



San Juan County Multi-Jurisdictional Natural Hazard Mitigation Plan Update

(Insert Month) (Year)

Encompassing the Jurisdictions of:
San Juan County, New Mexico; the Cities of Aztec, Bloomfield, and Farmington, New Mexico; and
the Town of Kirtland, New Mexico



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Executive Summary

The San Juan County Multi-Jurisdictional Natural Hazard Mitigation Plan Update (Month/Year) is being developed to update and revise hazard mitigation activities for San Juan County, New Mexico (NM). The San Juan County Mitigation Planning Committee, or MPC, will evaluate mitigation measures to be undertaken and outline a strategy for implementation of mitigation projects. This plan encompasses five San Juan County jurisdictions, including

San Juan County, NM, and the Cities of Aztec, Bloomfield, Farmington, NM, and the Town of Kirtland, NM, supersedes the San Juan County Multi-Jurisdictional Natural Hazard Mitigation Plan (November 2013).



Formal adoption and implementation of a multi-hazard mitigation plan update may present many benefits to San Juan County, NM, and the aforementioned participating jurisdictions. Most notably, by identifying problems and possible solutions in advance of a disaster, San Juan County, NM, and the remainder of the planning area will be in a better position to obtain hazard mitigation funding from the Federal Emergency Management Agency (FEMA). This may include both pre- and post-disaster financial assistance.

This document aims to produce the following strategic outcomes:

- Reduce loss of life and decrease property losses to San Juan County and its participating jurisdictions due to natural disasters
- Provide the framework and coordination to encourage government, and both public and private sector organizations at all levels, to undertake mitigation to minimize potential disasters and to employ mitigation strategies in the recovery following disasters

Specifically, these strategic outcomes will be brought about through the following planning process:

- 1) Identify, describe, and characterize the hazards to which San Juan County and its participating jurisdictions are susceptible
- 2) Assess the risk of each hazard, including probability, frequency, exposure, and vulnerability
- 3) Examine feasible mitigation opportunities appropriate for the identified hazards, and prioritize those opportunities
- 4) Implement mitigation actions to reduce loss of life and damage to property
- 5) Identify mitigation opportunities for long-term planning consideration

Glossary of Terms

BFE – Base Flood Elevation
CRS – Community Rating System
DFIRM – Digital Flood Insurance Rate Map
DMA 2000 – Disaster Mitigation Act of 2000
EMS – Emergency Medical Services
EMA – Emergency Management Agency
EOC – Emergency Operations Center
EOP – Emergency Operations Plan
FEMA – Federal Emergency Management Agency
FIRM – Flood Insurance Rate Map
FMA – Flood Mitigation Assistance Grant Program
FP&S – Fire Prevention and Safety Grants
FOUO – For Official Use Only
GIS – Geographic Information System
HMGP – Hazard Mitigation Grant Program
HMP – Hazard Mitigation Plan
ICS – Incident Command System
LEPC – Local Emergency Planning Committee
MPC – Mitigation Planning Committee
MJNHMP – Multi-Jurisdictional Natural Hazard Mitigation Plan
NEHRP – National Earthquake Hazards Reduction Program
NEIC – National Earthquake Information Center
NFHL – National Flood Hazard Layer
NFIP – National Flood Insurance Program
NOAA – National Oceanic and Atmospheric Administration
NCEI – National Centers for Environmental Information
NMDHSEM – New Mexico Department of Homeland Security & Emergency Management
NWS – National Weather Service
PDM – Pre-Disaster Mitigation (Grant Program)
POC – Point of Contact
RFP – Request for Proposal
RL – Repetitive Loss
SFHA – Special Flood Hazard Area
SJCOEM – San Juan County (New Mexico) Office of Emergency Management
SOP – Standard Operating Procedure
SRL – Severe Repetitive Loss
SSURGO – Soil Survey Geographic Database
USACE – United States Army Corps. Of Engineers
USDA – United States Department of Agriculture
USGS – United States Geological Survey
WUI – Wildland Urban Interface

Introduction to Mitigation

The Emergency Management Cycle & Mitigation

Understanding the emergency management cycle is the first step in effectively planning and operating in relation to all disaster-related activities. The emergency management cycle is an open-ended and ongoing process. The four phases in the process are mitigation, preparedness, response, and recovery. Each phase of the cycle can last for years, months, or only moments in duration, while different paths can exist simultaneously.



Mitigation planning is the process of determining how to reduce or eliminate loss of life and damage to property resulting from natural disasters. It is carried out as any sustained action to reduce or eliminate long-term risk to life and property from a hazard event. Mitigation encourages long-term reduction of hazard vulnerability. As is the goal of emergency management, so is the goal of mitigation to save lives and reduce property damage.

The Disaster Mitigation Act of 2000 (DMA 2000)

In the past, federal legislation has provided funding for disaster relief, recovery, and some hazard mitigation planning. The Disaster Mitigation Act of 2000 became law on October 30, 2000 and amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act (the “Stafford Act”) (Public Law 93-288, as amended). Regulations for this activity can be found in Title 44 of the Code of Federal Regulations Part 206, Subpart M.

This legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. This act establishes a pre-disaster hazard mitigation program and new requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP).

Section 322 of the act specifically addresses mitigation planning at the state, local, and tribal levels. It identifies new requirements that allow HMGP funds to be used for mitigation planning activities and increases the amount of HMGP funds available to states that have developed a comprehensive, enhanced mitigation plan prior to a disaster. States and communities must have an approved mitigation plan in place prior to receiving post-disaster HMGP funds. Local and tribal mitigation plans must demonstrate that their proposed mitigation measures are based on a sound planning process that accounts for the risk to and the capabilities of the individual communities and identifiable gaps.

DMA 2000 is intended to facilitate cooperation between state and local authorities, prompting them to work together. It encourages and rewards local and state pre-disaster planning and promotes sustainability as a strategy for disaster resistance. This enhanced planning network will better enable local and state governments to articulate accurate needs for mitigation, resulting in faster allocation of funding and more effective risk reduction projects. To implement the new DMA 2000 requirements, FEMA prepared an interim final rule, published in the Federal Register on February 26, 2002, at 44 CFR Parts 201 and 206, which establishes planning and funding criteria for states and local communities.

On October 31, 2007, FEMA subsequently published an Interim Rule in the Federal Register, which ensures the Flood Mitigation Assistance (FMA) program planning requirements are consistent with the mitigation planning regulations as cited in the Code of Federal Regulations (CFR) at Title 44, Chapter 1, Part 201 (44CFR Part 201).

This interim rule established that local communities must comply with mitigation planning requirements to be eligible to apply for FEMA mitigation project grant funding, including FMA and FEMA's Severe Repetitive Loss (SRL) Program. Meeting the requirements of the regulations cited above ensures participating jurisdictions in the planning area will be eligible to receive disaster assistance, including hazard mitigation grants available through the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93-288, as amended.

San Juan County has the responsibility to coordinate activities relating to hazard evaluation and mitigation, and to prepare and submit to FEMA a local hazard mitigation plan, following the criteria established in 44 CFR 201.6 and Section 322 of the DMA 2000 (Public Law 106- 390).

DRAFT

Section 1 – Planning Process

1.1 – Plan Introduction

The San Juan County Multi-Jurisdictional Natural Hazard Mitigation Plan (MJNHMP) Update consists of five jurisdictions: one county, San Juan County, NM; three cities, Aztec, Bloomfield, Farmington, NM; and one town, Kirtland, NM. Each jurisdiction, as documented within the plan update, actively participated in the planning process from its inception. Accordingly, each jurisdiction provided at least one representative to offer a locality-specific perspective.

Members of the mitigation planning committee, or MPC, actively participated in meetings, solicited input from community members, and ensured that all jurisdictional information was reflected in the plan.

If a committee member could not attend a meeting, they were contacted by phone in order to receive all documentation from the meeting. The phone call(s) consisted of a brief overview of the meeting along with time for the planning committee member to offer his/her suggestions or comments. A detailed description of the planning process, including a list of contributions from each jurisdiction, is provided in Section 1.2.2 – Jurisdictions. A complete list of planning committee participation can be found in Section 1.3 – Stakeholder Participation.

1.2 – Plan Development

1.2.1 – Plan Drafting Stage

San Juan County’s plan revision process began on May 29, 2018, when the San Juan County Office of Emergency Management (SJCOEM) applied for a Pre-Disaster Mitigation (PDM) planning grant under HMPG-4248-0052. The County was awarded the grant to begin the process of updating its previously FEMA-approved mitigation plan. Following the funding commitments, San Juan County hired Tennessee-based BOLDplanning Inc. (BOLDplanning) to facilitate plan development.

San Juan County’s mitigation planning process was initiated on August 9, 2019, when BOLDplanning hosted a public kick-off planning meeting. At this meeting, an initial MPC, comprised of representatives from each participating jurisdiction, was organized. The MPC was instructed to solicit interested persons from their communities to also participate on the committee. All participating jurisdictions actively participated in the planning process by soliciting input and taking part in plan-related meetings.

There were five (5) planning events held throughout the planning process. The final planning event, which was the period of open comment, took place July 27-31, 2020. Due to the COVID-19 pandemic, this event was held virtually rather than in person, safely allowing the public and plan stakeholders to provide feedback from remote locations. Other planning events included meetings with representation from each of the plan’s participating jurisdictions as well as the public. Planning events also included conference phone calls with municipal and agency officials who could not attend scheduled meetings. Additionally, there were monthly situation report (SitRep) calls with San Juan County and its participating jurisdictions to provide

Planning Process

- Plan Development
- Stakeholder Participation
- Community Involvement

Local Procedures & Resources

Planning Area

Hazard Risk Assessment

Mitigation Strategy

updates along the phases of plan development. These SitRep calls were held at the beginning of each month and were facilitated by BOLDplanning via Zoom® web conferencing.

Throughout the planning process the public was given multiple opportunities to review MJNHMP drafts, ask questions, and provide input on hazards. They were also invited to provide feedback on mitigation project prioritization, hazard identification, and hazard ranking. Further, BOLDplanning launched two online Hazard Mitigation Plan (HMP) surveys created for San Juan County. The first survey, the San Juan County, NM Hazard Mitigation Plan Survey (<https://publicinput.com/C148>) allowed for MPC members, plan stakeholders, and the general public to provide input to hazards and potential hazard mitigation projects that are ongoing for the County. The second survey, the San Juan County, NM Hazard Mitigation Plan – Open Comment Survey (<https://publicinput.com/E3806>), allowed all MPC members, plan stakeholders, and the public to provide feedback and input on the MJNHMP Update prior to its submission to the New Mexico Department of Homeland Security and Emergency Management (NMDHSEM) and FEMA. Details and documentation pertaining to the participation of the MPC and the public can be found in Appendix C – Public Participation.

Planning Process Summary

- 1) Each participating jurisdiction appointed a jurisdictional representative to serve on the MPC along with SJCOEM other plan stakeholders, and BOLDplanning.
- 2) SJCOEM engaged BOLDplanning to provide staff support in facilitating the planning process and preparing the plan.
- 3) Meetings were held with MPC members to understand and agree on planning processes and steps required, including organizing resources, assessing hazards, developing a mitigation plan, implementing the plan, and monitoring progress.

BOLDplanning held subsequent discussions about the planning process with NMDHSEM staff.

1.2.2 - Jurisdictions

The following table lists the participating jurisdictions of San Juan County, their lead representative contact during the MJNHMP Update’s development, along with their MPC contributions by plan development phase.

Table 1: Jurisdictional Contribution by Planning Phase

Jurisdictional Contribution by Planning Phase				
Jurisdiction and Representative	Planning Process	Risk Assessment	Mitigation Strategy	Plan Maintenance
San Juan County Mike Mestas, San Juan County Office of Emergency Management, Director	<ul style="list-style-type: none"> Participated in Mitigation Planning Committee (MPC) Provided information on critical facilities, hazards, Points of Contact (POCs) POC and lead jurisdiction for the MPC 	<ul style="list-style-type: none"> Completed hazard history documentation Complete risk assessment questionnaire Reviewed risk assessment 	<ul style="list-style-type: none"> Provided mitigation projects and actions history Proposed mitigation projects Prioritization of mitigation projects using STAPLE+E 	<ul style="list-style-type: none"> Will participate in the Local Emergency Planning Committee (LEPC) as prescribed in Section 2 – Plan Maintenance
City of Aztec Steve Mueller, City of Aztec, City Manager	<ul style="list-style-type: none"> Participated in MPC Provided information on critical facilities, hazards, POCs POC and lead jurisdiction for the MPC 	<ul style="list-style-type: none"> Completed hazard history documentation Complete risk assessment questionnaire Reviewed risk assessment 	<ul style="list-style-type: none"> Provided mitigation projects and actions history Proposed mitigation projects Prioritization of mitigation projects using STAPLE+E 	<ul style="list-style-type: none"> Will participate in the LEPC as prescribed in Section 2 – Plan Maintenance
City of Bloomfield Cynthia Atencio, City of Bloomfield, Mayor	<ul style="list-style-type: none"> Participated in MPC Provided information on critical facilities, hazards, POCs POC and lead jurisdiction for the MPC 	<ul style="list-style-type: none"> Completed hazard history documentation Complete risk assessment questionnaire Reviewed risk assessment 	<ul style="list-style-type: none"> Provided mitigation projects and actions history Proposed mitigation projects Prioritization of mitigation projects using STAPLE+E 	<ul style="list-style-type: none"> Will participate in the LEPC as prescribed in Section 2 – Plan Maintenance
City of Farmington Rob Mayes, City of Farmington, Mayor	<ul style="list-style-type: none"> Participated in MPC Provided information on critical facilities, hazards, POCs POC and lead jurisdiction for the MPC 	<ul style="list-style-type: none"> Completed hazard history documentation Complete risk assessment questionnaire Reviewed risk assessment 	<ul style="list-style-type: none"> Provided mitigation projects and actions history Proposed mitigation projects Prioritization of mitigation projects using STAPLE+E 	<ul style="list-style-type: none"> Will participate in the LEPC as prescribed in Section 2 – Plan Maintenance
Town of Kirtland Mark Duncan, Town of Kirtland, Mayor	<ul style="list-style-type: none"> Participated in MPC Provided information on critical facilities, hazards, POCs POC and lead jurisdiction for the MPC 	<ul style="list-style-type: none"> Completed hazard history documentation Completed risk assessment questionnaire Reviewed risk assessment 	<ul style="list-style-type: none"> Provided mitigation projects and actions history Proposed mitigation projects Prioritizing mitigation projects using STAPLE+E 	<ul style="list-style-type: none"> Will participate in the LEPC as prescribed in Section 2 –Plan Maintenance

1.2.3 – Major Mitigation Planning Meetings

The San Juan County MPC held various public meetings to discuss the mitigation planning process as well as gain public support and input for the plan update. The following is a brief synopsis of those meetings. Proof of meetings, sign-in sheets, and public notification documentation can be found in Appendix C – Public Participation.

Multi-Jurisdictional Natural Hazard Mitigation Plan Update Kick-Off and Public Information Meeting – August 6, 2019

BOLDplanning was on site in San Juan County to host a kick-off meeting in the City of Aztec, NM. Prior to the meeting, a public announcement ran for two weeks in the *Daily Times* newspaper. At the meeting, the public was invited to voice any concerns, ask questions, and provide input on the mitigation plan update. The San Juan County MPC was formed during this meeting and they reviewed the planning process, asked questions, and were assigned roles. BOLDplanning worked with the MPC to collect contact information, hazard history, facility information, and other pertinent jurisdictional information. Documentation for this meeting is located in Appendix C – Public Participation.

Multi-Jurisdictional Natural Hazard Mitigation Plan Update Public Review Period – July 27-31, 2020

Prior to the Public Review Period, a public announcement ran for one week in the *Daily Times* newspaper and SJCOEM’s website. Due to the COVID-19 pandemic, and San Juan County government reopening with operations modified for COVID Safe Practices (<https://www.sjcounty.net/Home/Components/News/News/1111/16>), MPC members and the public were invited to review a draft copy of the San Juan County MJNHMP Update posted to SCJOEM’s website before voicing questions or concerns. The MPC, stakeholders, and the public provided feedback and input on the plan draft using the San Juan County, NM, Hazard Mitigation Plan – Open Comment Survey (<https://publicinput.com/E3806>), which was also posted to SJCOEM’s website (for public review) prior to submission to the State of New Mexico and FEMA. Documentation pertaining to the Public Review Period is Appendix C – Public Participation.

Multi-Jurisdictional Natural Hazard Mitigation Plan Update Final Review Meeting – (Insert Date)

The San Juan County MJNHMP Update was reviewed by the MPC and any stakeholders, as requested, prior to its submission to NMDHSEM. However, due to the COVID-19 pandemic, the San Juan County Multi-Jurisdictional Natural Hazard Mitigation Plan Update Review meeting was not able to be conducted in-person. In place of the in-person meeting, SJCOEM emailed the MPC and stakeholders, requesting final plan review and final comments (via reply email).

Multi-Jurisdictional Natural Hazard Mitigation Plan Update Adoption Signing – (Date TBD)

The San Juan County MJNHMP Update adoption letters will be disseminated and signed by the participating jurisdictions. The signing of these resolutions codifies the adoption of the plan update by the participating jurisdictions.

1.3 – Stakeholder Participation

The San Juan County MPC is made up of stakeholders working together for the development and ongoing maintenance of this plan update. The participants are grouped into actively participating representatives from the participating jurisdictions within San Juan County.

- **Mitigation Planning Committee** – This group consists of the jurisdictional representatives from the planning area, the New Mexico Department of Homeland Security & Emergency Management Agency (NMDHSEM), supporting state and federal agencies, and BOLDplanning.
- **Other Stakeholders** – This group consists of interested parties from the local community and a state university. This plan was developed with the support and input from various commercial interests.
- **Members from the public-at-large** – FEMA requires this planning effort to be open to constant input from interested citizens in compliance with the Sunshine Laws. In New Mexico, public meetings must comply with the State’s Open Meetings Act, unless established by statutory exemption. Therefore, any individual citizen who wishes to be involved in this effort to mitigate future disasters is encouraged to attend the MPC meetings and to solicit relevant comments to be included in the draft sections of the written plan.

The following table details the stakeholders and MPC members who participated in the hazard mitigation planning process. This list contains all relevant local and state agencies involved in hazard mitigation activities, agencies that have the authority to regulate development, and any appropriate neighboring communities.

Table 2: Plan Stakeholders & MPC Members

Plan Stakeholders & MPC Members			
Name	Organization	Position	Collaboration/Invitation
Principal Plan Developers			
Stu Miller	BOLDplanning	CEO	Executive management
Brittney Whatley	BOLDplanning	Project Support	Provided additional support and input; coordinated kick-off meeting
Cathleen Atchison	BOLDplanning	Project Support	Provided additional support and input; coordinated kick-off meeting
Emily Long	BOLDplanning	Mitigation Project Lead	Project lead and mitigation specialist
Rich McCarty	BOLDplanning	Project Support	Provided additional support and input
Linda Young	BOLDplanning	Plan Reviewer, Plan Editor	Plan reviewer and editor
James Woulfe	BOLDplanning	Plan Reviewer	Provided final plan review prior to NMDHSEM and FEMA submissions
Local Governments			
Michele Truby-Tillen	San Juan County Office of Emergency Management	Floodplain Manager	Mitigation Planning Committee Chair, represented jurisdiction, and provided additional support and input
Faye Anderson	San Juan County Housing Authority	Executive Director	Provided additional support and input
Georgette Allen	City of Farmington	Public Information Officer	Provided additional support and input
Greg Allen	San Juan County SC (SJSC)	Director	Provided additional support and input
Cynthia Atencio	City of Bloomfield	Mayor	Represented jurisdiction
Duane Bair	City of Farmington Fire Department, BC Wildland Division	Battalion Chief – Wildland Fire Division	Provided additional support and input
David Barnett	San Juan County Community Development	Subdivision Review	Provided additional support and input
John Beckstead	San Juan County Commission	Commissioner	Represented jurisdiction
Jeff Blackburn	City of Aztec	General Services Director	Provided additional support and input
Ryan Briggs	San Juan County LEPC Board	Chairman	Represented jurisdiction
David Burke	City of Farmington Fire	Fire Chief	Provided additional support and input
Jim Crowley	San Juan County Commission	Commissioner	Represented jurisdiction
Brice Carrant	San Juan County Under Sheriff	Under Sheriff	Represented jurisdiction
Craig Daugherty	San Juan County Fire	Retired SJC Fire Chief	Provided additional support and input
Nate Duckett	City of Farmington	Mayor	Represented jurisdiction
Mark Duncan	Town of Kirtland	Mayor	Represented jurisdiction
Doug Echols	San Juan County Legal	County Attorney	Provided additional support and input
Fran Fillerup	San Juan County Administrative Office	SJC COO	Provided additional support and input
Dan Flack	Town of Kirtland	Engineer	Provided additional support and input

Table 2: Plan Stakeholders & MPC Members (Cont'd)

Plan Stakeholders & MPC Members			
Name	Organization	Position	Collaboration/Invitation
Jack Fortner	San Juan County Commission	Commissioner	Represented jurisdiction
Lisa Hale-Blueeys	City of Farmington	Floodplain Manager	Provided additional support and input
Brent Hamilton	San Juan County LEPC	Health Committee	Represented jurisdiction; provided additional support and input
Larry Hathaway	San Juan County/Town of Kirtland	SJC Community Development, Department Head, Town of Kirtland Trustee	Provided additional support and input for both SJC and the Town of Kirtland
Steve Hebbe	City of Farmington Police Department	Chief of Police	Provided additional support and input
David Karst	City of Bloomfield Police Department	Police Chief	Represented jurisdiction
Billy Huish	San Juan County LEPC	Board member	Represented Jurisdiction
Jos Lesscher	City of Farmington Fire Department	Captain/HazMat Team Coordinator	Provided additional support and input
Rob Mayes	City of Farmington	Manager	Represented jurisdiction
Mike Mestas	San Juan County Office of Emergency Management	Emergency Manager	
John Mohler	San Juan County Fire Department	Fire Chief	Represented jurisdiction
Steve Morse	City of Aztec	Public Works Director	Represented jurisdiction
Steve Mueller	City of Aztec	Manager	Represented jurisdiction
Devin Neely	San Juan County	Public Information Officer	Represented jurisdiction; provided additional support and input
John Robinson	San Juan County Office of Emergency Management	Communications Tech	Represented jurisdiction
Ali Rye	San Juan County Office of Emergency Management	Emergency Management Coordinator	Represented jurisdiction
Steven Saavedra	City of Aztec Planning and Zoning	Floodplain Manager	Provided additional support and input
Joe Sawyer	San Juan County Legal	Deputy County Attorney	Represented jurisdiction
Ed Smylie	City of Farmington Emergency Management	General Services Director	Provided additional support and input
Mike Stark	San Juan County	County Manager	Represented jurisdiction
Mike Sullivan	San Juan County Commission	Commissioner	Represented jurisdiction
Jason Thomas	City of Bloomfield PW/Planning	PW Director	Provided additional support and input
Glojean Todacheene	San Juan County Commission	Commissioner	Represented jurisdiction
David Vega	San Juan County Wildland	Deputy Chief	Provided additional support and input

Table 2: Plan Stakeholders & MPC Members (Cont'd)

Stakeholders & MPC Members			
Name	Organization	Position	Collaboration/Invitation
State & Federal Agencies			
Veronica Chavez	New Mexico Department of Homeland Security & Emergency Management Agency (NMDHSEM) – Floodplain	Floodplain Coordinator (no longer in the position; Loretta Hatch now serves in this position)	Represented agency
Loretta Hatch	New Mexico Department of Homeland Security & Emergency Management - Floodplain	Floodplain Coordinator	Represented agency
Kerry Jones	National Weather Service (NWS) – ABQ	Meteorologist in charge	Represented agency
Sara Gerlitz	New Mexico Department of Homeland Security & Emergency Management Agency (NMDHSEM)	Mitigation Specialist	Represented agency; provided additional support and input
Catherine Watson	New Mexico Department of Homeland Security & Emergency Management Agency (NMDHSEM) – Finance	Sub-grant Analyst	Represented agency
Shawn Williams	New Mexico State Engineers	Lead Engineer	Represented agency
Academia, Neighboring Communities, Private Organizations & NGOs			
Rick Griffiths	New Mexico State University CES	SJC Specialist	Provided additional support and input
Bonnie Hopkins	New Mexico State University Extension	SJC Specialist	Provided additional support and input

1.4 – Community Involvement

The San Juan County MPC provided the opportunity for neighboring communities, agencies, businesses, academia, non-profits, and other interested parties to be involved in the mitigation planning process. The public was notified of open meetings via San Juan County’s website, and a local newspaper. BOLDplanning and SJCOEM invited all non-covered jurisdictions, including school districts and others with expiring mitigation plans, to participate in the plan update. Any jurisdiction or school district not covered in this MJNHMP update is either covered under another plan or declined to participate.

Participating jurisdictions were notified of MPC meetings via email, and phone. Emergency managers from neighboring counties were personally invited to attend the public draft review meeting. For two weeks prior to each public meeting, an announcement was placed on SJCOEM’s website. For documentation, see Appendix C – Public Participation.

At the first public planning, meeting attendees ranked and identified hazards, created a community profile, prioritized mitigation projects, and completed a risk assessment questionnaire. During this meeting, and the latter public review hearing, concerned citizens and other parties were invited to review the most current draft, provide any input of feedback, and ask any relevant questions of the San Juan County MPC and BOLDplanning.

Relevant federal, regional, state, local, and tribal governments as well as any private and non-profit organizations were invited to provide input and technical expertise. The entities, who volunteered, either in person or by providing hazard data, are listed in the following table.

Table 3: Partner Involvement by Entity

Partner Involvement by Entity		
Entry Classification	Entity	Entity Input
Federal Agencies	National Parks, NOAA, USACE, USDA NRCS, USGS, NWS	Provided weather data, dam data, land use data, and geological data
State Agencies	NMDHSEM, State Courts	Provided oversight and technical assistance; provided hazard records
Local Governments	San Juan County Emergency Management, Participating Municipalities (City of Aztec, City of Bloomfield, City of Farmington; Town of Kirtland)	Provided input as MPC members / principal subjects
Private Organizations	BOLDplanning	Directed planning effort as principal planners; provided input from various interests; Provided input – HAZUS® report
Academia	New Mexico State University Extension; New Mexico State University CES; Agriculture Farm Center – Farmington	Provided input from various interests

Section 2 – Local Procedures & Resources

2.1 – Available Resources

2.1.1 – Documentation Resources

The MPC conducted a comprehensive review of San Juan County, NM, and the plan update’s participating jurisdictions: the cities of Aztec, Bloomfield, and Farmington, and the Town of Kirtland, to determine the availability of existing emergency management and preparedness information.

San Juan County Basin Community Wildfire Protection Plan (CWPP)

San Juan County’s latest CWPP (2014) provided the local perspective basis for this plan’s wildfire hazard profile and direction for the wildfire portion of its mitigation strategy.

San Juan County Critical Facilities List

The MPC compiled a list of critical facilities and pertinent information on those facilities. This list is used throughout the plan and is the basis for the vulnerability assessments and loss estimates. The complete list is posted in Appendix D.

San Juan County Emergency Operations Plan (EOP)

SJCOEM developed a countywide EOP. Using a commercial template to follow “best practices” methodology, this plan is a “living document” that is continually being developed, tested, and updated. Relevant information regarding high-hazard dams was pulled from the EOP and integrated into this plan.

San Juan County Multi-Jurisdictional Natural Hazard Mitigation Plan

San Juan County is currently covered by a FEMA-approved local pre-disaster mitigation plan. The current MJNHMP plan (November 2013) has been reviewed and is incorporated throughout this plan per FEMA requirements.

San Juan County Growth Management Plan – 2018 Update

The San Juan County Growth Management Plan – The 2018 Update is an official public document adopted by the Board of County Commissioners as a policy guide for decisions about the physical development of the unincorporated portions of the County. The plan indicates a general way for how government leaders want the County to develop over the next 20 to 30 years.

State of New Mexico All-Hazard Emergency Operations Plan – 2016

The purpose of the State of New Mexico All-Hazard EOP (2016), is to establish the New Mexico Emergency Operations System which organizes the State’s response to emergencies and disasters while providing for the safety and welfare of its citizens.

State of New Mexico Hazard Mitigation Plan

The purpose of the State of New Mexico Hazard Mitigation Plan (Update 2018) is intended to provide the framework for hazard mitigation. The first pertains to the recovery and reconstruction phase after a given disaster. The Plan Update will be used to increase awareness and initiate development of long-range, interagency, multi- objective mitigation activities to be administered by NMDHSEM and the State Hazard Mitigation Planning Team (SHMPT) for the State of New Mexico.

Planning Process

Local Procedures & Resources

- Available Resources
- Continued Public Involvement
- Plan Maintenance Process

Planning Area

Hazard Risk Assessment

Mitigation Strategy

City of Aztec Water Conservation and Drought Plan – 2018

The purpose of the City of Aztec Water Conservation and Drought Plan (2018) pertains to the regulation, conservation, and restriction of the use of water from the City of Aztec, NM water system. Due to conditions of drought, lack of rainfall or snowpack, damage to water systems or facilities, failure of a key system component or facility, or due to civil or other emergency, the City may implement water conservation measures based upon the stages contained within the plan. The Water Conservation and Drought Plan (2018) is applicable to all citizens, businesses, industrial, and governmental customers serviced by the City’s water system.

New Mexico Drought Plan (NMDP) – 2018

The NMDP (2018) provides the state with an updated approach to address drought in order to protect its people and resources. It develops a drought response system that is adaptive to changing needs and conditions and capable of being continually upgraded through the incorporation of new information. The plan specifies that subsequent updates should be made every five years.

A Summary of the New Mexico Water Planning Drought Discussion – 2019

Prepared by the New Mexico Water Resources Institute, the summary is a report detailing the discussions (based on notes and transcripts) from the series of meetings, called the Water Planning Discussions, held in March 2019. The purpose of the discussions was to 1) inform New Mexico communities about water planning activities of the New Mexico Interstate Stream Commission, 2) gather their input on drought impacts and needed drought resources, and 3) present content on available drought resources.

San Juan County Planning Documents

San Juan County and its participating jurisdictions provided a host of planning-, zoning-, and development-related documents. These documents were reviewed, assessed, and cataloged to compile each participating jurisdiction’s capabilities profile in Section 5.1 and development profiles in Section 5.5 of the San Juan County MJNHMP Update.

2.1.2 – Fiscal Resources

The MPC conducted an assessment of their available funding options. The following is a list of federal, state, and local funding sources that are either available or relevant to the San Juan County mitigation plan update.

Fire Prevention and Safety Grants (FP&S)

These grants are administered by FEMA to enhance safety of the public and firefighters from fire and related hazards. The primary goal is to target high-risk populations and reduce injury. Fire departments, local governments, and recognized community organizations are eligible to receive this funding.

Flood Mitigation Assistance Program (FMA)

The FMA program is designed to aid in the buyout of repetitive loss (RL) and severe repetitive loss (SRL) properties as well as assist in the funding of flood mitigation projects and activities.

Hazard Mitigation Grant Program (HMGP)

The HMGP is managed by FEMA and administered by NMDHSEM. San Juan County does not have any HMGP funds available for mitigation planning.

Pre-Disaster Mitigation Grant Program (PDM)

PDM, which is managed by FEMA, is a nationally competitive grant program. The development of this plan has been funded by a PDM grant at a 75% match.

Local Revenues & Budgets

Recognizing the importance of hazard mitigation planning, San Juan County and its participating jurisdictions have self-funded the 25% match required by FEMA’s PDM grant.

2.1.3 – Technical Resources

The San Juan County MPC employed a variety of technical resources in its plan development. These technical resources were instrumental in completing an accurate vulnerability and risk assessment.

BOLDplanning Inc.

With over 16 years of experience in hazard mitigation planning, BOLDplanning Inc. was the principle plan writer.

ESRI ArcGIS v10

Each map developed for this plan, along with the HAZUS® models, were developed using ESRI’s ArcGIS v10.

FEMA DFIRM – Map Data Center

FEMA’s National Flood Hazard Layer (NFHL) data was instrumental in mapping floodplain locations and estimating potential flood impacts and loss estimates.

National Oceanica and Atmospheric Administration/National Centers for Environmental Information (NOAA/NCEI)

Weather data and historical events were primarily provided by NOAA/NCEI, which is formerly known as the National Climatic Data Center (NCDC).

U.S. Army Corps of Engineers (USACE)

USACE provided San Juan County and BOLDplanning with data from its national dam inventory containing their location and assessed hazard level.

2.2 – Continued Public Involvement

San Juan County is dedicated to involving the public in the continual shaping of its mitigation plan and the development of its mitigation projects and activities.

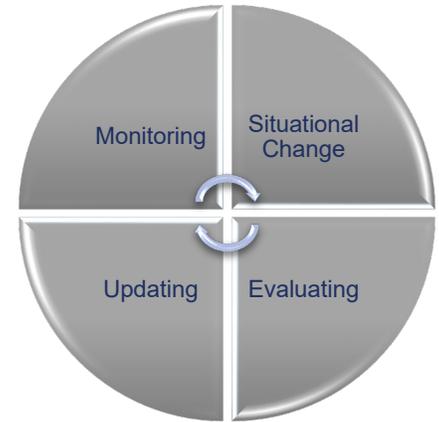
The San Juan County MPC will continue to keep the public informed about its hazard mitigation projects and activities through SJCOEM’s website. Additionally, it will provide a “comments/suggestions” option for the public to submit input through the website.

The public will also be invited to participate in annual MPC meetings to review and discuss the mitigation-related events of the past year.

Copies of the San Juan County MJNHMP Update will be available online at SJCOEM’s website and distributed to the participating jurisdictions of San Juan County, the Cities of Aztec, Bloomfield, and Farmington, and the Town of Kirtland, NM.

2.3 – Plan Maintenance Process

The San Juan County MPC has developed a method to ensure monitoring, evaluation, and updating of its mitigation plan. Upon adoption of the San Juan County MJNHMP Update, SJCOEM will utilize its Local Emergency Planning Committee (LEPC) to provide plan updates, revisions, and data collection for future MJNHMP planning purposes. The LEPC chair will form a subcommittee for proposed mitigation projects comprised of SJCOEM’s director and jurisdictional representatives from the MPC. The chair of the subcommittee will be determined by a vote in the subcommittee. Additional members may be added based on necessity. The sub-committee will submit a quarterly report to the LEPC, which in turn, will submit an annual report to SJCOEM. Refer to the San Juan County MJNHMP Update Quarterly Report form at the end of this section for additional details.



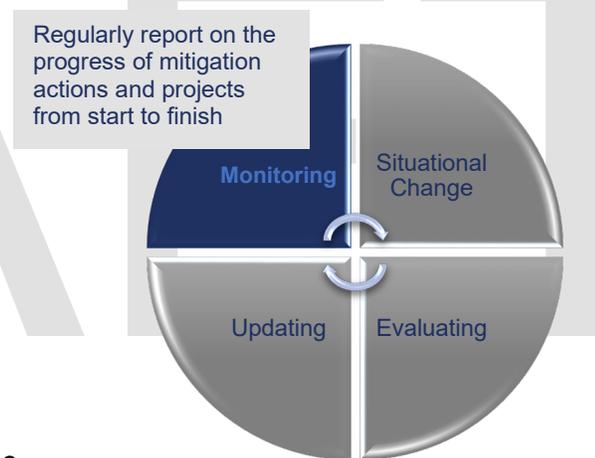
SJCOEM may request a non-scheduled report on the monitoring, evaluation, or updating of any portion of the MHMP plan due to irregular progress on mitigation actions and or projects, in the aftermath of a hazard event, or for any reason deemed appropriate.

2.3.1 – Plan Monitoring & Situational Change

Plan monitoring can be defined as the ongoing process by which stakeholders obtain regular feedback on the progress being made towards achieving their goals and objectives. In the more limited approach, monitoring may focus on tracking projects and the use of the agency’s resources. In the broader approach, monitoring also involves tracking strategies and actions being taken by partners and non-partners, and figuring out what new strategies and actions need to be taken to ensure progress towards the most important results.

A monitoring report will be written and submitted for review to the LEPC and after the annual MPC meeting or when triggered by situational change. The monitoring report answers the following questions:

- ✓ *Is the mitigation project under, over, or on budget?*
- ✓ *Is the mitigation project behind, ahead of, or on schedule?*
- ✓ *Are there any changes in San Juan County’s capabilities which impact the PDM plan?*
- ✓ *Are there any changes in San Juan County’s hazard risk?*



- ✓ *Has the mitigation action been initiated or its initiation planned?*
- ✓ *Is the current process of prioritizing mitigation actions and projects appropriate and accurate?*
- ✓ *Has the current method of incorporating mitigation actions and projects yielded a comprehensive action and project strategy to address seen and unforeseen hazards?*
- ✓ *If applicable, has participation in a mitigation action's collaboration been regular?*
- ✓ *Was a negative result caused directly or indirectly by insufficient levels of public outreach?*
- ✓ *If any, what plan updates occurred, why they occurred, and what is their impact?*

The plan maintenance process is cyclical and maintenance items can operate simultaneously within the process.

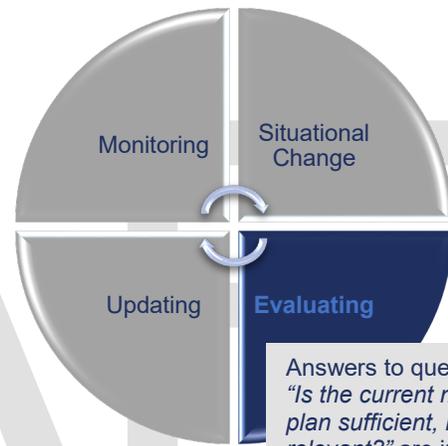
2.3.2 – Plan Evaluating

A plan evaluation is a rigorous and independent assessment of either completed or ongoing activities to determine the extent to which they are achieving stated objectives and contributing to decision making.

An evaluation report (see example on the next page) will be written and submitted to San Juan County's LEPC when the situation dictates.

The following situations are typical examples of when an evaluation will be necessary.

