. Item numbers tie directly back to the GIS data and the data collection sheets. In addition data collected in pre-Discovery from Newton County and from calls with local community officials have also been placed in GIS format and are shown on the watershed collection. Discovery data collection continued after the Discovery Workshop as additional datasets were provided. This data set are also included in Table 14. Some comments collected at the Discovery Workshop reflect on areas outside of the Animas Watershed. This information was collected for future use in future Discovery efforts and is noted below.

Table 9: Data Collection Summary - During and After Discovery Workshop

Item	Flooding Source	Information Provided By	Discovery Workshop Comment Summary

All supporting information, data and files for this report are included in the supplemental digital data submitted with this report. The directory structure is as shown the in the following list of the files, folders and associated data.

HUC-number\Discovery

- Transmittal letter
- RAMPP Quality Validation Form

\Project_Discovery_Initiation

- Community Contact List
- Project Team Information
- **\GIS**
  - Political Areas SHP file
  - Transportation SHP file
  - HUC boundary SHP file

\Discovery_Meeting

- Meeting agenda / summary
- Meeting attendance record
- Discovery Meeting Information Collection Sheets
- Discovery Meeting Data Collection Maps
- **\Correspondence**
  - Invitation letters, notification letters, thank-you letters, etc.

\Post_Discovery

- Discovery Map(s) (final)
  - Discovery Map (Flood Risk) – Watershed information with AAL
  - Discovery Map (Flood Hazard) – Watershed information with effective SFHAs
- Discovery Report (final)
- National Metrics
- Geospatial Data Summary

\Supplemental_Data

- Engagement Plan
- Metadata file
- **\Discovery Meeting Exhibits**
- **\GIS** – The following folders contain GIS files to create Exhibits or Discovery Maps (shapefiles, personal geodatabases and ESRI ArcGIS 9.3.1 MXDs)
  - Shapefiles
  - MXDs
- **\Mitigation Action Tracker**
- **\Other Data -** collected during Discovery (community supplied exhibits, reports, etc.).
  - **\Data from GOSHEP**
  - **\Data from LACPRA**
  - **\Data from Newton County**
  - **\Data from NRCS**
  - **\Data from SRA-LA**
  - **\Data from TWDB**
  - **\Data from USACE**
- **\Outreach Newsletters**

