

Discovery Report

Western Estancia Watershed, HUC 13050001

Bernalillo, Lincoln, San Miguel, Santa Fe, Socorro, and Torrance, New Mexico

September 18, 2024



FEMA

Project Area Community List

Community Name*	CID
<i>Western Estancia Watershed Communities</i>	
Bernalillo County, Unincorporated Areas	350001D
Lincoln County, Unincorporated Areas	350122
Edgewood, Town of	350018
Estancia, Town of	350082
Moriarty, City of	350083
San Miguel County, Unincorporated Areas	350132
Santa Fe County, Unincorporated Areas	350069
Socorro County, Unincorporated Areas	350075A
Torrance County, Unincorporated Areas	350133A
Willard, Village of	350109

*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
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
cfs	cubic feet per second
CID	Community Identification number
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-2	Hydrologic Engineering Center – Hydraulic Model Program
H&H	hydrologic and hydraulic
HMP	Hazard Mitigation Plan
HUC	Hydrologic Unit Code
LiDAR	Light Detection and Ranging System
LOMA	Letter of Map Amendment
LOMC	Letter of Map Change
LOMR	Letter of Map Revision
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
NM RGIS	New Mexico Resource Geographic Information System
NVUE	New Validated or Updated Engineering
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
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
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 the State of New Mexico, 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 the State of New Mexico, local and tribal entities with information needed to mitigate flood related risks.

The FEMA Region 6 office, in partnership with the Earth Data Analysis Center, University of New Mexico began the Discovery process in the Western Estancia watershed in October 2021 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 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.

In September 2024 FEMA and CTP held a Discovery Meeting in this watershed area. During Discovery, FEMA and the State reached out to local communities to:

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

The results of the Discovery process are presented in a Discovery Report, a watershed scale Discovery Map and the digital data that were gathered or developed during the process under fiscal year 2021 CTP Agreement, EMT-2021-CA-00018, Mapping Activity Statement (MAS) 20 between FEMA and EDAC.

i. Watershed Selection

The Western Estancia Watershed (HUC 13050001) encompasses an area of approximately 2,423 square miles and extends across five counties in central New Mexico. Major communities include the cities of Edgewood, Estancia, and Moriarty. There are no levees in the watershed that are shown to provide protection from the base flood on the DFIRMs and there are no levees in the USACE National Levee Database for this watershed.

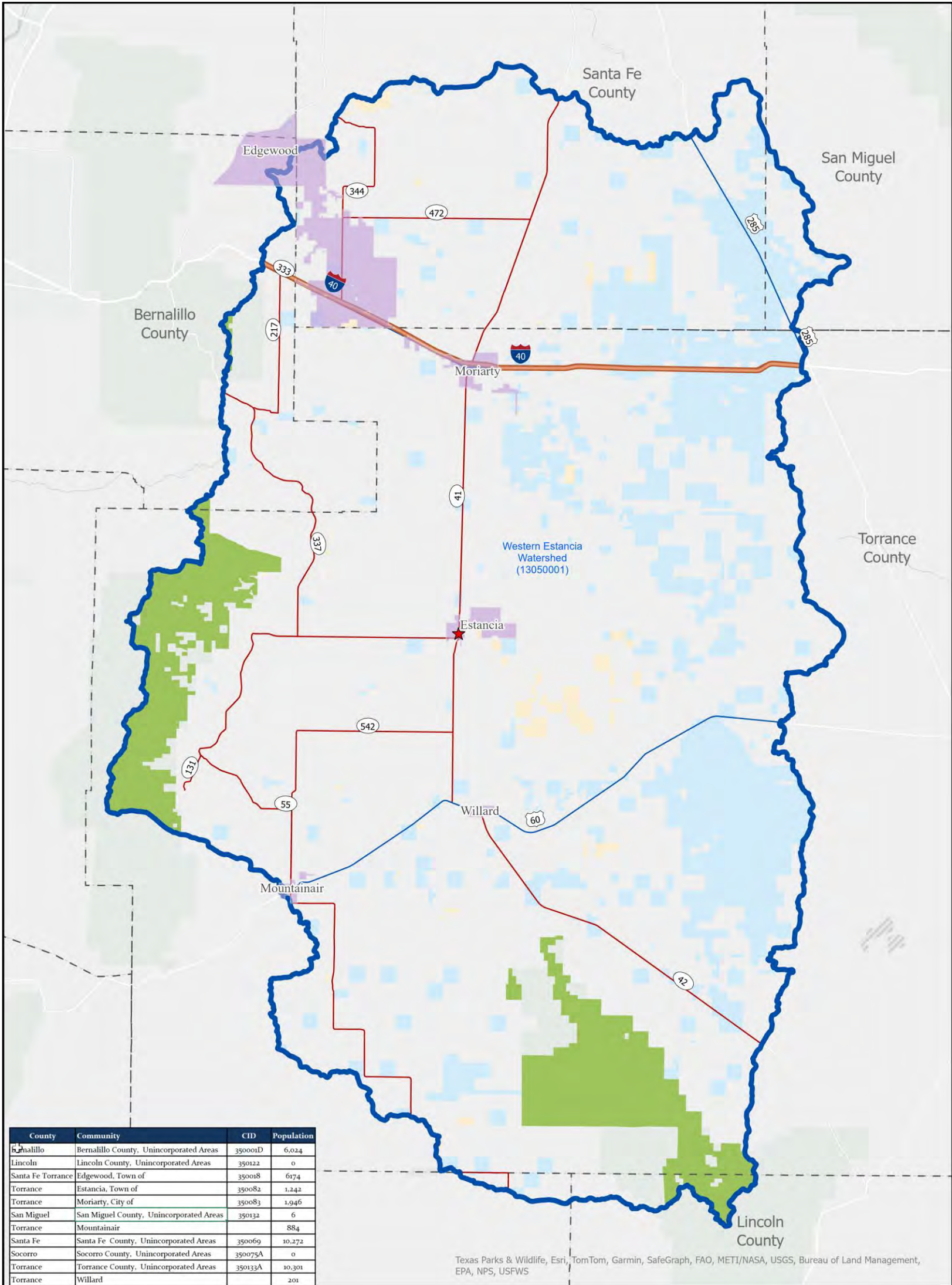
Table 1 provides a status update for each community’s NFIP participation, CRS rating, and current FIRMs. Six counties and three of the communities are participating in the NFIP. Two communities are not participating in the NFIP. Figure 1 shows the locations of all communities in the watershed.

Table 1: NFIP Status of Project Area Communities

County	Community Name	Community Identification Number (CID)	Participating Community?	CRS Rating	FIRM Date	FIRM Status	Population (2020 Census)
Bernalillo	Bernalillo County, Unincorporated Areas	350001D	Yes	8	11/04/16	Revised	6,024
Lincoln	Lincoln County, Unincorporated Areas	350122	Yes	NR	11/05/14	Revised	0
Santa Fe Torrance	Edgewood, Town of	350018	Yes	NR	12/04/12	Revised	6,174
Torrance	Estancia, Town of	350082	Yes	NR	07/16/90		1,242
Torrance	Moriarty, City of	350083	Yes	NR	09/30/88		1,946
San Miguel	San Miguel County, Unincorporated Areas	350132	Yes	NR	12/03/10	Revised	6
Torrance	Mountainair		No	NR			884
Santa Fe	Santa Fe County, Unincorporated Areas	350069	Yes	NR	12/04/12	Revised	10,272
Socorro	Socorro County, Unincorporated Areas	350075A	Yes	NR	05/02/16	Revised	0
Torrance	Torrance County, Unincorporated Areas	350133A	Yes	NR	10/01/07		10,301
Torrance	Willard		No	NR			201

The Western Estancia watershed is a closed HUC-8 basin, where all water that enters the watershed does not leave the HUC-8 boundary but drains into the center of the watershed.

Figure 1: Watershed and Communities



Legend

- ★ County Seat
- County Boundary
- Community
- Roads**
- State Highway
- US Highway
- Interstate
- Watershed Boundary: HUC8
- Surface Land Ownership**
- Bureau of Land Management
- USFS
- State

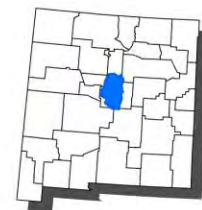
Discovery Map

WESTERN ESTANCIA WATERSHED, NEW MEXICO
 HUC 13050001 *This Exhibit is for Illustrative Purposes Only*

June 2024

9 4.5 0 9 Miles

Project Location



The Bureau of Land Management (BLM) owns 20 square miles of the watershed. The United States Forest Service (USFS) Cibola National Forest own 160 square miles. The State of New Mexico owns 387 square miles of the watershed. The majority of the watershed, 1,856 square miles, is in private ownership. There are no EPA Superfund Sites in this watershed. There are no levees in this watershed.

There is one threatened species within the watershed. The Mexican spotted owl (*Strix occidentalis lucida*) territory is within a small portion of the western most extend of the watershed on land managed by the U.S Forst Service.

Population

The population in this watershed totals 37,232 people, based on the 2020 census. The Town of Edgewood is one of the watershed's highest population centers (population: 6,174). There are in total fifteen census designated places inside this watershed. Figure 2 shows the population densities within the Western Estancia Watershed based on U.S. Census Data 2020.

Land Use

The Western Estancia Watershed is predominantly shrubland and herbaceous cover being the dominant vegetation types. Figure 3 identifies the relative percent urban cover for areas within the watershed. Figure 4 shows the changes in the percent urban coverage that have occurred in the watershed between 2001-2021. There has been a small increase in urban area in the watershed as more houses are built in this predominantly rural area.

Farming and ranching have been the traditional economic activities in the watershed but are diminishing as the population grows in the Estancia Valley. Non-agricultural business and commerce activities are increasing and the watershed is within the range of commuting to the Albuquerque metropolitan area. The rural lifestyle of Tarrant County has attracted a growing number of new residents who typically commute to Albuquerque.

Figure 5 shows the wildfire potential in the Western Estancia watershed. The USDA Forest Service Rocky Mountain Research Station classifies the wildfire hazard potential from very low to very high. In the watershed there are 75 square miles of high and very high wildfire potential or about 3% of the watershed. These areas in the watershed have a higher probability of catastrophic wildfire that can then lead to post-fire flooding and debris flows. The New Mexico State Hazard Mitigation plan cycle of wildfire and flooding:

“Catastrophic wildfire occurs when vegetation is consumed at a high-intensity leaving the forest floor susceptible to erosion and is referred to as the burn scar area. The burn scar area is where topsoil, duff, woody materials, and ash from the catastrophic wildfire event can intensify post-fire flooding. Largescale erosion from burn scars can lead to the degradation of water resources for an entire region due to sediment transport. This type of sedimentation is due in part to soil damage during catastrophic wildfire. Organic components of the soil are lost and burnt which creates a soil condition called “hydrophobic.” Hydrophobic soils lack the ability to infiltrate water which in turn can increase the potential for post wildfire flooding events by a four-hundred fold increase. Monsoon rainstorms can amplify the poor soil condition

with high volumes of precipitation which is then transported during flood events settling in arroyos, ditches and flood control infrastructure.