- Post hazard event
- Post training exercise
- Post tabletop or drill exercise
- Significant change or completion of a mitigation project
- Significant change or completion of a mitigation action



Answers to questions e.g., "Is the current mitigation plan sufficient, helpful and relevant?" are imperative during an evaluation

An evaluation report will ask the following questions in response to the previously listed events.

- ✓ *Do the mitigation objectives and goals continue to address the current hazards?*
- ✓ *Are there new or previously unforeseen hazards?*
- ✓ *Does a change in hazard vulnerability demand a change of or addition of mitigation actions or projects?*
- ✓ *Does a change in the mitigation strategy demand a change of or addition of mitigation actions or projects?*
- ✓ *Are current resources appropriate for implementing a mitigation project?*
- ✓ *Was the outcome of a mitigation action/project expected?*
- ✓ *Are there implementation problems?*

- ✓ Was the public engaged to the point where they were satisfied with current engagement strategies?
- ✓ Did the public participate in a number that produced a positive yield on the plan, action, or project?
- ✓ Are there coordination problems?

2.3.3 – Plan Updating

Typically, a MJNHM plan update is initiated upon the completion of a plan evaluation and even then, only when the evaluation determines an update is appropriate. Additionally, when new hazard data becomes available, it will be added to the MJNHM plan. New data will be confirmed or denied at annual MPC meetings.

For whatever reason, a MJNHM plan update can be written any time it is deemed necessary by SJCOEM.

According to FEMA DMA 2000 guidelines for mitigation planning, San Juan County will begin the update process three years from this plan’s adoption. It will do so under the direction of the county’s EMA Director.



An update is necessary if any deficiencies are found during plan evaluation

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2.3.4 – Evaluation Report

**San Juan County Local Emergency Planning Committee
San Juan County Multi-Jurisdictional Natural Hazard Mitigation Plan
Evaluation Report**

Pre-Disaster Mitigation Plan Sub-Committee Chair: _____

Meeting Date: _____

Plan Approval Date: _____

Plan Expiration Date: _____

Have there been any disasters or training event since the last report? If so, list them below:

Disaster Number/ Training Event	Hazard Type(s)	Was the hazard expected or unforeseen?	Is a plan update required?
<i>Example: DR-1000</i>	<i>Volcanic Eruption</i>	<i>Unforeseen</i>	<i>Yes</i>
<i>Example: Annual Training</i>	<i>Flash Flooding</i>	<i>Expected</i>	<i>No</i>

Mitigation Projects:

Mitigation Project	Participating Jurisdictions	Proposed/Scheduled/In Progress/Completed	Behind/Ahead/On- Schedule	Estimated Completion Date
<i>Example: Tornado Safe Room</i>	<i>Cash</i>	<i>In Progress</i>	<i>On-Schedule</i>	<i>1/1/2016</i>

Public Engagement and Outreach Notes:

Miscellaneous Notes:

Section 3 – Planning Area

San Juan County was created January 24, 1887, and is named for the San Juan River, which begins in the San Juan Mountains. The City of Aztec is the county seat for San Juan County, while the City of Farmington is its largest metropolitan area. Located in Northwest New Mexico, the borders of San Juan County are portions of Colorado, Arizona, Utah, which is known as the "Four Corners." The County contains the Colorado Plateau, which is the picturesque portion of the Navajo Nation. Large parts of Chaco Canyon National Monument and the Navajo Reservation are also contained within San Juan County's boundaries. The planning area's primary economy sources are retail trade, mining/natural gas acquisition, healthcare, social assistance, and construction.

In the 1900s, the population of San Juan County was growing as an agricultural center of fruit orchards and vegetable farms. By 1905, the Denver and Rio Grande Railroad built a railroad through the area and the county seat became a shipping point for sheep and cattle. By 1950, oil and gas had become a new industry bringing thousands of people to the area. More recently, the oil and gas industry has been diversified by a strong growth in retail and tourism. Previous to settlement and growth in the nineteenth and twentieth centuries, the land was home to the ancient Anasazi, with many ruins calling forth the rich and ancient history of the land and its people.

As reported by the U.S. Census Bureau, the San Juan County has a total area of 5,538 square miles, of which 5,513 is land and 25 square miles is water. First Nation (Indian) reservations and off-reservation trust lands comprise 63.4% of the County's land area—with the Navajo Indian Reservation taking up 60.45% and the Ute Mountain Ute Tribe Reservation another 2.93%.

According to the 2010 U.S. Census, the population of San Juan County was 130,045. The estimated population on July 1, 2019 has declined by 3.8% to 125,043.

Transportation routes located in San Juan County include U.S. 491 (formerly U.S. 666), running on a north/south axis in the western portion of the County from Cortez, Colorado, in the north through Shiprock and into McKinley County, NM, to the south. U.S. 550 enters San Juan County from Durango, Colorado, in the north and runs through the Cities of Aztec and Bloomfield, and into Sandoval County, NM to the southeast. N.M. State Road 170 starts at the Colorado border, and ends in the city of Farmington, NM, while N.M. State Road 371 runs south from the City of Farmington and into McKinley County, NM. In addition, San Juan County is traversed along an east/west axis by U.S. 64, which runs from Rio Arriba County, NM (east) to the State of Arizona (west).

Following is an overview of the participating jurisdictions within the planning area:

City of Aztec: The City of Aztec is located on the Animas River in the northwest part of San Juan County, east of Farmington and north of Bloomfield. Aztec began as a community of traders and fur trappers in the early 1820's. Founded in 1887, the City of Aztec is the official seat of San Juan County. Aztec is traversed by U.S. 550 from the Colorado border through town and south to the City of Bloomfield, NM, and is intersected by State Road 173 on the east and is connected to Farmington by State Road 516 on the west. Aztec is governed by a City Commission, with a City Manager running the City's day-to-day operations.

Planning Process

Local Procedures & Resources

Planning Area

- Demographics
- Land Use & Development
- Critical Facilities & Infrastructure

Hazard Risk Assessment

Mitigation Strategy

What is now known as the City of Aztec (and the immediate area) has been occupied and used on and off for over 1,000 years. Historians believe that the Ancestral Puebloans “reached their peak around 1100 A.D.”(i). However, 200 years later the area was abandoned. The land may have been abdicated due to a long draught, or perhaps continuous raiding by enemy tribes. The area was not used extensively again until the 1500s with the arrival of the hunting/gathering Navajo people from the north.

Aztec’s recorded history begins in 1776, with the arrival of Father Francisco Atanosio Dominguez and Father Francisco Velaz de Escalante. They were searching for a shorter overland route from Santa Fe, NM, to California. That route was never found, but their trailblazing through the Aztec area brought others to the land. In fact, historians note that the Aztec’s name can be attributed to Father Escalante’s finding of ancient ruins believed to have been built by the Aztec Indians of Mexico.

As noted above, Aztec became an established community in 1887. Agriculture, horticulture, and animal farming provided the first economic base for the community. In 1901, the Durango Oil and Fuel Company drilled the first oil test on the east side of Aztec. This led the way for other oil and gas companies coming in, especially those that specialized in shallow drilling. By 1955, Aztec’s population was at an all-time high of 7,000 people. The estimated population as of 2019 was 6,442.

City of Bloomfield: The City of Bloomfield is located to the east of Farmington and south of Aztec in the northwest corner of San Juan County. It is located on the San Juan River, and was founded in 1881 and incorporated in 1950. Presently, Bloomfield’s economy is based on the oil and gas industry, which began in the 1950’s. Bloomfield is traversed from north to south by U.S. 550, which runs from Aztec in the north and south to I-40 and Albuquerque. Bloomfield is also traversed from east to west by U.S. 64, which runs from Rio Arriba County, NM, in the east to the City of Farmington in the west. Bloomfield contains 5.06 square miles; has a population density of 1280.7 persons per square mile; and is located at an elevation of 5,600 feet. Bloomfield is governed by a Mayor/City Council/City Manager system, with the City Manager running the City’s day-to-day operations. Geographically, Bloomfield is situated among Native American tribal lands, including the Navajo, Jicarilla Apache, the Southern Ute, and the Ute Mountain reservations. As of July 1, 2019, population estimations indicate that the City of Bloomfield has a population between 7,842 and 8,552, and ranks in the upper quartile for Population Density and Diversity Index when compared to other cities, towns, and places in the State of New Mexico.

City of Farmington: The City of Farmington is located in the northwestern part of San Juan County, and is the County’s largest metropolitan area. It was established in 1876 at the confluence of the Animas, La Plata, and San Juan Rivers. Originally called Junction City, it was later renamed Farmington, due to its largely agricultural economy. The City was incorporated in 1901. The 1950’s proved to be a major economic boom for Farmington due to the development of the oil and gas industry. The City of Farmington is the sixth largest city in New Mexico, with a population of 47,552 as of July 1, 2019. Farmington also ranks in the upper quartile for Population Density and Diversity Index when compared to other cities, towns, and U.S. Census Designated Places (CDPs) in the State of New Mexico.

Town of Kirtland: The Town of Kirtland encompasses a portion of the former U.S. Census CDP of the same name in San Juan County. The population of the former CDP was 6,190 at the time of the U.S. Census 2000. It is part of the Farmington Metropolitan Statistical Area. The town was incorporated in January 2015, after an 80-40 vote approving incorporation. Within this new town, there is an estimated population of 494 people. Although a new municipality, the history of Kirtland goes back to the nineteenth century. It was founded in the early 1880s by Mormon settlers who named it after Kirtland, Ohio. Reflecting its history, Kirtland’s main street is Brigham Street (named after Brigham Young, an early Latter-Day Saints

Leader). The Town of Kirtland covers 0.670 square miles, all of which is land—at an elevation of 5,187 feet.

San Juan County: San Juan County is governed by a County Commission with a County Manager handling its day-to-day operations. The County’s law enforcement is provided by municipal police departments in the Cities of Aztec, Bloomfield, and Farmington; the County Sheriff’s Department; and the New Mexico State Police. Fire protection is provided by municipal fire departments in the City of Farmington, and various volunteer departments located throughout the county.

The County encompasses 5,538 square miles and an estimated population (2018) of 130,044 throughout 49,341 residential units. The total value of structures in the planning is estimated at \$9,132,103 (per HAZUS®).

Table 4: Structural Summary, San Juan County

Structural Summary							
Jurisdiction	Agricultural	Commercial	Government	Industrial	Residential	Education	Religious
San Juan County	\$31,829	\$1,358,404	\$63,698	\$417,364	\$6,924,850	\$158,725	\$177,233

Data Source: FEMA’s HAZUS® database

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Table 5: Populations Summary

Populations Summary		
Jurisdiction	Housing	Population
San Juan County	49,341	130,044
Aztec City	2,892	6,763
Bloomfield City	3,100	8,112
Farmington City	17,548	45,877
Kirtland CDP	2,650	7,875
Total	75,531	198,671

Data Source: U.S. Census Bureau, American Fact Finder, 2010 Demographic and Housing Profile Data (factfinder.census.gov)
 Note: The town of Kirtland was incorporated as a township after the 2010 Census and there is no data that is available for this jurisdiction at the time of the plan update. The town of Kirtland will participate for the first time in the 2020 Census. The data for the Town of Kirtland comes from the Kirtland, CDP, New Mexico in the 2010 Census.

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3.1 – Demographics

San Juan County is the 5th largest county by population and 6th largest county by land area in New Mexico. However, the population of San Juan County and its participating jurisdiction(s), namely the Cities of Aztec, Bloomfield, and Farmington, are on average slightly decreasing. Since the development of their last mitigation plan, the U.S. Census Bureau reported the population of San Juan County increased by more than 14% between 2000 and 2010 (113,801 to 128,221). The U.S. Census Bureau estimates as of 2018, San Juan County has a total of 125,043 people residing within its boundaries. The populations of the Cities of Aztec, Bloomfield, and Farmington have decreased since the previous mitigation plan. The table below details the participating jurisdiction(s)’ demographic information.

Table 6: Community Demographics

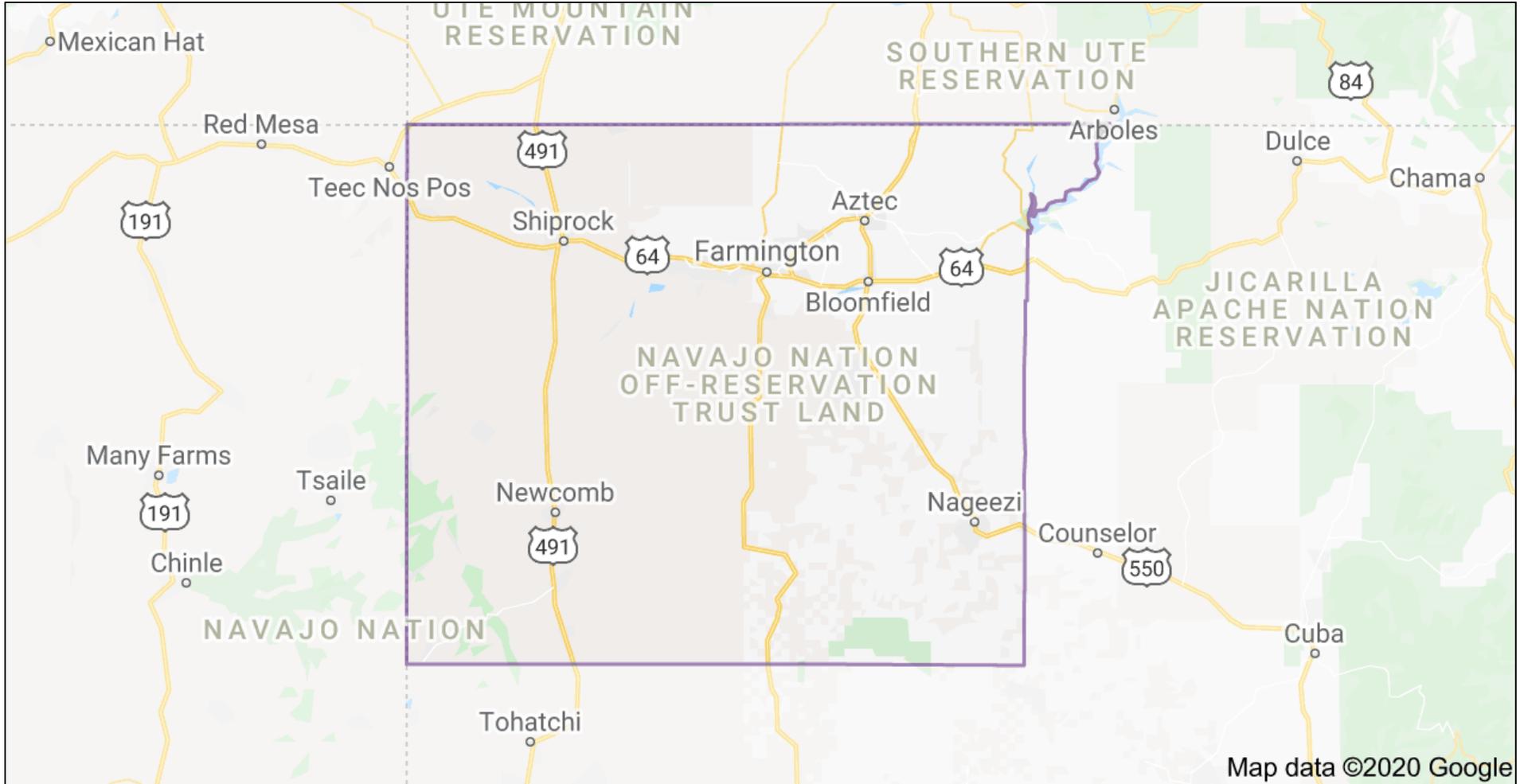
Community Demographics							
Jurisdiction	Size (Sq. Mi.)	Population			% Population Change		
		2000	2010	2018	2000 - 2010	2010 - 2018	2000 - 2018
San Juan, County	5,513	113,801	130,044	128,221	14.27%	-1.402%	12.67%
Aztec, City	12.53	6,378	6,763	6,635	6.04%	-1.893%	4.03%
Bloomfield, City	7.91	6,417	8,112	8,039	26.4%	-0.9%	25.3%
Farmington, City	31.51	37,844	45,857	47,857	21.23%	4.32%	26.46%
Kirtland, CDP	.67	6,190	7,875	-	27.2%	-	-

Data Source: U.S. Census Bureau – American Fact Finder (factfinder.census.gov) The 2017 demographic figure is from the U.S Census American Fact Finder – 2017 American Community Survey Demographic and Housing Estimates.

Note: The Town of Kirtland was incorporated as a township after the 2010 Census and there is no data that is available for this jurisdiction at the time of the plan update. The Town of Kirtland will participate for the first time in the 2020 Census. The data for the Town of Kirtland comes from the Kirtland, CDP, New Mexico in the 2010 Census.

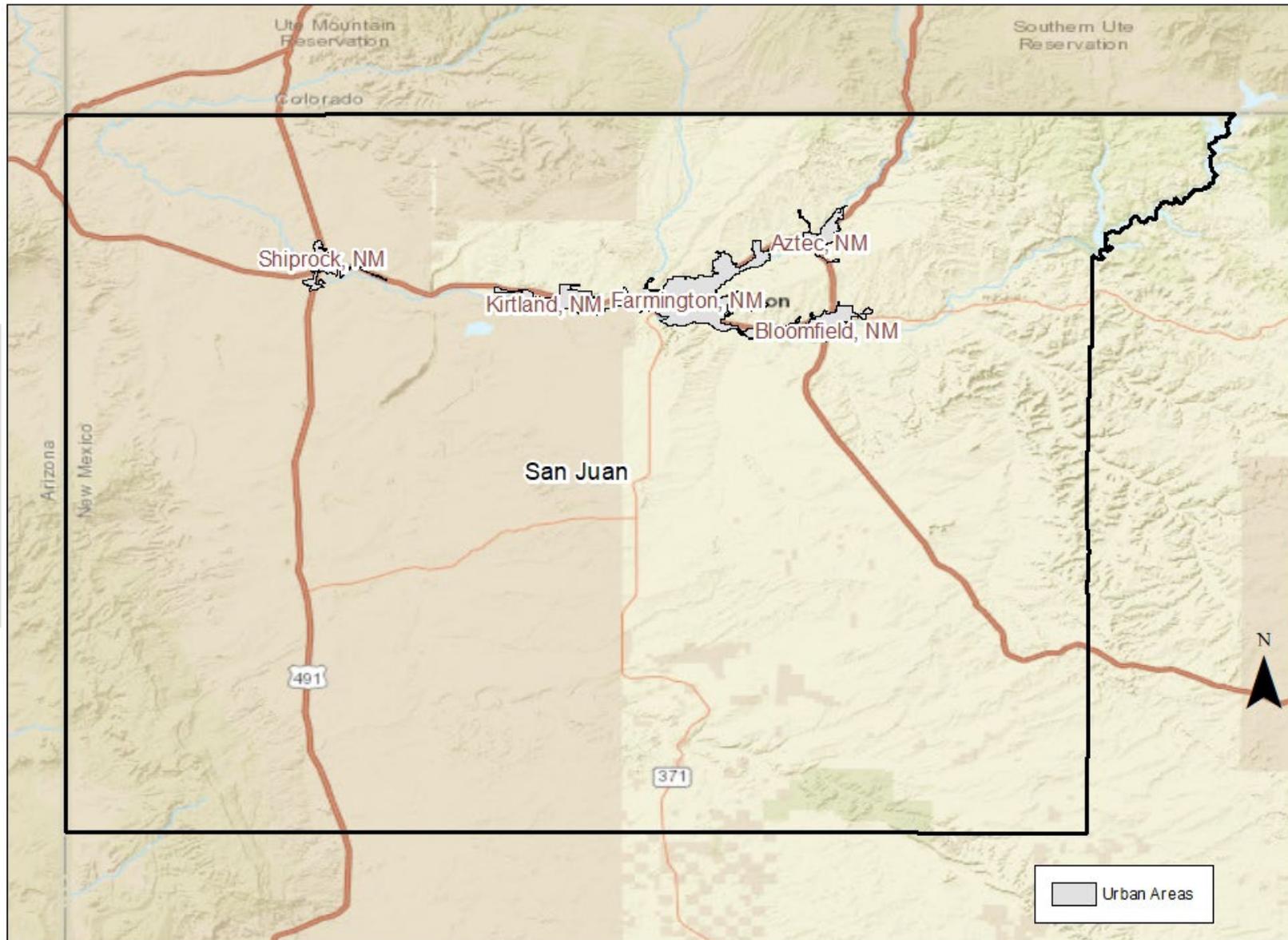
* Percent of Population Change Calculation: <https://www.omnicalculator.com/math/percentage-change#how-to-calculate-the-percent-change>

Map 1: San Juan County, NM - Community Profile



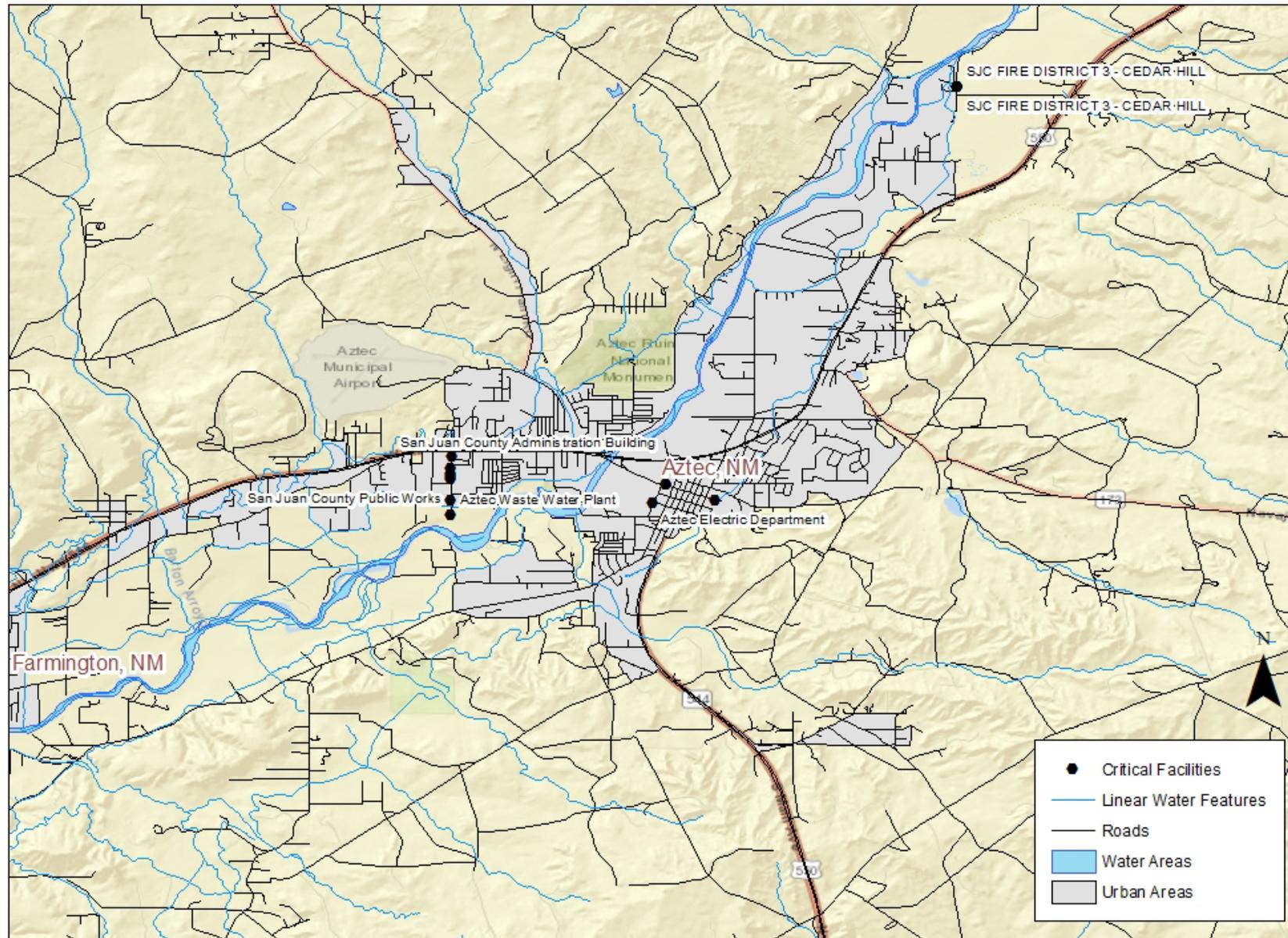
Map Source: Google Maps

Map 2: San Juan County, NM - Community Profile



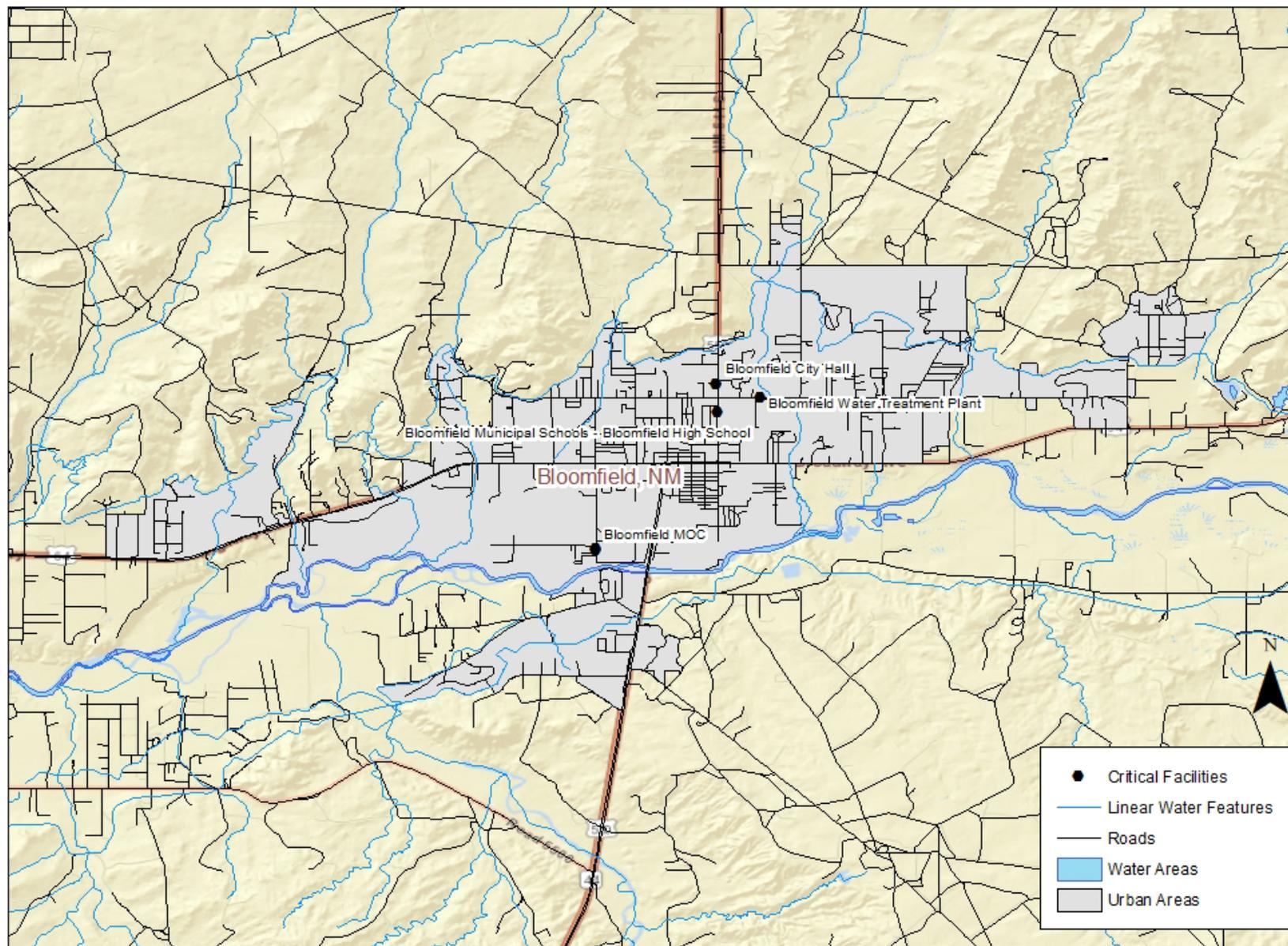
Map Source: BOLDplanning

Map 3: City of Aztec, NM - Community Profile



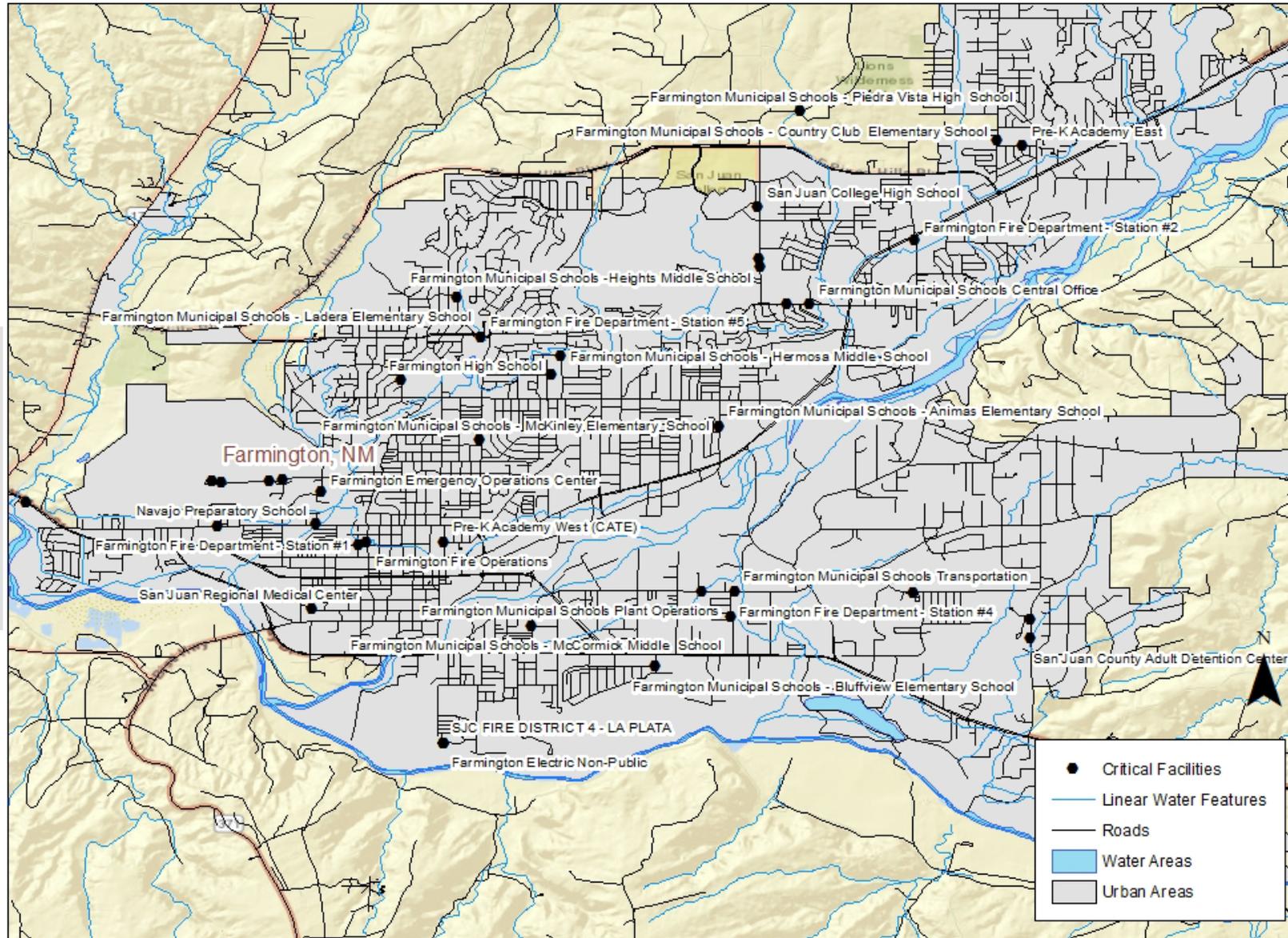
Map Source: BOLDplanning

Map 4: City of Bloomfield, NM - Community Profile



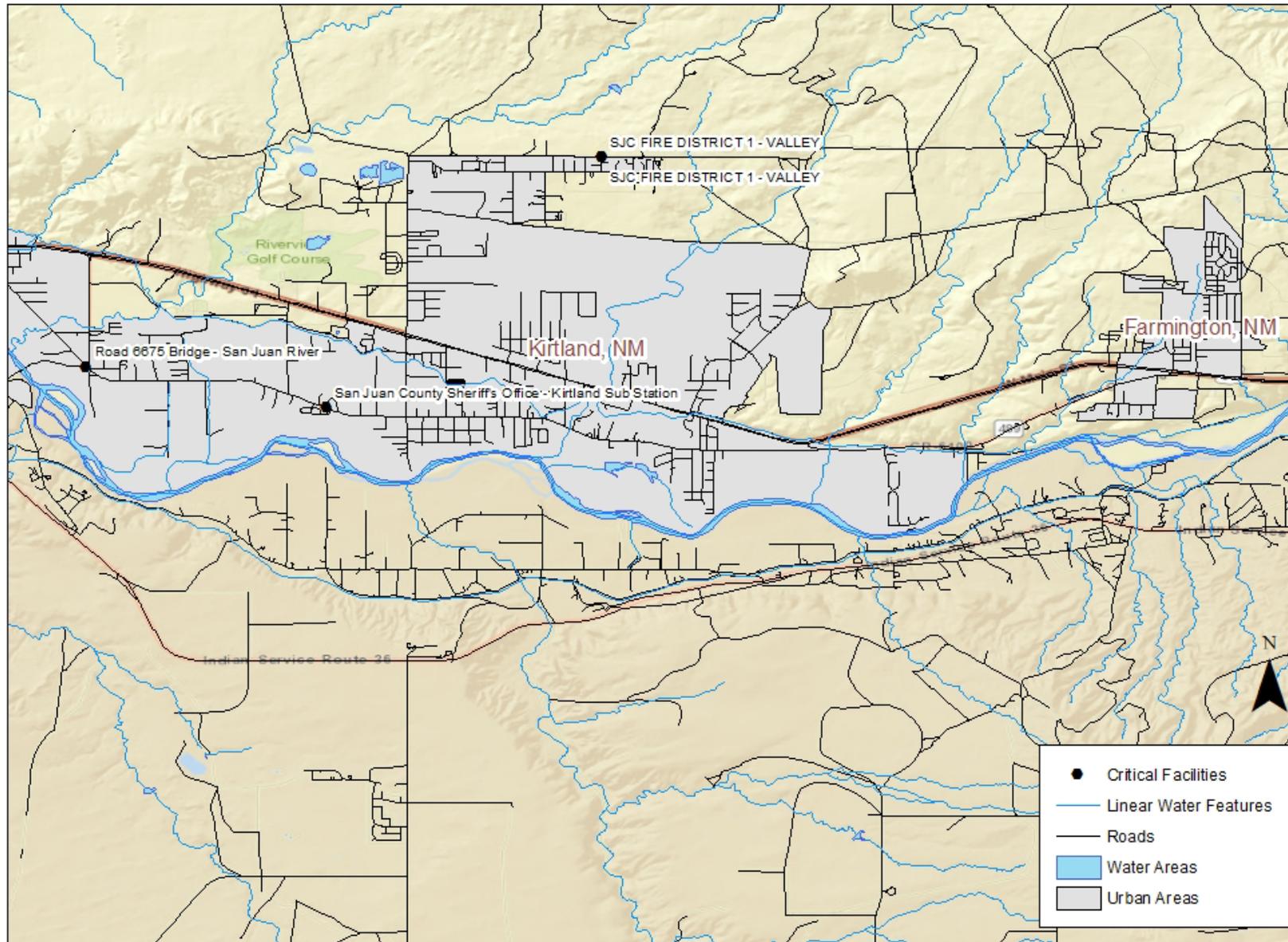
Map Source: BOLDplanning

Map 5: City of Farmington, NM - Community Profile



Map Source: BOLDplanning

Map 6: Town of Kirtland, NM - Community Profile



Map Source: BOLDplanning

3.2 – Land Use & Development Trends

Since the development of its last MJNHMP Update, the U.S. Census Bureau reported the population of San Juan County increased by more than 14% between 2000 and 2010 (113,801 to 128,221). The San Juan County Growth Management Plan (2018) states that the loss of high-paying jobs, which require a great deal of highly specific technical skill, has resulted in a contracting population, decreased median income, and a demographic shift towards an older population. Entities within the County have made a great effort to diversify the economy and meet the economic demand of various market sectors, but few target industries can provide the same level of employment and income as the waning oil and gas industry.

Concerning land use and development trends, the San Juan County Growth Management Plan (2018), indicates that residents of San Juan County take great pride in the freedom to use their land as they see fit. Noncontiguous development has led to the inefficient expansion of public infrastructure. Private roadways, not subject to county road standards, have inadvertently spurred greater growth than they have the physical or functional capacity to handle. Counting indirect employment and induced ripple effects, the region could lose up to 3,180 jobs and \$213.3 million in annual income, cutting annual tax receipts for local, tribal, and state government by \$43.3 million.

Much effort has been made to reposition the County and diversify its economy, and target industries have been identified in Outdoor Recreation, Petrochemicals, Agriculture, Retirement Developments. The Outdoor Recreational Industry Initiative (ORII) is a recent effort to develop and attract outdoor recreation tourism and manufacturing. Also, the effort to develop petrochemicals manufacturing and distribution would take advantage of the existing oil and gas transportation network and may offer a solution to developing manufacturing without the transportation infrastructure to distribute goods efficiently. The County has seen significant increases in irrigated acreage, crop diversity, and the value of agricultural products produced in recent years. Local efforts, including Local Foods Local Places, stand to expand the agricultural goods industry in San Juan County. The County continues efforts to attract retirement developments and expand workforce development and business incubation. San Juan College's Enterprise Center plays a central role in workforce development. Another key is attracting businesses and workforce, which may be inhibited by a lack of orderly development and insecurities about the future land value and potential uses, due to a lack of existing regulation.