III. Watershed Findings

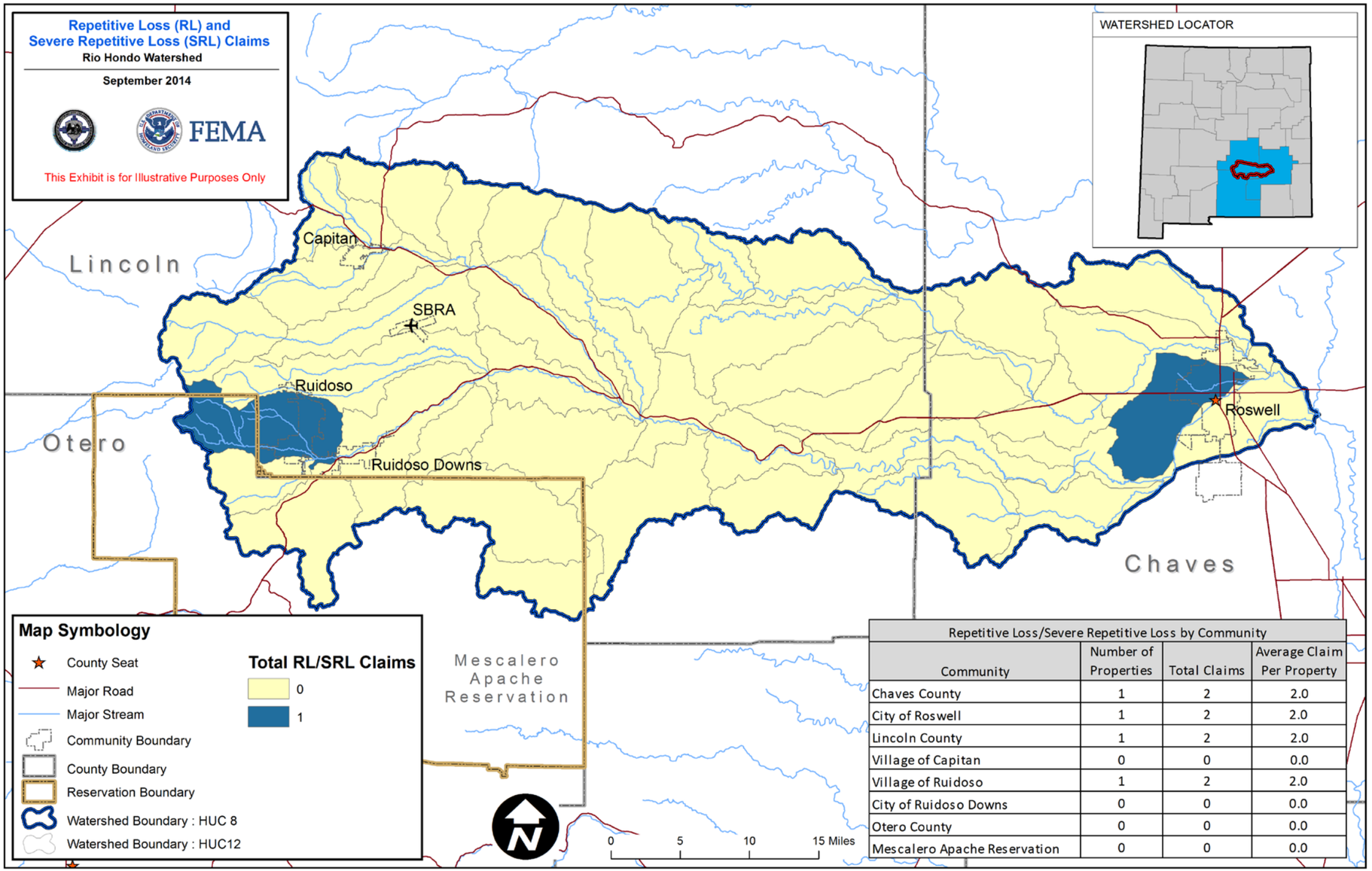
(If applicable)This watershed contains structures that are managed by the U.S. Army Corps of Engineers (USACE), *LIST DISTRICT*. In addition to the locks, dams, and levees along the *NAME of RIVER(S) WHERE THEY ARE LOCATED*, the watershed contains a major metropolitan water supply managed by *NAME of ORGANIZATION(If applicable).*

In addition to NFIP claims, there are several locations of Repetitive Loss or Severe Repetitive Loss with the NAME of WATERSHED Watershed. A concentration of these locations appears in the NAME of LOCATION within HUC 12 areas that make up the HUC 8 watershed. Figure 9 shows the approximate location of these losses.

Letters of Map Amendment and Revisions are also distributed throughout the watershed, but appear to be concentrated in the Cities of *NAME of CITIES* around the *NAME of STREAMS*, please refer to Figure 10 for the location of these Letter of Map Change (LOMC).