Vegetation loss from wildfire can also increase flooding potential and water stress. When New Mexico's coniferous dominated forest communities burn, their natural ability to absorb and deflect the precipitation load is lost. The combination of vegetation loss, hydrophobic soils and monsoon rainstorms can lead to highly destructive flooding events called "debris flows." Debris flows are a long-term risk to watersheds that have experienced wildfire. Loss of life, damage to property and significant infrastructure impacts are commonplace when debris flow flooding events occur. Debris flows move high amounts of sediment leading to sedimentation issues, including temporary dams or sediment plugs along existing waterways which can have further flooding impacts to downstream ecosystems and communities when the dams or plugs fill and break, resulting in a flood wave. The waterway is also damaged limiting its functionality as a both a natural water storage and/or water delivery conveyance for communities, thus increasing water stress." 2018 New Mexico State Hazard Mitigation Plan pp. 38-39.

Following the 2016 Dog Head Wildfire, which burned 17,912 acres in the western edge of the watershed residents experienced flooding and debris flows downstream from the burn scar.

Figure 2: Population Density in the Watershed

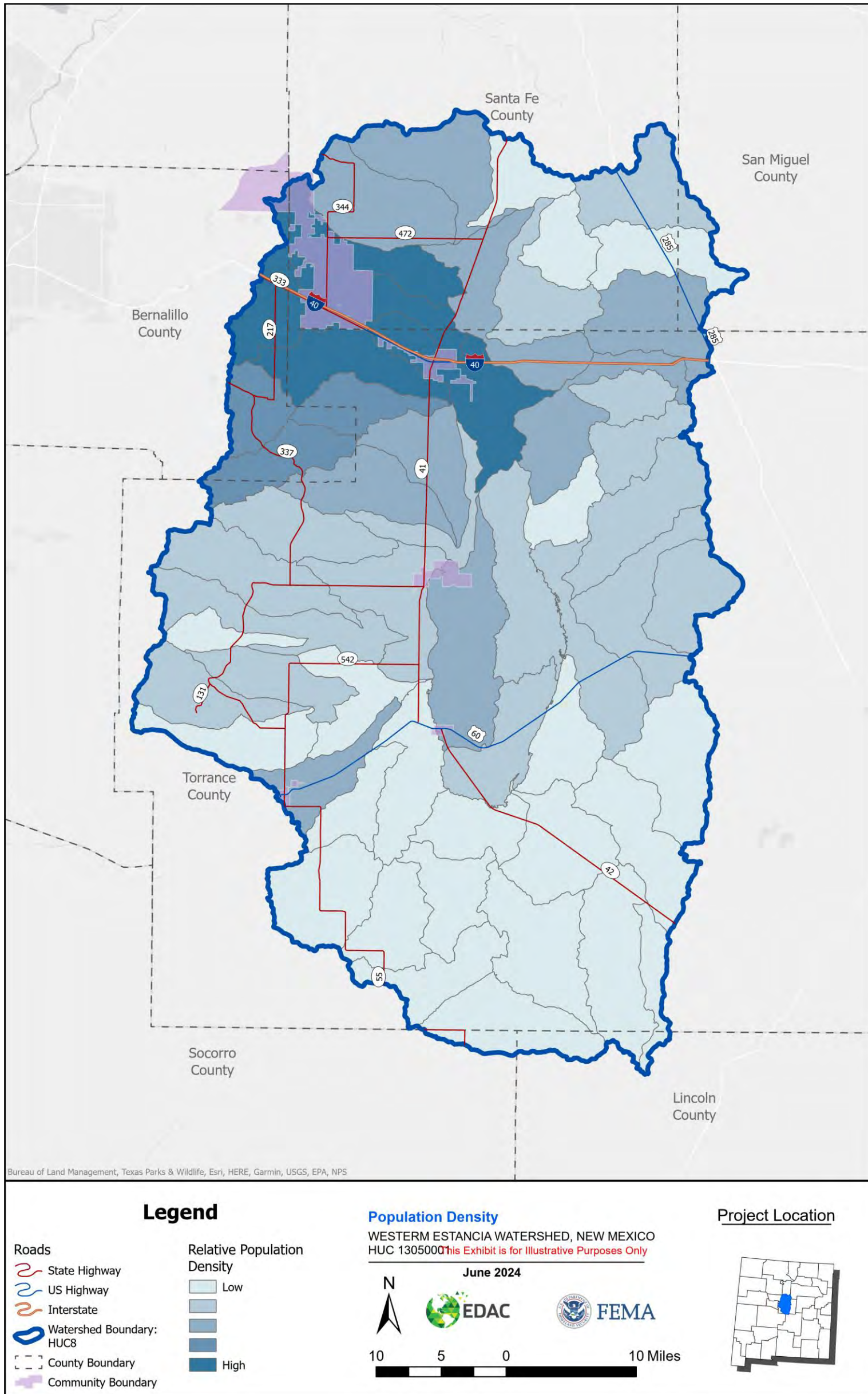


Figure 3: Current Percent Urban Coverage

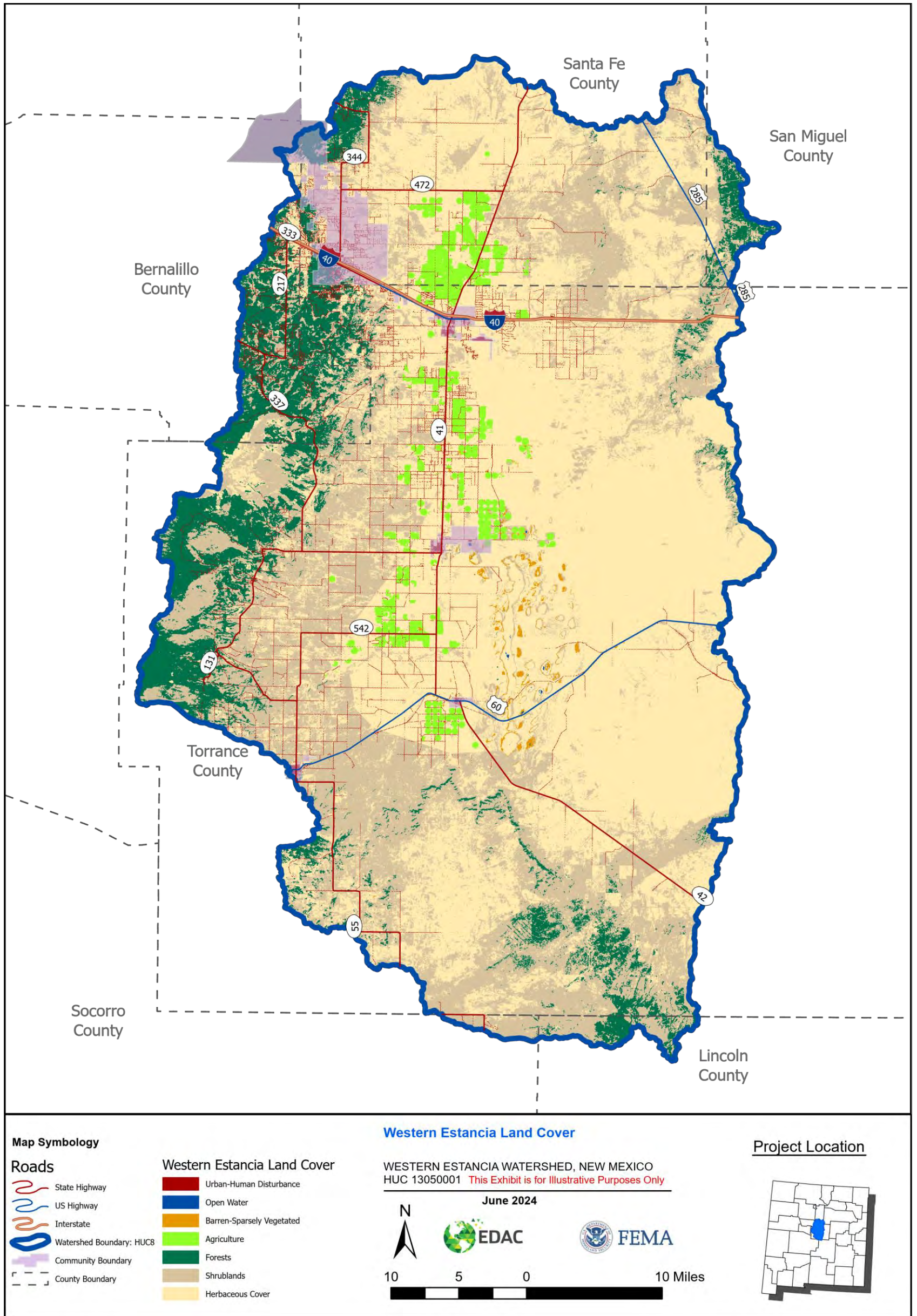


Figure 4: Urban Changes 2001-2021

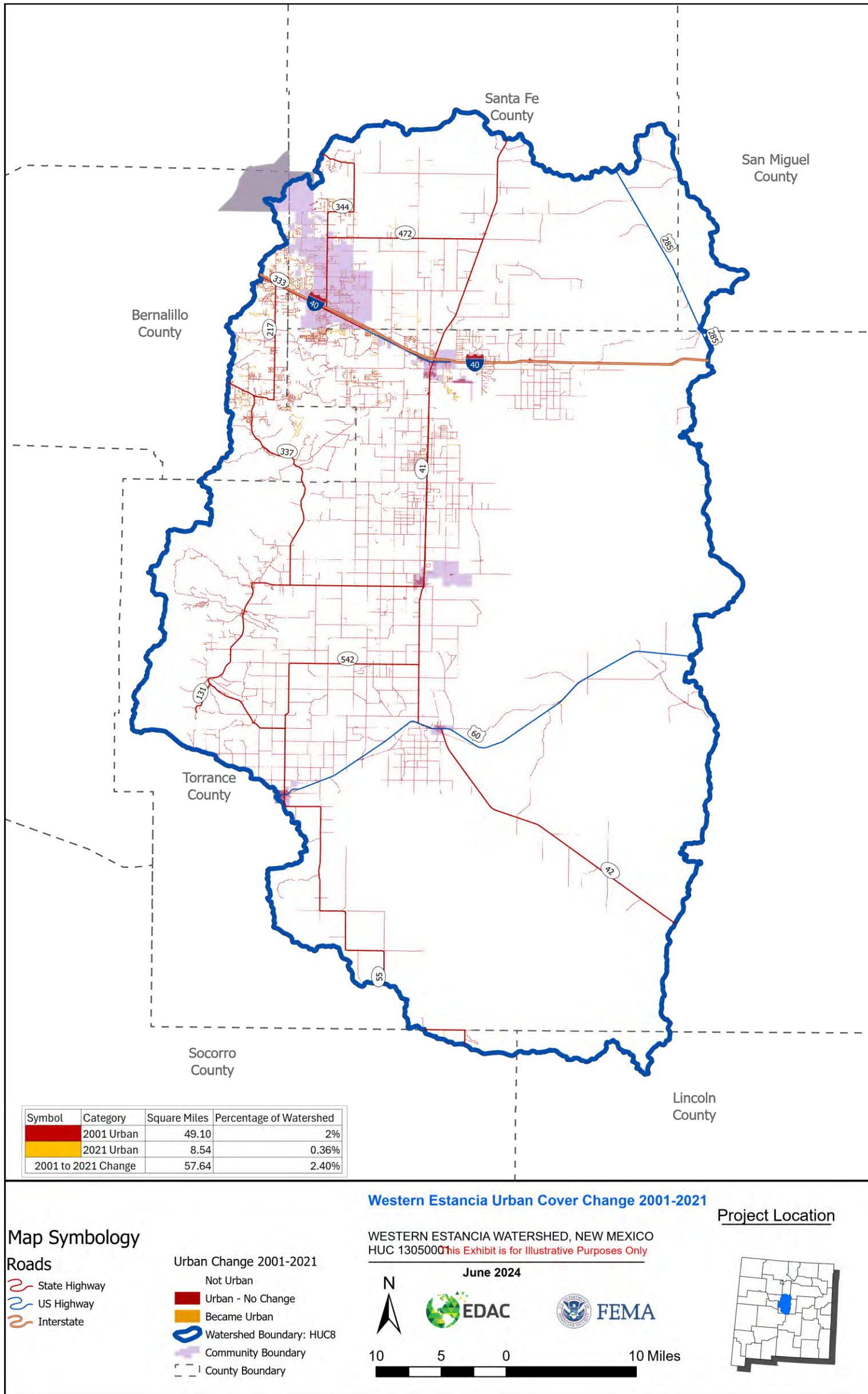


Figure 5: Wildfire Hazard Potential

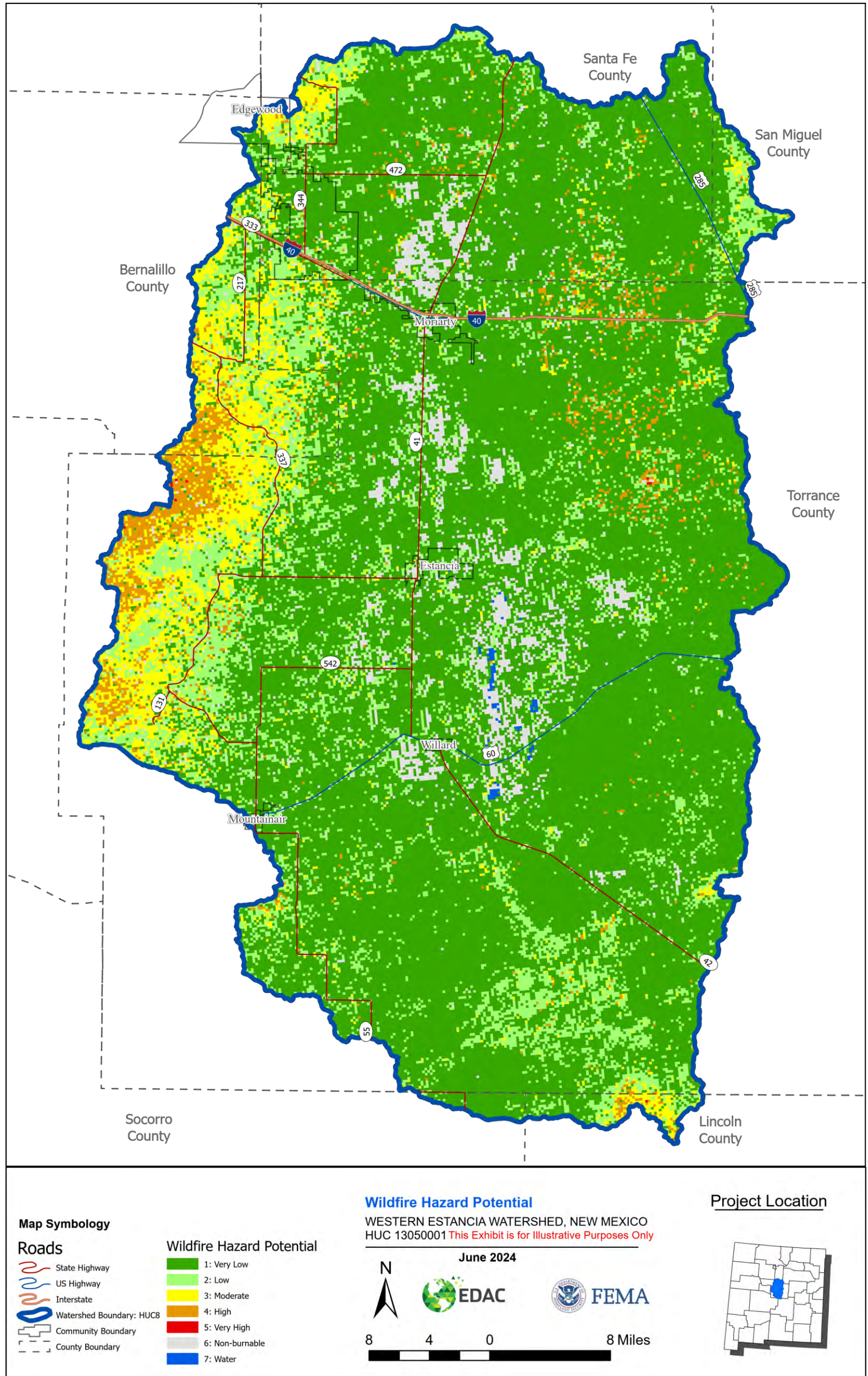


Table 2 lists the number of NFIP insurance claims for the portions of the communities within the Watershed, there have been no NFIP claims within the Western Estancia Watershed.