For more information on each hazard's effect the entire planning area, see Section 4 – Hazard Risk Assessment. A hazard specific analysis, as it pertains to land use and development trends, is covered under each hazard in Section 4 – Hazard Risk Assessment.

3.3 – Critical Facilities

Certain facilities have a net positive value on the community, that is, they contribute to the public good by facilitating the basic functions of society. These facilities maintain order, public health, education, and help the economy function. Additionally, there are infrastructure and facilities integral to disaster response and recovery operations. Conversely, some infrastructure and facilities are of extreme importance due to the negative externalities created when they are impacted by a disaster. What fits these definitions will vary slightly from community to community, but the definitions remain as a guideline for identifying critical facilities and infrastructure. For San Juan County and its participating jurisdictions, the table below lists the identified critical facilities and infrastructure. A complete list can be found in Appendix D.

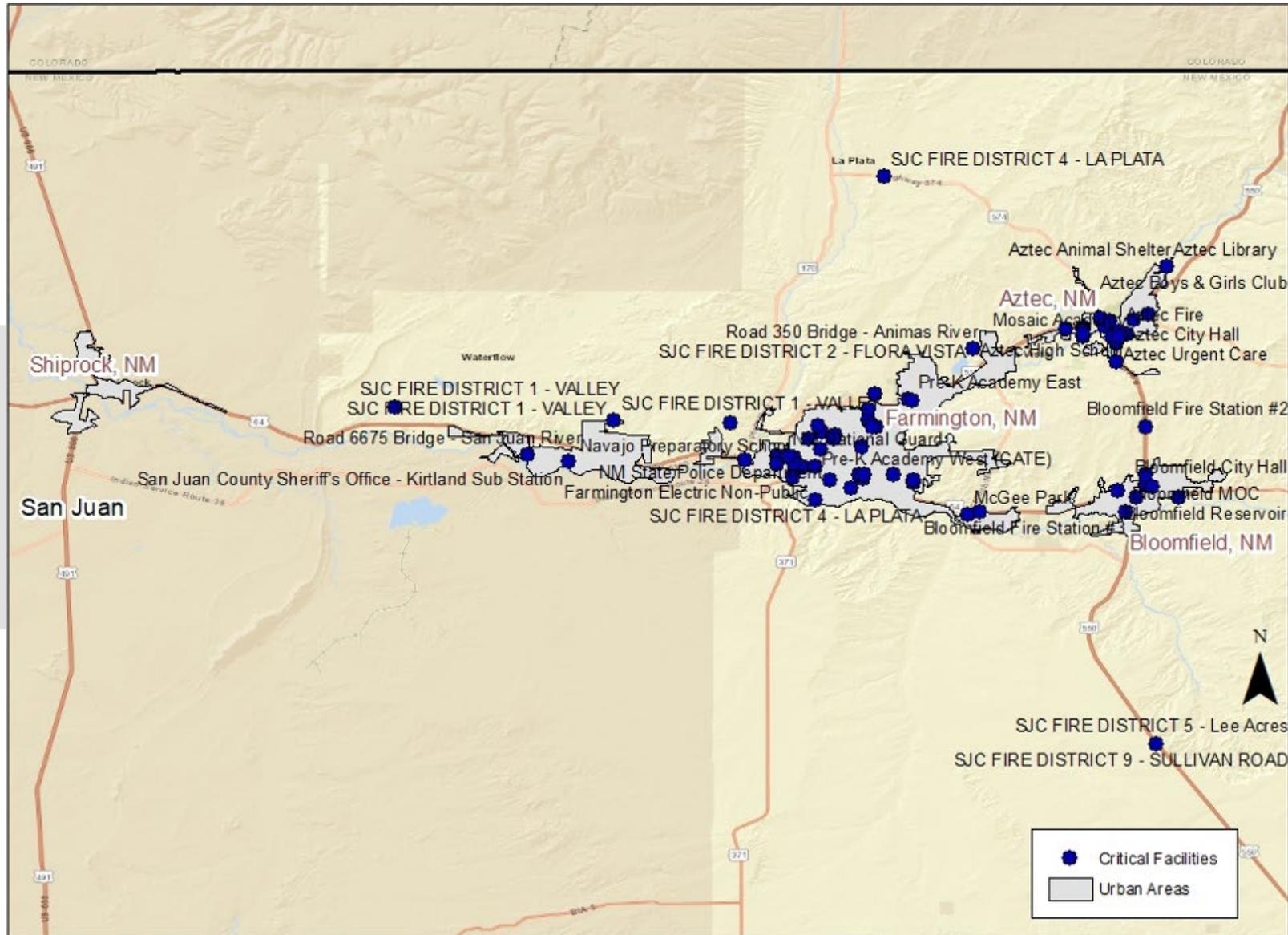
Table 7: Critical Facilities, San Juan County

Critical Facilities, San Juan County								
Jurisdiction	911/ Communication	Airport	Electrical Utility	Emergency Operation Center (EOC)	Emergency Shelter/ School	Fire Station	Hospital	Major Government Building
San Juan County	0	0	0	0	0	5	0	1
City of Aztec	1	0	1	1	1	6	0	3
City of Bloomfield	0	0	0	0	1	5	0	1
City of Farmington	0	1	1	1	23	10	1	4
Town of Kirtland	0	0	0	0	0	3	0	0
Total	1	1	2	2	25	29	1	9

Table 7: Critical Facilities, San Juan County (Cont'd)

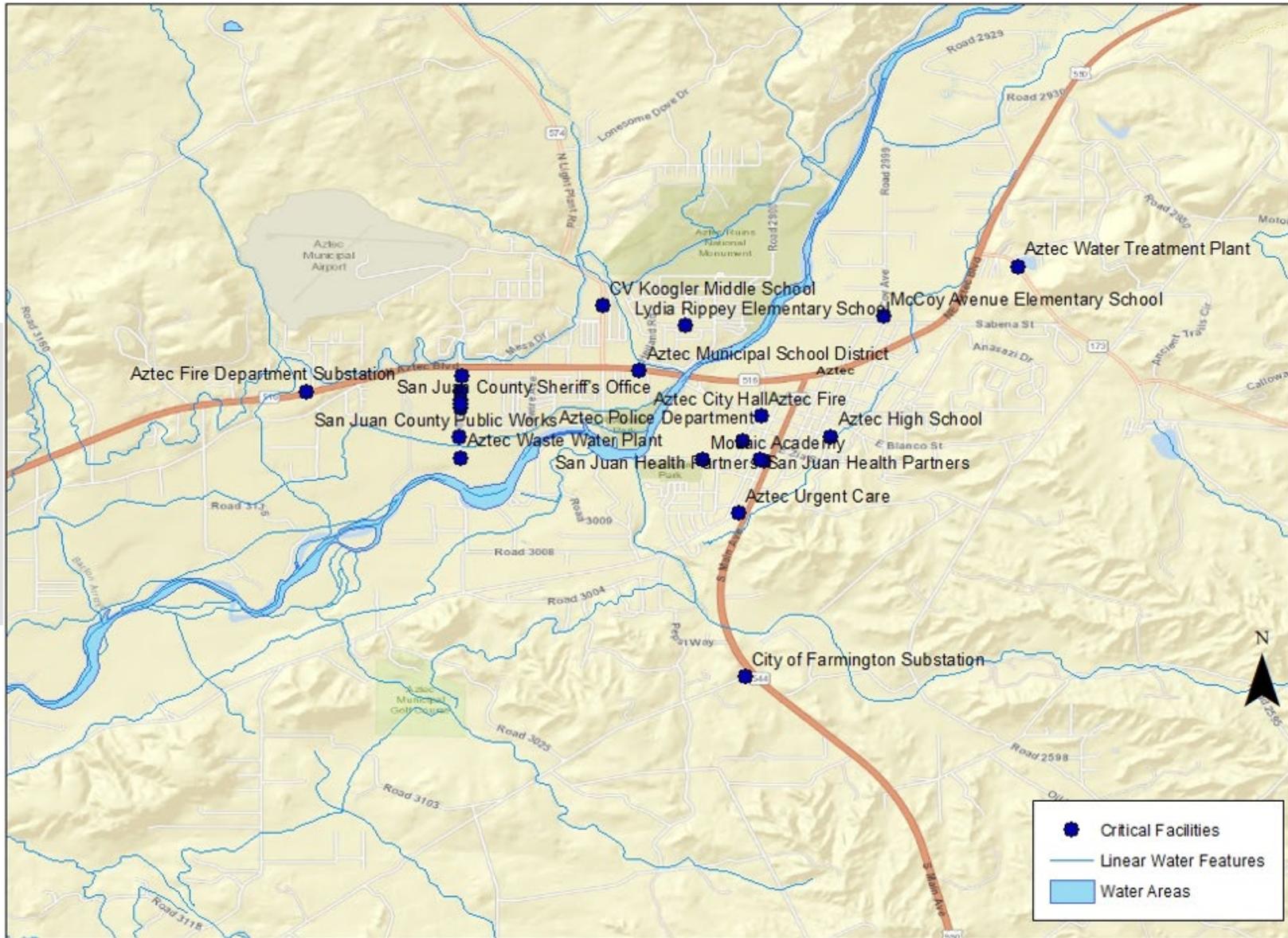
Critical Facilities, San Juan County						
Jurisdiction	Major Bridge	Police Station	Water Treatment/ Pumping Station	Other	Blank/ Uncategorized	Total Number of Critical Facilities within San Juan County and All Participating Jurisdictions
San Juan County	2	0	0	0	0	8 – (5 Fire Stations, 1 Major Government Building, and 2 Major Bridges)
City of Aztec	0	2	1	1	0	17 – (1 911/Communications, 1 Electrical Utility, 1 Emergency Operations Center (EOC), 1 Emergency Shelter/School, 6 Fire Stations, 3 Major Government Buildings, 2 Police Stations, 1 Water Treatment Plant/Pumping Station, and 1 Other)
City of Bloomfield	1	0	1	0	1	10 – (1 Emergency School/Shelter, 5 Fire Stations, 1 Major Government Building, 1 Major Bridge, 1 Water Treatment Plant/Pumping Station, and 1 Blank / Uncategorized)
City of Farmington	1	2	0	0	0	44 – (1 Airport, 1 Electrical Utility, 1 Emergency Operation Center (EOC), 23 Emergency Shelter/Schools, 10 Fire Stations, 1 Hospital, 4 Major Government Buildings, 1 Major Bridge, and 2 Police Stations)
Town of Kirtland	0	1	0	0	0	4 – (3 Fire Stations and 1 Police Station)
Total	4	5	2	1	1	83

Map 7: San Juan County, NM, Critical Facilities & Infrastructure



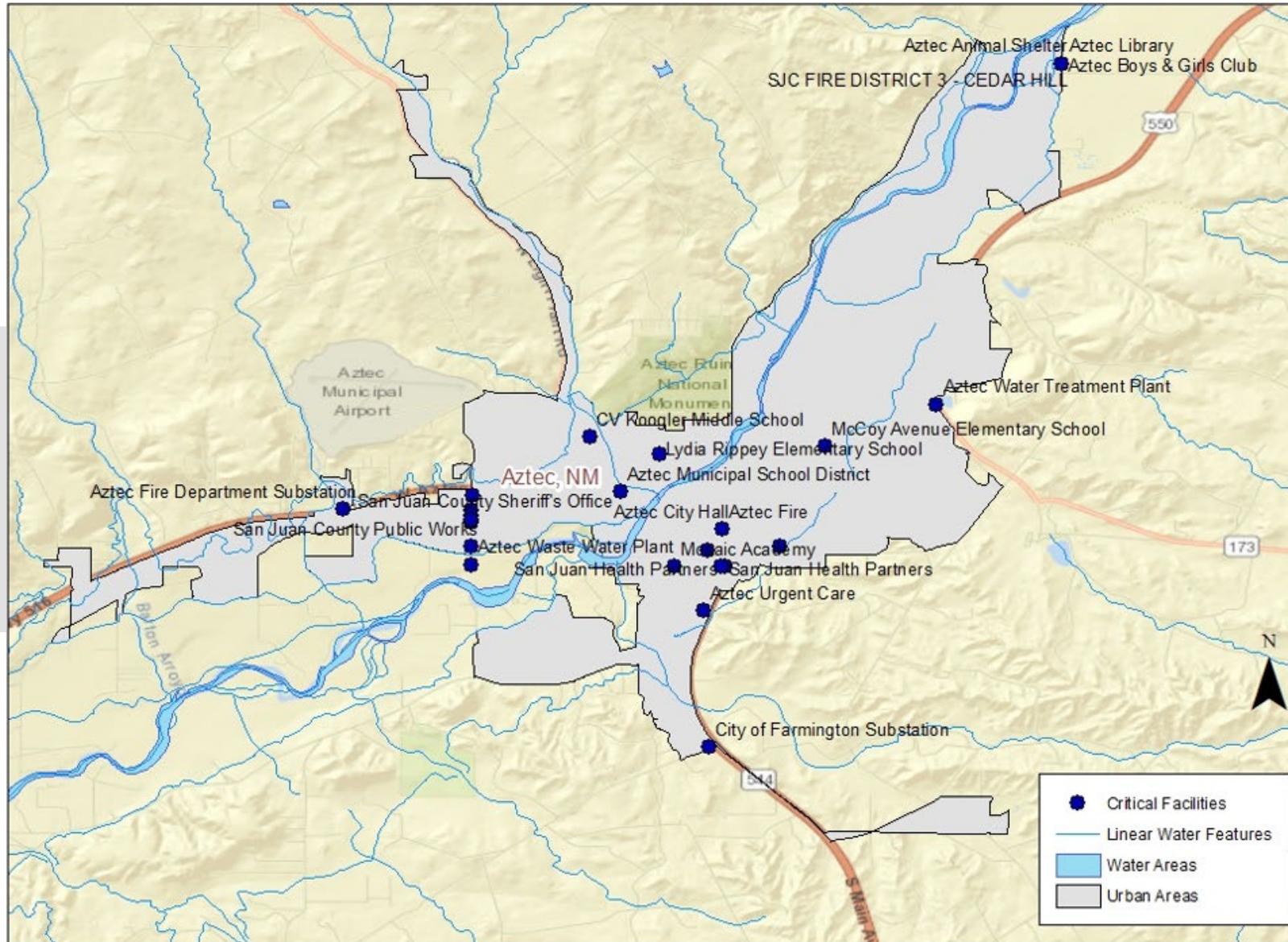
Map Source: BOLDplanning

Map 8: City of Aztec, NM, Critical Facilities & Infrastructure

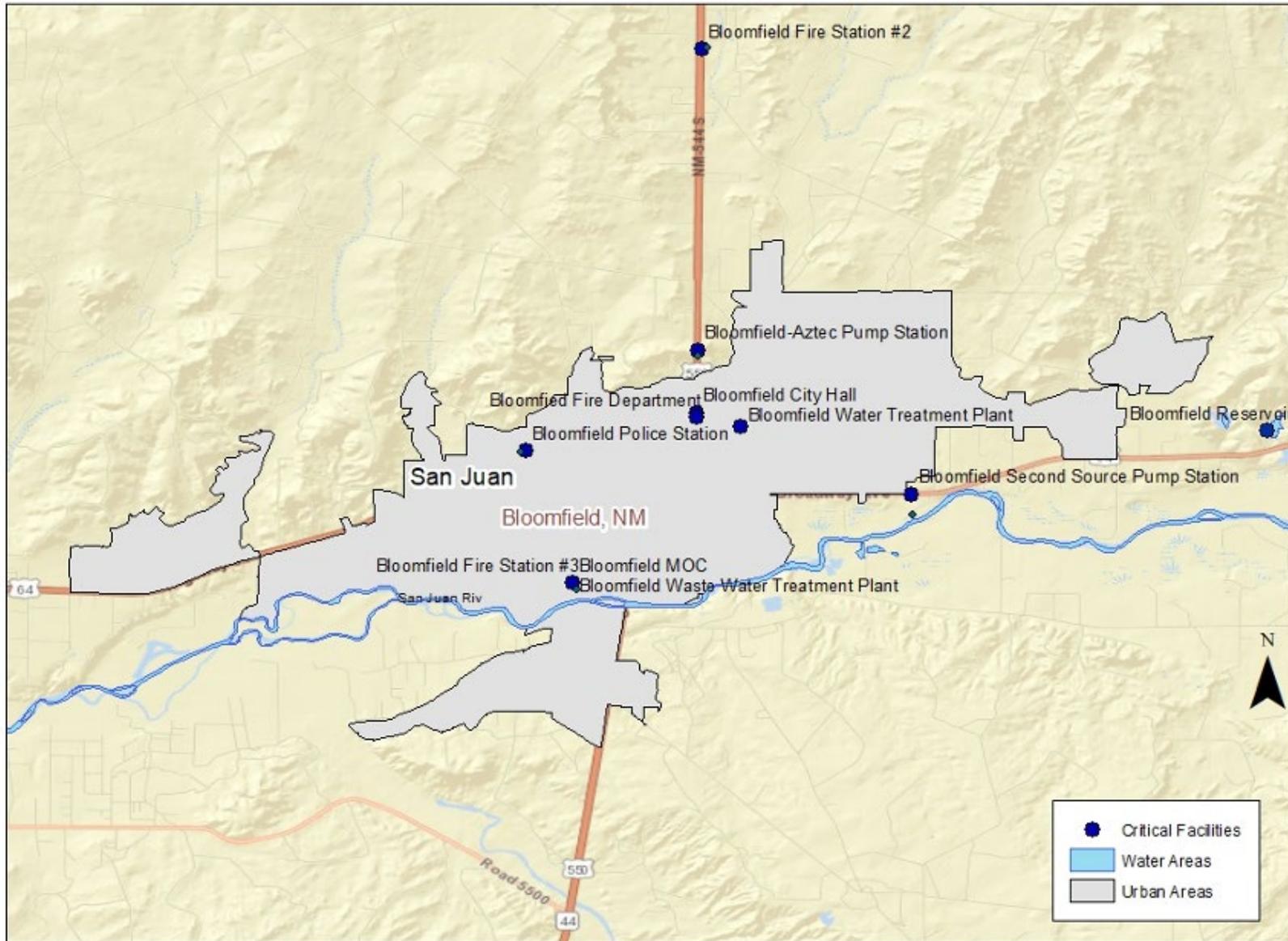


Map Source: BOLDplanning

Map 9: City of Aztec, NM, Critical Facilities & Infrastructure

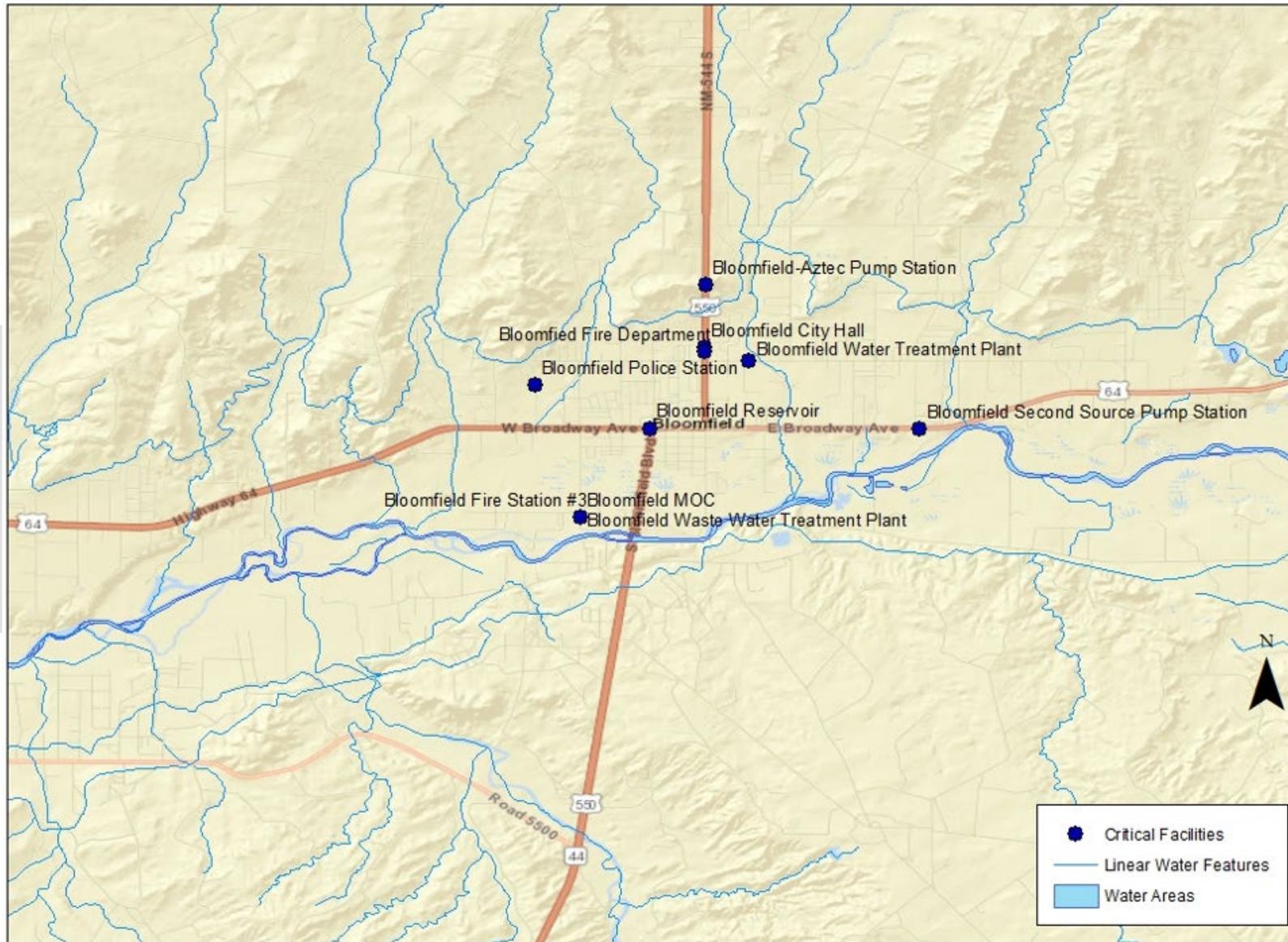


Map 10: City of Bloomfield, NM, Critical Facilities & Infrastructure



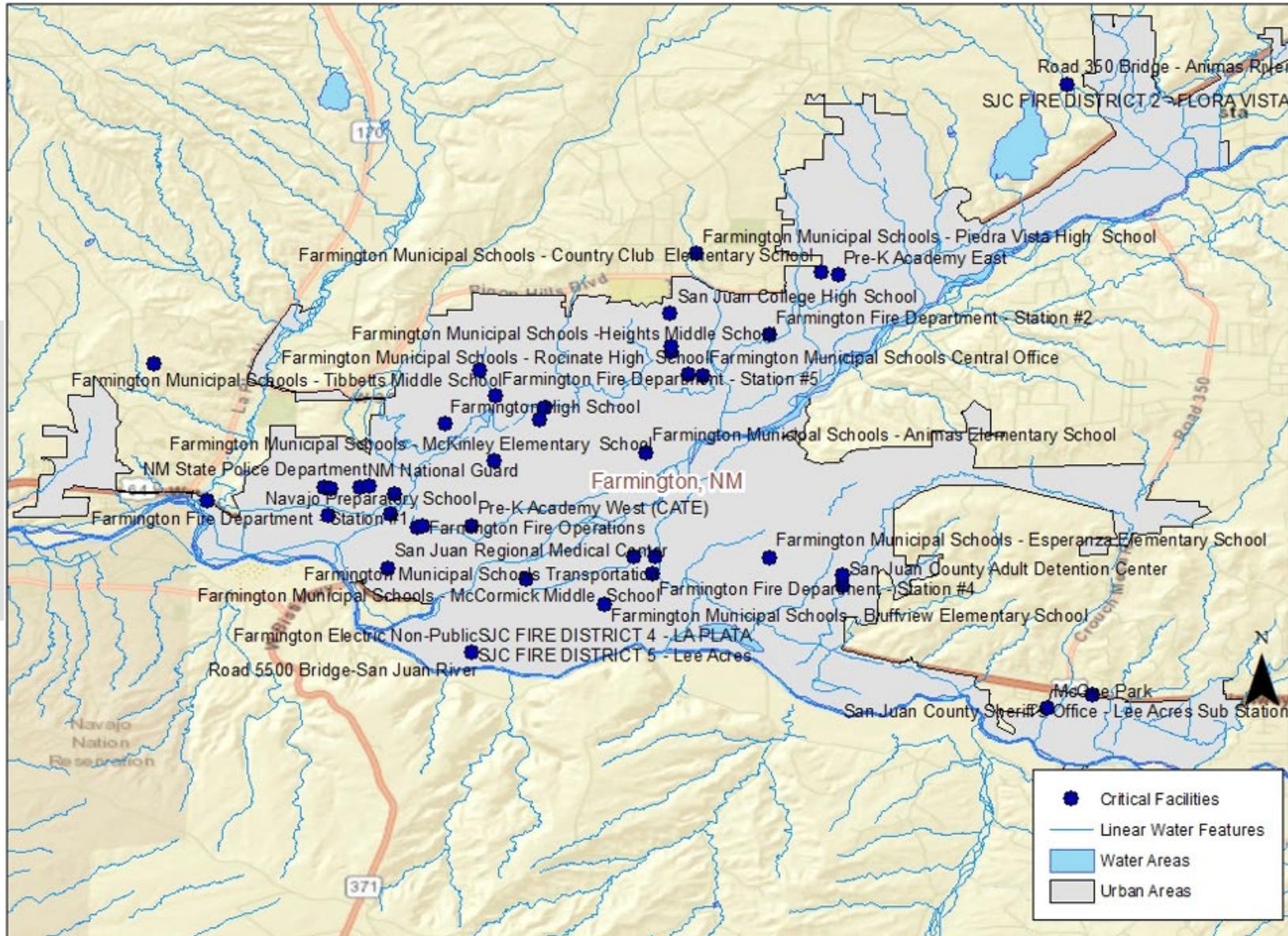
Map Source: BOLDplanning

Map 11: City of Bloomfield, NM, Critical Facilities & Infrastructure



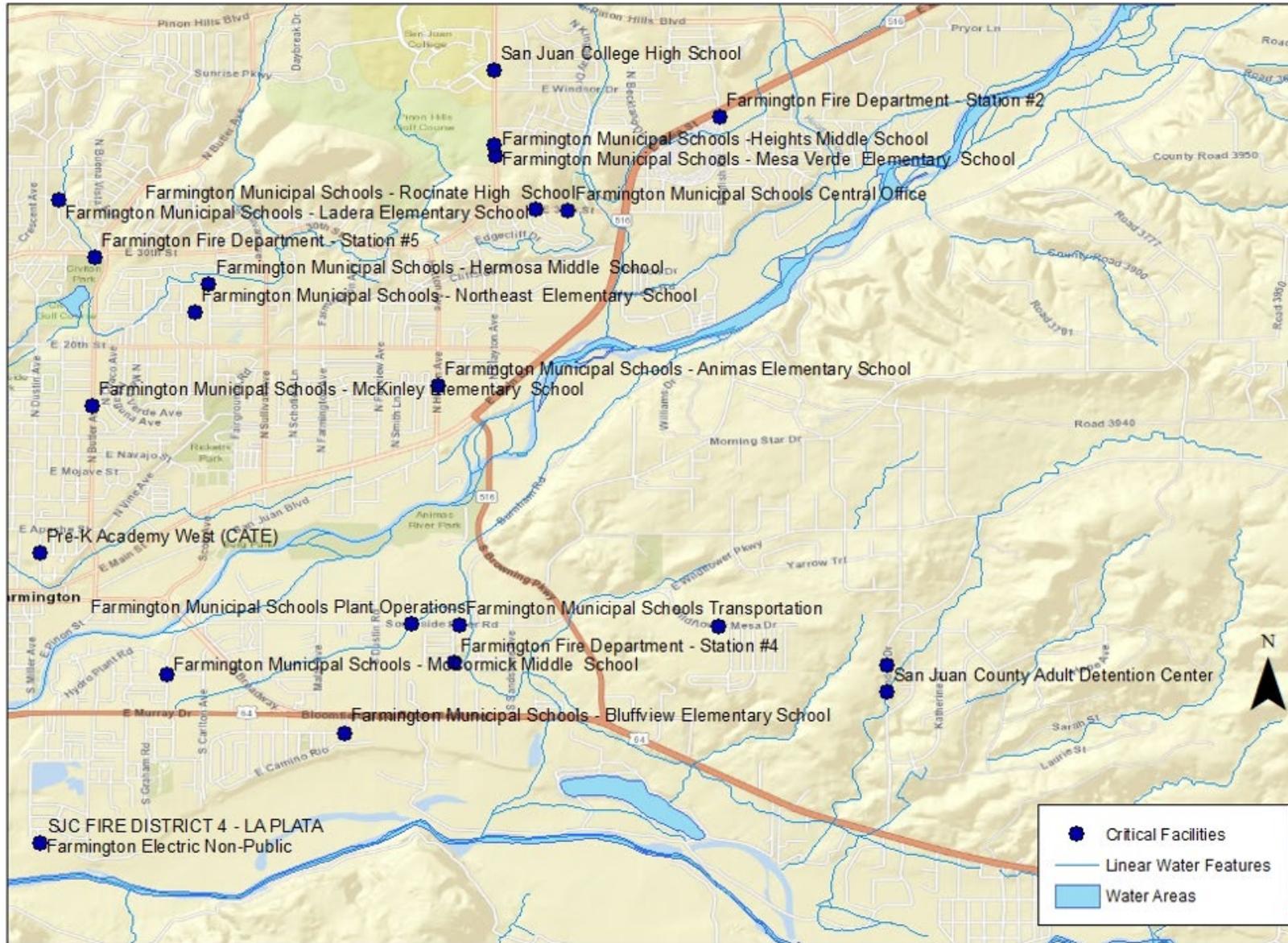
Map Source: BOLDplanning

Map 12: City of Farmington, NM, Critical Facilities & Infrastructure



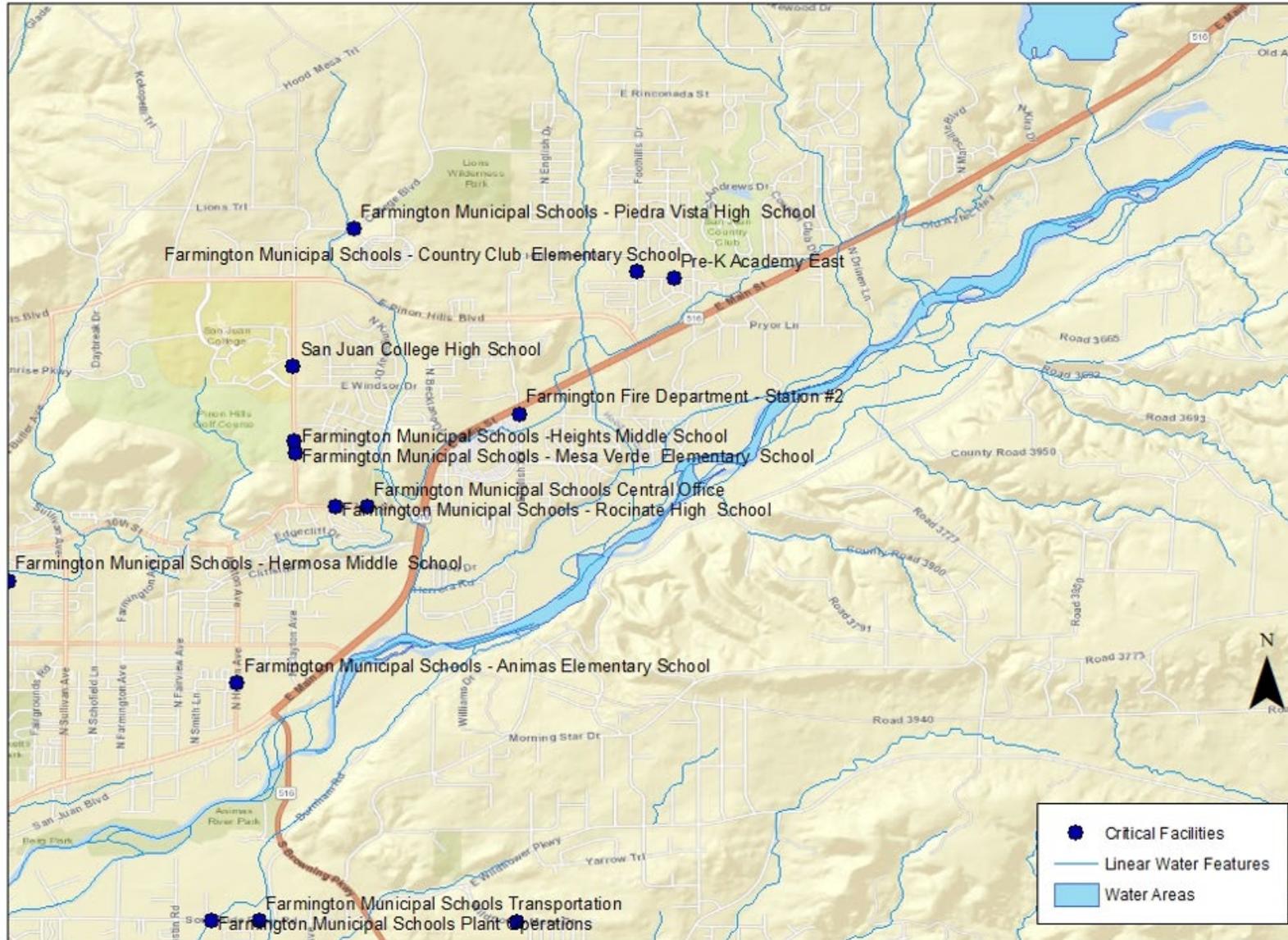
Map Source: BOLDplanning

Map 13: City of Farmington, NM, Critical Facilities & Infrastructure



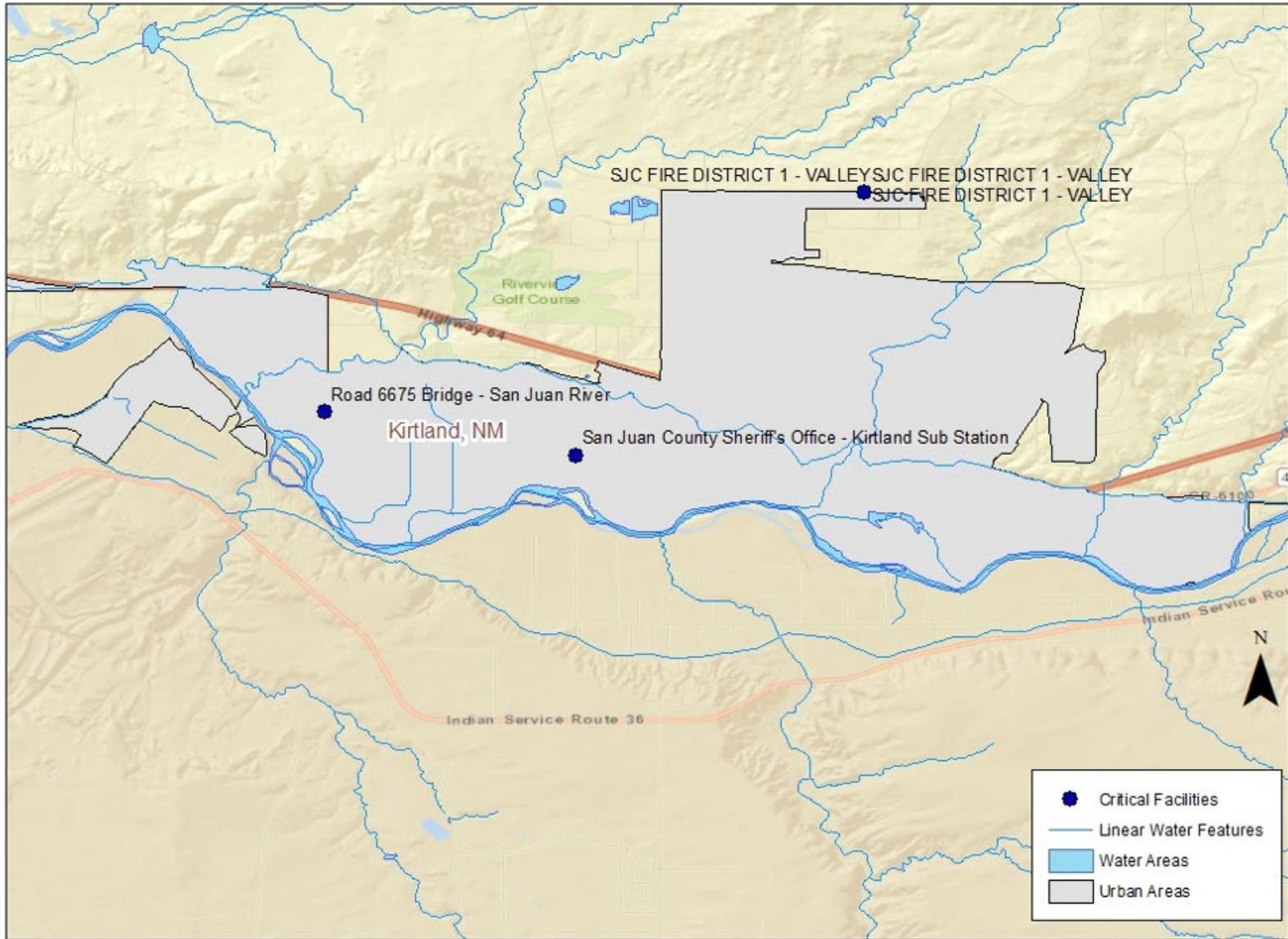
Map Source: BOLDplanning

Map 14: City of Farmington, NM, Critical Facilities & Infrastructure



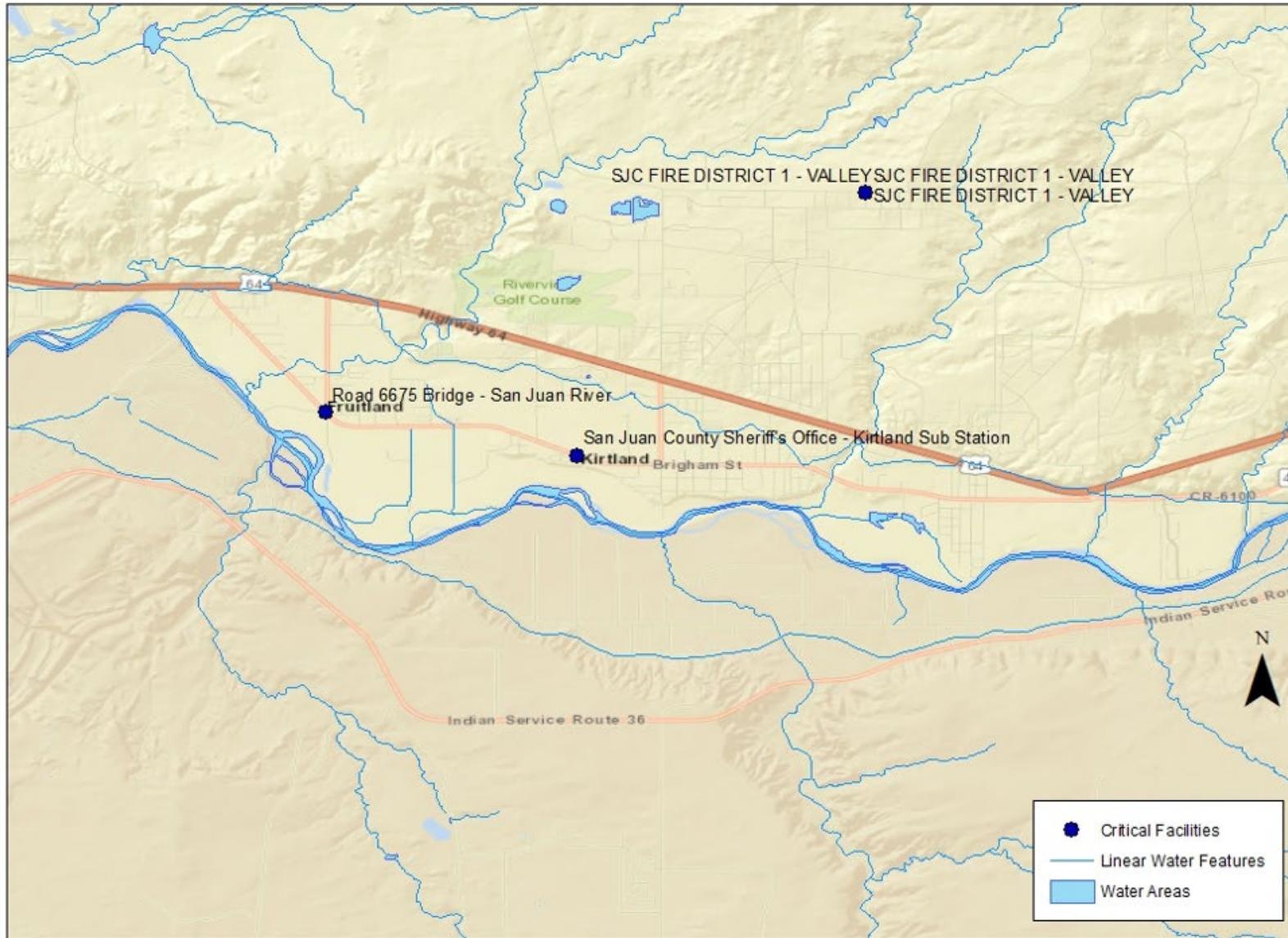
Map Source: BOLDplanning

Map 15: Town of Kirtland, NM, Critical Facilities & Infrastructure



Map Source: BOLDplanning

Map 16: Town of Kirtland, NM, Critical Facilities & Infrastructure



Map Source: BOLDplanning

Section 4 – Hazard Risk Assessment

The goal of hazard mitigation is to reduce the future impacts of hazards, including property damage, disruption to local and regional economies, and the amount of public and private funds spent to assist recovery. To be done correctly, mitigation decision-making should be based on a comprehensive risk assessment.