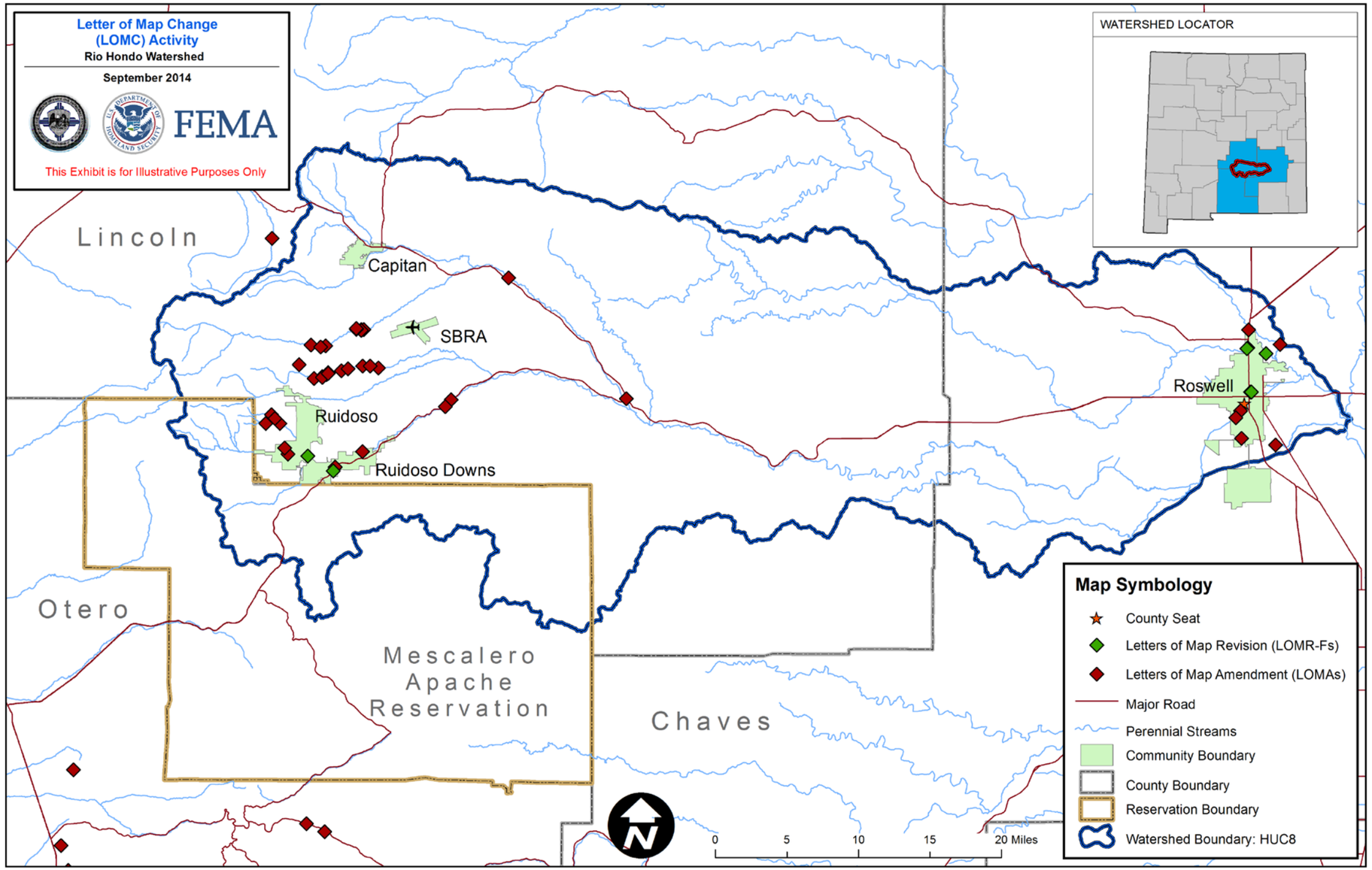
Describe and summarize any PMRs within the watershed.

Figure 8: Repetitive and Severe Repetitive Losses



Repetitive Loss/Severe Repetitive Loss by Community			
Community	Number of Properties	Total Claims	Average Claim Per Property
Chaves County	1	2	2.0
City of Roswell	1	2	2.0
Lincoln County	1	2	2.0
Village of Capitan	0	0	0.0
Village of Ruidoso	1	2	2.0
City of Ruidoso Downs	0	0	0.0
Otero County	0	0	0.0
Mescalero Apache Reservation	0	0	0.0

Figure 9: Letter of Map Changes (LOMCs)



i. Engineering Review of Community Comments

THE INFORMATION IS THIS SECTION IS A GUIDE AND MAY NOT BE INCLUSIVE OF THE DETAILS IN THE WATERSHED. PLEASE BE SURE TO DESCRIBE AND ADD ALL APPLICABLE WATERSHED SPECIFIC INFORMATION.