Table 2: Total NFIP Insurance Claims

Total NFIP Insurance Claims by Community	
Community	Claims
Santa Fe County	2
Torrance County	2

In addition to no NFIP claims, there are no locations of Repetitive Loss (RL) or Severe Repetitive Loss (SRL) properties within the Western Estancia 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
None	None	None	None

The Western Estancia Watershed has had a history of flooding as demonstrated by numerous presidential disaster declarations with four issued in the past ten Table 5 lists the recent disaster declarations for multiple hazards within the watershed.

Table 4: Historical Floods within the watershed

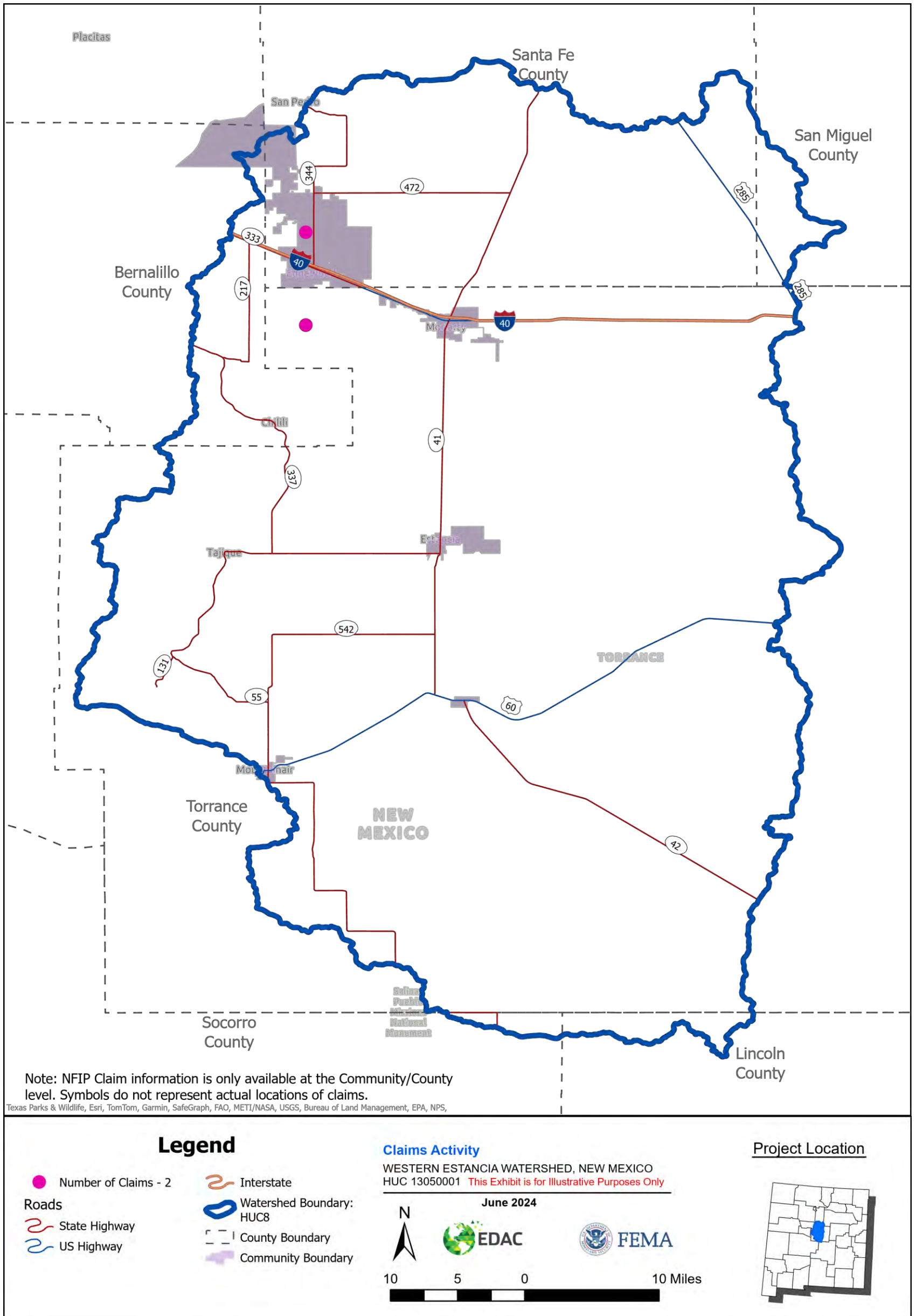
Historical Floods in Western Estancia Watershed			
Location	Type of Flood	Date	Description
Edgewood	Flash Flood	8/12/2012	Serious flooding in at least one home was reported on the western edge of Edgewood, approximately one mile south of Route 66.
Edgewood	Flash Flood	8/16/2012	Hwy 344 just north of Frost Rd was under 3-4 feet of fast-moving water. At least one vehicle was trapped that required local fire department assistance.
Edgewood	Flash Flood	8/19/2013	Flooded low water crossings resulting in road closures near intersection of NM 344 and NM 472.
Edgewood	Flash Flood	9/1/2013	Flood waters estimated 6 to 7 feet deep in Bachelor Draw that crosses Dinkle Road about 3 miles west of NM 344. A couple vehicles were stranded. Intersection of Dinkle Road and Sunset Boulevard washed out.
Edgewood	Flash Flood	7/30/2022	A trained spotter near Edgewood reported that their home was inundated with water from flash flooding.