A risk assessment consists of three components: hazard profiling, exposure, and vulnerability assessment. The process entails past hazard events, probability of future events, asset lists, loss estimation, and other elements where appropriate.

Review of recently declared disasters, i.e., from 2013 to the present, provides an overview of the hazards facing San Juan County and its participating jurisdictions. This timeframe is referenced because San Juan County had a previous, FEMA-approved MJNHP that expired in 2018. Since 2013, San Juan County and its participating jurisdictions have experienced two presidentially declared disasters. These disaster declarations were due to flooding/severe storms and pandemic. A list of the declared disasters occurring in San Juan County and its participating jurisdictions since 2013 is presented in Table 8 (below). Smaller events are more frequent and are not reflected in the table.

Note: Human-caused hazards like Communicable Disease were not identified in the 2018 State of New Mexico Multi-Hazard Mitigation Plan or the San Juan County Multi-Jurisdictional Natural Hazard Mitigation Plan Update (November 2018). This disaster declaration was included in the table below due to the pandemic affecting San Juan County and its participating jurisdictions during the drafting of this plan update.

Table 8: Presidential Disaster Declarations, San Juan County

Presidential Disaster Declarations, San Juan County		
Designation	Incident Period	Incident Type
DR- 4152	09/09/2013 – 09/22/2013	Severe Storms, Flooding, and Mudslides
DR - 4529	01/20/2020 – Continuing	COVID-19 Pandemic

Data Source: FEMA

Planning Process

Local Procedures & Resources

Planning Area

Hazard Risk Assessment

- Identifying Hazards
- Profiling Hazards
- Hazards
- Land Use & Development Trends
- Hazard Risk Summary
- Excluded Hazards

Mitigation Strategy

4.1 – Identifying Hazards

The first step in developing a hazard assessment is to identify the hazards that have a reasonable risk of occurring in San Juan County and its participating jurisdictions. Proper identification allows for appropriate and well-planned action in order to mitigate the extent and impact of a hazard event. It also helps facilitate emergency response and recovery operations. Further, while not all disaster contingencies can be planned for, applying an all-hazards approach to the mitigation process does yield greater awareness and better preparedness for unforeseen hazard events overall.

Table 9 (shown below) lists the 15 hazards identified in the New Mexico State Hazard Mitigation Plan (September 2018) as well as the justification for their inclusion/exclusion within the San Juan County MJNHMP. Research indicates three (3) of the 14 hazards, namely dam failure, earthquake, extreme heat, expansive soils, high wind, landslide, land subsidence, thunderstorms (including lightning), tornadoes, and volcanoes, pose no reasonable risk to San Juan County and its participating jurisdictions. As such, they are excluded from this plan. Justification(s) for exclusion can be found in Section 4.3 – Excluded Hazards.

Three of the 15 state-identified hazards do pose some level of risk to San Juan County and/or at least one of its participating jurisdictions. These are drought, flood/flash flood, and wildfire. One additional, unnatural hazard, hazardous materials (HazMat), also poses risk to San Juan County and its participating jurisdictions. For this reason, hazardous materials is included within this plan update. Details for each of these four (4) hazards and their potential impact on San Juan County and its participating jurisdictions are located in Section 4.3.

Note: *The hazard of Hazardous Materials is not included in the New Mexico State Hazard Mitigation Plan. The State of New Mexico does not include any human-caused hazards as the intent of its plan is to mitigate against natural hazards only.*

Table 9: State of New Mexico Identified Hazards

State of New Mexico Identified Hazards			
Hazards in State / Previous HMP	Previous Inclusions	Included/Excluded	Justification
Dam failure	State Plan	Excluded	No reasonable risk
Drought	State Plan, Prior Plan	Included	Disaster History
Earthquake	State Plan	Excluded	No reasonable Risk
Extreme Heat	State Plan	Excluded	No reasonable risk
Expansive Soils	State Plan	Excluded	No reasonable risk
Flood/Flash Floods	State Plan, Prior Plan	Included	Disaster History
High Wind	State Plan	Excluded	No reasonable risk
Severe Winter Storms	State Plan	Excluded	No reasonable risk
Landslide	State Plan	Excluded	No reasonable risk
Land Subsidence	State Plan	Excluded	No reasonable risk
Thunderstorm (including Lightning)	State Plan	Excluded	Not reasonable risk
Tornadoes	State Plan	Excluded	No reasonable risk
Volcanoes	State Plan	Excluded	No reasonable risk
Wildfire	State Plan, Prior Plan	Included	Disaster History

4.2 – Profiling Hazards

Hazard profiles are outlined in the proceeding sections of the San Juan County Multi-Jurisdictional Natural Hazard Mitigation Plan Update. For certain hazards, the sections pertaining to Repetitive Loss (RL) structures and HAZUS® models are excluded due to the lack of applicability.

4.2.1 – Hazard Description

This section describes the general characteristics of the specified hazard.

4.2.2 – Location & Extent

This section contains information about the location, i.e., the geographic area(s) within the planning area, that are affected by the hazard, along with the extent (strength and magnitude) of the specific hazard.

4.2.3 – Previous Occurrences

This section contains a history of previous hazard events for the profiled hazard.

Methodology: *Most of the historical data used in the risk assessment originates from the National Oceanic and Atmospheric Administration/National Centers for Environmental Information (NOAA/NCEI). In most instances, the hazard affects a large geographic area, and thus, the hazard data is reported at the county level. This is the best available data for these hazards. The calculations for Previous Occurrences and the Probability of Future Events are based on county-level data.*

4.2.3A – Probability of Future Events

This section discusses the likelihood of the identified hazard occurring. These percentages are based on FEMA and the planning area’s definition of probability categories. The percentages are based off a year time frame and they are calculated from historical number of occurrences and the year range the historical occurrences were pulled from.

Table 10: Probability Categories

Probability Categories	
Category	Range (Per Year)
Unlikely	Less than 0%
Occasional	1% -10%
Likely	11% - 50%
Highly Likely	51% - 100%

4.2.4 – Vulnerability & Impact

This section describes the potential impacts of the hazard for each participating jurisdiction, and provides an overall summary of each jurisdiction’s vulnerability to the hazard through structures, systems, populations, and community assets that are susceptible to damage and loss from the hazard.

4.2.4A – Critical Facilities & Infrastructure

When appropriate, this section details the infrastructure and facilities pertinent to the hazard.

4.2.4B – Land Use & Development Trends

This section provides a general description of land use and development trends within the participating jurisdictions.

4.2.4C – Unique & Varied Risk

Each jurisdiction’s risk, where it varies from the risks facing the entire planning area, is discussed in this section.

4.2.4D – Repetitive Loss Structures

If applicable to the profiled hazard, a description of the location types, along with estimates for the number of RL properties, will be provided in this section.

4.2.5 – HAZUS® Models

If applicable to the profiled hazard, HAZUS® models may be included in this section of the plan. HAZUS® is a GIS (mapping) tool that allows analysts to create a fictional scenario for the planning area using specific details to show what could happen if that scenario were to occur. This type of mapping is helpful to fill in gaps where there is a lack of historical data. It also allows jurisdictions to visualize which facilities and populations would potentially be affected by the profiled hazard.

4.2(D) – Drought

4.2.1 – Hazard Description

Drought is defined as an abnormally dry period lasting months or years when an area has a deficiency of water and precipitation in its surface and or underground water supply. It is, however, a normal, seasonal, and recurrent feature of climate that occurs in virtually all climate zones—typically in late spring through early fall. The duration of drought varies widely. There are cases when drought develops relatively quickly and lasts a very short period of time, exacerbated by extreme heat and/or wind, and there are other cases when drought spans multiple years, or even decades. The hydrological imbalance can be grouped into the following non-exclusive categories:



Photo Source: USGS, New Mexico – Drought, Animas River at Farmington

Agricultural: When the amount of moisture in the soil no longer meets the needs of previously grown crops

Hydrological: When surface and subsurface water levels are significantly below their normal levels

Meteorological: When there is a significant departure from the normal levels of precipitation

Socio-Economic: When the water deficiency begins to significantly affect the population

When below average, little or no rain falls, soil can dry out, and plants can die. If unusually dry weather persists and water supply problems develop, the time period is defined as a drought. Human activity such as over-farming, excessive irrigation, deforestation, and poor erosion controls can exacerbate a drought's effects. It can take weeks or months before the effects of below average precipitation on bodies of water are observed. Depending upon the region, droughts can happen more quickly, noticed sooner, or have their effects naturally mitigated. The more humid and wet an area is, the faster the effects will be realized. A naturally dry region, which typically relies more on subsurface water will take more time to actualize its effects.

Periods of drought can have significant environmental, agricultural, health, economic, and social consequences. The effects vary depending upon vulnerability and regional characteristics. Droughts can also reduce water quality through a decreased ability for natural rivers and streams to dilute pollutants and increase contamination. The most common effects are diminished crop yield, increased erosion, dust storms, ecosystem damage, reduced electricity production due to reduced flow through hydroelectric dams, shortage of water for industrial production, and increased risk of wildland fires.

Droughts are regularly monitored by multiple federal agencies using a number of different indices. Among them are the U.S. Drought Monitor, the Palmer Drought Index, and the Standardized Precipitation Index, as next described.

The U.S. Drought Monitor provides a summary of drought conditions across the U.S. and Puerto Rico. Often described as a blend of art and science, the map is updated weekly by combining a variety of data-based drought indices and indicators, along with local expert input, into a single composite drought indicator.

The Palmer Drought Index (PDI), devised in 1965, was the first drought indicator to assess moisture status comprehensively. It uses temperature and precipitation data to circulate water supply and demand; incorporates soil moisture; and is considered most effective for unirrigated cropland. It primarily reflects long-term drought and has been used extensively to initiate drought relief.

Table 11: Palmer Drought Severity Index

Palmer Drought Severity Index	
Extremely Wet	4.0 or more
Very Wet	3.0 to 3.99
Moderately Wet	2.0 to 2.99
Slightly Wet	1.0 to 1.99
Incipient Wet Spell	0.5 to 0.99
Near Normal	0.49 to -0.49
Incipient Dry Spell	-0.5 to -0.99
Mild Drought	-1.0 to -1.99
Moderate Drought	-2.0 to -2.99
Severe Drought	-3.0 to -3.99
Extreme Drought	-4.0 or less

The Standardized Precipitation Index (SPI) is a way of measuring drought that is different from the Palmer Drought Index (PDI). Like the PDI, this index is negative for drought, and positive for wet conditions. However, the SPI is a probability index that considers only precipitation, while PDI indices are water balance indices that consider water supply (precipitation), demand (evapotranspiration) and loss (runoff).

Table 12: Standard Precipitation Index

Standard Precipitation Index	
Extremely Wet	2.0+
Very Wet	1.5 to 1.99
Moderately Wet	1.0 to 1.49
Near Normal	-.99 to .99
Moderately Dry	-1.0 to -1.49
Severely Dry	-1.5 to -1.99
Extremely Dry	-2 and less

Drought is a persistent problem across the country, as evidenced by its widespread presence in 2018. Early in the year (February 2018), the U.S. Drought Monitor reported that 38.4% of the continental U.S. was in drought. That was the highest percentage since the 40% recorded in May 2014. Moreover, there is technically no longer a “fire season” for the State of California, as it has become a tinderbox for drought-related wildfires year-round. Other states across the country are, unfortunately, falling suit.

4.2.2 – Location & Extent

The State of New Mexico is no stranger to drought. The 2018 New Mexico Drought Plan indicates that drought has had particularly acute impacts during the years 1900-1910, 1932-1937, 1945-1956, 1974-1977, 2002-2004, and 2011-2013. Per the U.S. Drought Monitor, since 2000, the longest duration of drought in New Mexico, lasted 329 weeks beginning on May 1, 2001, and ending on August 14, 2007. The most intense period of drought occurred the week of June 21, 2011, when 49.06% of New Mexico land was affected. Over the last 20 years, NOAA/NCEI has recorded 73 drought events in San Juan County alone.

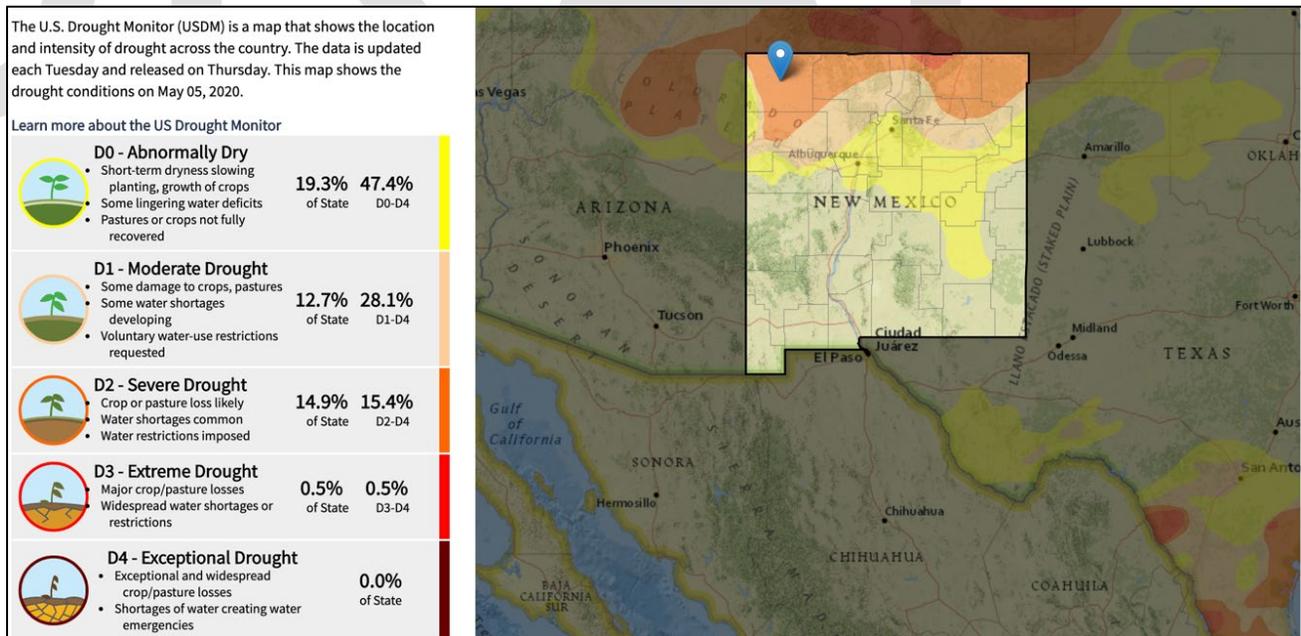
Drought typically does not have a direct impact on critical facilities or structures. However, a possible loss/impact might include loss of critical functions due to low water supplies. Severe droughts can negatively affect drinking water supplies. Should a public water system be affected, the losses could total into millions of dollars if water must be shipped from other locations. In the previous plan update, it is mentioned that the more populated areas, the Cities of Aztec, Bloomfield, and Farmington, face the problem of threats to the municipal water supply, affecting both the citizens and the potential commercial development. Currently, San Juan County and its participating jurisdictions have implemented water conservation parameters due to drought conditions in the region.

Severe drought could also pose significant risk to public health if water sources become scarce, or worse, contaminated. This is especially true for those who get their drinking water from private wells. Per the Centers for Disease Control (CDC), viruses, such as E. coli and salmonella, as well as protozoa and bacteria can pollute both groundwater and surface water when rainfall decreases. Additionally, acute respiratory and gastrointestinal illness are more easily spread from person-to-person when hand washing is compromised by a perceived or real lack of available water.

Severe drought can also increase the County’s vulnerability to wildfire due to dry vegetation. Dry, hot, and windy weather combined with dry vegetation and a spark, whether through human intent, accident, or lightning, can trigger a blaze.

As of May 5, 2020, and according to U.S. Drought Monitor (drought.gov), 47% of the State of New Mexico is abnormally dry, and 15.4% is moderately dry, including San Juan County. Due to the nature of drought, all participating jurisdictions within San Juan County are expected to be impacted equally due to drought conditions, moderate to extreme, going forward.

Map 17: Drought in New Mexico Map including San Juan County as of May 2020



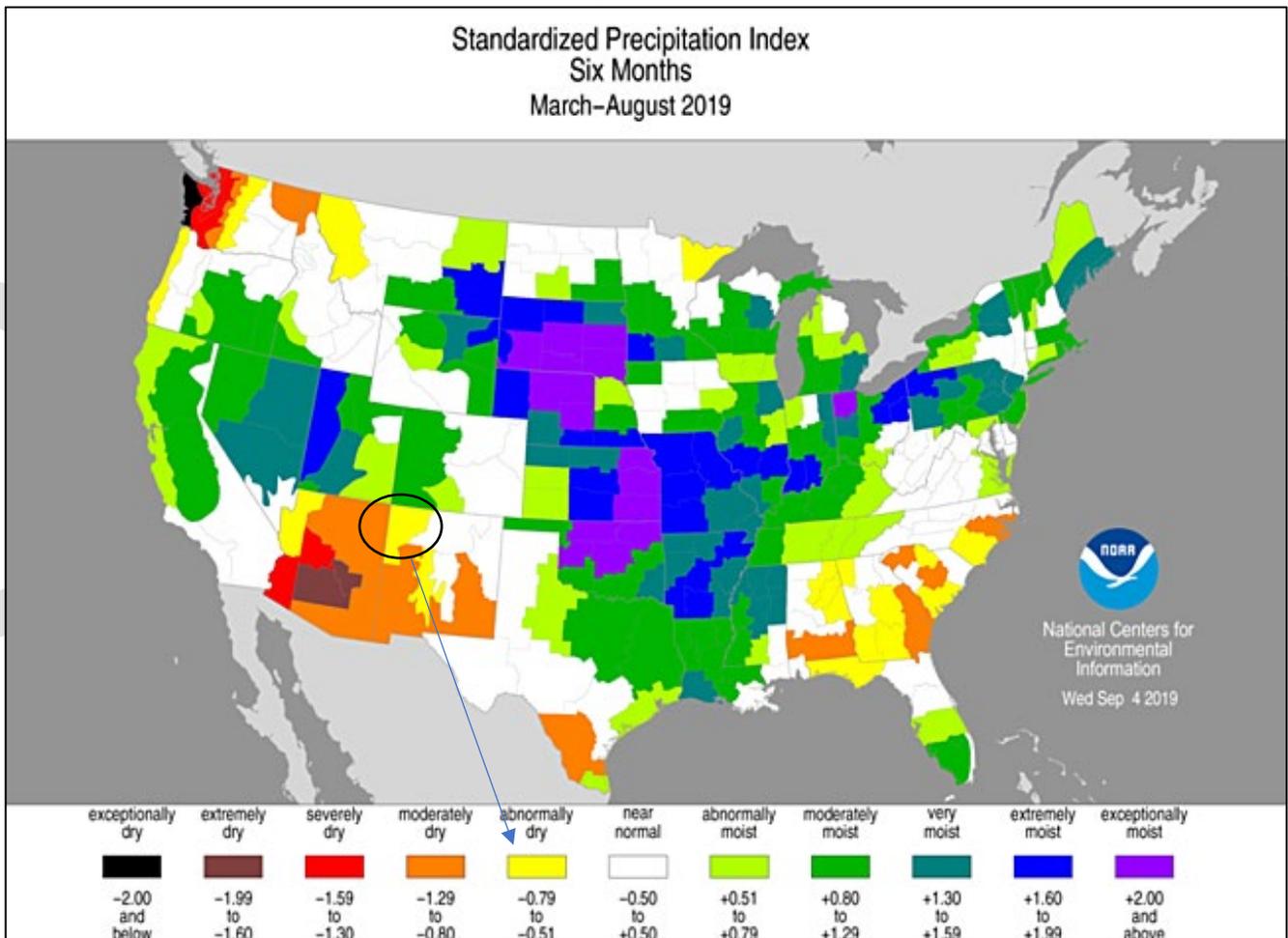
Map Source: U.S. Drought Monitor

<https://www.drought.gov/drought/states/new-mexico?places=san+juan+county+nm&places=San+Juan+County%2C+NM%2C+USA>

The Standardized Precipitation Index (SPI)

The SPI shows the actual precipitation compared to the probability of precipitation for various time frames. The SPI is an index based on precipitation only. It can be used on a variety of time scales, which allows it to be useful for both short-term agricultural and long-term hydrological applications. A drought event occurs any time the SPI is continuously negative and reaches an intensity of -1.0 or less as indicated in Table 12 (below). The event ends when the SPI becomes positive. Each drought event, therefore, has a duration defined by its beginning and end, and intensity for each month the event continues. The positive sum of the SPI for all the months within a drought event can be termed the drought’s magnitude.

Map 18: Standardized Precipitation Index, March – August 2019 (Circled is the San Juan County, NM area)



Map Source: NCD/NOAA (<https://www.ncdc.noaa.gov/monitoring-content/sotc/drought/2019/08/spi-06-201908.png>)

4.2.3 – Previous Occurrences

As previously mentioned, this update to the San Juan County MJNHMP Update (November 2018) covers a date range from January 1, 2013, to the present. From January 1, 2013, to January 31, 2020, NOAA/NCEI recorded 50 drought events in San Juan County. The events reflected the following zones on NOAA/NCEI database: In 2018 and 2019, the USDA designated San Juan County as a Primary Natural Disaster Area due to drought conditions. The designation was based on losses suffered by county farmers and ranchers due to ongoing drought conditions.

4.2.3A – Probability of Future Events, Drought

San Juan County and its participating jurisdictions can expect a drought event with a 714.28% probability per year, or 7.142 events per year. Calculating future probability is not the only predictor of future occurrences (based upon Table 10: Probability Categories). This number was derived by dividing the number of recorded events by the year range used. The qualitative chance of a drought for San Juan County and its participating jurisdiction is considered **highly likely**.

Table 13: Probability of Future Events, Drought

Probability of Future Events, Drought	
Event Year	Event Count
2013	12
2014	12
2015	6
2016	-
2017	-
2018	12
2019	8
2020	-
Total Recorded Events =	50
Total Years =	7
Yearly Probability =	714.28%

Data Source: NOAA/NCEI Storm Events Database

4.2.4 – Vulnerability & Impact

San Juan County and its participating jurisdictions have recorded 50 drought events since 2013, of which the range and magnitude was between “slightly dry” and “extremely dry.” Based on the future probability in Table 17, San Juan County and its participating jurisdictions can expect 7.142 drought events per year with each ranging anywhere below 0 and -4 on the Palmer Drought Severity Index and 0 to -2 on the Standard Precipitation Index. Therefore, drought does not pose any risk to facilities in San Juan County or the participating jurisdictions. NOAA/NCEI Storm Events Database does not indicate any reports of death, injuries and property damage estimates due to drought events.

Table 14: Historical Impacts, Drought

Historical Impacts, Drought	
Count of Events	50
Impacts Per Year	7.14
Average Magnitude	-
Magnitude Range	-
Average Cost	\$0
Magnitude of Cost	\$0 - \$0
Total Recorded Cost	\$0
Average Fatalities	0.00
Total Fatalities	0.00
Average Injuries	0.00
Total Injuries	0.00

Data Source: NOAA/NCEI Storm Events Database

Vulnerability of Population

Drought itself poses no direct risk of injury or death to populations in San Juan County and its participating jurisdictions.

Vulnerability of Systems

Drought can have a significant effect on a jurisdiction's agriculture and tourism economies. If the precipitation level is below average, farmers will struggle to grow crops and feed livestock. If rivers, streams, and lakes dry up, tourists will be less likely to enjoy a jurisdiction's amenity resources.

[The New Mexico Drought Plan: 2018 \(NMDP\)](#) provides the state with an updated approach to address drought to protect its people and resources. It develops a drought response system that is adaptive to changing needs and conditions and capable of being continually upgraded through the incorporation of new information. The plan specifies that subsequent updates should be made every five years. San Juan County has a County-Level Drought Working Group that SJCOEM facilitates.

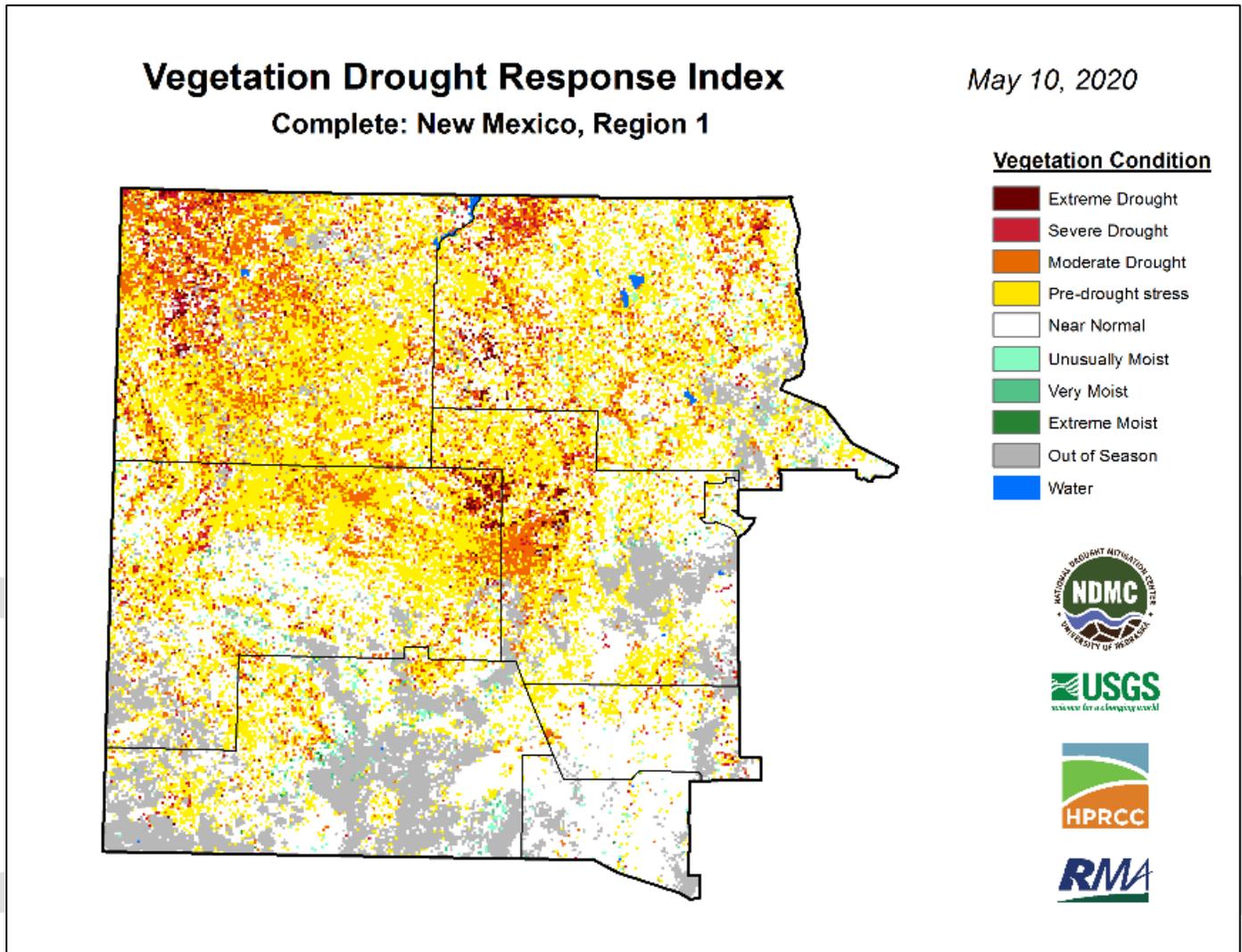
4.2.4A – Critical Facilities & Infrastructure

Drought does not pose any risk to critical facilities and infrastructure in San Juan County or its participating jurisdictions. A complete list of critical facilities and infrastructure can be found in Appendix D.

4.2.4B – Land Use & Development Trends

Two areas that affect Land Use and Development Trends concerning drought events are the impact of agriculture and water conservation. Droughts impact individuals (farm owners, tenants, and farm laborers), the agricultural industry, other agriculture related sectors, and other industries such as tourism and recreation. There is increased danger of forest and wildland fires. Loss of forests and trees increases erosion, causing serious damage to aquatic life, irrigation, and power development by heavy silting of streams, reservoirs, and rivers. The Agriculture Science Center at Farmington indicates that San Juan County ranks second in the state for irrigated cropland with 150,000 acres or 10% of the state total. The agriculture that is most vulnerable during a drought in San Juan County and its participating jurisdictions is rangeland used for livestock grazing.

Map 19: Vegetation Drought Response Index – New Mexico Region 1



Map Source: Vegetation Drought Response Index (VegDRI)

In 2019, the New Mexico Interstate Stream Commission held forums to bring stakeholders to hold Water Planning discussions throughout the State. The purpose of the meetings was to inform New Mexico communities like San Juan County and its participating jurisdictions about water planning activities by the New Mexico Interstate and Stream Commission. Also, the meetings were to help gather input on the impact of drought and needed drought resources within the community.

The recent “Summary of the New Mexico Water Planning Drought Discussions” created by the New Mexico Interstate Stream Commission is the report that outlines the situations, problems, and observations discussed during those meetings. At the Farmington drought discussion on March 7, 2019, participants indicated that based on current drought conditions, farmers were looking for ways to change their methods of farming (i.e., change their crops; look for farming alternative) due to lack of water. Also, due to drought, there was a lack of hay needed for ranchers, causing hay to be in high demand. Farmers and most particularly ranchers within the County were having to make the hard choice to reduce their cattle or potentially shut down due to the lack of hay or water due to the effect of drought conditions in the area.

Water conservation due to drought conditions has been a significant trend in the municipalities of San Juan County. Since 2018, the Cities of Farmington and Aztec have instated water conservation ordinances to help residence to conserve water supply. 2018 was one of the driest years on record in New Mexico. The City of Farmington saw the need to conserve water during the 2018 drought, and on May 1, 2018, the Farmington City Council declared a Stage 1 “Water Shortage Advisory” as a precautionary measure. Its purpose was to request voluntary compliance by area residents in adopting an attitude of conservation. The Water Conservation plan indicated that Farmington Lake was at 100% capacity, unlike the other reservoirs in the State. Also, Farmington Lake Levels, Snowpack, Palmer Drought Index, and Stream Flow are the fundamental criteria used to determine the basic stages of water conservation for the City. The City’s Water Conservation plan outlines four basic stages with an associated savings goal:

- Stage I – Water Shortage Advisory (Promote voluntary conservation measures) Goal: 10% savings
- Stage II – Water Shortage Watch (Implement mandatory conservation measures) Goal: 15% savings
- Stage III – Water Shortage Warning (Implement more mandatory conservation measures) Goal: 35%
- Stage IV – Water Shortage Emergency (Implement severe mandatory conservation measures) Goal: 50% savings

In 2018, the City of Farmington reached to Stages III and IV (Resolution No. 2018-1670) due to projected snowpack to be exhausted by mid-June of 2018 and extended with the increase of monthly water usage within the city limits. This ordinance began on July 16, 2018. Currently, the City of Farmington has lifted the Drought Stage I ordinance. The City of Aztec enacted [“Stage 2” drought restrictions](#) as of July 2, 2018. With this ordinance, no resident shall use any city provided water to irrigate any lawn, garden, tree, or shrub except between the hours of 4:00 A.M to 10:00 A.M. or between the hours of 6:00 P.M. to 10:00 P.M of any day or which irrigation is permitted. No watering will be allowed if windy conditions greater than 12 mph exist. As of May 2020, the City of Aztec remains in a State 1 water shortage emergency. This voluntary ordinance will stay in place until further notice per the [City of Aztec Water Conservation and Drought Plan](#).

4.2.4C – Unique & Varied Risk

San Juan County and all participating jurisdictions have significant agricultural areas at risk to drought. Also, residents of the County are at risk due to lack of water and the needs for water conservation during a drought event.

4.2.4D – Repetitive Loss Structures

Not applicable.

4.2.5 – HAZUS® Models

Not applicable.

4.2(FI) – Flooding, Inland

4.2.1 – Hazard Description

Flooding, as defined by the National Weather Service (NWS), is the rising and overflowing of a body of water onto normally dry land. It can result from any overflow of inland or tidal waters, or an unusual accumulation or runoff of surface waters from any source. Flooding is loosely classified as inland, riverine, or coastal.

Inland flooding, also known as “urban flooding” or “flash flooding,” can be caused by intense, short-term rain or by moderate rainfall over several days, which can overwhelm existing drainage infrastructure. Other factors that affect the dynamics of this type of flood include slope, width, and vegetation in place along the watercourse banks. The slope that a flash flood traverses has a definite relationship to the overall speed in which the water will travel. The incline on which the water moves affects the width of the flooding area. Generally, the faster the water moves, the narrower that channel will be created, since the water digs the channel deeper as it flows. When water flows over shallower slope, it tends to spread out more, decreasing its potential to cause mass damage but still considered dangerous. Finally, the type of vegetation located along the flood’s path can prevent further erosion of the channel banks. A structure that lies along a flood channel with no surrounding vegetation is at risk of having its foundation undercut, which can cause structural damage, or in some cases, a building’s complete collapse. Riverine or aluvial, flooding occurs when excessive rainfall over an extended period of time causes a river to exceed its capacity. Typical causes of flooding, both inland and riverine, include tropical cyclonic systems, frontal systems, and isolated thunderstorms combined with other environmental variables such as changes to the physical environment, topography, ground saturation, soil types, basin size, drainage patterns, and vegetative cover. The rate of onset and duration of flooding events depends on the type of flooding (typical flood or flash flood). The spatial extent of a flooding event depends on the amount of water overflow but can usually be mapped because of existing floodplains.



Photo Source: NOAA, Flooding

As depicted in the following illustration, a floodplain is a flat or nearly flat land adjacent to a river or stream that experiences occasional or periodic flooding environment, topography, ground saturation, soil types, Floodplains, or Special Flood Hazard Areas (SFHAs), are made when floodwaters exceed the capacity of the main channel or escape the channel by eroding its banks. The sediments (rock and debris) that build up over time from the floodplain’s floor. Floodplains also include a floodway, which consists of the water channel and adjacent areas that carry flood flows and the flood fringe, which are areas covered by the flood but do not experience a strong current.