Any engineering related comments provided by the communities during the Discovery were initially validated. Comments were revieed both in terms of hydrologic or hydraulic issues within the watershed and with any general floodplain or BFE related comments. Any supporting appeal or protest information, correspondence from communities, or anecdotal information was researched and expanded on as a concern if impacts to hydrologic analysis were substantiated.

ii. Pre-Discovery Hydrology

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Two limited reviews of hydrologic information were performed for Discovery analysis within the *NAME of WATERSHED* watershed. The reviews were kept at a high level of informational research and were performed by senior engineering staff that relied on engineering judgment, some limited analysis, and regional experience. These reviews were focused on:

- Review of Peak Discharges in the watershed
- Limited Gage analysis for the watershed

For the watershed as a whole, the **one-percent** annual chance peak discharges were reviewed for all streams within a community and across community boundaries looking for discharge anomalies, places where LOMRs demonstrate that the effective discharges may be suspect on a more global basis. Any notes were added if these changes can be eliminated as a concern due to hydrologic factors including local flood control structures, detention, flow break outs, sinks or other natural or manmade factors that may significantly alter hydrology flows. Finally, a watershed wide high-level gage analysis was reviewed comparing the information on any available gages within the watershed that had appropriate historical information to the effective FIS, discharges for streams with gages. This analysis could potentially flag any anomalies that would indicate that the hydrology may be out of date, too high, or too low for sub-basin areas within the watershed.

Review of Peak Discharges

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Peak discharges were reviewed based on available FIS reports, hydraulics models, flow gages and available LOMRs within the watershed at the crossing of SHFA areas at corporate limits (county, city and town). A comparison of discharges was made for the same streams across county boundaries as shown in Table 15, Discharge Comparison at Community Limits. ***(Double-check that RAMPP has not performed a recent H&H study in the watershed).*** No hydrology data is available for the streams with a Zone A designation, so these were not reviewed.

Table 10: Discharge Comparison at Community Limits

Stream Name	County/Parish	Effective one-percent annual chance discharge (cfs)	Effective Discharges Source	Notes

Frequency Analysis

THE INFORMATION IS THIS SECTION IS A GUIDE AND MAY NOT BE INCLUSIVE OF THE DETAILS IN THE WATERSHED. PLEASE BE SURE TO DESCRIBE AND ADD ALL APPLICABLE WATERSHED SPECIFIC INFORMATION.

VERIFY THIS INFORMATION PERTAINS THE WATERSHED. IF NOT REVISE ACCORDINGLY.

Frequency analyses were performed for all the gages within the *NAME of WATERSHED*. Frequency analyses were performed using Peak Q computer software. The comparison between discharges from FIS and from gage analysis was made and listed in Table 16. The discharges from gage analysis are significantly different than the effective FIS discharges. Number of peaks in record at gages ranges from *X to X.*

Table 11: Summary of Hydrologic Analysis

Stream Name	Drainage Area from USGS Gage (square mile)	Effective discharges Source	Effective one-percent annual chance discharge (cfs)	95 confidence limits lower (cfs) (Gage)	one-percent annual chance discharge from PeakQ (Gage)	95% confidence limits upper (cfs) (Gage)	Number of peaks in record

iii. Pre-Discovery Hydraulics and Floodplain Analysis

Describe what hydraulic data was collected, where the information was collected from and a summary of the very limited hydraulic analysis.

Table 17 shows the hydraulic analyses used for streams studied by enhanced methods.

Table 12: Summary of Hydraulic Analysis

Stream Name	County/Parish	Validation Status	Date of Effective Analysis	Hydraulic Model

iv. Pre-Discovery CNMS Analysis

Table 18 shows the detailed study streams in the *NAME of WATERSHED* 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 elements fail, or if four or more of the 10 secondary elements fail during stream reach level validation.

Table 13: CNMS Analysis

Stream Name	County/Parish	Validation Status	Failed CNMS Elements

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

Table 14: CNMS Category Descriptions

Element Name	Issue being identified by the Element	Element Description

Summary of CNMS Concerns

DESCRIBE THE SUMMARY OF CONCERNS

IV. Watershed Options

Include tables, maps, or any backup data to Appendix E and reference accordingly

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 Name of Watershed Watershed are recommended. 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.