Historical Floods in Western Estancia Watershed			
Location	Type of Flood	Date	Description
Edgewood	Flash Flood	8/1/2022	Heavy rain caused 4 to 6 inches of fast moving water to impact the intersection of Frost and Broken Arrow near Sedillo.
Moriarty	Flash Flood	9/4/2021	One to two inches of heavy rainfall caused flash flooding in Moriarty. Several Moriarty residents reported flood damage from the heavy rainfall. The water continued to flow southward through McIntosh and even caused Estancia Park Lake to overflow its banks.
Tajique	Flash Flood	7/24/2013	State road 55 was closed due to flooding between mile markers 95 and 97.
Tajique	Flash Flood	8/10/2013	Car washed off Riley Rd. when an arroyo overflowed between Routes 55 and 542. Vehicle dangled over the edge of arroyo and almost fell into the arroyo. Driver escaped safely.
Tajique	Flash Flood	8/4/2014	Three buildings had water flow into them including the dining hall, the tabernacle and the gymnasium at the Inlow Baptist youth camp.
Tajique	Flash Flood	8/29/2016	Three to four feet of water flowing over highway 337 near Tajique. Many arroyos flowing out of banks, culverts at maximum capacity, and large areas of standing water from near Tajique north toward Chilili.
Tajique	Flash Flood	8/3/2022	Heavy rain in the Tajique area caused flash flooding along New Mexico State Road 55, rendering it impassable as crews worked to clear water and debris off the roadway
Torreon	Flash Flood	8/10/2013	Vehicle stuck in water. Driver tried to cross flooded road or low water crossing on Spangler Rd. between Routes 55 and 542. Needed police assistance.

Table 5: Disaster Declarations in the Watershed

Date of Declaration	Watershed Counties Declared	For Hazard
2006	Lincoln, San Miguel, Socorro, Torrance	Severe Storms and Flooding
2006	Bernalillo	Malpais Fire
2007	Lincoln, Torrance	Ojo Peak Fire
2008	Lincoln, Torrance	Big Springs & Trigo Fire
2010	Socorro	Severe Storms and Flooding
2011	Bernalillo	White Fire
2013	Bernalillo, Lincoln, San Miguel, Santa Fe, Socorro, Torrance	Severe Storms, Flooding, and Mudslides, Tres Lagunas Fire
2014	San Miguel, Santa Fe	Severe Storms and Flooding
2016	Bernalillo, Lincoln, Torrance	Dog Head Fire

Figure 6: Single Claims in the Watershed



Topographic Data

Recent acquisitions of topographic data have been made for this watershed. Lidar data collected in 2014, 2017, and 2018, cover 100% of the area of the watershed.

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

Congressional Involvement

Senator Ben Ray Luján serves on the Committee on Commerce, Science, and Transportation; the Committee on Health, Education, Labor, and Pensions (HELP); the Committee on Agriculture, Nutrition, and Forestry; the Committee on Indian Affairs; and the Committee on the Budget. Senator Luján grew up in Nambé, a small community within the Upper Rio Grande Watershed. Senator Luján is a long-time advocate for New Mexico's acequias and traditional lands. Senator Martin Heinrich serves on the Committee on Energy and Natural Resources; the Committee on Appropriations and serves as chairman of the Military Construction (MILCON), Veterans Affairs, and Related Agencies Subcommittee; and the Select Committee on Intelligence and serves as the Vice Chair of the Joint Economic Committee. Representative Melanie Stansbury serves on the House Committee on Natural Resources, Ranking Member of the Subcommittee on Oversight and Investigations, is a member of the Subcommittee on Economic Growth, Energy Policy, and Regulatory Affairs, and is a member of the Subcommittee on Government Operations and the Federal Workforce.

Significant streams in this watershed include the Arroyo Chinchonte, Arroyo de Chilili, Arroyo de Manzano, Arroyo de Tajique, Arroyo del Cuervo, Arroyo Miga, Bachelor Draw, Canada de las narrias, Crossley Draw, Hyer Draw, and King Draw. In addition to significant streams, The USGS provides a National Hydrologic Dataset (NHD) that can be used to identify stream miles that reflect drainage areas of one square mile from available topographic data. The NHD stream mileage may be used to gain a sense of the total potential stream miles for a watershed.

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 factors 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.

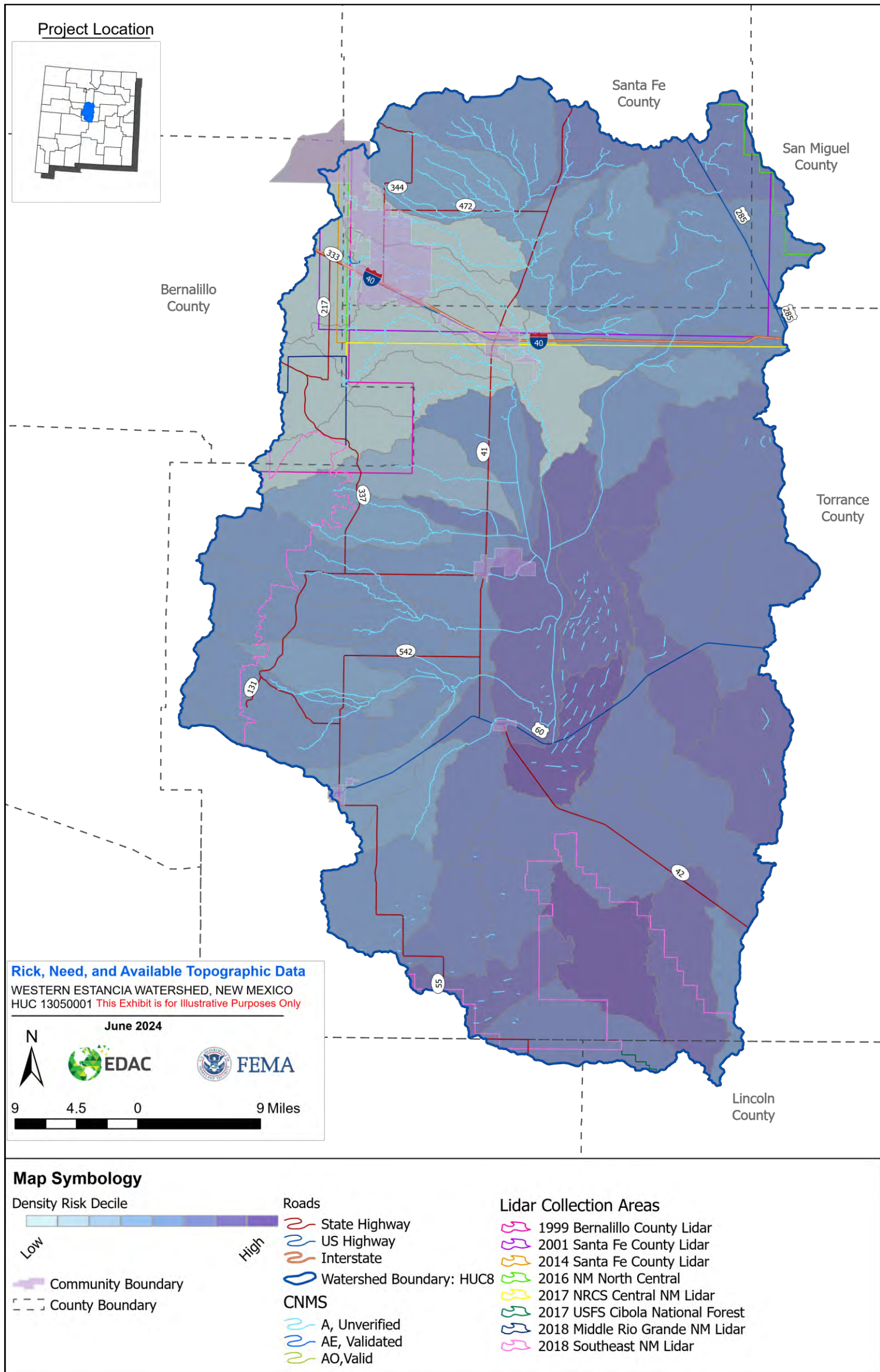
Table 6: NVUE Approximate Stream Mileage in the Watershed

NVUE Validation	Stream Miles
NHD Streams (streams with a drainage area of greater than one square mile)	467
CNMS Streams (streams with effective SFHA)	596.9
Stream Miles not accounted for in CNMS	0
CNMS Valid Zone AE / AH	2.9
CNMS Valid Zone A	0
CNMS Unverified Zone AE / AH	0
CNMS Unverified Zone A	594
CNMS Zone AE / AH Requiring Further Assessment or in the process of being studied	0
CNMS Zone A Requiring Further Assessment	0
All Stream Miles not accounted for in CNMS as there are no effective SFHAs (sum of the below)	0
Stream Miles not accounted for in CNMS that would fall in land that <i>could</i> be developed	0
Stream Miles not accounted for in CNMS that would fall in land that <i>could not</i> be developed	0

Within the Western Estancia Watershed and using these criteria from CNMS, approximately 594 miles of Zone A and 0 miles of Zone AE areas were identified as being unverified. Streams included in the unverified grouping include Arroyo Chinchonte, Arroyo de Chilili, Arroyo de Manzano, Arroyo de Tajique, Arroyo del Cuervo, Arroyo Miga, Bachelor Draw, Canada de las narrias, Crossley Draw, Hyer Draw, and King Draw with approximately 0 miles of Zone AE flagged as requiring further assessment or are in the current process of being studied with on-going projects. Additionally, 2.9 miles of Zone AE in the watershed were characterized as being Valid under the NVUE metrics. No Zone A areas are flagged as valid as the analysis indicates that none of these SFHAs are model backed Zone A studies.

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

Figure 7: Risk, Need and Available Topographic Data



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	Project Role
FEMA R6	Tiffany Comiskey	Project Monitor
FEMA R6	Shanene Thomas	Tribal Liaison and Mitigation Planning
FEMA R6	Trey Rozelle	Floodplain Management & Insurance
State of New Mexico	Heath Dobrovolny	State Floodplain Coordinator
State of New Mexico	Jeremy Klass	State Hazard Mitigation Officer
Earth Data Analysis Center	Shawn L. Penman	CTP Coordinator

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 Western Estancia Watershed. 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 location

- Information and invitation letters mailed to the CEO, email invitation to other key personnel communities and other local stakeholders
- CTP follows up with phone calls to personally invite communities and remind them of the meeting details and logistics to ensure the major watershed players will be there

Discussions were held with these agencies about potential partnership opportunities, as well as their help in identifying flood risk throughout the watershed.