Illustration 1: Characteristics of a Floodplain

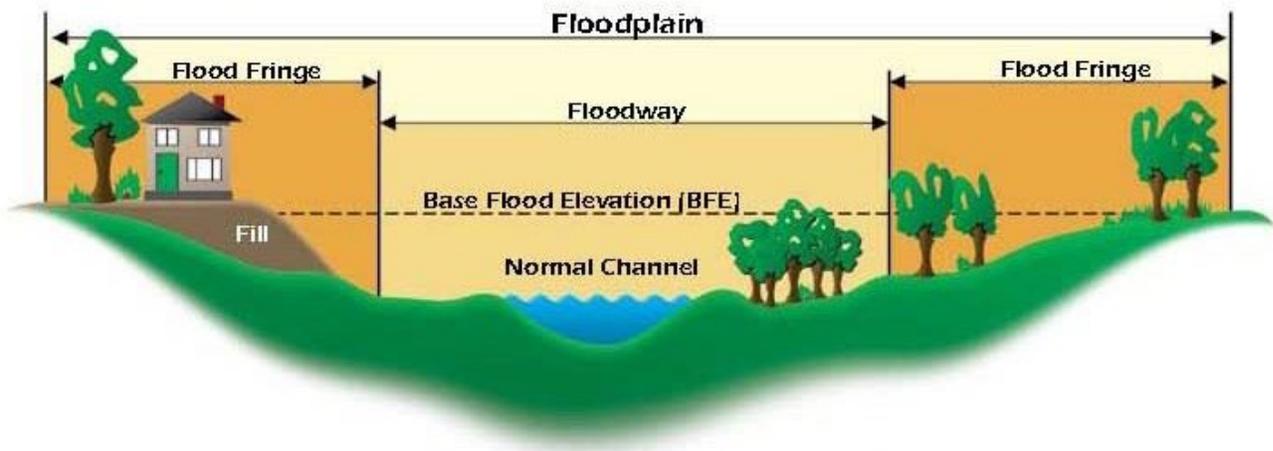


Illustration Source: www.co.mille-lacs.mn.u

In its common usage, floodplains refer to areas inundated by the 100-year flood, i.e., the flood that has a 1% chance of being equaled or exceeded in any given year and the 500-year flood, i.e., the flood that has a 0.2% chance of being equaled or exceeded in any given year. The 100-year flood is the national minimum standard to which communities regulate their floodplains through the National Flood Insurance Program (NFIP).

The NFIP aims to reduce the impact of flooding on private and public structures. It does so by providing affordable insurance to property owners, renters, and businesses and by encouraging communities to adopt and enforce floodplain management regulations. These efforts help mitigate the effects of flooding on new and improved structures. Overall, the program reduces the socio-economic impact of disasters by promoting the purchase and retention of general risk insurance and flood insurance.

The adverse impacts of flooding can include structural damage; agricultural crop loss; the death of livestock; loss of access to critical facilities due to roads being washed out or overtopped; unsanitary conditions resulting from materials such as dirt, oil, solvents, and chemicals being deposited during the recession; infestations of disease-carrying mosquitoes; mold and mildew, which pose a severe health risk to small children and the elderly; and temporary backwater effects in sewers and drainage systems. Raw sewage is a breeding ground for bacteria, such as E.coli and other disease-causing agents. A boil order may need to be issued to protect people and animals from contaminated water.

Of equal concern is the long-term psychological effect that flooding has on the people impacted by it. They must contend with the loss of life, property, livelihood, etc., as they cope with the aftermath. The clean-up can take months. The cost to restore a home may be too much, especially for the unprepared or uninsured. Plus, there is the looming fear that it may flood again. The resulting stress on floodplain residents takes its toll in the form of aggravated physical and mental health problems.

Unfortunately, the risks from future floods are significant, given expanded development in coastal areas and floodplains, unabated urbanization, land-use changes, and climate change. Because of this, flooding may intensify in many regions across the country, even in areas where total precipitation is projected to decline. According to the FEMA, water, and flooding account for about 40% of the Presidential declared disasters in the United States.

4.2.2 – Location & Extent

A variety of factors, including topography, weather characteristics (e.g., the amount of rainfall and snowmelt each year), development, and geology, come into play when considering the hazard of Flooding, Inland, within the planning area. The two types of flooding of most concern for San Juan County and its participating jurisdictions are flash flooding and riverine flooding. Intense flooding can create havoc in any jurisdiction affected, and unfortunately, the predictive magnitude of flash and riverine floods varies greatly.

Flash Flooding

Flash flooding is unpredictable and therefore, can occur anywhere inside the planning area. A flash flood is an extremely dynamic event in which a high volume of water moves through an area at high velocity during a short period of time. This type of flooding can be challenging to predict and occur with little or no warning. In many cases, a flash flood can move through an area mile from where rain has occurred, thereby increasing the damage to people within the flood’s path.

Flash floods are created as a result of rainfall as rainwater runs into small channels where it begins to collect. As these channels merge, the amount of water increases and picks up speed and force. This collection of water becomes a wall of water that can wash vegetation, structures, and debris. The debris then increases the amount of force available and increases the flood’s destructive power.

Riverine Flooding

The Animas, LaPlata, and San Juan Rivers all run through San Juan County. All have the potential to cause flooding along their paths. The amount of water flowing through a river at any given time determines the river’s depth. When a higher than average amount of water finds its way into a river or stream, the height of the water relative to its path increases and the river overflows its normal banks. The change in the ground elevation moving away from the banks determines how far out the water will spread. Intense and widespread flooding can trap people and entire communities without essential goods or services. Any amount of damage can render a structure unusable for as long as recovery operations require.

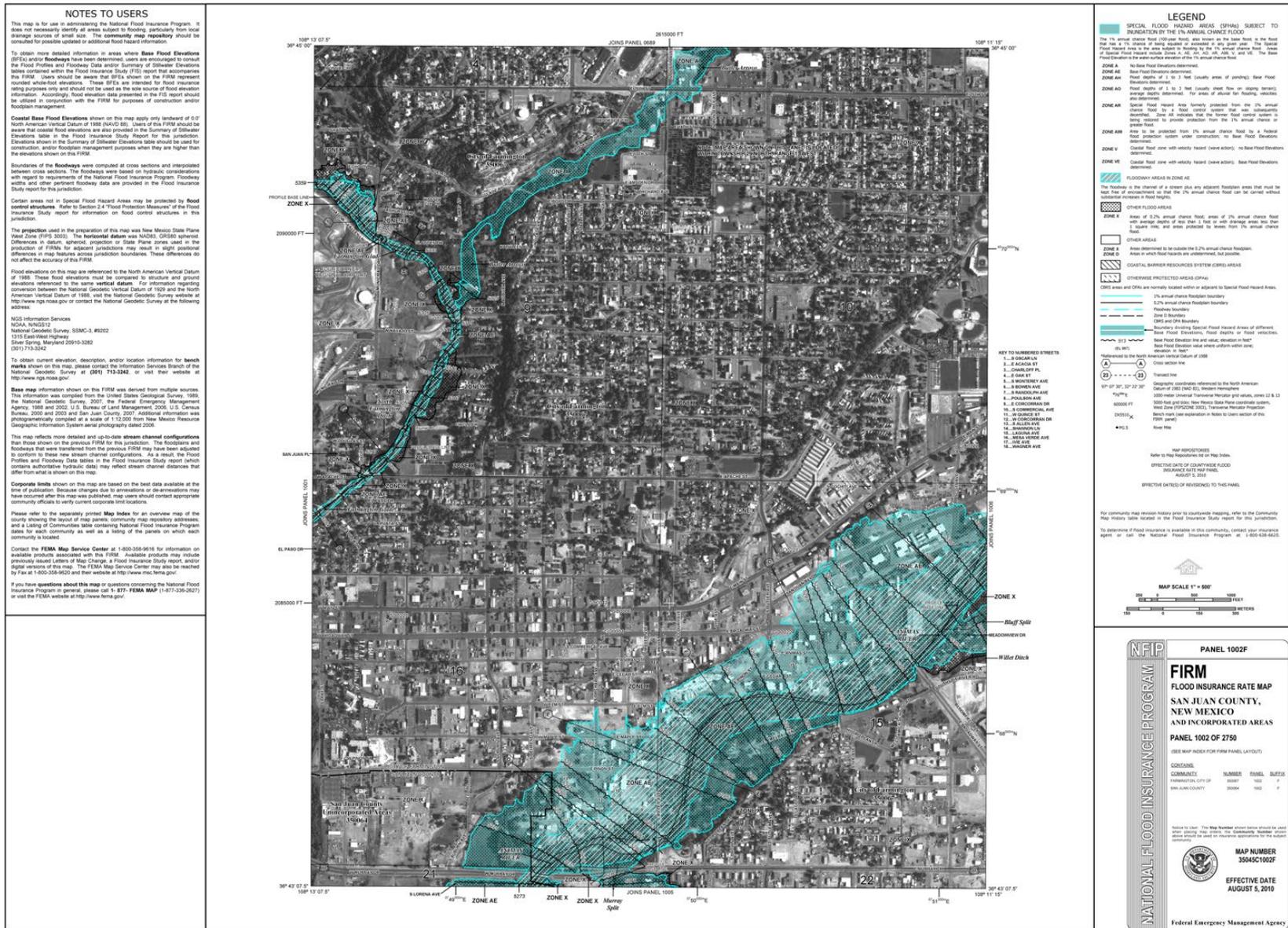
The following table explains the Floodplain Insurance Rate Map (FIRM) flood zone classifications associated with Map(s): 21-24 on the proceeding pages.

Table 21: Flood Zone Classifications

Flood Zone Classifications	
Zone	Description
A	An area inundated by 1% annual chance flooding, for which no BFEs have been determined. (100-Year Floodplain)
AE	An area inundated by 1% annual chance flooding, for which BFEs have been determined. (100-Year Floodplain)
B	Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood. An area inundated by 0.2% annual chance flooding.

Note: For the following FEMA National Flood Hazard Layer (NFHL) maps, the A and AE zones have been combined as they are both considered 100-year floodplain.

Map 23: FEMA FIRM Map – City of Farmington, NM



Map 24: FEMA FIRM Map – San Juan County, Unincorporated Areas (Town of Kirtland)

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify areas subject to flooding, particularly from local drainage basins of small size. Flood insurance coverage should be obtained for possible isolated or additional flood hazard areas.

To obtain more detailed information in areas where Base Flood Elevations (BFEs) are shown, users are referred to the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent water surface elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only to landward of 0.07 North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Floodway Data shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 4.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The projection used in the preparation of this map was the North American State Plane NAD 83 (NAD 83). The horizontal datum was NAD83, GRS80 spheroid. Contours of depth, elevation, projection, or State Plane grid used in the production of this FIRM for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this map.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geospatial Vertical Datum of 1988 and the North American Vertical Datum of 1988, visit the National Geographic Survey website at <http://www.ngs.noaa.gov> or contact the National Geographic Survey at the following address:

National Geographic Survey
 NOAA, NWS-15
 National Geographic Survey, 55MOC-3, 8002
 1315 East-West Highway
 Silver Spring, Maryland 20910-3282
 (301) 713-3242

To obtain current elevation, description, and/or location information for beach marks shown on this map, please contact the Information Branch of the National Geographic Survey at (301) 713-3242, or visit their website at <http://www.ngs.noaa.gov/>.

Base map information shown on this FIRM was derived from multiple sources. The information was compiled from the United States Geological Survey, 1989; the National Geographic Survey, 2007; the Federal Emergency Management Agency, 1988 and 2002; U.S. Bureau of Land Management, 2006; U.S. Census Bureau, 2000 and 2003; and San Juan County, 2007. Additional information was photogrammetrically compiled at a scale of 1:12,000 from New Mexico Resource Geographic Information System aerial photography dated 2006.

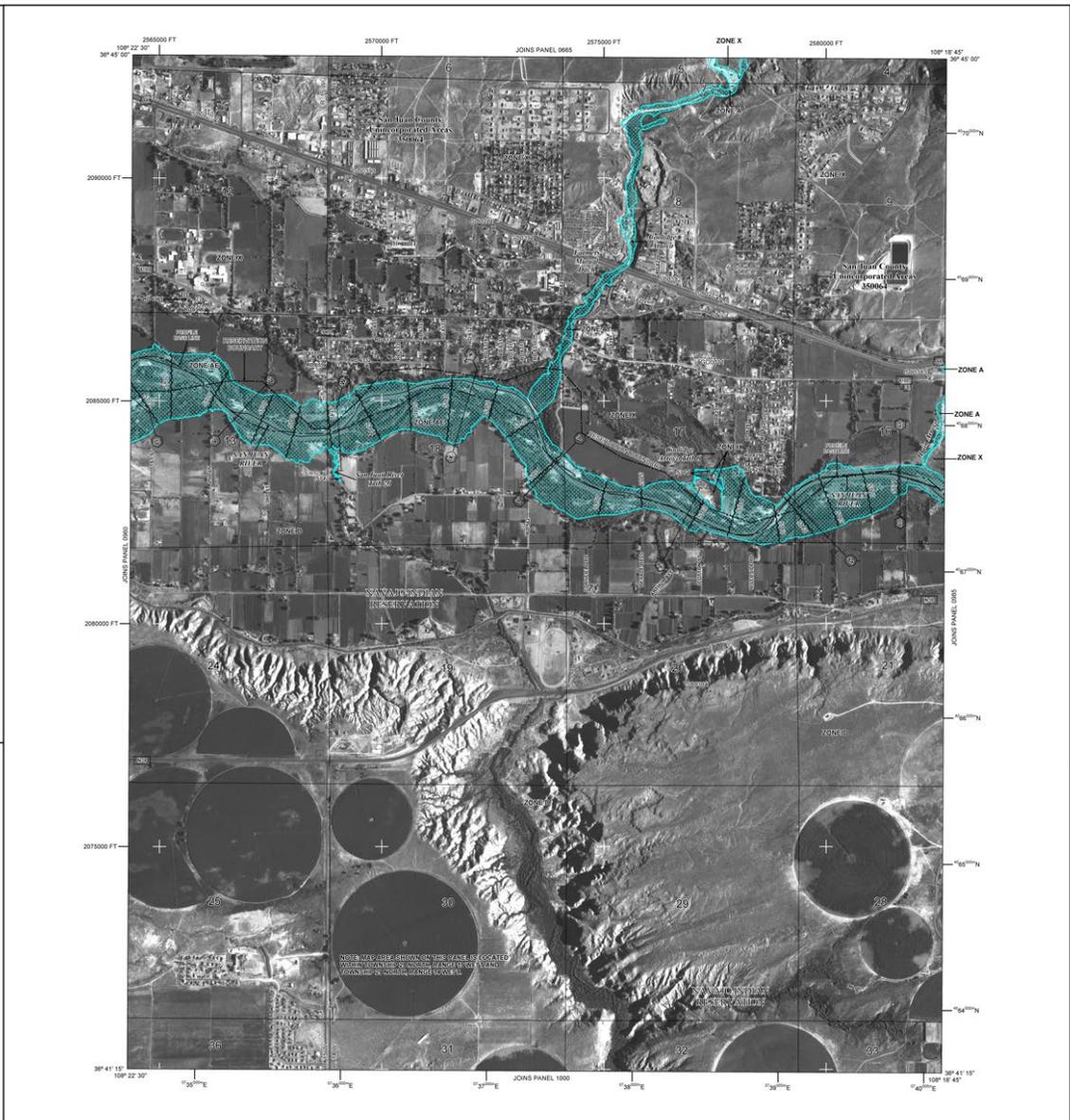
This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodways and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report contain authoritative hydraulic data that may reflect stream channel details that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed Map Index for an overview map of the county showing the extent of map panels, community map repository addresses, and a listing of Communities at Risk containing National Flood Insurance Program data for each community as well as a listing of the panels on which each community is located.

Contact the FEMA Map Service Center at 1-800-358-6116 for information on available products associated with this FIRM. Available products may include print-ready versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-6122 and by e-mail at mapinfo@fema.gov.

If you have questions about this map or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/>.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHA) SUBJECT TO INSURANCE BY THE NATIONAL FLOOD INSURANCE PROGRAM

ZONE X No Base Flood Elevations determined.

ZONE A 1% annual chance flood (100-year flood) with action as the base flood. The 1% annual chance flood (100-year flood) with action as the base flood. The 1% annual chance flood (100-year flood) with action as the base flood. The 1% annual chance flood (100-year flood) with action as the base flood.

ZONE AE Flood depths of 1 to 3 feet (usually sheet flow or standing water); average depths determined. For areas of sheet flow flooding, velocities are determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a Federal Flood Protection System (FFPS) and subsequently identified. Data on FFPS indicates that the former flood control system is being replaced to provide protection from the 1% annual chance or greater flood.

ZONE ABB Area to be protected from 1% annual chance flood by a Federal Flood Protection System under construction; no Base Flood Elevations determined, although floodway data are provided.

ZONE V Coastal Flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal Flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment to keep the 1% annual chance flood at or below the BFE.

OTHER FLOOD AREAS

ZONE X Area of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage into less than 1 square mile and areas potential to exceed from 1% annual chance flood.

OTHER AREAS

Areas established to indicate the 1% annual chance floodplain, areas in which flood insurance is underwritten, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPA)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Zone B boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, Flood depths or Flood velocities

Base Flood Elevation line and value, elevation in feet

Base Flood Elevation line and value, elevation in feet

Reference to the North American Vertical Datum of 1988

Cross section line

Threat line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere

1000-foot Universal Transverse Mercator grid zones, zones 12 & 13

60000 FT

10000 FT

5000 FT and 2000 FT from Mexico State Plane coordinate system, North Zone (SPS90N 9803), Transverse Mercator Projection

Beach mark (see explanation in Notes to Users section of this FIRM panel)

ML5

Road Mile

MAP REVISIONS

Refer to Map Repository for Map Index.

OFFICIAL DATE OF COUNTRYWIDE FLOOD INSURANCE RATE MAP PANEL:

AUGUST 5, 2010

EFFECTIVE DATES OF REVISIONS TO THIS PANEL:

For community map revision history prior to community mapping, refer to the Community Map Repository 8000 located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6233.

MAP SCALE 1" = 1000'

0 100 200 300 400 500 600 700 800 FEET

0 100 200 300 400 500 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0980F

FIRM FLOOD INSURANCE RATE MAP

SAN JUAN COUNTY, NEW MEXICO AND INCORPORATED AREAS

PANEL 980 OF 2750

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS	COMMUNITY	NUMBER	PANEL	STATUS

Map Number
35045C0980F

Effective Date
AUGUST 5, 2010

Federal Emergency Management Agency

Map Source: FEMA

4.2.3 – Previous Occurrences

Based on information obtained from NOAA/NCEI, there were eleven (11) incidents of flash flooding occurred in San Juan County between January 1, 2013, and January 31, 2020. Details of the events are provided below:

July 5, 2013, San Juan County, Flash Flooding – An upper level ridge shifted eastward toward southwestern New Mexico in response to a short-wave trough moving into the Pacific Northwest. A moist and unstable airmass over New Mexico led to an uptick in shower and thunderstorm development throughout the day. Storms pushed east-southeast off the higher terrain producing some locally heavy rainfall and gusty winds. Additionally, heavy winds from a cluster of storms along U.S. 491 in San Juan County produced significant flash flooding. A local news station reported that heavy rains Friday night caused part of U.S. 491 to collapse creating a sinkhole. The rain was reported to have damaged a culvert that rain underneath the roadway leading to the collapse. U.S. 491 was closed in both directions between Sheep Springs and Naschitti for several days after the event. No injuries or deaths and no damage were associated with the event.

September 10, 2013, Flora Vista/September 13, 2013, Fruitland, Flash Flooding – A stationary upper level low pressure system that settled into the Great Basin around the 10th provided a steady stream of near record subtropical atmospheric moisture over New Mexico. At least four (4) back-to-back upper level disturbances pushed north and east across the region and interacted with the monsoon moisture plum through the 14th to produce widespread historic rainfall amounts. Significant flooding impacted the state as rainfall accounts over the five-day period averaged 3-6 inches and, in some areas, just over 10 inches. Several river gauges reported record to near record crests and in a couple cases gauges were completely destroyed. Emergency management reported disastrous impacts to residential, commercial, and transportation infrastructure. A total of fourteen counties, four cities and towns, five pueblos, and the Navajo Nation were included in a statewide and Presidential disaster declaration. The New Mexico State EOC was staffed at Level 2 operations for several days. Damages from this widespread historic rainfall event for northern and central New Mexico likely exceeded \$10 million dollars. In San Juan County, widespread flash flooding was observed in the city of Farmington. Numerous crashes and stalled vehicles were stranded in flood waters. Several flooded and damaged drainage systems along Peace Valley Road, Hubbard Road, East Navajo Street, Main Street, Butler, Street, Apache Street, and San Juan Boulevard caused widespread flooding of parking lots, low lying areas, homes, and businesses. Mud, rocks, and debris flows were reported at Webb Chevrolet, KFC, Si Sensors, Taco Bell, and Park-n-Sell. In Fruitland, the State EOC Situation Report #9 indicated that N562 Road in Fruitland was completely undermined and affected nearly 300 residences. Area completely isolated. A 72-inch pipe was damaged by flood water. N36 highway was also damaged. No injuries or deaths were associated with the event, but \$300,000 (\$250,000 in the city of Farmington and \$50,000 in Fruitland) of property damage was reported.

July 28, 2014, Navajo Dam, Flash Flooding – An active and persistent pattern maintained a heightened threat for flash flooding across much of the state. An upper level high was centered over portions of northern New Mexico and southern Colorado. A disturbance rotating around the upper high slowly shifted from west central to north central areas throughout the overnight hours. Weak steering flow aloft combined with a very moist airmass in place fueled slow-moving thunderstorms that produced very heavy rainfall and flash flooding. Showers and thunderstorms began developing during the late morning hours on the 28th over the Southwest Mountains, the Lower Rio Grande Valley, the West Central Plateau, and the Northern Mountains. Coverage expanded and intensified into the afternoon hours with small, heavy rain-producing

cells. Activity slowly began to rain with embedded heavy precipitation and had developed across the central highlands. Thunderstorms began training over the area from Santa Rosa eastward to near Newkirk. This swath of precipitation slowly moved eastward throughout the early morning hours subsiding by 11 A.M. the 29th. Due to ground already saturated from previous days rainfall, significant flooding occurred across portions of Guadalupe and De Baca counties. In particular, major flash flooding was reported within the Alamogordo Creek drainage. River flooding was also reported along the Pecos River near Puerto de Luna. Radar estimated storm total accumulations ranged from seven to thirteen inches in the area. These torrential rains washed out the supports underneath train tracks near Santa Rosa leaving the track suspended in air. Numerous other reports of flooding including asphalt up-ended and roads closed due to flowing water occurred in east central areas. Converging outflow boundaries from storms in Western New Mexico created enough rotation to produce small rope like funnel clouds as well. Heavy rains washed out two (2) road near Navajo Dam. No injuries or deaths associated with the event, and \$5,000 of property damage was reported.

October 9, 2014, La Plata, Flash Flooding – The remnant circulation of Hurricane Simon slowly moved north along Baja, California, and into southwestern Arizona, through the first week of October. This tropical system induced a regional-scale fetch of moist southerly flow over the southwestern United States for several days through the 10th. Overall this system produced beneficial rainfall over several days and did not result in any widespread heavy rainfall and flash flooding. However, one particularly persistent area of rain and thunderstorms over northwestern New Mexico, on the 9th did result in flash flooding around La Plata. Minor flooding was reported along Highway 4 from rainfall in the Jemez Mountains. A strong thunderstorm over eastern New Mexico, produced nickel sized hail around Tucumcari. Heavy rains caused a culvert to fail and travel was impacted along Highway 170 north of La Plata. Water flooded at least one home near the culvert. No injuries or deaths associated with the event, and \$50,000 of property damage was reported.

July 7, 2015, La Plata, Flash Flooding – Monsoon moisture firmly in place over New Mexico, focused another round of very heavy rainfall and severe thunderstorms. Storms with torrential rainfall and strong winds erupted over the state. A storm that developed around Shiprock moved northeast over La Plata and produced flash flooding along U.S. 170. Law enforcement reported that 12 inches of water was flowing over the roadway. NMDOT had to clean mud, rocks, and debris off the roadway. A thunderstorm that moved southeast along two colliding outflow boundaries near Edgewood produced a brief tornado. A metal barn for storing hay was tossed a quarter mile and slammed into a house where a woman was injured by flying glass. The same storm also produced quarter size hail. No additional injuries or deaths were associated with the event, and \$1,000 of property damage was reported.

August 2, 2015, Nageezi, Flash Flooding – An upper level high centered over far southeast New Mexico, on the 2nd allowed the monsoon moisture plume to focus over much of the state. The subsequent afternoon and evening thunderstorms were slow-moving and, at times strong to severe producing areas of heavy rain, hail, and strong winds. Flash flooding was reported in the northwest and south-central portions of the state, impacting U.S. Highway 550 near Nageezi and U.S Highway 60 west of Socorro. Six inches of rapidly flowing water over U.S. Highway 550 at mile marker 117. A nearby arroyo was raging with flash flood waters out of its banks. Penny size hail fell with stronger storms that rolled through Tucumcari during the early evening hours. No other severe weather was reported during this event. No injuries or deaths were associated with the event, and \$1,000,000 of property damage was reported.

August 26, 2015, Aztec, Flash Flooding – An upper level wave crossed over the Four Corners region and focused isolated severe thunderstorms over San Juan County during the evening of the 26th. A rapidly developing thunderstorm around Farmington moved quickly northeast and pounded the area from Flora Vista to Aztec shortly after sunset. These storms produced damage to trees and power lines, as well as flash flooding that damaged roads and businesses in the Aztec and Flora Vista areas. The flood waters pushed several homes off their foundations and swept away one propane gas tank. Several schools were impacted by flooding. A large rockslide closed Navajo Road 36 at mile marker 28, with other smaller road closures reported around Aztec. Measured rainfall in the area ranged from an inch to a little over an inch and a half. Police and fire departments responded to 59 fire calls and 51 law enforcement calls about flooding, trapped individuals, power pole fires, and downed trees. Shelters were set up in the area for those impacted by flood waters though no one used the facilities. Sandbags were utilized to divert flood waters away from the nearby convention center. The flooding caused all schools to close in Aztec on the 27th and just the Lydia Rippey Elementary School on the 28th. Major damages were also seen at the Aztec Municipal Golf Course at Hidden Valley, which closed until further notice for necessary repairs. No injuries or deaths were associated with the event, and \$1,000,000 of property damage was reported.

August 5, 2016, Turley/Shiprock, Flash Flooding – The most significant burst of monsoon moisture and instability so far in the 2016 summer season impacted New Mexico on August 5th. Deep atmospheric moisture and strong afternoon heating lead to widespread showers and thunderstorms with torrential rainfall. The heaviest rainfall impacted San Juan County where significant damage was reported around Shiprock. Several homes, vehicles, outbuildings, and roads were damaged from flood waters along Mesa Farm Road. An oil worker drove through flood waters along Largo Canyon Road near southeast of Bloomfield and was killed. Gallup reported very heavy rainfall along with flooded roadways and stalled vehicles. Mud slides covered portions of U.S. Highway 84 north of Espanola. Even northeast New Mexico got in on the action with flooding reported across many areas of Clayton. One (1) death and no injuries were associated with the event, and \$50,000 of property damage was reported.

July 30, 2017, Blanco, Flash Flooding – A very moist back door cold front that entered northeastern New Mexico late on the 29th provided a reinforcing surge of low-level moisture through the 30th. This front also acted as a focus mechanism for a couple strong to severe thunderstorms across parts of eastern New Mexico. Slow-moving showers and thunderstorms with torrential rainfall produced numerous reports of minor flooding. Some of the more significant storms impacted the area along with Sandia Mountains were pea to nickel size hail accompanied torrential rainfall amounts of two to three inches. Flash flooding was reported along Las Huertas Creek in Placitas. A wet microburst in south central Curry County produced a wind gust to 71 mph at Cannon Air Force Base and 65 mph at the Clovis Fire Department. A stationary thunderstorm east of Church Rock produced another round of flash flooding along state road 118. Another storm moving slowly southeast out of southwest Colorado produced flash flooding along U.S. Highway 64 east of Bloomfield around sunset. U.S. Highway 64 was completely flooded at mile marker 74 causing the roadway to close. No injuries or deaths and no damage were associated with the event.

September 29, 2017, Farmington, Flash Flooding – The potent upper low-pressure system responsible for severe thunderstorms and flooding over eastern New Mexico, between the 22nd and 25th began lifting slowly northeast into the central Rockies on the 26th and 27th. Daily rounds of showers and thunderstorms with heavy rainfall, hail, and strong winds began westward to include much of central western New Mexico, through this period. This additional heavy rainfall set the stage for a more widespread flooding event through the end of September. Widespread three-day rainfall reports averaged between two and five inches with central New Mexico. Several stations reported record daily rainfall amounts and placed

September 2017 into the top five wettest September on record. A potent storm that moved across Rio Rancho late on the 28th forced water into four homes along Arlene Road. A cluster of thunderstorms with torrential rainfall moved across western New Mexico during the early afternoon hours on the 29th and produced flash flooding around Farmington and Acoma Pueblo. Flash flooding along U.S. Highway 64 at Browning Street. These storms then shifted eastward and produce severe hail and flash flooding along much of the Interstate 25 corridor between Los Lunas, Belen, and Bernardo. Interstate 25 was closed for several hours as water flooded over the highway. Powerful storms developed again on the 30th and produced more flash flooding, sever hail, high winds, and even a tornado west of Albuquerque. No injuries or deaths and no damage were associated with the event.

4.2.3A – Probability of Future Events, Flooding, Inland

San Juan County and its participating jurisdictions can each expect a flash flood event with 185.71% probability per year, or 1.857 events per year. Calculating future probability is not the only predictor of future occurrences (based upon Table 10: Probability Categories). This number was derived by dividing the number of recorded events by the year range used. The qualitative chance of a flooding event in San Juan County and its participating jurisdictions is considered **highly likely**.

Table 17: Probability of Future Events, Flooding

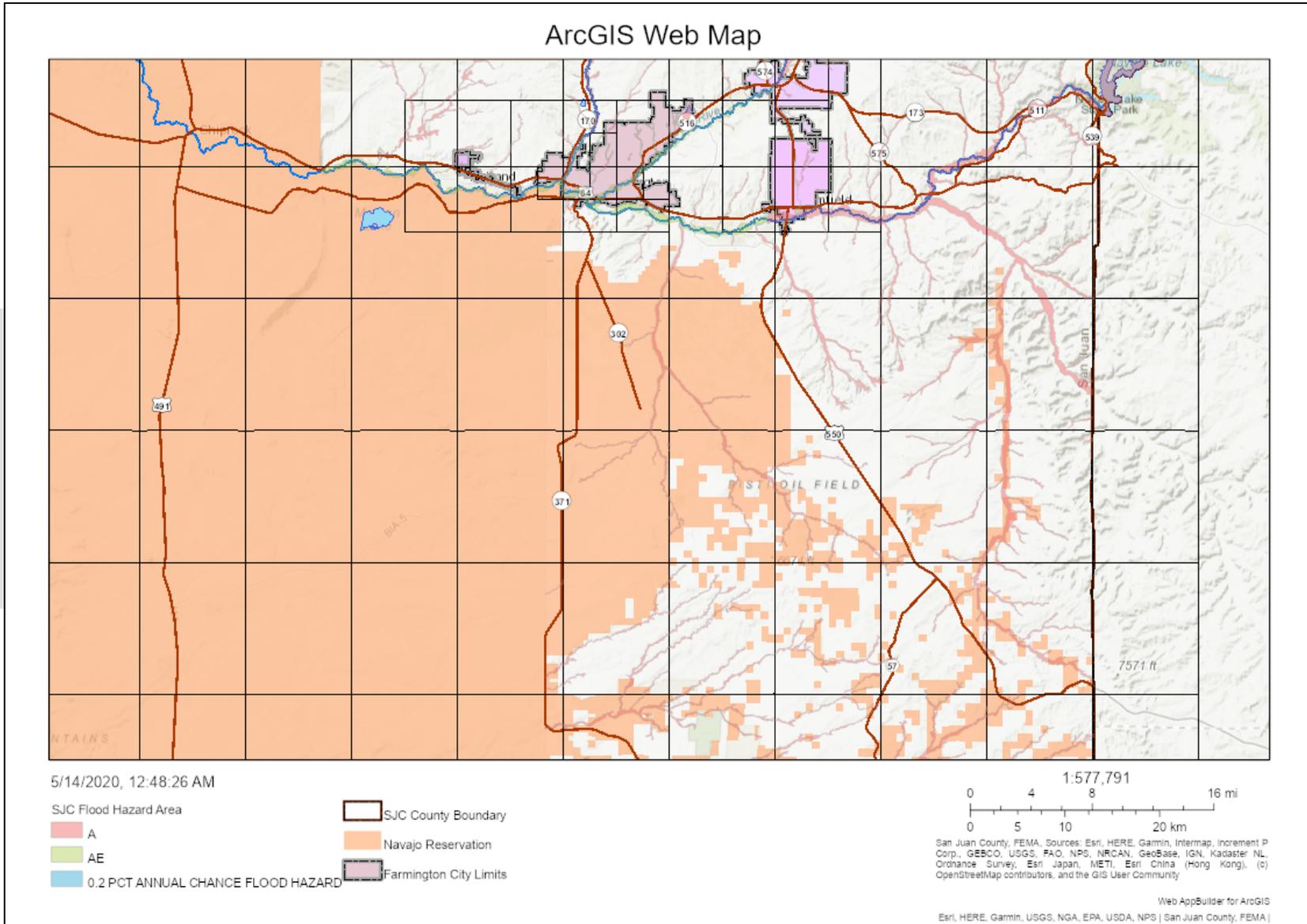
Probability of Future Events, Flooding	
Event Year	Event Count
2013	4
2014	2
2015	3
2016	2
2017	2
2018	0
2019	0
2020	0
Total Recorded Events =	13
Total Years =	7
Yearly Probability =	185.71%

Data Source: NOAA/NCEI Storm Events Database

4.2.4 – Vulnerability & Impact

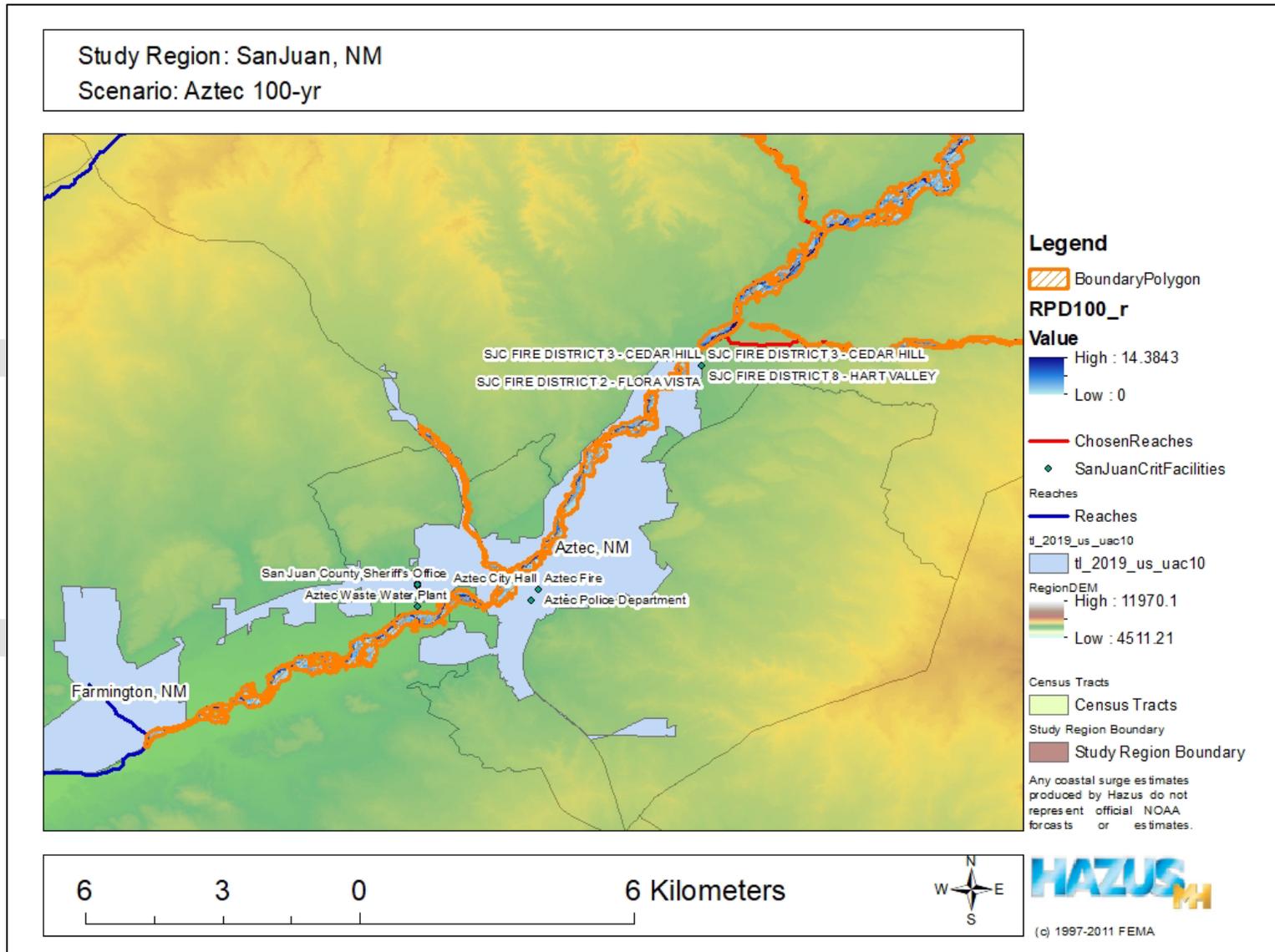
Based on Map 11 and the future probability identified in Section 4.3.3.A, San Juan County is exposed to 100-year floodplains. The probability of flooding is equal throughout each participating jurisdiction, and as depicted in Section 4.3.3A, at 1.87 events per year. Again, according to Table 10: Probability Categories, inland flooding is considered **highly likely** for San Juan County and its participating jurisdictions.