Table 20 lists some potential needs in the Watershed and actions that could be taken under each of the four 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 – outreach and disaster activities as well as non-flooding hazards like safe room information

Table 15: Potential Watershed Activities

Risk Identification and Communication
• EXAMPLE: Caney Creek (5 miles) near the City of Newton is a non-model backed Zone A stream. The stream is of high mitigation interest to the City of Newton and the City believes it should be restudied. Providing BFEs through a limited detailed study would help the city better identify and mitigate risk. LiDAR is available in this area.
NFIP Community Actions
• EXAMPLE: Continue acquisition for RL and SRL properties within the SFHA
Mitigation Planning and Mitigation Actions
• EXAMPLE: Understand and use available Risk MAP Products (as defined previously) to identify risk and inform future mitigation actions
Community Benefits and Grant Opportunities
• EXAMPLE: Apply for grants to assist in the continued acquisition of RL and SRL properties within the SFHA throughout the Watershed

BFE = Base Flood Elevation
CAV = Community Assistance Visit
CFM = Certified Floodplain Manager
CLOMR = Conditional Letter of Map Revision
CNMS = Coordinated Needs Management Strategy
CRS = Community Rating System
DEM = Digital Elevation Model
FIRM = Flood Rate Insurance Map
FPA = Floodplain Administrator
G&S = FEMA's *Guidelines and Standards for Flood Hazard Mapping Partners*
H&H = hydrologic and hydraulic
Hazus = Hazards U.S.
HMP = Hazard Mitigation Plan
LiDAR = Light Detection and Ranging System
LOMR = Letter of Map Revision
LSU = Louisiana State University
NFIP = National Flood Insurance Program
NVUE = New, Validated, or Updated Engineering
PMRS = Physical Map Revision
Risk MAP = Risk Mapping, Assessment, and Planning
RL/SRL = Repetitive Loss/Severe Repetitive Loss
SFHA = Special Flood Hazard Area
SRA = Sabine River Authority
= Texas Natural Resources Information System
= Texas Department of Transportation
USGS = U.S. Geological Survey

Table 21 provides specific evaluation guidelines for streams or areas that could benefit from additional study. Any FEMA-based metrics that would be met if the need or issue was addressed are noted, 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 also noted. Some needs/actions are listed that were not raised by any specific community but were identified as general improvements that could be made in the Name of Watershed Watershed to meet general FEMA regional goals.

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.

Table 16 Metrics and Rankings of Needs

Item	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		Impacts From Any Current Map Actions	FEMA Metric or Community Benefit	Evaluation	Relates to Community Comment Number
	Location of Need/Project	Details				
		•	•	•		
		•	•	•		

i. Project Prioritization

Flood risk projects are intended to be initiated and cataloged at a HUC-8 unit. 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 must be cataloged in the Coordinated Needs Management Strategy Database (CNMS).

Once the entire HUC-8 has been evaluated, the Region will select the project tasks necessary to respond to the identified levels of risk and need. The Region is 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. All scope with the HUC-8 boundary must be tasked/ordered at one time.

This section should include a review of the watershed and the data collected throughout Discovery effort to identify, for FEMA Region 6, State, and Communities, project possibilities for the watershed to engage in the development of the next phase of the Risk MAP Process (Project Area Selection to Resilience Meeting). The identified watershed projects should be reviewed for NVUE, Risk Communication, and Mitigation Actions & Technical Assistance at minimum.

The following two minimum projects must be included in all Discovery Reports, no limit to total projects presented:

- *No project*
- *Procedure Memorandum (PM) 59 shall be followed for the evaluation and selection of flood risk projects. The fundamental difference between the countywide process and the watershed process is only that the watershed boundary replaces the county boundary for the evaluation of projects. As a rule, watershed projects will be initiated on the same Watershed Boundary for prioritization and sequencing. Review should include:*
    - *Hydrology – PM59 states that the entire watershed should be studied, what approach should be used through the watershed based on the findings of the Discovery efforts.*
    - *Connectivity Review: Mainline stream and major tributaries through larger communities? – Are there hydraulic disconnects along the stream?)*
    - *Consistent in Study Approach: Is the hydrology and hydraulic approach consistent throughout the study reach? Is it appropriate)*