Table 8: FEMA History of Engagement

*

Community Name	Type of Engagement	Date	Agency
Bernalillo County	CAV	2024-ongoing	NMDHSEM/FEMA
Town of Edgewood	CAC	2012	NMDHSEM/FEMA
San Miguel County	CAC	2023	NMDHSEM/FEMA
Santa Fe County	CAV	2016	NMDHSEM/FEMA
Torrance County	CAC	2015	NMDHSEM/FEMA

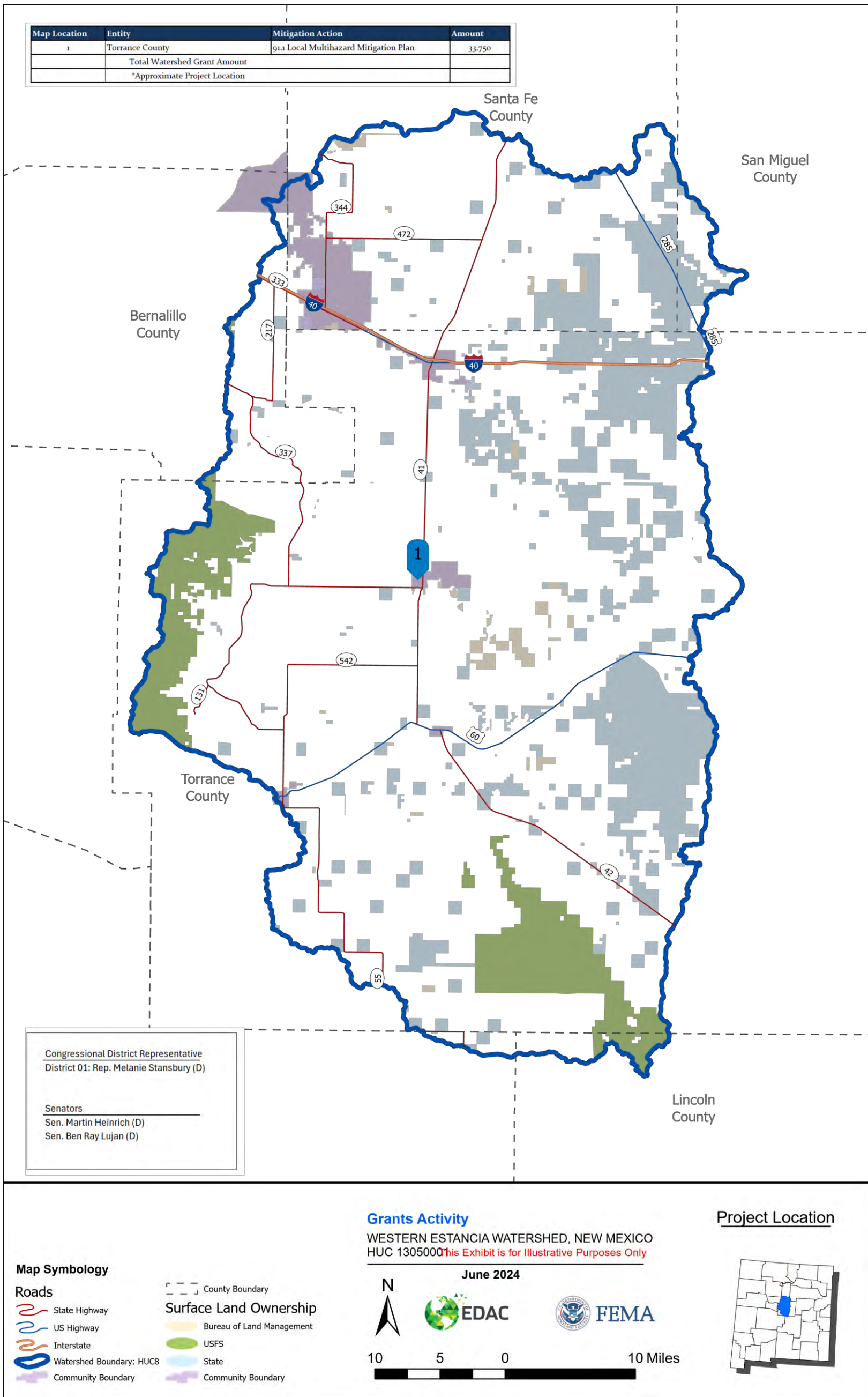
Meetings or other FEMA engagement activities that have occurred in the watershed in the past 10 years.

Table 9: Mitigation Plan Status

Community Name	Community Mitigation Action:	Hazard Mitigation Plan Name:	Plan Status:	Plan Approved	Plan Expires
Bernalillo County			Approved	1/18/2022	1/17/2027
Lincoln County		Lincoln County Multi-Jurisdictional hazard Mitigation Plan	Approved	3//2024	3/17/2029
Santa Fe County		Santa Fe County Hazard Mitigation Plan	Expired	5/29/2018	5/28/2023
San Miguel County		San Miguel County All Hazard Mitigation Plan	Approved	10/18/2021	10/17/2026
Socorro County		Socorro County Multi-Jurisdictional natural Hazar Mitigation Plan	Expired	2016	2021
Torrance County		Torrance County/Town of Estancia/City of Moriarty/Town of Mountainair/Village of Willard/Village of Encino/Claunch Pinto SWCD Hazard Mitigation Plan	Expired	12/2017	12/2022

Figure 8 displays the locations and types of mitigation grant activity in the Western Estancia 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 8: Grants Activity



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.

Table 10: Congressional Information

U.S. Senator		Term Expiration	FEMA History of Engagement
Martin Heinrich		2025	
Ben Ray Lujan		2027	
U.S. Representative	District Number	Term Expiration	FEMA History of Engagement
Melanie Stansbury	1	2024	

State Senators	
District	Name
22	Stefani Lord
50	Matthew McQueen
70	Amrose Castellano

State Representatives	
District	Name
19	Greg Schmedes
39	Elizabeth Stefanics

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

ii. Pre-Discovery Data Collection

Table 11: Data Collection for the Watershed

Data Types	Deliverable/Product	Source
Average Annualized Loss Data	Discovery Map Geodatabase	FEMA Region VI
Boundaries: Community	Discovery Map Geodatabase	RGIS
Boundaries: County and State	Discovery Map Geodatabase	RGIS
Boundaries: Watersheds	Discovery Map Geodatabase	RGIS

Data Types	Deliverable/Product	Source
Census Blocks	Discovery Map Geodatabase	U.S. Census Bureau
Contacts	Table	Local Web Sites, State/FEMA Updates
Community Assistance Visits	Discovery Report	New Mexico Department of Homeland Security and Emergency Management, State Floodplain Coordinator
Community Rating System (CRS)	Discovery Report	FEMA’s “Community Rating System Communities and Their Classes”
Dams and Levees	Discovery Map Geodatabase	National Inventory of Dams USACE National Levee Inventory USACE

iii. Discovery Meeting

A two-hour Discovery meeting or workshop was held at the Torrance County Commission Chambers, September 4, 2024, a virtual option was also included. Workshop times and locations are shown in Table 12. The Workshop site was prepared with a series of stations, envisioned to be an interactive setting for the Regional Project Team and Discovery Workshop attendees listen, discuss and document any issues for the Watershed.

Table 12: Project Discovery Workshop Times and Locations

Workshop	Date and Time	Location
1	September 4, 2024 10:00 am – Noon	Torrance County Commission Chambers 205 S. Ninth Street Estancia, NM 87016

CTP personnel will greet each attendee as they arrive. Attendees will be rotated around the following four 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.

At each station, attendees were 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 was 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 (State of New Mexico and CTP) were at the stations to answer questions and engage the attendees. During each workshop, Regional Project Team members requested that attendees provide 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 had 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.

In addition to the hard copy information available at the Discovery meeting a series of Story Maps with the same information was created for the virtual meeting attendees to access. The following Story Maps were created:

- Discovery Process – Overview of Discovery process with description of why it is important, who should participate, what kind of information is being sought, and mitigation actions.
- Base Level Engineering (BLE) – Discussion of the BLE process, link to the estimated BFE Viewer, and links to the FEMA BLE publications.
- NFIP Community Actions – Overview of the NFIP program including a video, description of New Mexico flooding along with a FEMA Video on flash flooding, flood insurance facts and links to how to buy flood insurance, and information about flood insurance and post-wildfire flooding.
- Hazard Mitigation – Discussion of hazard mitigation plan and links to the FEMA hazard mitigation plan resource page, links to how to create a hazard mitigation plan, section on the New Mexico Mitigation Funding Resource Guide, information on Hazard Mitigation Assistance Grants, links to mitigation planning resources, including tribal mitigation planning, the FEMA Mitigation Planning Success Stories story map was embedded, and information about the NMDHSEM mitigation program.
- Hazards Data Collection Survey Tool – An on-line survey for stakeholders to provided information about flood locations including description of flooding, location, photos, mitigation activities, and contact information.

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:

- Town of Edgewood Planning and Zoning Director
- City of Moriarty Planning and Zoning Administrator
- Torrance County Emergency Manager, County Commissioner, Planning and Zoning Director, and GIS Manager
- Santa Fe County Emergency Manager
- Staff from the NMDHSEM Mitigation Bureau

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

Information about the Western Estancia Watershed was gathered both prior to the Discovery Workshops and interactively during the Workshop. Much of data collected in pre-discovery was obtained from FEMA or other national datasets. Additional data was collected from NMRGIS and local communities via their public web site. Table 13 summarizes 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 13: 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	Locations of RL/SRL properties and Claims
Watershed-wide	FEMA	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	Approved HMPs
Watershed-wide	FEMA, RGIS	Location of available or planned areas of updated LiDAR or other topographic data
Watershed-wide	U.S. Census, RGIS	Transportation features
Watershed-wide	U.S. Census, RGIS	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
Watershed-wide	USFWS	Critical habitat locations
Watershed-wide	USGS	Gage locations

At the Discovery Workshop stations, attendees completed data information sheets and placed stickers and wrote 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 “*Areas of Mitigation Interest*”) 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 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 are tied directly back to the GIS data and the data collection sheets. In addition, data collected in pre-Discovery from Torrance 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.

Table 14: Data Collection Summary - During and After Discovery Workshop

Flooding Source	Information Provided By	Discovery Workshop Comment Summary
Woodman Draw	Torrance County	Water overtops roadway, culvert under sized
Unknown	Mayor of Willard	Sheet flooding over road
Cañon de Torreon	Torrance County	Community of Torreon culverts undersized along State Highway 55
Arroyo de Manzano	Torrance County	Area around Arroyo de Manzano marked as area where roadways are continually overtopped during rain events and noted the need for control structures
Unknown	Torrance County, Mayor of Willard	Area from Arroyo del Cuervo south to Mountainair and from boundary of Cibola National Fores to Highway 542 area to look at putting in retention basins that can divert potential flood water back to the aquifer
Unknown	Town of Estancia	Flooding issues within Estancia, current regulatory floodplain does not match actual flooding. And the sewage treatment facility is at risk of flooding during a 100 year event.

III. Watershed Findings

Participants discussed flooding issues during the Discovery Meeting and provided locations of flooding that were geocoded based on descriptions of locations provided by participants or locations marked on the Discovery Map and provided in the spatial data deliverable.

Discussion at the discovery Meeting also focused on post-wildfire flooding and debris flow. A small portion of the Western Estancia Watershed are at high or very high risk of wildfire which could lead to issues with flood and debris flows if there were to be large wildfires within the watershed. New Mexico has experienced one of the largest wildfires in the nation last year and the post-wildfire flooding and debris flows have caused communities across New Mexico to become more aware of the danger. The watershed has experienced post-wildfire flooding and debris following the Dog Head Fire in 2016 and meeting participants were familiar with those events. During the meeting there was also a discussion of NFIP flood insurance and that it also covers post-wildfire flooding and damage related to debris flows.

Unlike other watersheds in New Mexico there are no mapped acequias in this watershed. This watershed contains no levee structures that are managed by the U.S. Army Corps of Engineers (USACE), Albuquerque District, within the National Levee Database (NLD). In addition to NFIP claims, there are no locations of Repetitive Loss or Severe Repetitive Loss within the Western Estancia Watershed.