Map 25: San Juan County, Flood Hazard Area Map



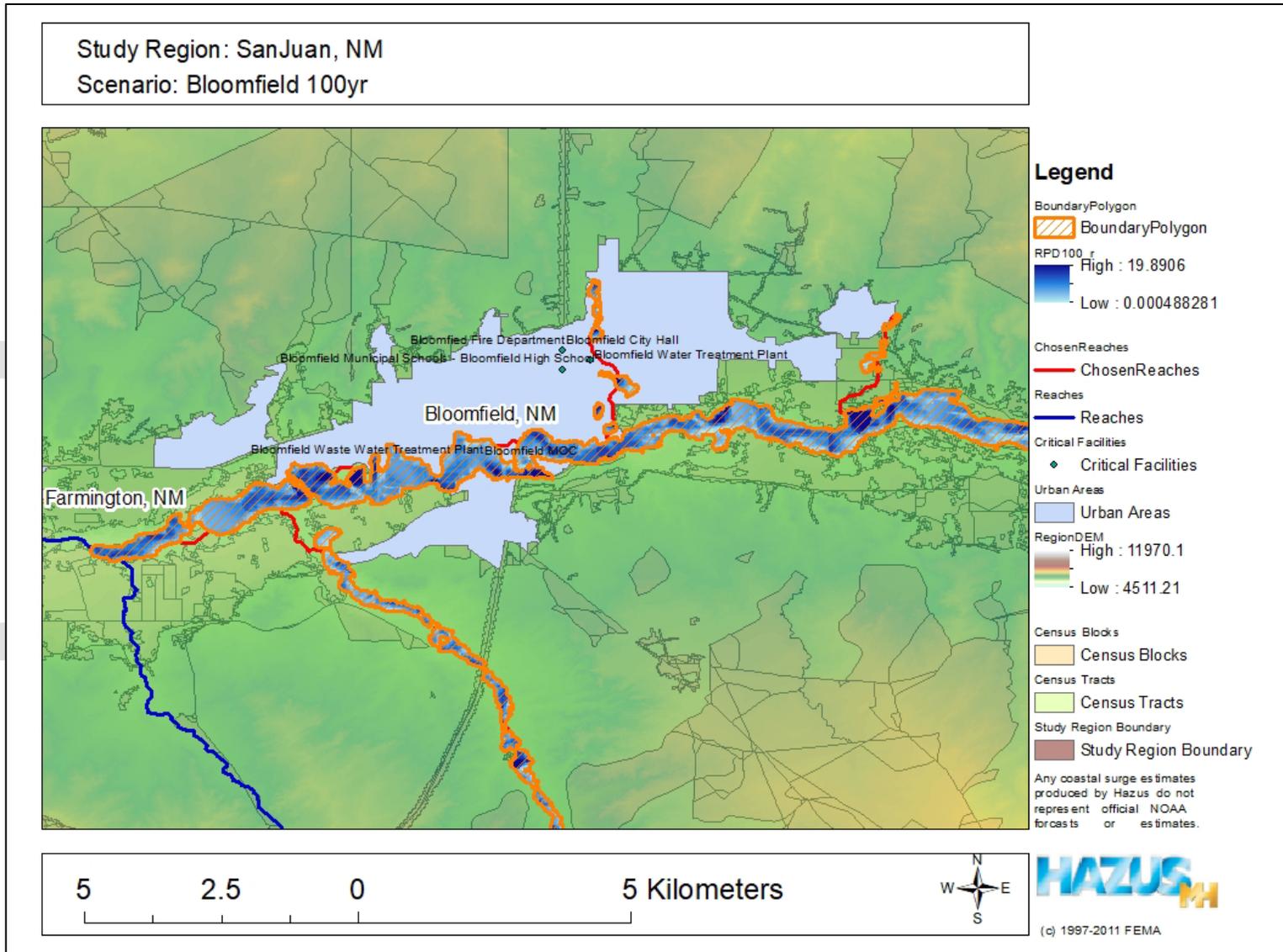
Map Source: San Juan County, NM, Floodplain Management Department

Map 26: City of Aztec, Riverine 100-yr Flood



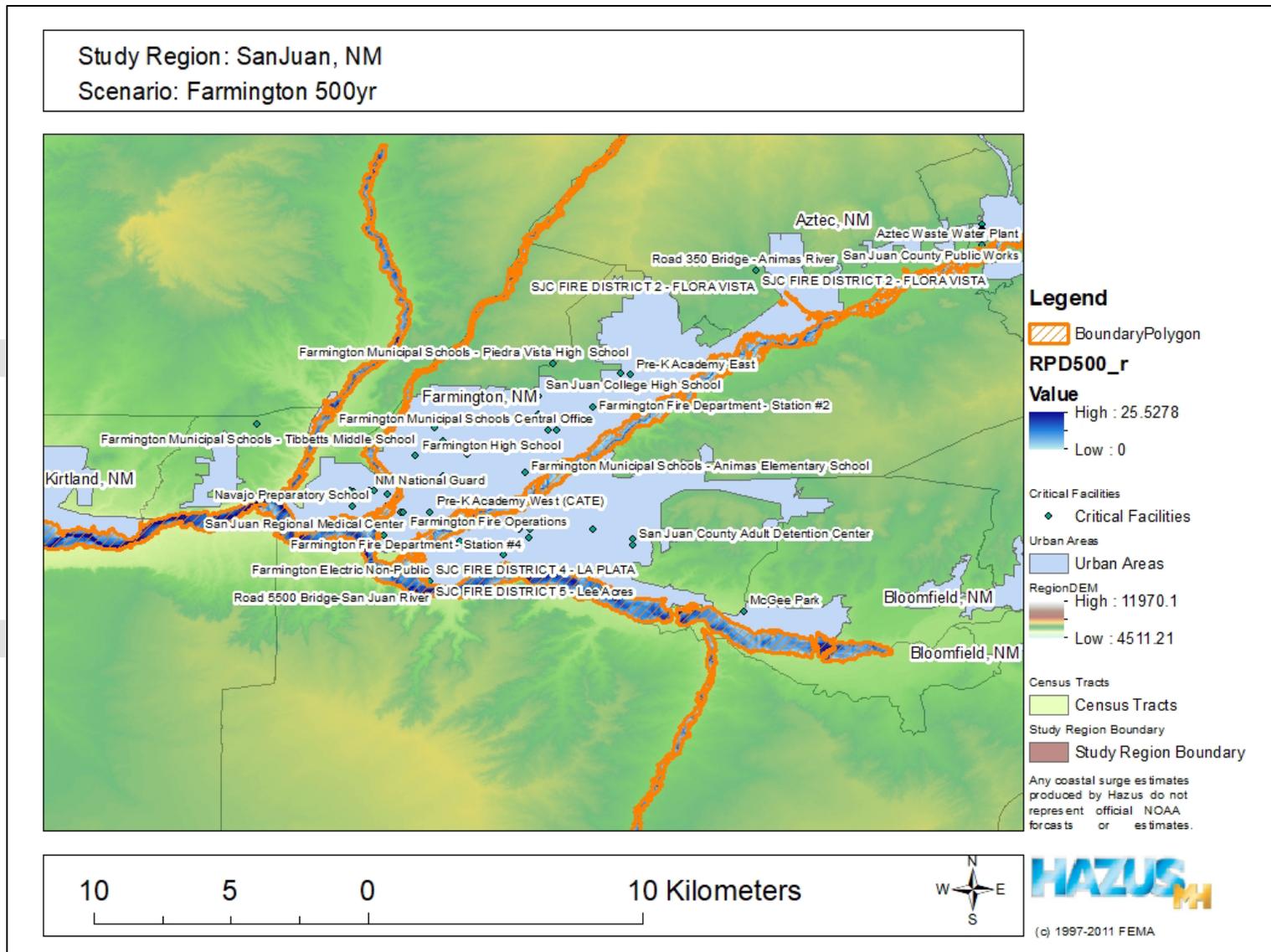
Map Source: HAZUS[®] produced by BOLDplanning

Map 27: City of Bloomfield, Riverine 100-yr Flood



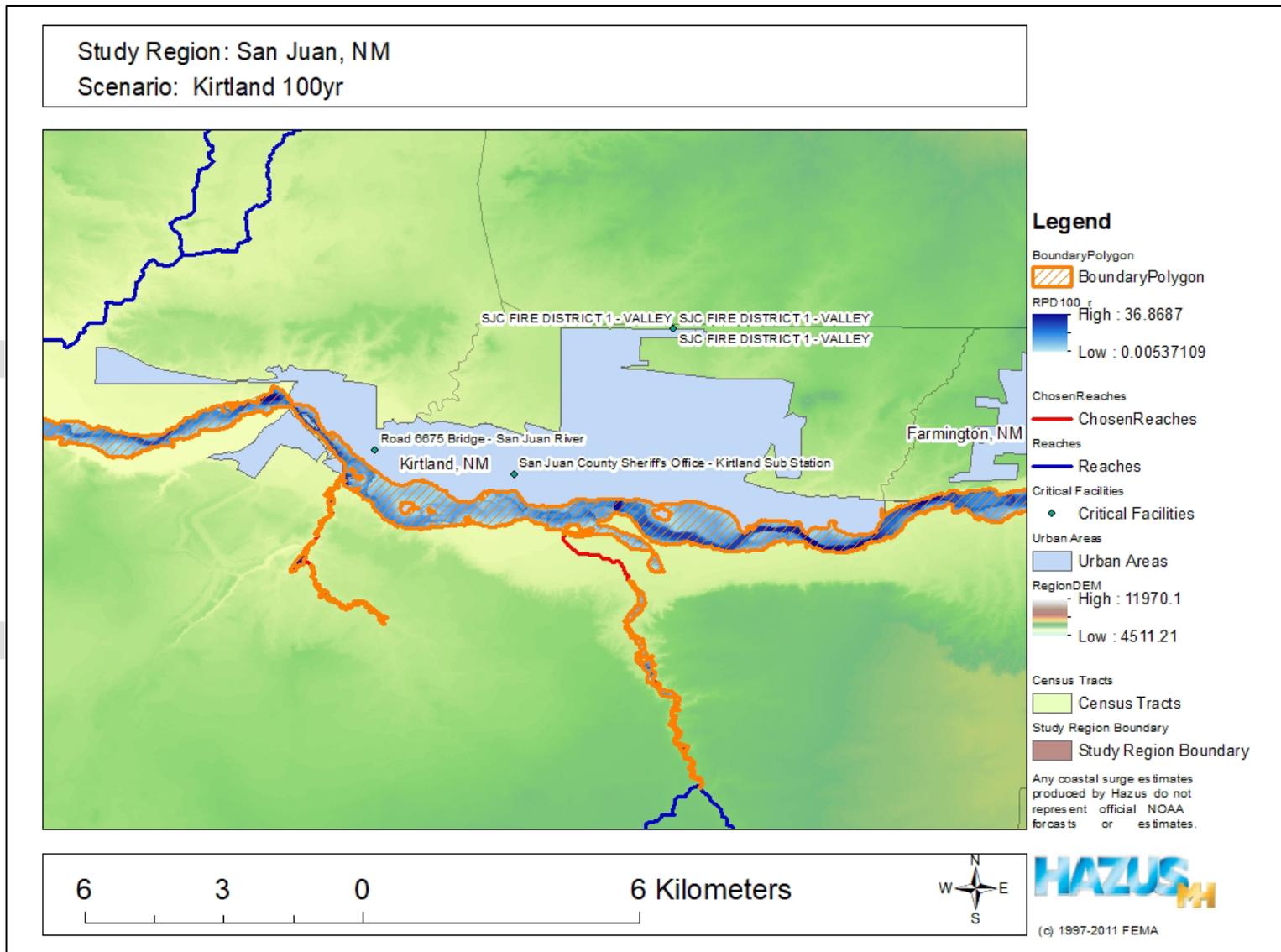
Map Source: HAZUS® produced by BOLDplanning

Map 28: City of Farmington, Riverine 100-yr Flood



Map Source: HAZUS® produced by BOLDplanning

Map 29: City of Farmington, Riverine 500-yr Flood



Map Source: HAZUS® produced by BOLDplanning

Vulnerability of Facilities, Critical Facilities Inventory

A HAZUS® analysis was performed to determine critical facility locations relative to the SFHAs. Using GIS, the Digital Flood Insurance Rate Map (DFIRM) flood zones were overlaid on the critical facility location data. Maps 21-24 show critical facility locations and 100-year flood depths within San Juan County. Aside from the essential facilities at risk, there are many critical facilities at risk. Additional information is provided in the table below.

Table 18: Expected Damage to Essential Facilities, 1% Riverine Flood

Classification	Total	Moderate	Substantial	Loss of Use
Fire Stations	33	0	0	0
Hospitals	5	0	0	0
Police Stations	7	0	0	0
Schools	79	0	0	0
Emergency Operations Centers (EOCs)	1	0	0	0

Data Source: HAZUS® Flood Global Risk Report for San Juan County produced by BOLDplanning

Note: HAZUS® indicated the following “If this report displays all zeros or is blank, two possibilities can explain this: 1.) None of the essential facilities were flooded in the scenario. This can be checked by mapping the inventory data on the depth grid. 2.) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Shelter Requirements

HAZUS® estimates the number of households that are expected to be displaced from their homes due to flood and associated potential evacuation. HAZUS® also estimates the number of displaced people who will require accommodations in temporary public shelters. The model estimates 176 households (or 528 people) will be displaced due to flooding. Displacement includes households evacuated from within or near the inundated area(s). Of these, 18 (out of a total population of 130,044) may require temporary, public sheltering. This information is from the hazard risk analysis provided by BOLDplanning.

Building-Related Losses

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

Clearly, severe flooding has the potential to inflict significant damage in San Juan County. Analysis by the BOLDplanning estimates that 2,127 tons of debris may be generated from a 100-year riverine 1% flood. Smaller floods caused by heavy rains and inadequate drainage capacity will occur more frequently than 100-year floods, and continue to be problematic for the County. Fortunately, damage from them will not be nearly as costly.

Flooding can cause minimal or complete destruction to facilities, taking them offline for days to years depending upon the resources available after an event.

San Juan County and its participating jurisdictions have incurred \$2,456,000.00 in property damage from flooding/flash flooding from 2013 to present.

San Juan County's critical structures are valued at \$9,132,103.00. Since inland flooding/flash flooding threatens the entire planning area, all structures are considered exposed and vulnerable.

Vulnerability of Population

If evacuation orders are not heeded or flood waters rise quickly enough, residents within the planning area can be swept away by floodwater currents, become trapped on rooftops or other points of high elevations, and even sustain injury or death. Depending upon the conditions, this will expose them to the elements and deprive them of basic needs and services.

As previously described in *Vulnerability of Facilities, Critical Facilities Inventory*, still water that is long lasting and slow to drain will encourage growth of mold and other bio-hazardous material, rendering a facility unusable. Extra care, assessment, and sanitization are required before residents can re-inhabit a facility, or they may face serious health concerns. Hospitals housing vulnerable populations can take longer to evacuate.

Additionally, the potential presence of mold after a flood requires extra care to be taken before San Juan County's population can re-inhabit a hospital facility.

San Juan County has 0 recorded fatalities from flash flood events. Still, of the total population (130,044) of the planning area, all are considered vulnerable and at risk to inland flooding, whether flash or riverine.

Vulnerability of Systems

Critical facilities and infrastructure can be rendered unusable or permanently destroyed, producing a significant impact on a jurisdiction's ability to conduct its day-to-day operations. Significant damage to residential and/or commercial structures can irrevocably damage a community and its economy by creating economic hardship. If a chemical facility is significantly impacted, it is possible that stored chemicals can wash away with the floodwater and have detrimental effects on the local environment.

4.2.4A – Critical Facilities & Infrastructure

All critical facilities and infrastructure are equally at risk to flooding since it can indiscriminately affect the entire planning area. A complete list of critical facilities and infrastructure can be found in Appendix D.

4.2.4B – Land Use & Development Trends

With its growing population and continued urbanization, all of San Juan County is at risk of some type of flooding (flash or riverine). This is especially true for future development within the County's many 100-year and 500-year floodplains, or SFHAs. New development in unmapped areas prone to flooding may further increase vulnerabilities and potential losses. However, San Juan County Floodplain Management reviews all proposed development for current and future flood related hazards. The County's Floodplain Manager must sign on all new platted land divisions, review and permit construction, and review manufactured home placement.

4.3.4C – Unique & Varied Risk

In San Juan County, flash flooding can affect the entire planning area or only a portion, or portions, of it. Unfortunately, there is no accurate method of predicting the location or extent of a flash flood’s impact—namely, whether it will affect one participating jurisdiction, any number of, or all participating jurisdictions. Further, it is not possible to predict any varying probability between the participating jurisdictions, except for different risk as it is proportionate to a participating jurisdiction’s demographics. Logically, participating jurisdictions with a more significant population are at a higher risk than involving jurisdictions with a lower population.

Although this plan update addresses vulnerability to flooding, without the possibility of being able to calculate all components of risk at a jurisdictional level, each jurisdiction’s likelihood of experiencing flash flooding is not possible to calculate. Based on the NFIP FIRM, the Cities of Aztec, Bloomfield, and Farmington, as well as the Town of Kirtland are at risk for a riverine flood.

Table 19: Unique & Varied Risk

Unique & Varied Risk	
Jurisdiction	Risk Characteristics
San Juan County	Parts of the jurisdiction are in a 100-yr floodplain.

4.2.4D – Repetitive Loss Structures

There are two (2) repetitive loss, NFIP-insured structures within San Juan County and ten (10) structures in the City of Aztec.

Federal Emergency Management Agency Repetitive Losses / BCX Claims NEW MEXICO												
CID	Community Name	County	No Of Variances	No Of Rep Losses	CAC Date	CAV Date	No Of BCX Claims	Total Area Population	LOMCS	No Of Policies	FIRM Date	CRS
350047	SAN JON, VILLAGE OF	QUAY COUNTY	0	0	10/22/2003		0	308	2	0	05/05/2003	
350048	TUCUMCARI, CITY OF	QUAY COUNTY	0	0	02/24/2010	08/03/2015	0	5,989	7	2	05/05/2003	
350050	CHAMA, VILLAGE OF	RIO ARRIBA COUNTY	0	0		09/16/2002	0	1,300	1	5	03/15/2012	
350049	RIO ARRIBA COUNTY*	RIO ARRIBA COUNTY	0	0		06/13/2016	0	38,531	124	109	03/15/2012	YES
350052	ESPANOLA, CITY OF	RIO ARRIBA COUNTY, SANTA FE COUNTY, ROOSEVELT COUNTY	0	0	02/25/2016	05/11/2007	0	13,402	74	57	12/04/2012	
350101	ELIDA, TOWN OF	ROOSEVELT COUNTY	0	0			0	233	0	0	10/06/2010	
350103	FLOYD, VILLAGE OF	ROOSEVELT COUNTY	0	0			0	248	0	0	10/06/2010	
350054	PORTALES, CITY OF	ROOSEVELT COUNTY	0	4	03/20/1997	04/25/2018	0	11,131	24	356	10/06/2010	YES
350053	ROOSEVELT COUNTY*	ROOSEVELT COUNTY	0	0	02/29/2016		0	19,846	5	4	10/06/2010	
350065	AZTEC, CITY OF	SAN JUAN COUNTY	0	10	09/03/2015	06/18/2015	7	7,285	36	18	08/05/2010	
350066	BLOOMFIELD, CITY OF	SAN JUAN COUNTY	0	0	03/31/2014	06/18/2015	0	7,000	18	8	08/05/2010	
350067	FARMINGTON, CITY OF	SAN JUAN COUNTY	0	0	09/09/2015	06/18/2015	0	45,511	118	85	08/05/2010	YES
350064	SAN JUAN COUNTY *	SAN JUAN COUNTY	0	2	10/28/2010	06/18/2015	2	68,000	207	100	08/05/2010	YES

Data Source: FEMA – June 4, 2020

4.2.5 – HAZUS® Models

HAZUS®, version 4.2, was used to perform the analysis for San Juan County using essential facility data provided by SJCOEM. The analysis was completed by BOLDplanning Inc. For this hazard, the risk assessment data and maps involved were from an analysis of 1% annual chance flood event (100-Year Flood).

During the drafting of this plan update, some limitations to the run of HAZUS® models were experienced. Among the HAZUS® community, it is well known that HAZUS® has some limitations. The latest version of HAZUS®, version 4.2, has census data embedded for the 2010 Census. Additionally, in the latest service pack, Service Pack 3, updates have been made to the HAZUS® state databases using the latest version available at the time of this release of Homeland Infrastructure Foundation – Level Data (HIFLD) Open Essential Facility (<https://hifld-geoplatform.opendata.arcgis.com/>) datasets for care facilities, emergency operations centers, police stations, fire stations, and schools. However, these data sets are aggregated to HIFLD from state and local data sets. Therefore, they are only as good as what has been provided from the source.

Known discrepancies have been found by a number of research teams in HAZUS® data and the National Bridge Inventory, the number and locations of fire stations, police stations, etc. In some cases, the data from other, localized sources. Therefore, HAZUS® provides only an estimate (typically conservative) for damages and impacts to local essential facilities/ emergency response.

Supplementing HAZUS® with better, local data can be done in a Level 2 analysis, but it can require a very involved and extensive data override process using the Comprehensive Data Management System (CDMS) and other tools, which can be cost and resource prohibitive for some communities. Another option for augmenting the HAZUS® outputs with localized data would be to acknowledge the limitations of HAZUS®, understand that the estimated damages are underestimations for the most part, and separately identify essential facilities that may be subject to damages due to flooding based upon intersections of the facility with a flood inundation boundary to identify potentially vulnerable facilities. However, this approach does not allow for estimation of the damage costs.

For San Juan County and its participating jurisdictions, there were problems with the underlying data even to generate the hydrology to perform analysis. Due to the size of the County, it was impossible to generate hydrology for all of the reaches even when parsing them into smaller portions and then attempting to stitch them together. The HAZUS® software crashed or resulted in multiple failed reaches multiple times. HAZUS® technical support was engaged and one of the HAZUS® flood developers was unsuccessful in generating a successful HAZUS® run for large portions of the County. This took a few months of trials and troubleshooting, which resulted in the analysis provided for only the municipalities in San Juan County.

Therefore, for the MJNHMP Update for San Juan County, the analysis was limited to only the reaches in the immediate vicinity for the populated areas/municipalities. In doing this, BOLDplanning was able to generate HAZUS® flood analyses for the 1% and .05% return periods. The results for San Juan County should be considered baseline and best-case scenario due to the limited drainage areas included in the analysis. Future analysis should include high resolution digital elevation models (DEMs) and investigation into the issues with the reach generation and hydrologic analysis problems for the area. If the County could acquire the Hydrologic Engineering Center's (CEIWR-HEC) River Analysis System (HEC-RAS) models of the main rivers/tributaries for the county, the outputs (i.e., the depth grids) from the model(s) could be then imported into HAZUS® for use.

HAZUS® is not a strong hydrologic model. However, it is the only tool available that provides the depth and breadth of information regarding estimated potential damages and impact cost associated with natural hazards. This information should be considered “estimates” only and used to inform planning as such.

4.2(HM) – Hazardous Materials

4.2.1 – Hazard Description

A hazardous material (HazMat) is any item or agent—biological, chemical, physical—with potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors.

Hazardous materials can be present in any form: gas, solid, or liquid; environmental or atmospheric conditions can influence them if they are uncontained. A release of hazardous materials can be caused by a spill, leak, fire, explosion, pipeline break, transportation accident, or human action, resulting in contamination of people and/or property.



Photo Source: Farmington Fire Department HazMat Response Team <https://www.fmtn.org/469/Haz-Mat>

The U.S. Occupational Safety and Health Administration (OSHA) defines a hazardous material as any substance or chemical posing a health hazard, or physical hazard, including: chemicals that are carcinogens, toxic agents, irritants, corrosives, sensitizers; agents that act on the hematopoietic system; agents that damage the lungs, skin, eyes, or mucous membranes; chemicals that are combustible, explosive, flammable, oxidizers, pyrophoric, unstable-reactive or water-reactive; and chemicals that, in the course of normal handling, use, or storage may produce or release dusts, gases, fumes, vapors, mists or smoke that may have any of the previously mentioned characteristics.

Hazardous materials are so widely used, transported, and stored, often in large quantities, that a spill or other event could happen nearly anywhere in the U.S. The effects may involve a local site or many square miles. Health problems may be immediate, such as corrosive effects on skin and lungs, or be gradual, such as the development of cancer from a carcinogen. Damage to property could range from immediate destruction by explosion to permanent contamination by a persistent hazardous material. Accidents involving the transportation of hazardous materials could be just as catastrophic as those associated with stored chemicals, possibly more so, since the location of a transportation accident is not predictable.

The U.S. Department of Transportation (DOT) divides hazardous materials into nine major hazard classes. A hazard class is a group of materials that share a common major hazardous property, i.e., radioactivity, flammability, etc. These hazard classes include:

- Class 1—Explosives
- Class 2—Compressed Gases
- Class 3—Flammable Liquids
- Class 4—Flammable Solids; Spontaneously Combustible Materials; Dangers When Wet Materials/Water-Reactive Substances
- Class 5—Oxidizing Substances and Organic Peroxides
- Class 6—Toxic Substances and Infectious Substances
- Class 7—Radioactive Materials
- Class 8—Corrosives
- Class 9—Miscellaneous Hazardous Materials/Products, Substances, or Organisms

The U.S. DOT's Pipeline and Hazardous Materials Safety Administration (PHMSA), which focuses on advancing the safe transportation of energy and other hazardous materials across the country, continually collects and shares information on the size, frequency, and impacts of hazardous materials releases occurring in transit. This includes incidents happening in transit storage, as well as during loading and unloading. Between January 1, 2015 and December 31, 2018, PHMSA recorded the following number(s) of transportation-related HazMat events in the U.S.: 16,858 in 2015; 18,286 in 2016; 17,482 in 2017; and 19,839 in 2018.

Certain incidents involving hazardous materials, whether in transit, stored, in use, or produced, are reported to the federally established National Response Center (NRC). Staffed 24 hours a day by U.S. Coast Guard officers and marine science technicians, the NRC is the designated federal point of contact for reporting all oil, chemical, radiological, biological and etiological discharges into the environment anywhere in the U.S. and its territories. Reports to the NRC activate the National Contingency Plan and the federal government's response capabilities. The NRC maintains reports of all releases and spills in a national database. In 2018, it logged 25,600 incidents nationwide.

Eight of the most common hazardous materials that first responders, HAZMAT teams, and perhaps the NRC's On-Scene Coordinator are likely to encounter in the event of an industrial accident or transportation-related incident are: carbon dioxide, chlorine, fireworks, gasoline, argon, sulfuric acid, propylene, and liquefied petroleum gas (LPG). The "List of Lists: Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-To-Know Act (EPCRA), Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Section 112(r) of the Clean Air Act" is available from the U.S. Environmental Protection Agency (EPA).

While it is nearly impossible to eliminate HazMat incidents altogether, there are many precautions industries can take to stay safe in the event of industrial or accidental (i.e., transportation-related) spillage. The same holds true for the communities located in close proximity to these industries, as well as the highways, railroads, pipelines, and air/water transportation systems they routinely use to move hazardous materials. Through a better understanding of the hazardous materials common to a particular area, along with specifics on how best to react if and when an incident occurs, risks can ultimately be minimized, and remediation simplified.

4.2.2 – Location & Extent

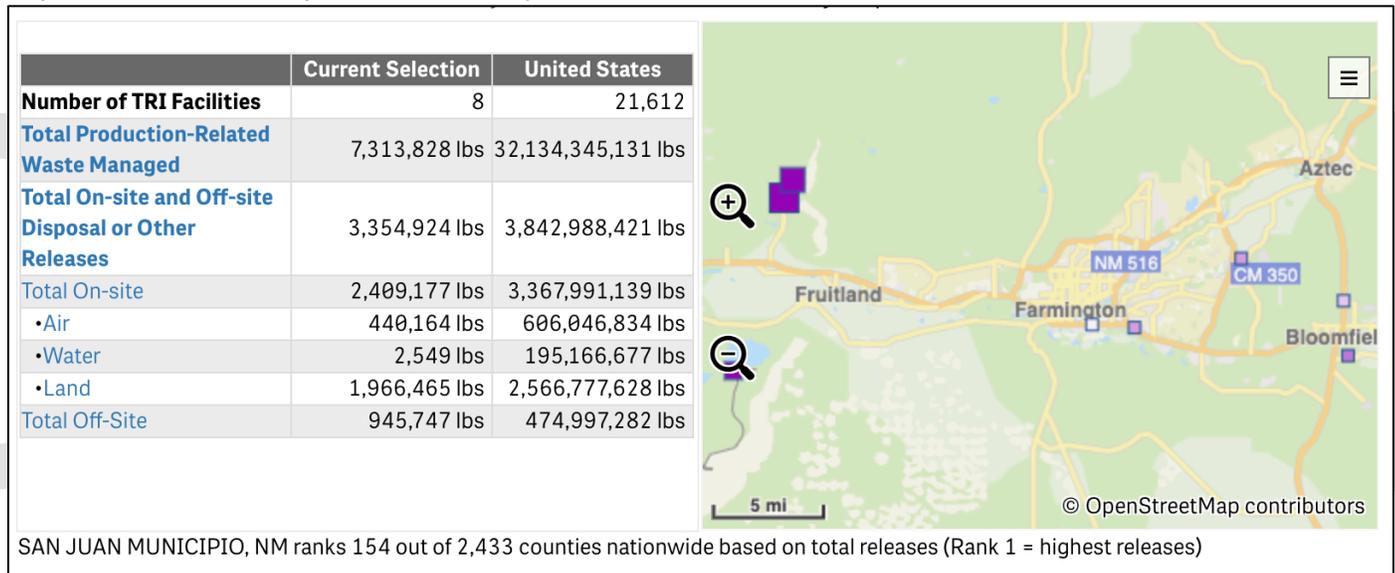
According to 2018 Preliminary Toxics Release Inventory (TRI) data, of the nation's 21,612 toxics-releasing facilities, 72 are located in the state of New Mexico. In fact, the State ranks number 39 out of 56 states/territories based on total releases per square mile. Of those 72 facilities reporting toxic release information in New Mexico, eight are located in San Juan County: two (2) in Farmington, one (1) in Fruitland, one (1) in Aztec, two (2) in Bloomfield, and two (2) in Waterflow. The presence of these sites within and near San Juan County, along with the routine transportation of hazardous materials, contribute to the HazMat risk. The following quick facts for San Juan County (2018) are provided by the TRI.

Table 15: TRI Facilities, San Juan County

Facilities	San Juan County, NM	United States
Number of TRI Facilities:	8	21,530
Total Production-Related Waste Managed:	7.3 million lbs.	32.1 billion lbs.
Total On-site and Off-site Disposal or Other Releases:	3.3 million lbs.	3.9 billion lbs.
Total On-site:	24 million lbs.	3.4 billion lbs.
• Air:	980.5 thousand lbs.	600.8 million lbs.
• Water:	2,549 lbs.	195.1 million lbs.
• Land:	1.96 million lbs.	2.7 billion lbs.
Total Off-Site:	945 thousand lbs.	474.9 million lbs.

Data Source: United States Environmental Protection Agency TRI Explorer

Map 20: TRI Facilities Map, San Juan County



Map Source: United States Environmental Protection Agency TRI Explorer

Regarding the transport of hazardous materials, there are many avenues for doing so across San Juan County and its participating jurisdictions. In the City of Aztec, for example, traffic moves along NM State Road 516 directly through the City. Moving South in Aztec, traffic must complete a 90-degree turn towards U.S. 550. U.S. 500 moves traffic throughout downtown Aztec and has typically increased traffic congestion during certain portions of the day. With these routes, there are a number of intersections that pose an increased risk for traffic accidents. The County’s previous mitigation plan indicates that if a hazardous material release occurs near or at the intersection of State Road 516 and U.S. 550, there is the potential, it to shut down the entire City of Aztec for the duration of the response and recovery for the incident.

For the City of Bloomfield, transportation flows in two directions- north via U.S. 550 from Aztec and east via U.S. 64 from Farmington. The traffic moving south from Aztec on U.S. 550 comes downhill into the Bloomfield area and passes Bloomfield High School before reaching U.S. 64. Traffic then makes a 90-degree turn onto U.S. 64 to the west for approximately one block before making a second 90-degree turn back to the South onto U.S. 550, which then leads out of the city limits. If there is a transportation-related

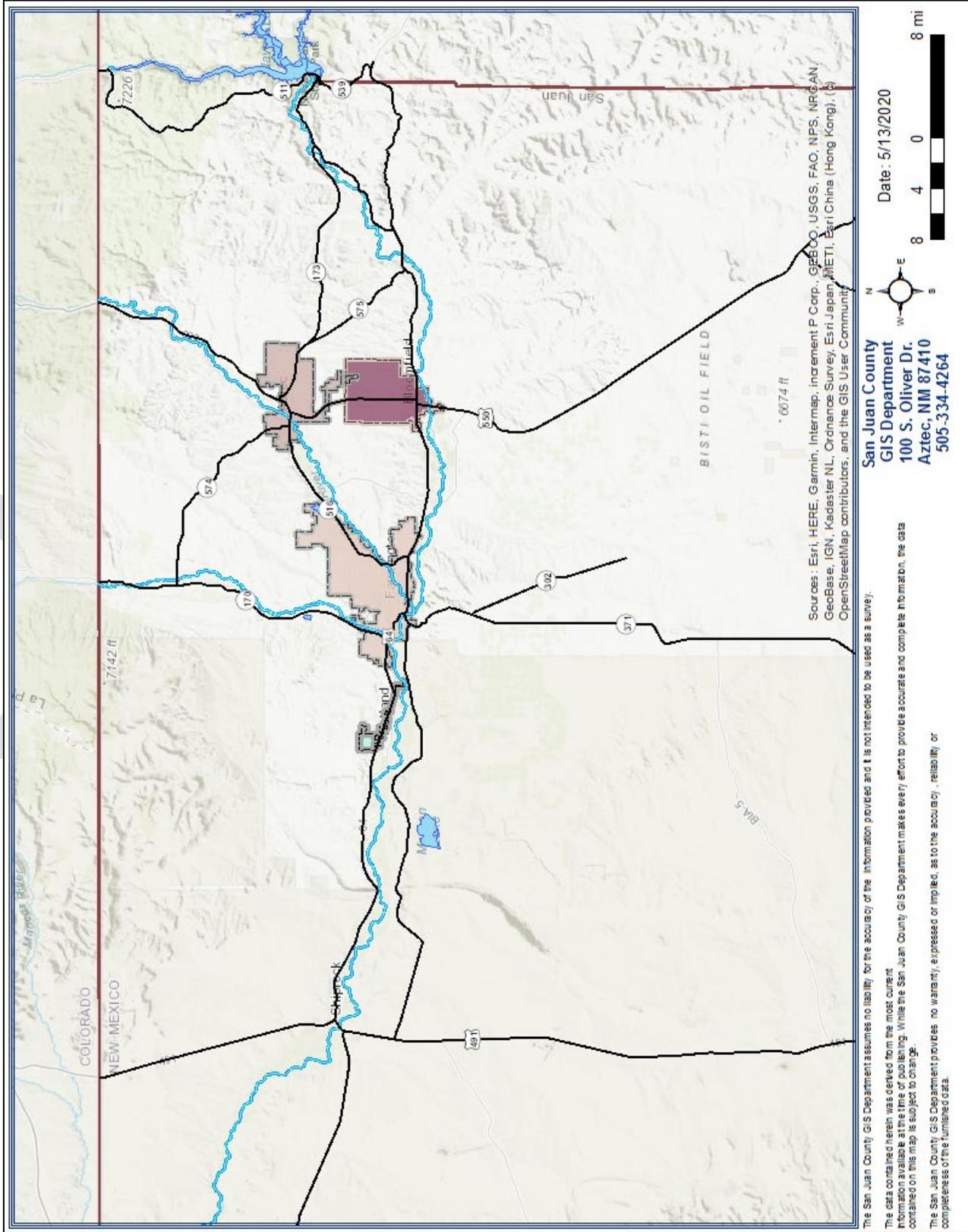
HazMat incident on any of the thoroughfares in the City of Bloomfield, there could be a road shutdown and subsequent evacuation of areas within the City.

For the City of Farmington, traffic moves into the city from the east and can take several routes to proceed to the city of Albuquerque. One of those moves is via U.S. 64 that travels to Bloomfield and South onto U.S. 550. This route is a significant route for trucking in the area. Along this route, one can also find major commercial entities as well as a hospital. The second route runs through the city along either Broadway or Main street. Both of these streets run through the center of downtown Farmington.

On the following page is a map showing the major transportation routes in San Juan County.

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Map 21: San Juan County Major Roadways and Interstates



Map Source: San Juan County, NM, GIS Department

The County’s previous mitigation plan identifies “gasoline/liquid nitrogen” as the most common hazardous material transported through San Juan County and its participating jurisdictions. Any spill of hazardous material can cause an evacuation of homes, schools, and business near the affected areas. HazMat incidents pose significant risk to humans, animals, and the environment in San Juan County. Depending on the type of hazardous material(s) and the size of the area impacted, the losses could be minor, major, or significant.

Possible Losses to Critical Facilities
Critical functional losses
Structural and contents losses if an explosion is present
Contamination

Possible Losses to Structures
Inaccessibility
Contamination
Structural and contents losses, if an explosion is present
Business closures and associated business disruption losses

Possible Ecologic Losses
Loss of wildlife
Loss of habitat
Degraded air and water quality

Possible Social Losses
Cancelled activities
Emotional impacts of significant population losses and illness

4.2.3 – Previous Occurrences

Given the presence of eight (8) TRI facilities in San Juan County (again, two (2) in Farmington, one (1) in Fruitland, one (1) in Aztec, two (2) in Bloomfield, and two (2) in Waterflow) and the continuous storage, production, use and transportation of hazardous materials across its main thoroughfares, all of San Juan County is at risk of a HazMat incident. Based on information obtained from San Juan County/Farmington Fire, HazMat Division, there were seven (7) significant transportation-related HazMat incidences that occurred in San Juan County and its participating jurisdictions between January 1, 2013, and January 31, 2020. Details of the events are provided below:

November 5, 2015, San Juan County – DOT 406 accident, NM 550, gasoline leaking.