Each project provided shall include overview and touch on the following items:

- *What are the metrics met with this option?*
- *Project Scale/Size*

- *What are the positives and negatives for this project selection?*
- *What is the type of study and Risk MAP products that will result from this project effort that would be appropriate given the study approach? The inclusion of the Risk MAP products is crucial to the project planning and sequencing of the watershed's next phase.*
- ***Prioritize these projects with High, Medium, Low** applicability scores based on the data analysis, the positive/negative, etc…*

***Additional viable projects** should be included as required by the data gathering and Discovery process. For example, review project against the metrics and provide a graphic and tabular representation of the resultant watershed (post project) – (Kick-Off to Resilience). The list below is not exhaustive, but provides insight into what the Region is requesting to see because of the efforts placed into Discovery. An overview to consider of the watershed for review is as follows:*

- ***NVUE** – How many miles NVUE (modernized and un-modernized) can be realized within the watershed, how many should be studied and by what method? What areas have outdated studies or no study and show a need for update? What Risk MAP products will accompany each of the stream study type.*
- ***Community Action Possibilities** – Which community's movement towards mitigation strategies and actions could be enhanced by projects within their area? What should these project approaches include? Please review of Operational Guidance No. 1-11for project possibilities.*
- ***Community Engagement** – Which communities could be engaged through Mitigation and Technical Assistance approaches or Outreach to further mitigation action within their community area?*
- ***Mixed Approach** – A mixed project approach to the watershed should be considered, include a suggestion of the best approach for the watershed.*

******Delete this Section - this section used to show what material are included in delivery through the MIP. Follow the information and outline of Appendix M as shown below:********

HUC8\Discovery\Project_Discovery_Initiation

- *Project Team*
- ***Engagement Plan (ReadMe)***
- ***Table M.2-1 Contact Information***
- ***GIS Information (ReadMe)***
    - *Political Area*
    - *Transportation*
    - *HUC*

HUC8\Discovery\Discovery_Meeting

- *All Letters, Emails, and Call Logs (Initial Contact, Invitation, Data Request Letters (mailed)); (blast email Discovery meeting/data request reminder, (includes Pre-Discovery newsletter)); Thank you letters to sponsoring communities (mailed); Post – Discovery newsletter (emailed); Closeout and/or kickoff letter (mailed)*
- *Photos taken during Discovery meetings*
- *Meeting Agenda (ReadMe)*
- *Meeting Summary (ReadMe)*
- *Sign In Sheet(s)*
- *Discovery Meeting Information Collection Sheets*
- *Discovery meeting Concerns Map(s)*
- *Project Charter (ReadMe)*

HUC8\Discovery\Post_Discovery

- ***(FINAL) Discovery Maps (Flood Risk, Flood Hazard)***
  (This should be a set of maps that include the options/findings)
  (Include all digital GIS and MXD files for the exhibits prepared for Discovery Meetings)
- ***(FINAL) Discovery Report***
- ***Geospatial Data Summary***
- ***National Metrics (ReadMe)***
- ***DCS_S_Discovery_Map (ReadMe)***
- ***DCS_S_Prp_FIRMPan (ReadMe)***
- *Watershed Options/Findings (In place of SOW)*

HUC8\Discovery\Supplemental_Data

- *Discovery Meeting Exhibits*
  (Include all digital GIS and MXD files for the exhibits prepared for Discovery Meetings)
- ***Discovery GIS Database (minimum of DCS compliant data)***
- *Discovery Meeting Data Collection (dot maps)*
  (Include all digital GIS and MXD files for these maps) and 11x17 maps
- *Mitigation Action Tracker* ***(watershed data entered to date)***
- *News Articles* ***(news articles released relevant to the Discovery process in the watershed)***
- *Other Data* ***(data provided prior to, during, or after Discovery meeting by stakeholder(s))***
- *Outreach Newsletters* ***(Pre/Post Outreach newsletters that were emailed to invitees)***
- *Metadata file*