There are two dams within the watershed, one privately owned, and one managed by Torrance County. The Mescalero Reservoir Dam (also known as the Buster Keaton Dam), owned by Torrance County, is classified as a high-hazard dam that is in poor condition. It is an earthen dam that was constructed in 1961 by a subdivision developer for recreation storage and was acquired by Torrance County in 2006. The New Mexico Office of the State Engineer, Dam Safety Bureau has classified it as high hazard due to its poor condition due to a plugged outlet, questionable spillway, a severe lack of overall maintenance, and lack of a design report. The hazard potential is classified as 'high' due to the locations of houses within the downstream dam failure floodplain. Torrance County has a mitigation plan for the dam that proposed breaching the dam since it has never retained water and fixing and maintaining the dam is too expensive for the county.

Torrance County is a paper map county, and the Town of Estancia's floodplain information was originally created in 1974, the Flood Hazard Boundary Map Revision is dated December 12, 1975, and the FIRM is dated July 16, 1990. The town is currently working with the Albuquerque District, U.S. Army Corps of Engineers through the Planning Assistance to States (PAS) program to conduct a flood study of the town. The town is especially concerned about protecting the town's sewage treatment facility on the western side of Estancia.

Figure 9: Repetitive and Severe Repetitive Losses

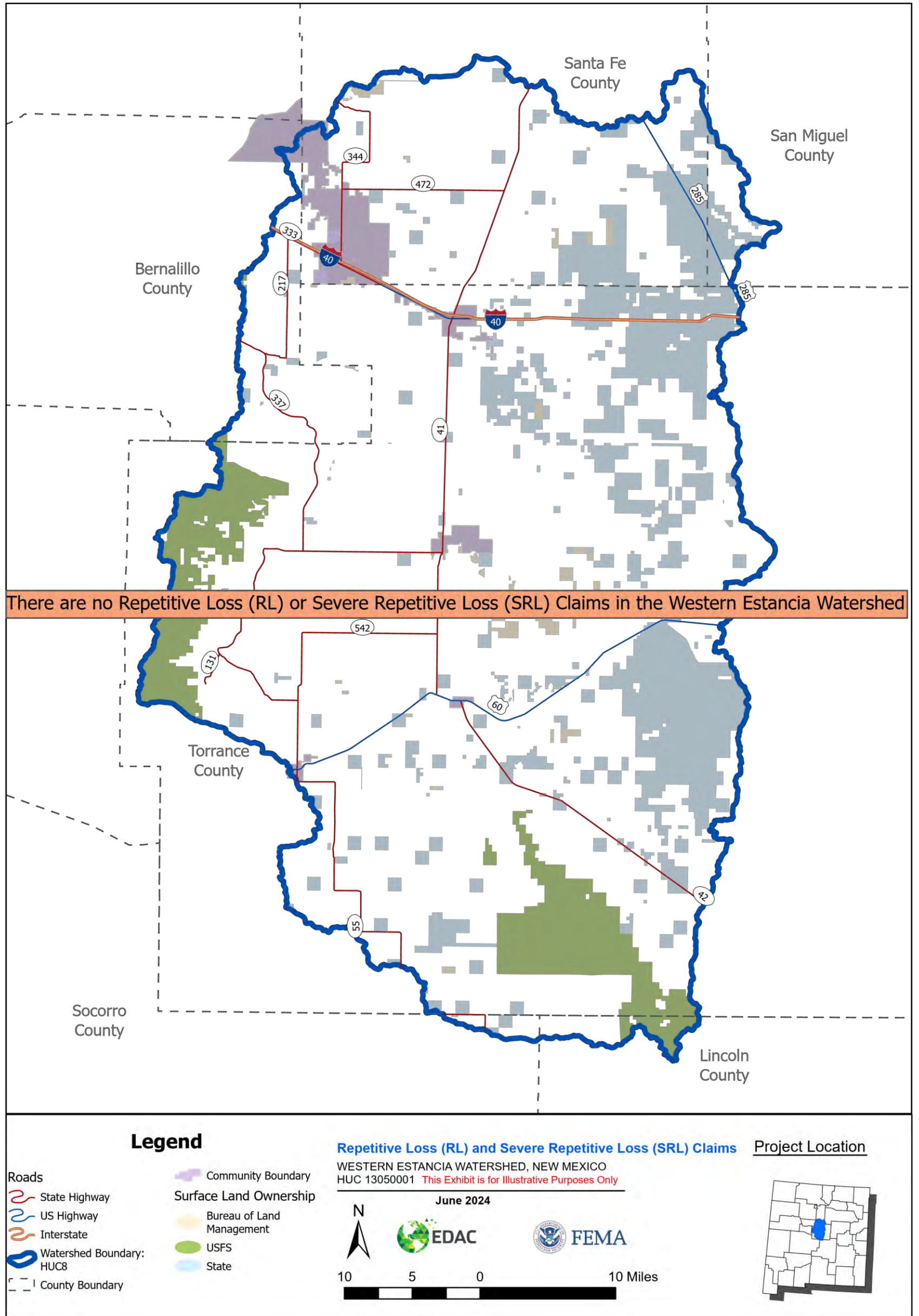
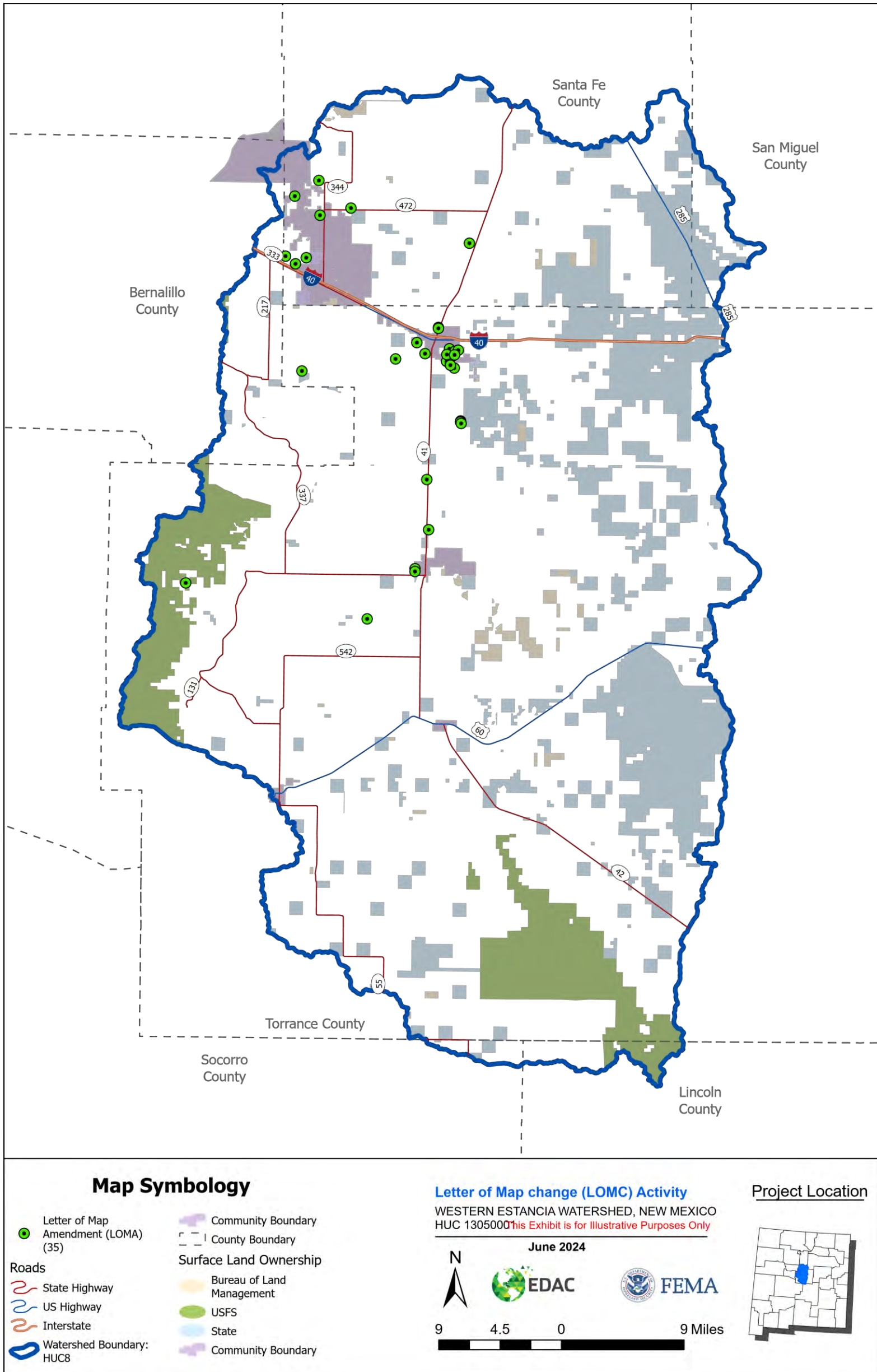


Figure 10: Letter of Map Changes (LOMCs)



i. Pre-Discovery Hydrology

Two limited reviews of hydrologic information were performed for Discovery analysis within the Western Estancia 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

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.

Table 15: Discharge Comparison at Community Limits

Stream Name	County/Parish	Effective one-percent annual chance discharge (cfs)	Effective Discharges Source	Notes
No discharge across a county boundary or community limits				

Frequency Analysis

There are no gages within the Western Estancia Watershed therefore no frequency analyses were performed. No comparison between discharges from FIS and from gage analysis was done and listed in Table 16.

Table 16: Summary of Hydrologic Analysis

Stream Name	Drainage Area from USGS Gage (square mile)	Effective one-percent annual chance discharge (cfs)	BLE Discharge Area (sq. miles)	BLE 1% Discharge (fs)	Discharge Area % Difference	Q % Difference
		No Gages in	Watershed			

ii. Pre-Discovery Hydraulics and Floodplain Analysis

The Western Estancia watershed is a closed HUC-8 basin, where all water that enters the watershed does not leave the HUC-8 boundary but drains into the middle of the watershed. A Base Level Engineering (BLE) analysis for the Western Estancia watershed Hydrologic and hydraulic computations and analyses for the BLE study consisted of determining discharges and calculating Water Surface Elevations (WSELs) for the 10-, 4-, 2-, 1-, and 0.2-percent-annual-chance flood events, as well as the 1-percent plus and minus events.