July 8, 2016, San Juan County – Produced water tanker explosion, NM 64, vapor only, no liquid lead.

July 12, 2016, San Juan County – Oil facility fire, NM 550/CR 7800, crude oil fire, multiple tanks involved.

August 11, 2016, San Juan County – Titanium fire at APS Power Plant, Indian Service Route 5086.

December 24, 2017, San Juan County – 18-wheeler truck involved in an accident, with type-B radiation transportation containers on Hwy 64, Kirtland, no leak.

October 28, 2018, San Juan County – 18-wheeler truck involved in accident, sulfuric acid leaking, N491, Navajo Nation.

July 23, 2019, San Juan County – DOT 407, rollover, Road 7010, Navajo Nation, diesel additive leaking.

4.2.3A – Probability of Future Events, Hazardous Materials

Like in the San Juan County MJNHMP Update (November 2013), the exact amount of hazardous material being transported is unknown, but there are indications that this type of traffic is increasing. This increase is partly due to the recent improvements in the area’s transportation system, particularly U.S. 550. Much of the hazardous material transport appears to be traveling through San Juan County en route to Albuquerque from the Salt Lake City, Utah, area. The route used in traversing San Juan County starts at the northern border of New Mexico, with U.S. 491 (formerly U.S. 666), south to Shiprock, east on U.S. 64 to Farmington, east from Farmington to either Aztec via State Road 516 or Bloomfield via U.S. 64, south from Aztec to Bloomfield via U.S. 550, and then south from Bloomfield on U.S. 550 and out of the County. Although the most substantial portion of this route traverses lightly populated areas, there is a danger to life and property in the concentrated population areas Aztec, Bloomfield, and Farmington, which represent the most significant economic dynamic within San Juan County.

Natural hazards like heavy rain and snowfall can cause transportation-related traffic incidents that can also be the cause of HazMat spills on the major thoroughfares in the planning area. Stated previously, given the presence of eight TRI facilities in San Juan County and the continuous storage, production, use, and transportation of hazardous materials across its main thoroughfares, all of San Juan County is at risk of a HazMat incident. San Juan County and its participating jurisdictions can expect a HazMat event with a 19,683% probability per year, or 196.833 events per year.

Table 16: Probability of Future Events, Hazardous Materials

Probability of Future Events, Hazardous Materials							
Event Year	Event Count						
	Flammable Spill	Natural Gas/LPG Lead	Other Combustible Spill	Chemical Hazard	Chemical Spill or Lead	General Clean-up/Vehicle	Total of Event Types
2013	12	50	6	0	15	83	166
2014	20	57	11	3	19	69	179
2015	14	49	6	2	5	67	143
2016	11	49	5	3	4	76	148
2017	7	54	6	-	11	82	160
2018	8	53	6	3	12	93	175
2019	4	86	7	1	16	96	210
Total Recorded Events =	76	398	47	12	82	566	1181
Total Years =	6	6	6	6	6	6	6
Yearly Probability =	1266.67%	6633.33%	783.33%	200.00%	1366.67%	9433.33%	19,683.33%

Note: Data does not include carbon monoxide, odor investigations, and biological or radiological reports.

Data Source: San Juan County/Farmington Fire, HazMat Division – Farmington HazMat Calls 2013-2019

The data in the probability table comes from Farmington Fire, HazMat division, shows six (6) different types of calls related to HazMat spills received over the last six years—flammable spill, natural gas/LPG lead, other combustible spills, chemical hazard, chemical spill/lead, and general clean-up/vehicle incidences. Calculating the future probably is not the only predictor of future occurrences (based upon Table 10: Probability Categories). This number was derived by dividing the number of recorded events (the six (6) different types of calls related to HazMat spills) by the year range used. The qualitative chance of a HazMat incident impacting the planning area is **highly likely**.

4.2.4 – Vulnerability & Impact

In the previous plan, Farmington Fire/HazMat recorded one major HazMat incident which occurred in 2010. San Juan County has a higher susceptibility than other counties due to the transportation of HazMat materials (i.e., liquid nitrogen and petroleum) on its major roads and highways in the county. However, hazardous materials could have a significant impact if there was a chemical release or explosion involving chemicals.

Vulnerability of Facilities

It is next to impossible to predict where a hazardous materials event will happen because it involves the human aspect and mobility. However, areas surrounding the train tracks and the plants that produce hazardous waste naturally are more vulnerable to a hazardous material event.

Vulnerability of Population

Depending upon the chemical, if a HazMat event were to occur, this could significantly impact the population of San Juan County. Due to the proximity to the major transportation highways where hazardous materials are routinely transported, the cities of Aztec, Bloomfield, and Farmington are vulnerable in the event of spill or HazMat accident within the planning area.

Vulnerability of Systems

A hazardous materials event will affect transportation routes in and out of the County. If a truck wrecks on the State or U.S highway near or in San Juan County, it will shut down traffic and may require the evacuation of homes, schools, and businesses.

4.2.4A – Critical Facilities & Infrastructure

All critical facilities and infrastructure are equally at risk of a HazMat incident affecting the planning area, especially homes, business and critical facilities that are in close proximity to State Road 516, U.S. 550 and U.S 64 and other highways within the County. A complete list of critical facilities and infrastructure can be found in Appendix D.

4.2.4B – Land Use & Development Trends

If and when a HazMat incident occurs in San Juan County, there is a chance it will not only involve dirt or surface material, but also flowing water in ditches, rivers, or small streams. Therefore, special attention to the location of new or expanding industries/facilities along with transportation routes in the County is warranted.

4.2.4C – Unique & Varied Risk

San Juan County, as a whole, is vulnerable to a HazMat incident involving transportation. As the NM State highway and railway corridors travel through and around San Juan County, the Cities of Aztec, Bloomfield, and Farmington, as well as the Town of Kirtland, could potentially be affected by a hazardous materials spill or radiological event.

4.2.4D Repetitive Loss Structures

Not applicable.

4.2.5 – HAZUS® Models

Not applicable.

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4.2(WF) – Wildfire

4.2.1 – Hazard Description

The National Weather Service (NWS) defines a wildfire as “any free-burning, uncontrollable wildland fire not prescribed for the area which consumes the natural fuels and spreads in response to its environment.” Wildfires can occur naturally from a lightning strike; by human accident from a non-fully extinguished campfire; and on rare occasions, by human actions, or arson. The threat of wildfire increases in areas prone to intermittent drought, or that are generally arid and dry. Regardless of how they begin, wildfires have the ability to consume large areas including infrastructure, property, and resources.



Photo Source: Courtesy of After Wildfire

There are three general types of wildfires—ground, surface, and crown. Ground fires, often referred to as underground or subsurface fires, occur in deep accumulations of organic matter such as humus, peat and similar dead vegetation that are dry enough to burn. These fires move very slowly and become difficult to fully extinguish or suppress. Occasionally, during prolonged drought, ground fires can smolder all winter underground and then emerge at the surface again in the spring. Surface fires burn only surface litter and duff, including leaves and fallen branches, and are the easiest of all fires to extinguish. Crown fires, on the other hand, are the most intense and most difficult to maintain. They burn trees up their entire length, and usually occur where there are strong winds, steep slopes, and a heavy fuel load (e.g., densely wooded forests).

With more people making their homes in wooded settings near forests and remote mountain sites, the threat of wildfire is steadily on the rise. This is because the demographic change is expanding the size of the area where structures and other human development meet or intermingle with undeveloped wildland, otherwise known as the wildland-urban interface (WUI). The WUI creates an environment in which fire can move readily between structure and vegetation fuels, often resulting in massive fires, or conflagrations, that may lead to widespread evacuations.

A wildfire risk assessment can determine the level of risk of a particular location. The “boundary” WUI is characterized by areas of development where homes, especially new subdivisions, press against public and private wildlands, such as private or commercial forest land, or public forests or parks. There is a clearly-defined boundary between the suburban fringe and the rural countryside. WUI areas deemed as “intermix” are places where improved property and/or structures are scattered and interspersed in wildland areas. These may be isolated rural homes or an area that is just starting to transition from rural to urban land use. “Island” WUI areas, also called occluded interface, are plots of undeveloped wildland, such as remnant forests and parks, within predominately urban or suburban locales. The WUI described in the San Juan Basin Community Wildfire Protection Plan (SJBCWPP) 2014, includes 163,402 acres of private, county, and state lands and 119,570 acres of federal lands, for a total of 282,972 acres.

Aside from damaging or destroying property, or worse, claiming lives, wildfires put off dense smoke that can affect air quality and pose a serious health risk. This is especially true for the elderly or those, young and old, who have breathing conditions such as asthma or COPD. Experts agree that smoke inhalation is the number one cause of death related to fires.

Wildfires are also notorious for spawning secondary hazards long after the original fire is extinguished. Such hazards include flash flooding, debris flow and landslides. All result from fire consuming the vegetation that provides precipitation interception and infiltration as well as slope stability.

Fire services can mitigate wildfires by regularly engaging in preventative burns and proactive land use measures. Homeowners and business owners can also do their part by taking precautionary efforts, such as following local fire-related ordinances; removing leaves, limbs, and other debris from property; and creating a defensible space around structures. Among those emphasizing the need for such preemptive actions is Firewise USA™, a national recognition program that provides instructional resources to inform people how to adapt to living with the risk of wildfire.

4.2.2 – Location & Extent

The San Juan County Basin Community Wildfire Protection Plan (CWPP), 2014, states that there are at-risk intermix communities and an established WUI boundary, including unincorporated communities, within the County's five (5) fire response zones.

The Northeast San Juan County Zone includes portions of the Animas River and San Juan River corridors and the intermix communities of Cedar Hill, Center Point, and Navajo Dam.

The Southeast San Juan County Zone includes portions of the San Juan River corridor and the intermix communities of Lee Acres, Sullivan Road, and Blanco.

The Central San Juan County Zone consists of significant private lands associated with the Animas River corridor and includes the intermix communities of Flora Vista and Hart Valley.

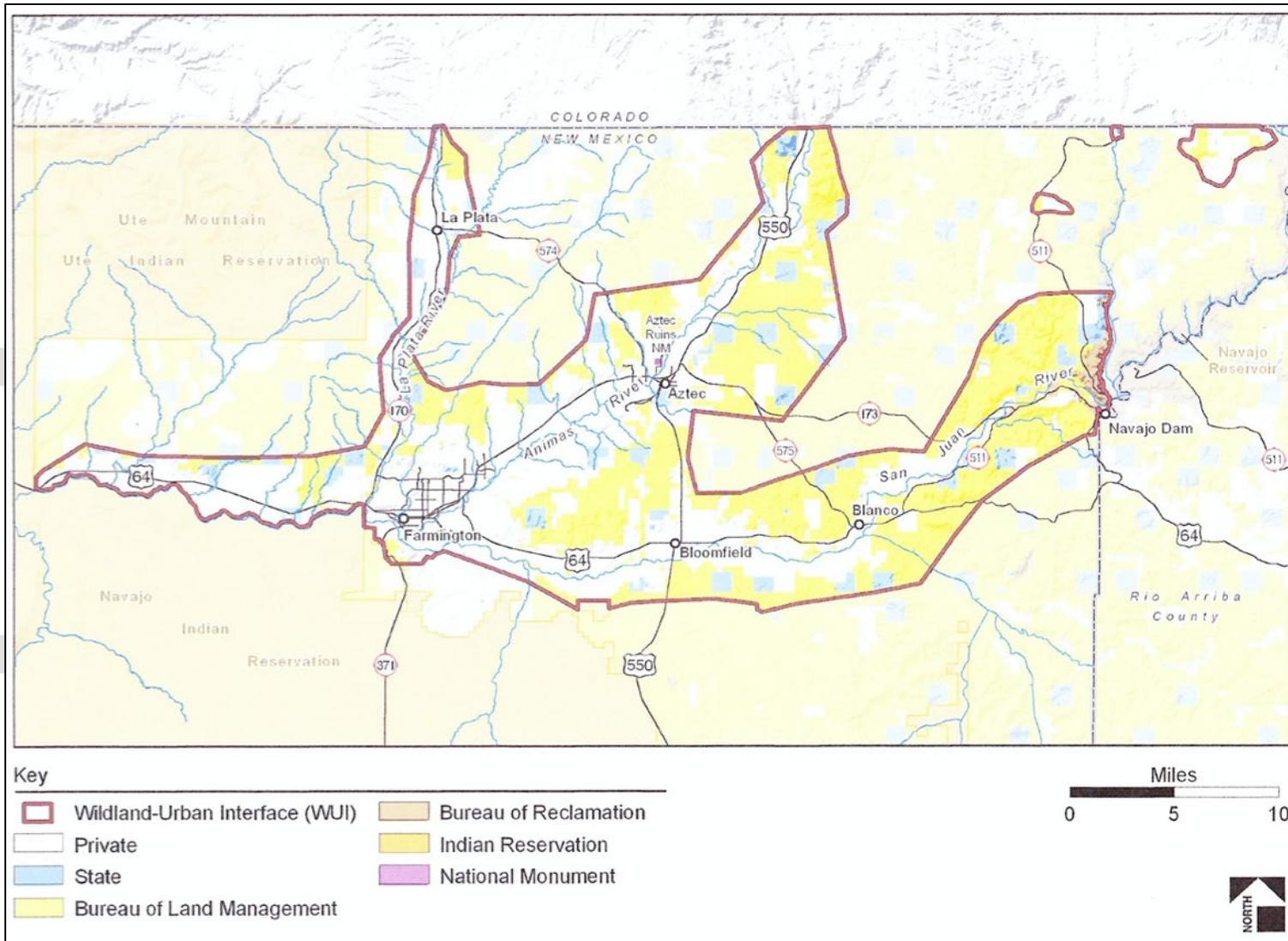
The Northern San Juan County Zone consists of significant private lands associated with the La Plata River corridor and the intermix community of La Plata.

The Western San Juan County Zone consists of significant private lands within the San Juan River corridor and the intermix communities of Fruitland, Waterflow, and Kirtland.

The Southwest is known for its diverse landscapes and semiarid climates. The frequent occurrence of extreme hot and dry conditions, such as drought, is a normal part of the region's climate. Following several years of below-average precipitation, northwest New Mexico, has been suffering from prolonged drought.

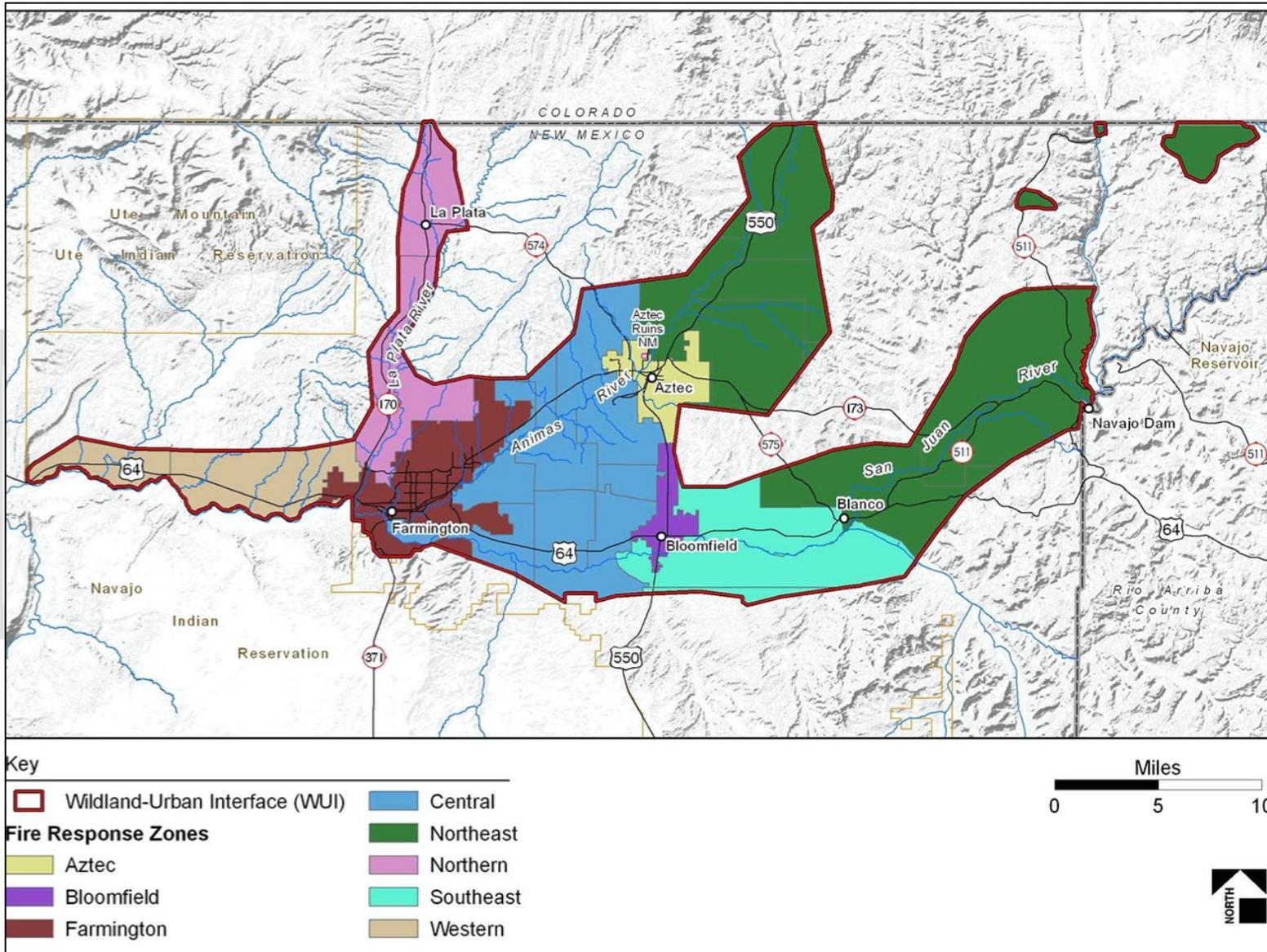
Historically, the majority of serious fires within San Juan County have occurred within the WUI. Although landscape-scale fires have not been prevalent, hundreds of natural and human fire starts do occur and are suppressed and contained each year. Because of the region's continued drought and fuel conditions, local fire departments and local governments are initiating fire preparedness enhancements and land treatment efforts to recognize and act on the current conditions that result in the accumulation of unacceptable levels and types of wildland fuels significantly threatening the communities with catastrophic wildfire.

Map 30: Wildfire Urban Interface – San Juan County Basin



Map Source: San Juan County Basin Community Wildfire Protection Plan (CWPP), 2014

Map 31: San Juan County Basin – Fire Response Zones within the WUI



Map Source: San Juan County Basin Community Wildfire Protection Plan (CWPP), 2014

Also, there are three components, terrain, weather, and fuel, that can influence the incidence of wildfires in San Juan County. Depressions, such as canyons funnel air, and can act as chimneys, intensifying the fire and causing a faster rate of spread. Saddles on ridge tops draw fires, and steep slopes can double the rate of spread due to the proximity of fuel meters per minute. Fuel type, continuity of fuel, and the moisture content of the fuel all affect wildfire behavior. Weather can have a significant effect on wildfires. Wind can direct the direction of fire and cause it to speed up through the area. High temperatures and low humidity can increase the fire potential while low temperatures and high humidity can increase the risk.

San Juan County’s previous MJNHMP Update (November 2013) mentioned that forest and grassland fires could occur any day throughout the year. Most of the fires occur during the spring season. The second most critical period of the year is fall. Depending on the weather conditions, a sizeable number of fires may occur between mid-October and late November. During the spring and summer seasons, the length and severity of burning periods largely depend on the weather conditions. Low humidity, high winds, below-normal precipitation, and high temperatures are frequently present, resulting in extremely high fire danger.

As experienced in San Juan County and its participating jurisdictions, drought conditions can hamper efforts to suppress wildfires as decreased water supplies may not prove adequate to contain the fire quickly. The duration of a wildfire depends on the weather condition (i.e., how dry it is, the availability of fuel to spread), and the ability of responders to contain and extinguish the fire. Historically, some fires have lasted only hours, while other fires have continued to spread and grow for an entire season. Such fires spread quickly and can go unnoticed until they have grown large enough to be seen by their dense smoke. If fuel is available, and the high winds speed exist, a wildland or brush fire can spread quickly over a large area. Continued extreme weather conditions, dry fuels, and increasing fuel loading on federal and nonfederal lands have contributed to the potential for catastrophic wildland fires in San Juan County and its participating jurisdictions. Following is a table that shows the standard Burn Severity Index (U.S. Department of Agriculture, Forest Division).

Table 22: Burn Severity Index

Burn Severity Index			
Rank	Burn Severity	Description	Characteristics
0	Unburned	Fire extinguished before reaching microsite.	<ul style="list-style-type: none"> • Leaf litter from previous years intact and uncharred • No evidence of char around base of trees and shrubs • Pre-burn seedlings and herbaceous vegetation present.
1	Low Severity Burn	Surface fire which consumes litter yet has little effect on trees and understory vegetation.	<ul style="list-style-type: none"> • Burned with partially consumed litter present • Evidence of low flame heights around base of trees and shrubs • No significant decreases in overstory & understory basal area, diversity or species richness from pre-burn assessments • Usually burning below 80° C
2	Medium-Low Severity Burn	No significant differences in overstory density and basal area, & no significant differences in species richness. However, understory density, basal area, and species richness declined.	<ul style="list-style-type: none"> • No litter present and 100% of the area covered by duff • Flame lengths <2m • Understory mortality present, little or no overstory mortality
3	Medium-High Severity Burn	Flames that were slightly taller than those of Medium-low intensity fires, but these fires had occasional hot spots that killed large trees with significant reduction in the understory.	<ul style="list-style-type: none"> • Soil exposure on 1-50% of the area • Flame lengths <6m • High understory mortality with some overstory trees affected

Table 22: Burn Severity Index (Cont'd)

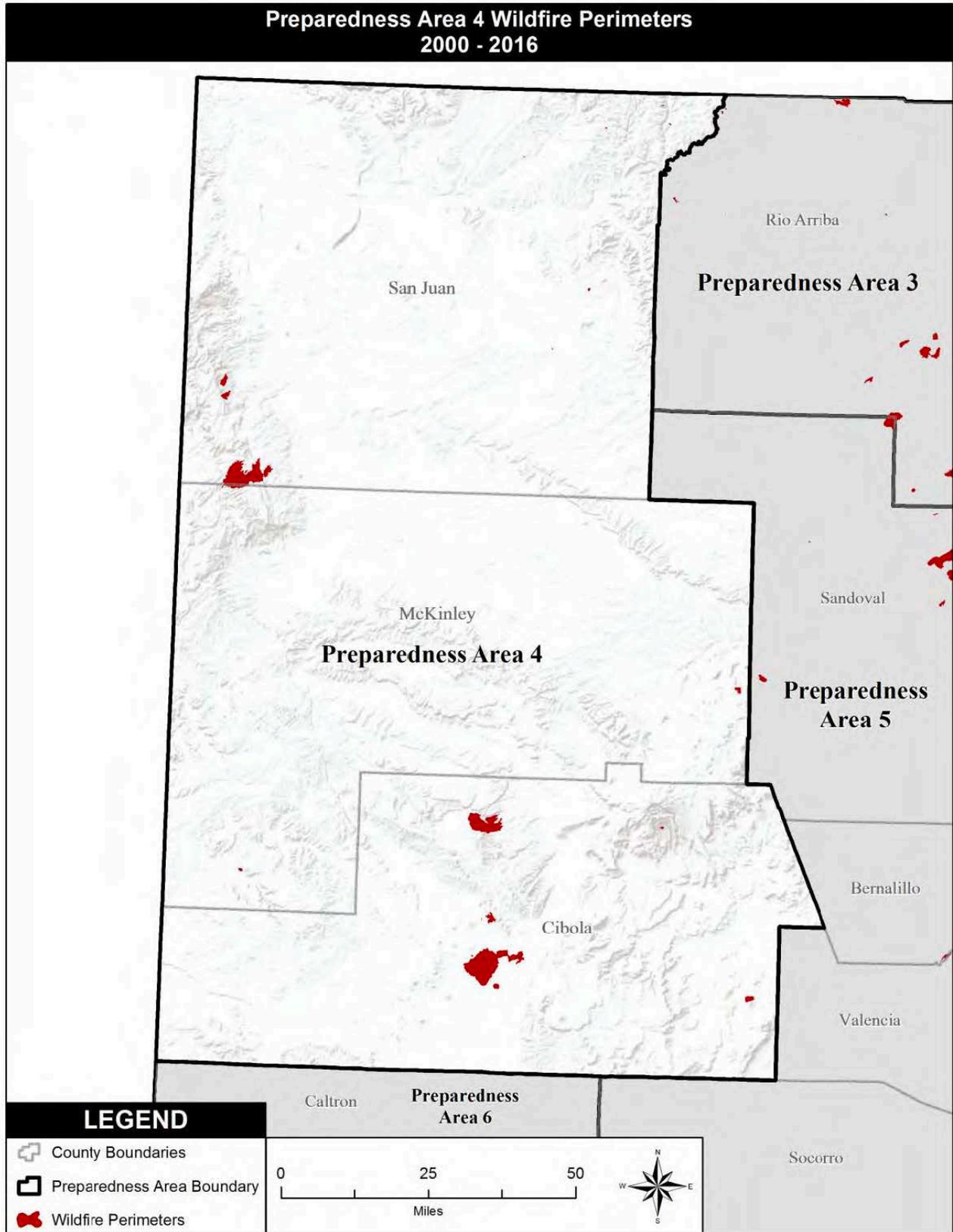
Burn Severity Index			
Rank	Burn Severity	Description	Characteristics
4	High Severity Burn	Crown fires, usually a stand replacing burn with relatively high overstory mortality.	• Soil exposure >50%
			• Flame lengths >6m
			• Higher overstory mortality >20%
			• Usually burning above 800° C

These factors make the difference between small upstart fires easily controlled by local fire services like the San Juan County Fire Department, to fire destroying thousands of acres requiring multiple state and federal assets for containment and suppression. The 2018 New Mexico State Hazard Mitigation Plan (September 2018) shows maps of wildfire perimeters and wildfire hazard potential in each state's preparedness areas.

The following two maps show the Wildfire Perimeters and Wildfire Hazard for Preparedness Area 4 that includes San Juan County:

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Map 33: Wildfire Perimeters, Preparedness Area 4, 2000-2016



Map Source: State of New Mexico Hazard Mitigation Plan 2018

As stated in the San Juan County Basin Community Wildfire Protection Plan (CWPP), 2014, the County exists adjacent to wildlands, and as growth occurs, more citizens and properties will be at risk from wildland fire.

The city governments in the WUI, San Juan County, and the Bureau of Land Management Bloomfield (Field Office FFO) recognized that community risk from wildland fuels is not static; the communities will continue to expand into previous undeveloped lands. For community wildfire protection planning and implementation to succeed, hazardous wildland fuel mitigation must reach a balance with community growth and the enhancement of quality-of-life values that exist in the county. San Juan County's 2008 and 2014 Community Wildfire Protection Plan (CWPP) outlined the following goal to:

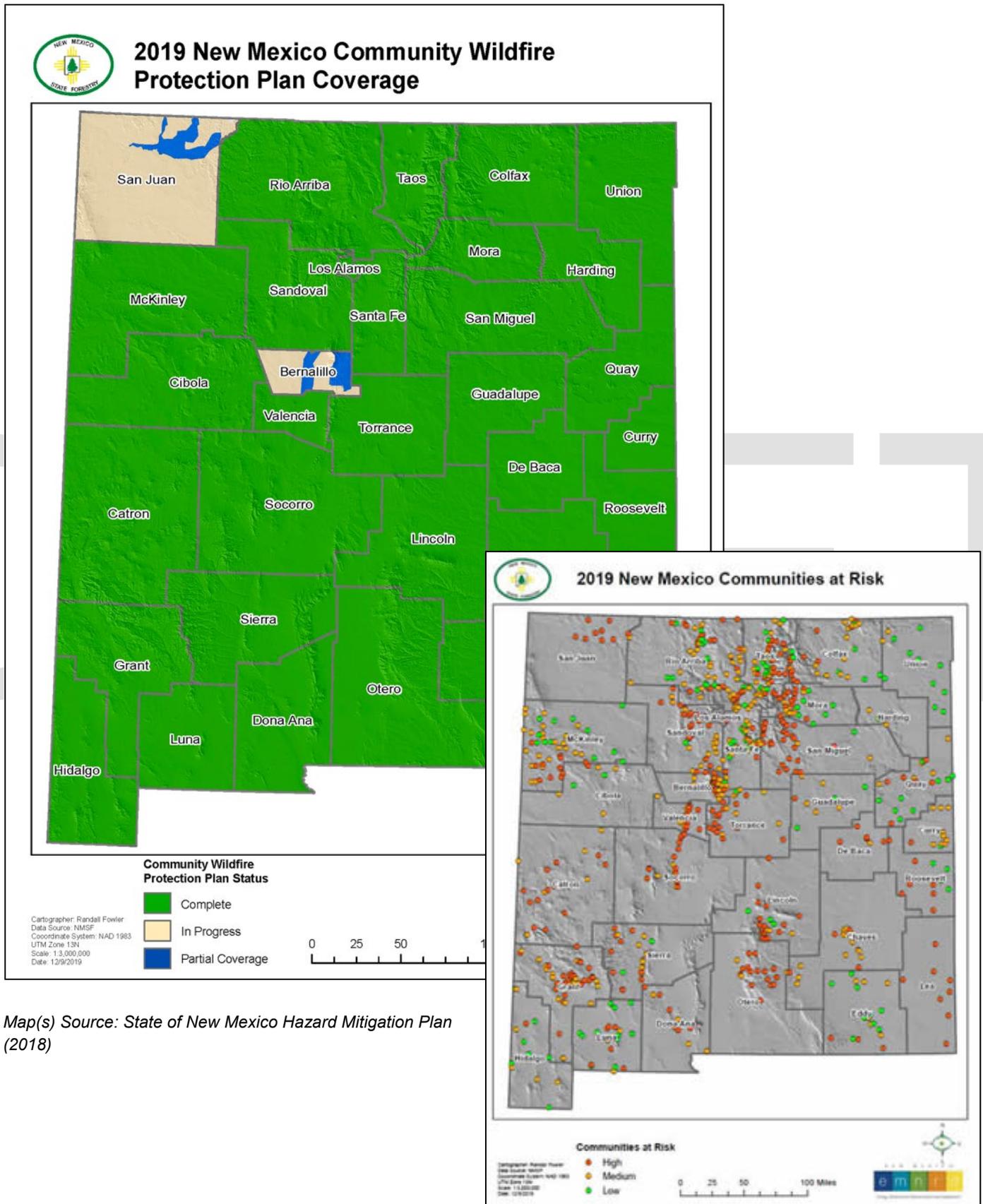
- Improve fire prevention and suppression
- Reduce hazardous riparian and rangeland fuels
- Restore watershed health
- Promote community involvement and education
- Recommend measures to reduce structural ignitability in the SJBCWPP area
- Encourage economic development and stability in the community through the protection of the ecosystem and riparian values
- Identify watersheds at-risk and potential impacts on downstream communities
- Identify funding needs and opportunities
- Expedite project planning
- Prioritize high-risk projects.

There are 58 Community Wildfire Protection Plans (CWPPs) in the State of New Mexico. Of the 746 communities, 366 are listed as high risk, which includes San Juan County.

In San Juan County's previous MJNHMP Update (November 2013), the CWPP was in an indeterminate period, and CWPP information referenced the 2008 SJBCWPP. Since the last San Juan County Multi-Hazard Mitigation Plan update, the current SJBCWPP (2014) was drafted and approved by San Juan County in January and February 2014.

At the time of the drafting of this plan, New Mexico State Forestry lists the San Juan Basin CWPP as still "in progress." The 2018 State of New Mexico Hazard Mitigation Plan included an update to the Forestry Division updated the Community at Risk Assessment Plan which ranks communities in the state by how vulnerable they are to wildland-urban interface fires. In May 2020, San Juan County received a grant through the New Mexico Association of Counties. San Juan County is beginning to work with neighboring jurisdictions to update the current San Juan County Basin Community Wildfire Protection Plan (CWPP), 2014. The following maps provided by the State's Hazard Mitigation Plan (and presented together) show the 2019 New Mexico CWPP Coverage and the 2019 New Mexico Communities at Risk to Wildfire.

Map 34: 2019 New Mexico Community Wildfire Protection Plan (CWPP) Coverage & 2019 New Mexico Communities at Risk



4.2.3 – Previous Occurrences

While San Juan County is at a high risk of wildfire, NOAA/NCEI recorded three wildfire events across from January 1, 2013, to January 31, 2020. Details of the events are provided below:

June 15, 2014, Northwest Plateau, Wildfire – A human-caused wildfire that started near the Asaayi Lake and Bowl Canyon recreation area east of Crystal, New Mexico, burned for nearly two weeks. The communities of Nashitti and Sheep Springs were partially evacuated. The preliminary number of displaced residents was approximately 500. A total of 24 residences and four (4) outbuildings were destroyed. The monetary value of property damage for this event was \$500,000. There were three (3) established shelters for displaced residents. The fire consumed around 14, 712 acres. No injuries or deaths were associated with the event.

June 20, 2017, Northwest Plateau, Wildfire – A strong dome of high pressure centered over the Southwestern United States, along with exceptionally dry air, set the stage for a brutal heatwave over New Mexico for several days. The excessive heat started building over Central and Western New Mexico. On the 20th and then spread eastward on the 21st before peaking on the 22nd. A back door cold front pushed into Eastern New Mexico on the 23rd bringing relief to the hot temperatures for parts of the area. However, Central and Western New Mexico, continued to bake in the heat through the 23rd. High temperatures ranged from 100 to 110 degrees over nearly the entire state while relative humidity values fell as low as one percent in some areas. Dozens of record high maximum and record high minimum temperatures were set across the region. Only locations with records that extend back several decades were included in the heatwave summary. A wildfire that broke out in Quay County burned seven miles south of the City of Farmington. The fire destroyed a number of sheds and vehicles. Two residents and a firefighter were treated for smoke inhalation and other minor injuries. Investigators say the fire was caused by a welding torch that was being used to dismantle a table. Three injuries, one death, and \$50,000 of property damage were associated with the event.

June 29, 2017, Northwest Plateau, Wildfire – A brush fire in Bloomfield caused several residents to evacuate their homes as the fire destroyed two structures and three vehicles. The Bloomfield, Farmington, and San Juan County Fire Departments were dispatched to reports of a brush fire near San de Cristo Court around 4:00 P.M. The Bloomfield Police Department also responded to the scene. No homes were destroyed in the fire, but two outbuildings and three vehicles were destroyed. About three acres of land were burned. A “reverse 911” call was made to residents along San De Cristo Court to evacuate and meet at Bloomfield High School. Traffic along U.S. Highway 64 was shut down between North First Avenue and Mustang Lane due to the fire. No injuries or death were associated with event. This wildfire incident caused \$80,000 of property damage.

The last wildfire to be documented in San Juan County by New Mexico Fire Information occurred in July 2019. The New Mexico State Forestry Commission reported that the Arroyo Fire, burned on private land, approximately five miles east of Bloomfield in San Juan County. Three (3) residential structures, 30 vehicles, and at least five (5) outbuildings were lost. The human-caused fire burned 7.4 acres before being fully contained on July 3, 2019. There were no reported injuries or deaths recorded as result of this event.

4.2.3A – Probability of Future Events, Wildfire

San Juan County and its participating jurisdictions can each expect a wildfire event with 83% probability per year, or .833 events per year. Calculating future probability is not the only predictor of future

occurrences (based upon Table 10: Probability Categories). This number was derived by dividing the number of recorded events by the year range used. The chance of a wildfire in San Juan County and its participating jurisdiction is considered **highly likely**.