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

Table 17: Summary of Hydraulic Analysis

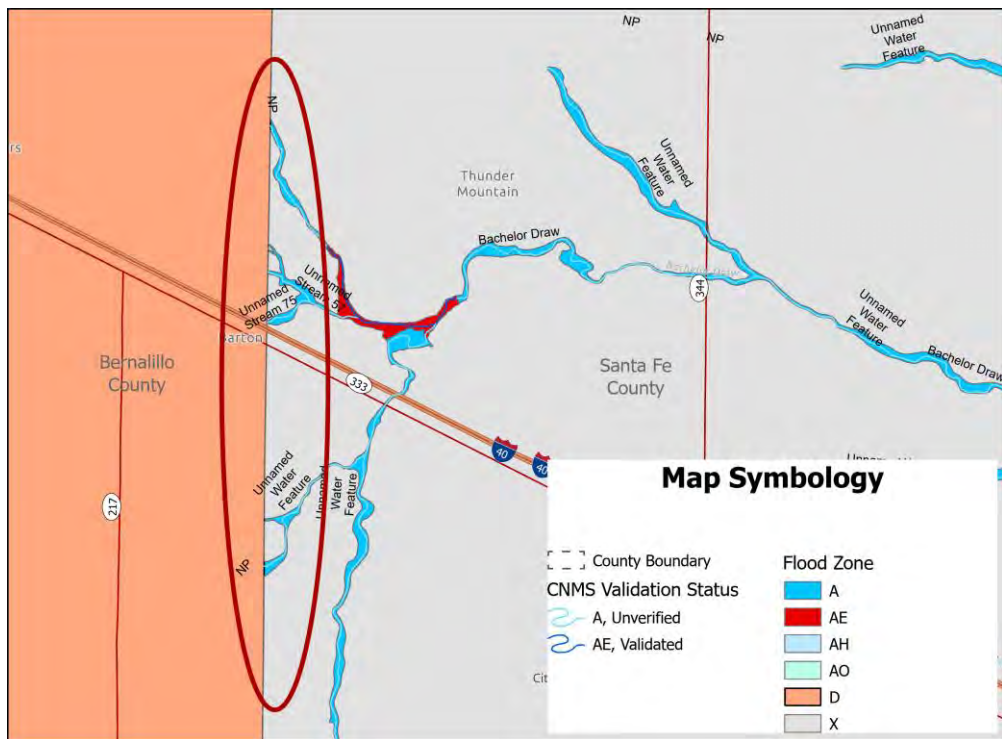
Stream Name	Validation Status	Date of Effective Analysis	Hydrology Model	Hydraulic Model
Arroyo Chinchonte	Unverified	4/11/1978	Unknown	Unknown
Arroyo de Chilili	Unverified	4/11/1978	Unknown	Unknown
Arroyo de Manzano	Unverified	4/11/1978	Unknown	Unknown
Arroyo de Tajique	Unverified	4/11/1978	Unknown	Unknown
Arroyo del Cuervo	Unverified	4/11/1978	Unknown	Unknown
Arroyo Miga	Unverified	4/11/1978	Unknown	Unknown
Bachelor Draw	Unverified	10/31/1986	Unknown	Unknown
Bachelor Draw	Valid	11/30/2005	Regression Equations	HEC-RAS 3.1.3
Canada De Las Narrias	Unverified	10/31/1986	Unknown	Possibly HEC-2
City Draw	Valid	10/31/1986	Regression Equations	Normal Depth & Weir Flow Calculations
Crossley Draw	Unverified	4/11/1978	Unknown	Unknown
Crossley Draw	Valid	9/28/2004	Unknown	Unknown

Stream Name	Validation Status	Date of Effective Analysis	Hydrology Model	Hydraulic Model
Crossley Draw	Valid	10/31/1986	HYMO	Normal Depth & Weir Flow Calculations
Duke Country Draw	Valid	10/31/1986	HYMO	Normal Depth & Weir Flow Calculations
Hyer Draw	Unverified	10/31/1986	Unknown	Possibly HEC-2
King Draw	Unverified	10/31/1986	Unknown	Possibly HEC-2
Salt Draw	Valid	10/31/1986	Regression Equations	HEC-2
Unnamed Arroyo	Valid	5/31/1988	Regression Equations	WSPRO
Unnamed Stream 57	Unverified	12/31/2010	Regression Equations	HEC-RAS 4.1
Unnamed Stream 75	Unverified	12/31/2010	Regression Equations	HEC-RAS 4.1
Unnamed Water Feature	Unverified	10/31/1986	Unknown	Unknown

Bernalillo County

The area of eastern Bernalillo County within the Western Estancia Watershed is all mapped as Zone D, in the adjoining area of Santa Fe County there are mapped Zone A areas (See Figure 11).

Figure 11: Bernalillo County Zone D Mapping



iii. Pre-Discovery CNMS Analysis

Table 18 shows the detailed study streams in the Western Estancia 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 18: CNMS Analysis

Stream Name	Validation Status	Failed CNMS Elements	Date Hydrology & Hydraulics Effective
Bachelor Draw	Valid	S4, S9	11/30/2005
City Draw	Valid	S6, S9	10/31/1986
Crossley Draw	Valid	S6	10/31/1986
Duke Country Draw	Valid	S6	10/31/1986
Salt Draw	Valid	S6, S9	10/31/1986
Unnamed Arroyo	Valid	S6, S9	5/31/1988

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

Table 19: CNMS Category Descriptions

Element Name	Issue being identified by the Element	Element Description
S4	More than one and less than five new or removed hydraulic structures (bridge/culvert) impacting BFEs	This element identifies addition or removal of more than one, but less than five hydraulic structures along the studied streams since the date of the Effective Study.
S6	Better topographic or bathymetric data available	Failure of this element indicates better topographic or bathymetric data has been made available since the Effective Study date.
S9	New regression equations available	Failure of this element indicates new regression equations available.

Summary of CNMS Concerns

1. Bernalillo County contains 52.86 miles of streams with the Western Estancia Watershed. The county contains 52.86 miles of assessed Zone X. Main streams are the Arroyo de Chilili.
2. San Miguel County contains 6 miles of streams within the Western Estancia Watershed. The county contains 6 miles of assessed Zone X.
3. Santa Fe County contains 303.7 miles of streams within the Western Estancia Watershed. The County contains 225 miles of unverified Zone A and 1.3 miles of valid Zone AE. The County contains 77 miles of assessed Zone X. Main streams include Bachelor Draw, Canada de las Narrias, Hyer Draw, and King Draw.
4. Socorro County contains 2.6 miles of streams within the Western Estancia Watershed all of which are assessed Zone X.
5. Tarrant County contains 935.4 miles of streams within the Western Estancia Watershed. The county contains 368 miles of unverified Zone A. The County contains 1.5 miles of valid Zone AE and 3.2 miles of valid Zone AO. The county contains 562 miles of assessed Zone X.
6. There are no streams with the small portion of Lincoln County contained within the Western Estancia Watershed.

IV. Base Level Engineering

Base Level Engineering (BLE) was completed for the Western Estancia Watershed in August of 2021. BLE is a watershed wide engineering modeling method that uses high resolution ground elevation, automated model building techniques, and manual model review to prepare broad and accurate flood risk information for FEMA to assess its current flood hazard inventory.

The following BLE datasets are available for the Western Estancia Watershed:

- Hydrologic Analysis - The hydrologic approach used for this BLE analysis assesses the watershed response and calculates excess precipitation using rainfall-runoff models developed in HEC-HMS version 4.6.1. Each HUC-10 within the Western Estancia HUC-8 region was modeled as a single basin in HEC-HMS to determine losses using the Soil Conservation Service (SCS) Curve Number Method. Excess precipitation hyetographs for storm events with 10%, 4%, 2%, 1%, 0.2%, and 1% plus and minus annual chance exceedance have been developed for each of the study areas within the watershed.
- Hydraulic Modeling – HEC-RAS version 5.0.7 was used to create stream models for the 10%, 4%, 2%, 1%, 0.2% and the 1% plus/minus events.
- Flood Risk Flood Extents – Seamless floodplains are prepared and available for the 10%, 1% and 0.2% annual chance storm events.
- Estimated Water Surface Elevation Grids – Estimated water surface elevation grids for the 1% and the 0.2% annual chance events are prepared during a Base Level Engineering assessment. The Estimated Water Surface Elevation grid allows users to more efficiently interact with hydraulic model results, providing interpolated water surface elevations at any location within the floodplain.
- Estimated Flood Depth Grids – Estimated flood depth grids are prepared for the 1% and the 0.2% annual chance events are prepared. The Estimated Flood Depth grid allows users to better understand the possibility of flooding by providing an estimated flood depth at any location within the floodplain.
- HAZUS – A Hazus, version 4.2, analysis was prepared using the 1- and 0.2-percent-annual-chance depth grids.

FEMA has also made available the Estimated Base Flood Elevation Viewer (<https://webapps.usgs.gov/infrm/estbfe/>) which allows communities, residents and the development community to interact with Base Level Engineering information. The Estimated BFE Viewer provides an indication of flood risk (high/moderate/low) and returns Estimated Base Flood Elevations and Estimated Flood Depths at any location within the 1% annual chance floodplain. The BLE data and reports may also be downloaded from the viewer.

V. Watershed Options

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 Western Estancia 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 20: Potential Watershed Activities

Risk Identification and Communication
<ul style="list-style-type: none"> • Utilize Base Level Engineering products to communicate risk • Update FIS and PMRS for Torrance County. • Update FIS and FIRMs for Bernalillo County. • Outreach and education about natural hazards in the watershed
NFIP Community Actions
<ul style="list-style-type: none"> • Discuss the CRS program with interested communities • Outreach and education about NFIP requirements • Flood Insurance awareness outreach
Mitigation Planning and Mitigation Actions
<ul style="list-style-type: none"> • Assist communities in the preparation, update and adoption of HMPs. Torrance County lacks a current plan.
Community Benefits and Grant Opportunities
<ul style="list-style-type: none"> • Apply for grants to assist in the mitigation of flooding concerns in the county

CRS = Community Rating System
 FIRM = Flood Rate Insurance Map
 FPA = Floodplain Administrator

HMP = Hazard Mitigation Plan
 NFIP = National Flood Insurance Program
 PMRS = Physical Map Revision

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 Western Estancia 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 21 Metrics and Rankings of Needs

Item	Description of Need		Impacts From Any Current Map Actions	FEMA Metric or Community Benefit	Evaluation	Relates to Community Comment Number
	Location of Need/Project	Details				
	<p><u>Evaluation Guide</u></p> <p>High – Local community would immediately benefit from the action, and FEMA’s metrics would also be met</p> <p>Medium – Local community would benefit over the longer term from the action, and a portion of FEMA’s metrics may be met</p> <p>Low – Local community activities can continue without this revision, and FEMA’s metrics are not impacted</p> <p>Community Action – Activity would be more appropriate as a community-led action rather than a FEMA-led action</p>					
A	Bernalillo County	<ul style="list-style-type: none"> NFIP & CRS Continued Compliance and Participation 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Impacts all communities in Bernalillo County Continued decrease in flood insurance premiums 	High Community Action	No specific comment
B	HAZUS Outreach / Coordination	<ul style="list-style-type: none"> Provide information from HAZUS results derived from Base Level Engineering 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Communities become more familiar with the HAZUS program and are prepared to use Risk MAP products when they are issued. HAZUS can be used for HMP updates. 	Medium	No specific comment
C	Bernalillo County FIRM Update	<ul style="list-style-type: none"> Map revisions and additional studies in the East Mountain area 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk reduction (area currently mapped as Zone D) FIRMs updated to reflect existing conditions 	High	No specific comment
D	Outreach / Community Hazard Awareness and Education Bernalillo County, Santa Fe County, and Torrance County	<ul style="list-style-type: none"> Educate residents on natural hazard threats, impacts, mitigation opportunities, and advanced preparations to make in advance of events. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk reduction 	Community Action	No specific comment
E	Bernalillo County Outreach/Community Hazard Awareness and Education	<ul style="list-style-type: none"> Per mitigation plan: County-wide stormready program 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Community’s ability to mitigate risk Community outreach improved 	Community Action	No specific comment
F	Bernalillo County and Torrance County	<ul style="list-style-type: none"> Per mitigation plan: Flood insurance awareness program 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Community’s ability to mitigate risk 	Community Action	No specific comment
G	Bernalillo County	<ul style="list-style-type: none"> Per mitigation plan: Wildfire public education and outreach activities 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Community’s ability to mitigate risk 	Community Action	No specific comment
H	Bernalillo County Stormwater Management Plan	<ul style="list-style-type: none"> Per mitigation plan: Multi-jurisdiction storm water management plans 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction 	Community Action	No specific comment

Item	Description of Need		Impacts From Any Current Map Actions	FEMA Metric or Community Benefit	Evaluation	Relates to Community Comment Number
	Location of Need/Project	Details				
	<p><u>Evaluation Guide</u></p> <p>High – Local community would immediately benefit from the action, and FEMA’s metrics would also be met</p> <p>Medium – Local community would benefit over the longer term from the action, and a portion of FEMA’s metrics may be met</p> <p>Low – Local community activities can continue without this revision, and FEMA’s metrics are not impacted</p> <p>Community Action – Activity would be more appropriate as a community-led action rather than a FEMA-led action</p>					
I	Santa Fe County	<ul style="list-style-type: none"> Per mitigation plan: Create a plan to assist vulnerable populations during natural hazard events, including the elderly, people with disabilities, and those with medical considerations. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction Community Outreach 	Community Action	No specific comment
J	Santa Fe County	<ul style="list-style-type: none"> Per mitigation plan: Implement a Homebound Delivery program to supply vulnerable residents who are homebound with food and water during natural hazard events. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction Community Outreach 	Community Action	No specific comment
K	Santa Fe County	<ul style="list-style-type: none"> Per mitigation plan: Explore creating an incentive program for installing green stormwater infrastructure (GSI) in existing development and update county codes to promote use of GSI in new development. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk reduction 	Community Action	No specific comment
L	Santa Fe County and Torrance County NFIP Participation	<ul style="list-style-type: none"> Per mitigation plan: Continue to Implement Sound Floodplain Management Practices through Participation in the National Flood Insurance Program. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction 	Community Action	No specific comment
M	Santa Fe County	<ul style="list-style-type: none"> Per mitigation plan: Implement strategies to improve stream bank stabilization. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction 	Community Action	No specific comment
N	Santa Fe County Low Water Crossings	<ul style="list-style-type: none"> Per mitigation plan: Maximize opportunities to mitigate hazards associated with specific low water crossings as part of ongoing county road improvements. Install a gate system to prevent passage in high hazard areas during flood events and incorporate advanced warning of closures at appropriate locations. County-wide, problem areas include the CR84 river crossing 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction Community Outreach 	Community Action	No specific comment
O	Santa Fe County	<ul style="list-style-type: none"> Per mitigation plan: Analyze stream and arroyo migration patterns with available LiDAR data to predict impacts on county roads and culverts. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction 	Community Action	No specific comment

Item	Description of Need		Impacts From Any Current Map Actions	FEMA Metric or Community Benefit	Evaluation	Relates to Community Comment Number
	Location of Need/Project	Details				
	<p><u>Evaluation Guide</u></p> <p>High – Local community would immediately benefit from the action, and FEMA’s metrics would also be met</p> <p>Medium – Local community would benefit over the longer term from the action, and a portion of FEMA’s metrics may be met</p> <p>Low – Local community activities can continue without this revision, and FEMA’s metrics are not impacted</p> <p>Community Action – Activity would be more appropriate as a community-led action rather than a FEMA-led action</p>					
P	Santa Fe County	<ul style="list-style-type: none"> Per mitigation plan: Utilize LIDAR surveys conducted in 2001 vs 2014 to assess differences in topography that may be indicative of problem areas associated with land subsidence, collapsible soils, landslides, channel migration, subsurface volcanic activity, earthquake faults, etc. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction 	Community Action	No specific comment
Q	Santa Fe County HMP	<ul style="list-style-type: none"> Per mitigation plan: Maintain and update multi-hazard plan through structured process. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction 	Community Action	No specific comment
R	Santa Fe County Hazardous Fuel Mitigation	<ul style="list-style-type: none"> Per mitigation plan: Expand hazardous fuel mitigation activities. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Community’s ability to mitigate risk FEMA increase public Awareness of risk management 	Community Action	No specific comment
W	Santa Fe County Public Warning System	<ul style="list-style-type: none"> Per mitigation plan: Improve public warning systems to ensure the earliest warning possible to get the public out of the way of a wildfire or flood type event. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Community’s ability to mitigate risk Community outreach improved 	Community Action	No specific comment
T	Santa Fe County Post-Wildfire Flooding	<ul style="list-style-type: none"> Per mitigation plan: Implement strategies to reduce flood and debris flow associated with wildfire burn scars. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk reduction 	Community Action	No specific comment
U	Torrance County Estancia FIRM Update	<ul style="list-style-type: none"> Per mitigation plan and following community comment D: Complete study and construction of flood control structure in Estancia on west side, near 55. Identified in engineering reports. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> FIRMs updated to reflect existing conditions Risk identification and reduction 	Community Action	Comment D
V	Torrance County Moriarty FIRM Update	<ul style="list-style-type: none"> Per mitigation plan: City of Moriarty Update flood maps within municipal limits and conduct new hydraulic studies where necessary. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> FIRMs updated to reflect existing conditions Risk identification and reduction 	Community Action	No specific comment
W	Torrance County Willard Flood Control Plan	<ul style="list-style-type: none"> Per mitigation plan: Develop and implement a flood control plan for Willard and Torrance County. Integrate with a water management plan. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction 	Community Action	No specific comment

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X	Torrance County Water Management and Flood Control Plan	<ul style="list-style-type: none"> Per mitigation plan and following community comment G: Develop and Implement water management plan for Torrance County. Integrate with new flood control plan. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction 	Community Action	Comment G
Y	Torrance County FIRM Update	<ul style="list-style-type: none"> Per mitigation plan: Update and implement floodplain and floodway maps in Torrance County and conduct new hydraulic studies where necessary. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> FIRMs updated to reflect existing conditions Risk identification and reduction 	High	No specific comment
Z	Torrance County Moriarty Stormwater Management Plan	<ul style="list-style-type: none"> Per mitigation plan: Moriarty Storm water Pollution Plan and Project 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction Improved Stormwater Management 	Community Action	No specific comment
AA	Torrance County Moriarty Master Drainage Plan	<ul style="list-style-type: none"> Per mitigation plan: Develop and Implement Moriarty Master Drainage Plan and Program 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction 	Community Action	No specific comment
AB	Torrance County Mountainair Stormwater Management Plan	<ul style="list-style-type: none"> Per mitigation plan: Mountainair Storm water Master Drainage Plan 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction Improved Stormwater Management 	Community Action	No specific comment
AC	Torrance County Encino Stormwater Management Plan	<ul style="list-style-type: none"> Per mitigation plan: Encino Storm water Drainage Project 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction Improved Stormwater Management 	Community Action	No specific comment
AD	Torrance County Culver Ordinance	<ul style="list-style-type: none"> Per mitigation plan: Torrance County Culvert Ordinance 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction 	Community Action	No specific comment
AE	Torrance County Watershed Management Plan	<ul style="list-style-type: none"> Per mitigation plan: Torrance County Watershed Management Program 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction 	Community Action	No specific comment
AF	Torrance County Stormwater Pollution Control Plan	<ul style="list-style-type: none"> Per mitigation plan: Torrance County Storm water Pollution Control Plan and Program 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction Improved Stormwater Pollution Management 	Community Action	No specific comment
AG	Torrance County Stormwater Management Plan	<ul style="list-style-type: none"> Per mitigation plan: Multi-Jurisdiction Storm Water Management Plans 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction Improved Stormwater Management 	Community Action	No specific comment
AH	Torrance County Drainage Ditch Improvements	<ul style="list-style-type: none"> Per mitigation plan: Drainage Ditch Improvements 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction 	Community Action	No specific comment

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	Location of Need/Project	Details				
	<p><u>Evaluation Guide</u></p> <p>High – Local community would immediately benefit from the action, and FEMA’s metrics would also be met</p> <p>Medium – Local community would benefit over the longer term from the action, and a portion of FEMA’s metrics may be met</p> <p>Low – Local community activities can continue without this revision, and FEMA’s metrics are not impacted</p> <p>Community Action – Activity would be more appropriate as a community-led action rather than a FEMA-led action</p>					
AI	Torrance County Hazardous Fuels Reduction	<ul style="list-style-type: none"> Per mitigation plan: Develop and Implement Hazardous Fuels Reduction Program 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Community’s ability to mitigate risk FEMA increase public Awareness of risk management Risk identification and reduction 	Community Action	No specific comment
AJ	Torrance County Outreach/Community Hazard Awareness and Education	<ul style="list-style-type: none"> Per mitigation plan: Establish county-wide community participation in Storm Ready, with Public Outreach to improve communication and planning for the impacts of severe weather through better planning, education, and awareness. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Community’s ability to mitigate risk Community outreach improved 	Community Action	No specific comment
AK	Torrance County Low Water Crossings	<ul style="list-style-type: none"> Per mitigation plan: Low Water Crossings - Identify low water crossings and repetitive flood damaged roads for potential mitigation such as low water crossing signs, TADD signs, remedial design, and culvert improvements. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk identification and reduction 	Community Action	No specific comment
AL	Torrance County	<ul style="list-style-type: none"> Create water detention ponds on western side of basin to capture flood water and recharge aquifer. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Risk reduction 	Community Action	Comment S Comment W
AM	Outreach / Coordination for Grant Opportunities	<ul style="list-style-type: none"> NMDHSEM to provide information on hazard mitigation grants 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Community outreach improved 	Community Action	No specific comment
AN	Outreach / Coordination to enter CRS Program	<ul style="list-style-type: none"> FEMA to continue to promote benefits of participation 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Potential decrease in flood insurance premiums Community outreach improved 	Community Action	No specific comment
AO	Mitigation/HMP	<ul style="list-style-type: none"> Torrance County does not have a HMP 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Impacts all communities in Torrance County Community’s eligibility for Federal/State grants Facilitate the application for HMP Grants Expedite the Grant approval process 	High Community Action	No specific comment

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 within the HUC-8 boundary must be tasked/ordered at one time.

Table 22 Project Prioritization

Project	Ranking	Need
Bernalillo County FIRM Update	High	Updated topography and BLE data, community interest in better mapping.
Torrance County Hazard Mitigation Plan	High	Meets FEMA metrics for HMP adoption.
Torrance County FIRM Update	High	Updated topography and BLE data, community interest in better mapping.