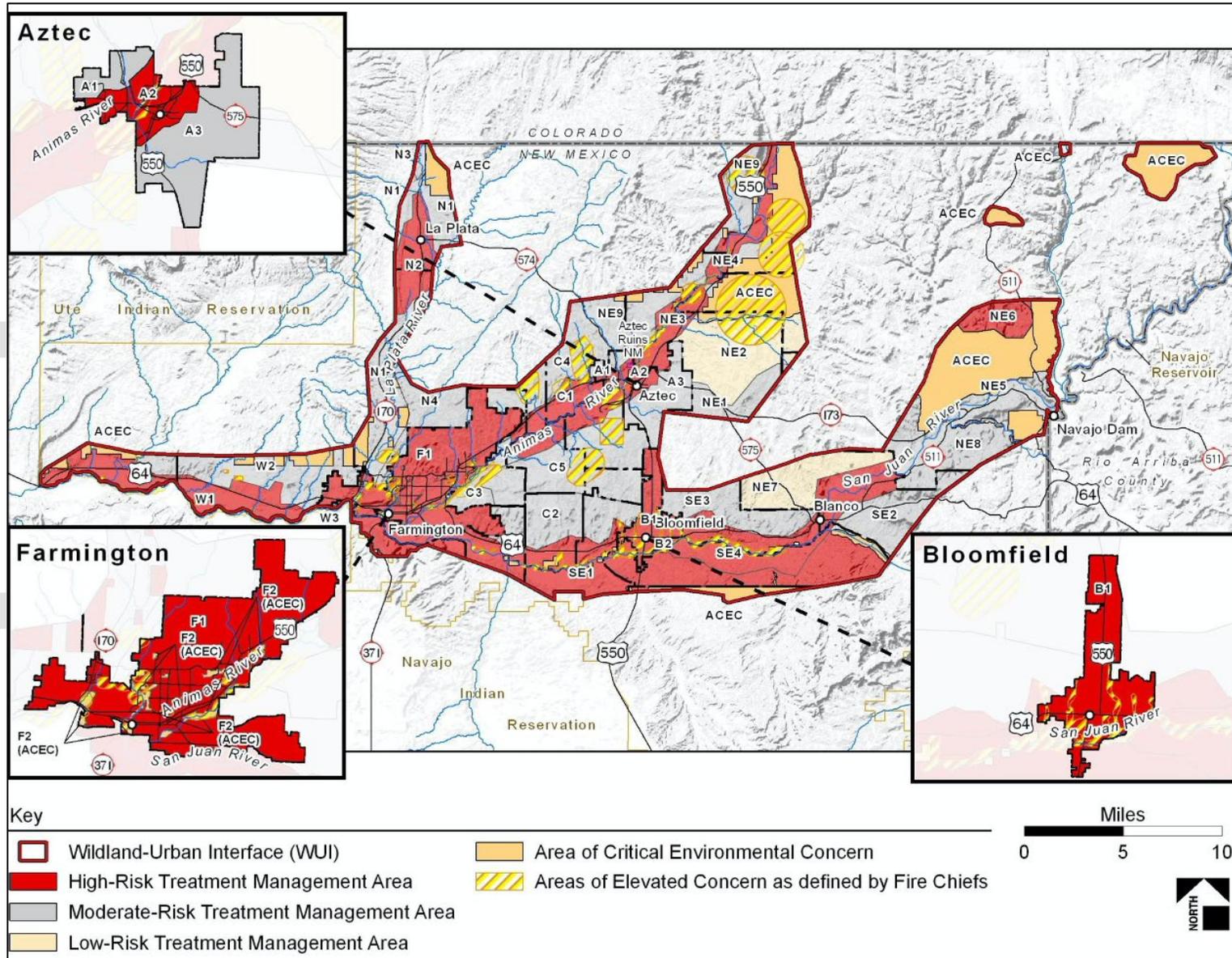
Table 23: Probability of Future Events, Wildfire

Probability of Future Events, Wildfire	
Event Year	Event Count
2013	-
2014	1
2015	-
2016	-
2017	2
2018	1
2019	1
Total Recorded Events =	5
Total Years =	6
Yearly Probability =	83%

Data Source: NOAA/NCEI Storm Events Database and New Mexico Fire Information

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Map 36: San Juan County, Treatment Management Areas



Map Source: San Juan Basin Community Wildfire Protection Plan, 2014

4.2.4 – Vulnerability & Impact

Given the data deficiency described in Section 4.3.3, the current impacts of wildfires throughout the planning area are unknown but are expected to be severe. SJCOEM will seek out this data as soon as it can be made available and update this portion of the plan with that information.

Vulnerability of Facilities

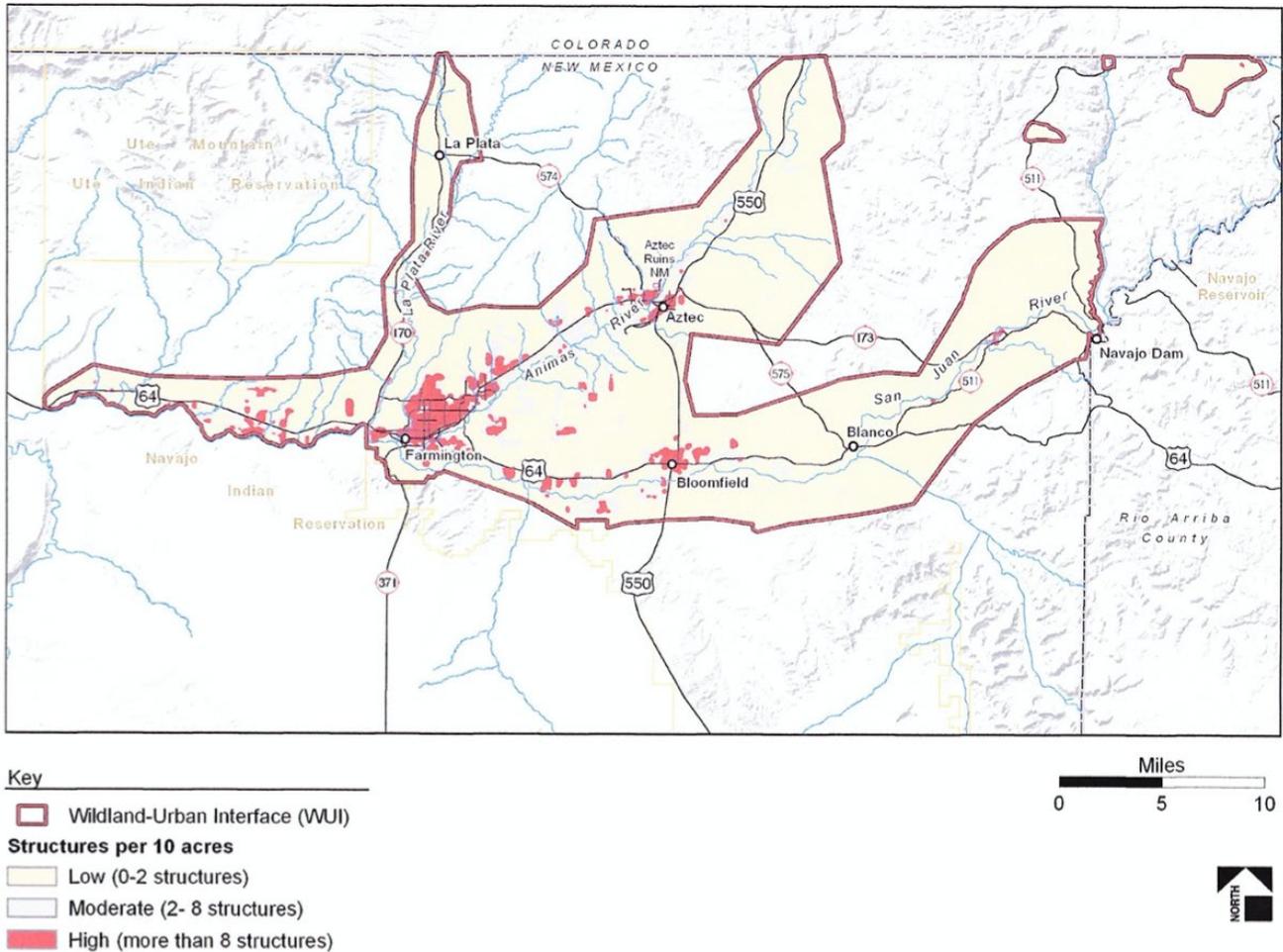
A wildfire burning near a jurisdiction may cover it in soot, cause secondary fires from traveling coals, or directly engulf facilities potentially burning them to the ground. Facilities can be protected by creating defensible spaces or buffer zones, maintaining a fuel-free environment, and modifying structures to prevent wildfire's growth.

San Juan County and its participating jurisdictions' critical structures are valued at \$9,132,103.00.

Vulnerability of Population

The greatest vulnerability of a jurisdiction's population is the inability to properly evacuate in an emergency situation. The population can be caught off guard due to slow or improper warning systems, erratic weather conditions, etc., and become trapped in a growing wildfire.

Map 37: San Juan County, Housing Density



Map Source: San Juan Basin Community Wildfire Protection Plan, 2014

Vulnerability of Systems

In the event a wildfire begins to burn and grow, evacuation routes may become blocked by the fire or by other people attempting to evacuate. The impingement of the local transportation system makes appropriate warning and information paramount in mitigating San Juan County and its participating jurisdictions' systems vulnerability to wildfires.

4.2.4A – Critical Facilities & Infrastructure

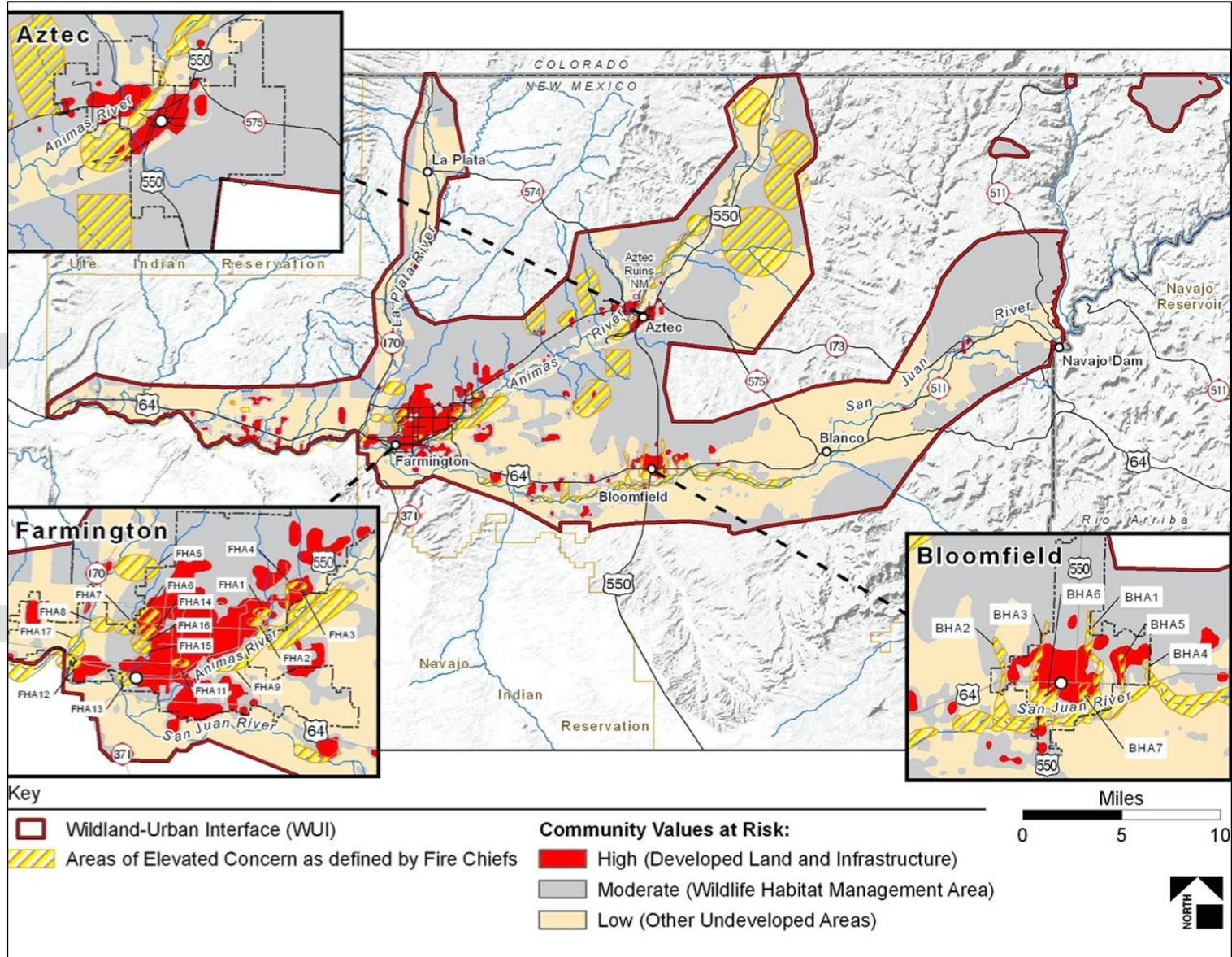
The San Juan County Basin Community Wildfire Protection Plan (CWPP), 2014, identified significant infrastructures, such as communication facilities within the designated WUI, and recommends fuel modification treatments to reduce the threat of wildland fire affecting these facilities. Transportation corridors between WUI communities that will serve as evacuation routes and resource distribution corridors during a wildland fire have been identified by the SJWPP Community Action Group (CAG). The CAG also recommends fuel modification treatments for evacuation corridors that will provide safe evacuation from WUI communities in the event of catastrophic wildland fire.

Based on Maps 30-33, it can be determined that much of the planning area is at risk to wildfires. A complete list of critical facilities and infrastructure can be found in Appendix D.

4.2.4B – Land Use & Development Trends

The San Juan County Basin Community Wildfire Protection Plan (CWPP), 2014, states that developed land in excess of eight (8) structures per ten (10) acres is considered the highest wildfire risk. Also, structure density between two (2) and eight (8) is considered low wildfire risk. Developed land, infrastructure, campground, parks, and trail systems, Areas of Critical Environmental Concern (ACECs, and wildlife habitats within medium and low wildfire risks are given a moderate value. These values are illustrated on the following “Community Values” map which identifies high, moderate, and low areas with respect to community value elements.

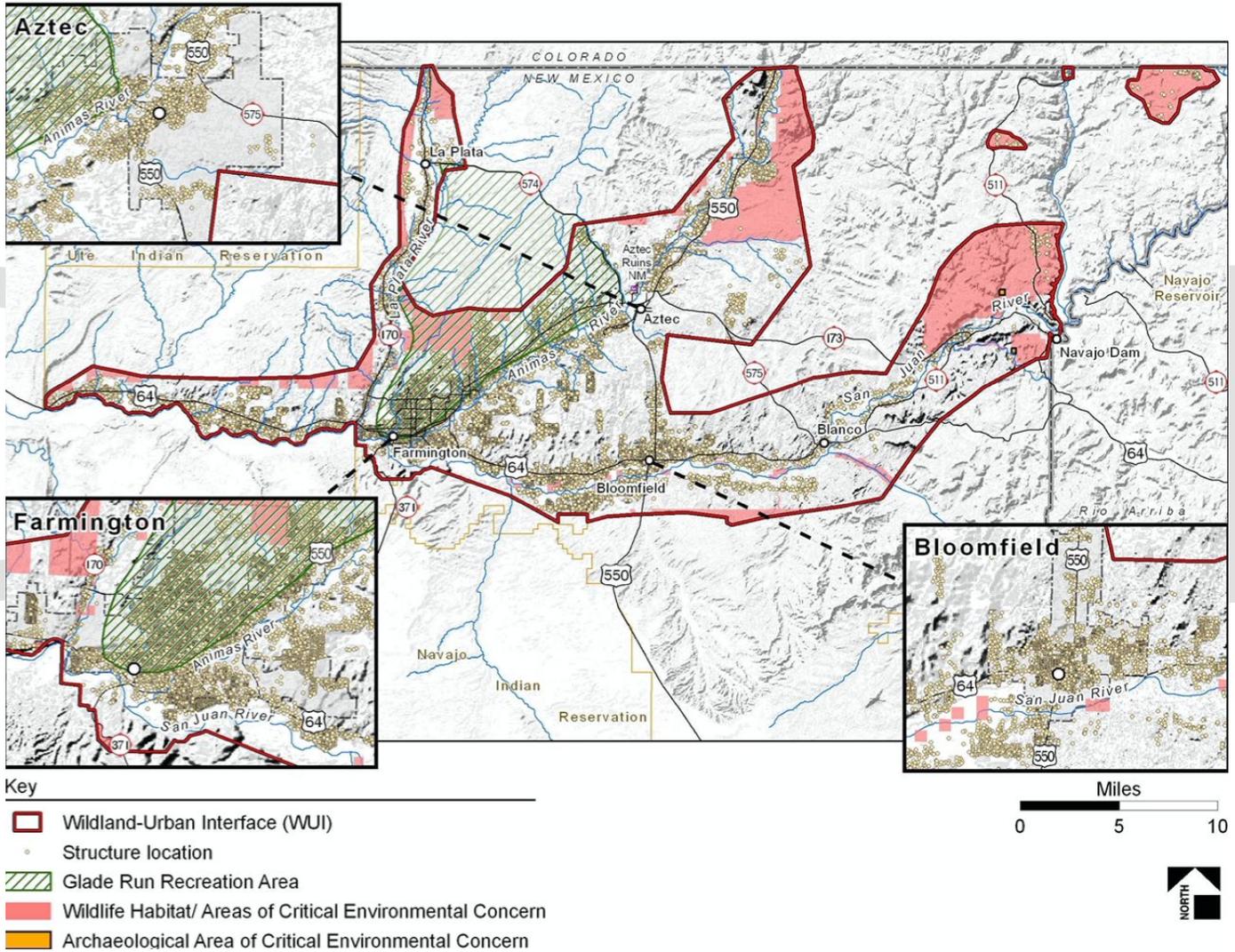
Map 38: San Juan County, Community Values



Map Source: San Juan Basin Community Wildfire Protection Plan, 2014

Also, with drought conditions persisting, it seems inevitable that San Juan County will become more susceptible to fires occurring and with increased consequences to the population, property, and natural resources. Rural areas in the County would be of concern and identified as having a higher threat. The economic loss from a wildfire occurrence away from the WUI communities will depend on the acres of rangeland or forestland burned. A rangeland fire would result in the loss of livestock grazing forage for the agriculture economy of the County. Rangeland and forest losses from a wildfire would be accrued over several years until the resources recover. Wildfire concerns for San Juan County and the Cities of Aztec, Bloomfield, and Farmington are very similar since all run along the river bottoms throughout the region.

Map 39: San Juan County, Developed land, Infrastructure, and Designated Recreational Areas



Map Source: San Juan Basin Community Wildfire Protection Plan, 2014

4.2.4C – *Unique & Varied Risk*

Wildfires have the ability to affect all or a portion of the entire planning area. Drought conditions, also identified as a hazard in the plan, can add to this risk to San Juan County and its participating jurisdictions.

4.2.4D Repetitive Loss Structures

Not applicable.

4.2.5 HAZUS® Model

Not applicable.

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4.3 – Hazard Risk Summary

The following table (Table 25) outlines each participating jurisdictions’ general risk to this plan’s profiled hazards. The rankings are based on a composite evaluation of this plan’s risk assessment, namely, a hazard’s probability of occurring in the future, the vulnerability of a jurisdiction to a specific hazard, the intensity of past hazard impacts, and a joint evaluation of local experts and stakeholders.

Table 24: Hazard Risk Summary

Jurisdiction	Hazard Risk Summary			
	Hazard			
	Drought	Hazardous Materials	Flooding	Wildfire
San Juan County	Highly Likely	Likely	Highly Likely	Highly Likely
Aztec City	Highly Likely	Likely	Highly Likely	Highly Likely
Bloomfield City	Highly Likely	Likely	Highly Likely	Highly Likely
Farmington City	Highly Likely	Likely	Highly Likely	Highly Likely
Town of Kirtland	Highly Likely	Likely	Highly Likely	Highly Likely

4.4 - Excluded Hazards

Dam Failure - Though Dam Failure was included in the State of New Mexico Hazard Mitigation Plan (2018), manmade structures like dams are not included in the hazard vulnerability section of this plan update.

Earthquakes

Earthquake does not pose a threat to San Juan County and its participating jurisdictions. Therefore, it is not included in the Multi-Jurisdictional Natural Hazard Mitigation Plan Update.

Landslides

The State of New Mexico Hazard Mitigation Plan (2018) does not identify San Juan County and its participating jurisdictions as at risk from a volcanic eruption. Further, there is no evidence or documentation from the U.S. Geological Survey (USGS) that says the planning area is at any risk, reasonable or otherwise, to a volcanic eruption.

Volcanic Eruption

The State of New Mexico Hazard Mitigation Plan (2018) does not identify San Juan County and its participating jurisdictions as being at risk from a volcanic eruption. Further, there is no evidence or documentation from USGS that says the planning area is at any risk, reasonable or otherwise, to a volcanic eruption.

Windstorms

The State of New Mexico Hazard Mitigation Plan (2018) does not identify San Juan County and its participating jurisdictions as at risk from windstorms.

Severe Winter Weather

Severe Winter Weather was excluded from the previous San Juan County Multi-Jurisdictional Natural Hazard Mitigation Plan Update (November 2013), and was not mentioned as a hazard of concern with this plan update. It is important to note, however, that according to NOAA/NCEI, San Juan County experienced 26 heavy snow events from January 1, 2013, to January 31, 2020. NOAA also reports two (2) winter weather events and three (3) winter storm events in San Juan County during the same period. If this trend continues, the hazard of Severe Winter Weather may need to be considered (and potentially) added as a hazard in the next MJNHMP Update.

Note: *Human-caused hazards like Communicable Disease and Terrorism were not identified in the 2018 State of New Mexico Multi-Hazard Mitigation Plan or the San Juan County Multi-Jurisdictional Natural Hazard Mitigation Plan (November 2013).*

Note: *Related to Communicable Disease, as of March 2020, the United States is fighting the Coronavirus (COVID-19) pandemic. COVID-19 is a respiratory illness that can spread from person to person. The virus that causes COVID-19 is a novel coronavirus that was first identified during an investigation into an outbreak in Wuhan, China, in December 2019. As of March 23, 2020, the Governor of New Mexico issued an Executive Order related to the COVID-19 Public Health Emergency," and an order was declared for San Juan County and its participating jurisdictions. This declaration took effect Tuesday, March 23, 2020,*

and is currently still in effect. More information about the COVID-19 pandemic can be found on the County's website: <https://www.sjcounty.net/about-us/covid-19-information>.

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Section 5 – Mitigation Strategies

5.1 Mitigation Capabilities

Each type of stakeholder provides a set of capabilities, in some cases broad and in some cases narrow, by which they can increase the planning area’s resiliency.

County and Municipal Governments

The broadest form of mitigation capabilities come from counties and municipal governments. Their inherent legal authority allows them to institute the greatest regulatory and developmental changes.

Institutional Capability

San Juan County is a whole community that can implement the strategies identified herein. In addition, it can promote the mitigation process and educate the public about the hazards prevalent to the area, as well as the mitigation process necessary to mitigate those hazards.

In an emergency, the County’s and the participating jurisdictions’ response are an extraordinary extension of responsibility and action, coupled with normal day-to-day activity. Normal governmental duties will be maintained, with emergency operations carried out by those agencies assigned specific emergency functions under the San Juan County Emergency Operations Plan, or EOP.

Political Capability

During the process of developing this plan update, opposition to mitigation measures was not evident in San Juan County or with the participating plan stakeholders. The primary limiting factor is funding, which is made more difficult by the current situation in the local, state, and national economy.

The County, cities/town, and their partnerships with the participating agencies are well-organized and responsive to community needs. Leadership is informed and remains up to date on the hazards that threaten the area. Citizens who did participate in the public meetings and presentations showed an interest in doing things to promote a safer community. Therefore, the County and participating jurisdictions (the governing board, staff, and citizen population) appear willing to promote the economic efficiency and social utility of the mitigation measures contained in this plan, if appropriate funding can be identified.

Technical Capability

San Juan County and the participating stakeholders have the basic technology needed to mitigate and respond to natural disasters. They are equipped with phone and fax lines and a functional Emergency Operations Center (EOC) in case of disaster. Many key persons are equipped with cellular phones, which can act as a backup to landlines in case service is lost. The County is connected to the internet, which is a valuable source of information on approaching hazards and mitigation measures. The County sponsors a website (<https://www.sjcounty.net/home>) where there is a link to the San Juan County Office of Emergency Management. The County provides GIS mapping, and can provide GIS capabilities. GIS (mapping) services are available and as it changes.

Planning Process

Local Procedures & Resources

Planning Area

Hazard Risk Assessment

Mitigation Strategy

- Mitigation Capabilities
- Floodplain Programs
- Mitigation Goals
- Mitigation Projects
- Mitigation Evaluations & Prioritizations
- Planning Integration

Fiscal Capability

The stakeholders of this mitigation plan update are not unique in the issues felt by small governments to retain the staff and resources necessary to accomplish the strategies necessary to mitigate local hazards. However, they are aware of potential diverse funding sources available to communities for assisting in the fiscal needs required to implement local hazard mitigation plans, including both government and private programs.

While federal and state programs carry out the bulk of disaster relief programs that provide funds for mitigation, local governments can search for alternative funding sources to supplement the local hazard mitigation budget. The participants in the mitigation planning process are aware that before effective mitigation strategies can be applied, stable funding sources and effective incentives must be established on a per project basis to encourage participation by the private and public sectors.

5.1.1 – Authorities & Regulations

General Authority

New Mexico State law provides the legal authority for local governments to implement regulatory measures. The basis for much of this authority is the local government power designed to protect public health, safety, and welfare. This authority enables local government to enact and enforce ordinances, and to define and abate nuisances. Hazard mitigation is a form of protecting public health, safety, and welfare, and falls under the general regulatory powers of local government. This also extends to building codes and inspections, land use, acquisition, and floodplain development regulation.

Building Codes and Inspections

Building codes and inspections provide local governments with the means to maintain county structures that are resilient to natural hazards. San Juan County and three participating jurisdictions (the City of Aztec, the City of Bloomfield, and the Town of Kirtland), have adopted the following building construction codes within the County. These codes were adopted and amended by the State of New Mexico Construction Industries Division (<https://www.sjcounty.net/government/community-development/building-department>):

Table 25: San Juan County Building Codes as of June 30, 2020

Building Codes in San Juan County	
2015 NM Commercial & Residential Building Code	2015 Uniform Plumbing Code
2015 International Residential Code	2015 International Fire Code
2015 International Building Code	2017 National Electrical Code
2015 International Existing Building Code	2017 NM Electrical Code
2009 NM Energy Conservation Code	2012 Uniform Solar Energy Code
ICC/ANSI A117.1-2009 Accessible and Usable Buildings and Facilities	2012 Uniform Swimming Pool, Spa, and Hot Tub Code
2015 NM Plumbing and Mechanical Code	2017 NFPA 58
2015 Uniform Mechanical Code	2015 NFPA 54

These codes prescribe minimum standards for building construction, which ensures that new buildings and structures are built to standards that are seismically sound, fire resistant and developed within flood-

proofing measures. These codes also require appropriate hazard code updating and compliance when certain thresholds are met for remodel and renovation of existing buildings. These codes also authorize local governments to carry out building inspections to ensure local structures adhere to the minimum state building standards.

San Juan County (which includes the City of Aztec, City of Bloomfield, and the Town of Kirtland) have the primary role of enforcement of the International Building Code structural regulations. The San Juan County Building Department also take part in the inspection process for general public safety, construction, and building inspections. They enforce the appropriate codes both at the plan approval stage and the site inspection stage. San Juan County (which include the City of Aztec, City of Bloomfield, and the Town of Kirtland) are committed to the high standards of building provided through the respective codes and requires that the same codes and the same enforcement procedures apply during routine permitting procedures as well as following a disaster.

The City of Farmington Building Inspection Division of the Community Development Department provides service to Commercial and Residential Development; ensuring new structures and all modifications are constructed to currently adopted codes and ordinances (<http://www.fmtn.org/887/Building-Inspection>). The City of Farmington also participates with the State of New Mexico Construction Industries Division and local builders in code adoptions and educational activities.

The City of Farmington is primarily responsible for the implementation of the City's Comprehensive Plan, plus the administration of the city's building codes (building, electrical, plumbing, mechanical, etc.), the City's Unified Development Code, and other ordinances, plans, policies related to building and land use, when adopted by the City Council. Also, the City of Farmington regulates building codes for almost every residential building project a property owner undertakes within the city limits, and most projects that require a building permit. Commercial building requirements and how to submit a construction permit application for new commercial construction for the City of Farmington can be found online at <http://www.fmtn.org/898/Commercial-Building-Requirements>.

San Juan County and its participating jurisdictions (City of Aztec, City of Bloomfield, City of Farmington, and the Town of Kirtland) will receive a copy of the San Juan County Multi-Hazard Mitigation Plan Update to use as a resource when updating plans and identifying new projects. Additionally, each jurisdictions Floodplain Manager, Public Works Director, Planning and Zoning Director, Fire/HazMat/Wildfire Department, and Office of Economic Development will continue to play an active role on the Mitigation Planning Team and provide guidance for their jurisdiction.

Land Use Planning

Through land use regulatory powers granted at the state level, local governments can control the location, density, type and timing of land use and development in the community. Provisions of the land use plans are implemented through regulatory tools that include zoning and subdivision ordinances, and taxation. All participating municipal governments have direct land use planning programs through ordinances, codes, and zoning policies.

Taxation

Taxation can be a powerful mitigation tool by providing local governments with a way to guide development. Tax abatements may be used to encourage landowners and developers to integrate

mitigation measures into the process of building new developments and retrofitting existing properties in the floodplain. These tools can be especially effective in encouraging the mitigation of existing structures.

5.1.2 – Floodplain Programs

San Juan County and the Cities of Aztec, Bloomfield and Farmington are participants in the National Flood Insurance Program (NFIP). Floodplain management for the Town of Kirtland is covered under San Juan County. San Juan County and the City of Farmington are members of the Community Rating System (CRS) program. The table on the following page contains a list of each community and their NFIP or CRS status.

Floodplain management is the operation of a community program of measures for reducing flood damage. These measures take a variety of forms; and generally, include zoning, subdivision, or building requirements, and special-purpose floodplain ordinances. Each participating jurisdiction has NFIP-approved, codified floodplain development regulations in place.

Each NFIP participating community's floodplain program is administered by the communities Floodplain Administrator/Floodplain Manager. Floodplain Administrators/Managers utilize, by adoption, federally created flood hazard maps to administer their programs. NFIP Flood Insurance Rate Maps (FIRMs) allow communities to determine if development is within an identified hazard area and to apply appropriate mitigation measures through permit requirements.

In San Juan County, the Cities of Aztec, Bloomfield and Farmington, and the town of Kirtland, development in a floodplain is regulated. Regulation is enforced through the building permit application process. When an individual or business applies for a construction permit, its location within or outside of an identified floodplain is noted and reviewed by the respective communities Floodplain Administrator/Manager. This process meets the minimum federal regulations set forth by the NFIP.

The established floodplain management measures have proven to be successful in regulating current (with the exception of pre-regulation construction that is addressed later in Section 5) and future construction within the planning area's identified floodplains. There are no repetitive loss structures associated with the hazard. Thus, San Juan County's NFIP Floodplain Administrator/Manager does not have plans to enhance or expand their current floodplain development regulations; rather they will maintain the rigorous standards that have been established to mitigate the impact of future growth within the planning area's identified floodplains. They will accomplish this through the continued enforcement of the regulations and permitting process described above.

Table 25: NFIP & CRS Community Status

NFIP & CRS Community Status						
FEMA Community Status Book Report, New Mexico – Communities Participating in the National Flood Program (06/05/2020)						
Jurisdiction	CID	CRS Rating	Initial FHBM Identified	Initial Firm Identified	Current Effective Map Date	Registration/Entry Date
San Juan County	350064#	8	10/08/76	08/04/88	08/05/10	11/21/03
City of Aztec	350065#	N/A	02/08/74	07/15/88	08/05/10	07/15/88
City of Bloomfield	350066#	N/A	05/17/74	08/08/78	08/05/10	08/08/78
City of Farmington	350067#	8	05/24/74	09/29/78	08/05/10	09/29/78

Note: Floodplain management including the Community Rating System Status of the Town of Kirtland is covered under San Juan County.

5.2 – Mitigation Goals

Goals for San Juan County and its participating jurisdictions were established based upon results from the local and state risk assessments, stakeholder meetings, and input from non-planning team local jurisdiction and state officials. These goals represent San Juan County and its participating jurisdictions’ long-term vision for the continued reduction of hazard risks and the enhancement of mitigation capabilities.

Goal 1: Reduce the risk from natural hazard events utilizing community cooperation and an all-hazards approach.

Goal 2: Pursue additional, complete, and accurate data in support of mitigation planning, disaster preparedness, disaster response, and disaster recovery operations.

Goal 3: Integrate the pre-disaster mitigation plan’s findings into the planning, and decision- making processes for all current and future emergency management and preparedness related activities.

Goal 4: Minimize the risk to property from droughts.

Goal 5: Minimize the risk to life and property from hazardous materials.

Goal 6: Minimize the risk to life and property from flooding.

Goal 7: Minimize the risk to life and property from wildfire.

5.3 – Mitigation Projects

To support the planning area’s mitigation goals, the San Juan County MPC identified a comprehensive range of 79 possible and unique mitigation projects and activities. The selected set carefully takes an all-hazards approach to mitigation while simultaneously addressing each of the plan’s profiled hazards.

The updated plan’s list of projects and actions were selected based upon their potential to reduce the risk to life and property with an emphasis on new and existing infrastructure, ease of implementation, community and agency support, consistency with local jurisdictions’ plans and capabilities, available funding, vulnerability, and total risk. The updated plan does include “carryover” projects (listed below) from San Juan County’s previous mitigation plan, as they are still relevant, in progress, or ongoing.

San Juan County has completed two mitigation projects since the last plan was approved. The following table provides an update on those completed mitigation projects.

Table 26: Mitigation Projects, San Juan County (Completed since adoption of last MJNHMP Update, 2013)

Project Name	Project Description	Hazard(s) Addressed	Responsible Party (ies)	Structural Emphasis	Cost Estimate	Potential Funding Source	Status	Project Update
Porter Arroyo Detention Pond	Reduce the risk of flooding in arroyos with documented historical damage, with the construction of a detention pond. The Porter Arroyo Detention Facility Project has been planned/designed since 2004.	Flooding	City of Farmington Community Works Department	Existing	\$1,679,450	National Preparedness Grant Program, Pre-Disaster Mitigation Grant Program, Other Local Funding Source	Completed	Project was constructed in 2015.
Carl Arroyo Detention Pond (Lakewood Detention Pond)	Reduce the risk of flooding in arroyos with documented historical damage, with the construction of a retention pond. The Lakewood Detention Pond will capture the flows from the west spur of the Carl Arroyo. This portion of the arroyo by Tuscany Estates runs uncontrolled to the small pond on Hawkeye Street, through San Juan Country Club development paralleling Hawkeye Street, through Pueblo de Farmington and Green Acres Subdivision, under Main Street between Mickey Drive and County Club flowing open channel to the Animas River.	Flooding	City of Farmington Community Works Department	Existing	\$1,050,000	National Preparedness Grant Program, Pre-Disaster Mitigation Grant Program, Other Local Funding Source	Completed	Project was constructed in 2014.

For further information on evaluation criteria, please see Section 5.4. The full list of mitigation projects, their descriptions, and prioritization per jurisdiction and stakeholder can be found in Appendix E.

For the status of mitigation projects since the development of San Juan County’s previous mitigation plan, see Section 5.3.2.

The table on the following page summarizes the hazards addressed by each mitigation project and activity, and the corresponding participating jurisdictions suggested to undertake the project or activity.

Table 27: Mitigation & Projects Summary

Mitigation Projects Summary		
Mitigation Project or Activity	Hazard(s) Addressed	Jurisdiction(s)
Wildfire Mitigation	Wildfire	City of Farmington
SJC Flood Damage Prevention Program	Flooding	San Juan County
Hood Arroyo Detention Pond, Upgrade Crossing	Flooding	City of Farmington
Navajo Street Crossing at Glade Arroyo	Flooding	City of Farmington
Streambed protection at Pinon Hills Crossing of the La Plata River	Flooding	City of Farmington
Install storm sewer system in old downtown Farmington area	Flooding	City of Farmington
Incorporate all future comprehensive planning for Farmington with the San Juan County Mitigation	Flooding	City of Farmington
Keep all waterways clear of debris and unwanted vegetation	Flooding	City of Farmington
Conversion Rebate Program	Flooding	City of Farmington
Public Education	Drought; Flooding	City of Farmington
Promoting Rainwater Harvesting Systems	Drought; Flooding	City of Farmington
Continue regular wildland urban interface (WUI) fire training for firefighters	Wildfire	City of Farmington
Continue thinning projects to reduce the severity of a wildland fire throughout the City	Wildfire	City of Farmington
Implement a maintenance program to maintain previous thinned areas. The program may include fire training on fuel removal techniques, prescribed burning, and a yearly chemical application to prevent excess growth	Wildfire	City of Farmington
Code enforcement on private property to reduce hazardous fuels	Wildfire	City of Farmington
Implement a Firewise™ community program with information concerning the necessity for clearing fuel from public/private lands and with instructions for creating defensible space around all structures	Wildfire	City of Farmington

Table 27: Mitigation & Projects Summary (Cont'd)

Mitigation Projects Summary		
Mitigation Project or Activity	Hazard(s) Addressed	Jurisdiction(s)
Install a local Emergency Warning System	Flooding	City of Bloomfield
Establish a current floodplain map for Bloomfield	Flooding	City of Bloomfield
Seek updated floodplain maps for Bloomfield	Flooding	City of Bloomfield
Restrict future growth into city floodplains	Flooding	City of Bloomfield
Enact legislation establishing the need for maintaining clear waterways and fix responsibility for this maintenance	Flooding	City of Bloomfield
Identify waterways that require clearing and ensure that this maintenance is accomplished	Flooding	City of Bloomfield
Identify and stabilize public waterway banks that are being eroded	Flooding	City of Bloomfield
Create an incentive program for the conversion of older toilets and showerheads to low flow	Drought	City of Bloomfield
Create a public education program concerning the use of drought resistant landscaping	Drought	City of Bloomfield
Enact legislation for the mandatory installation of gray water recovery systems in new construction	Drought	City of Bloomfield
Complete application for National Flood Insurance Program (NFIP) Community Rating System (CRS)	Flooding	City of Aztec
Conduct public informational sessions on Flood Hazard risks in the community and initiate meetings with individual landowners whose properties fall within the floodplain	Flooding	City of Aztec
Design Flood Hazard Mitigation website for the City to provide existing and future residents and business owners with easy access to vital information, data and maps, and forms on Flood Hazard Mitigation regulations and activities	Flooding	City of Aztec
Develop regulations governing the maintenance of waterways within the City	Flooding	City of Aztec
Complete cleanup and mitigation activities on properties bordering waterways, particularly underneath or near bridges experiencing high overgrowth and accumulation of debris against pylons and supports	Flooding	City of Aztec
Conduct regular inspections of private properties traversed by waterways to identify obstruction or overgrowth hazards	Flooding	City of Aztec

Table 27: Mitigation & Projects Summary (Cont'd)

Mitigation Projects Summary		
Mitigation Project or Activity	Hazard(s) Addressed	Jurisdiction(s)
Conduct inspections and complete an inventory of all existing culverts and bridges crossing waterways in Aztec; replace, repair, or remove culverts and bridges as necessary	Flooding	City of Aztec
Complete riverbank stabilization projects along the Animas River in areas experiencing erosion and severe stream change that has the potential to impact structures and public facilities	Flooding	City of Aztec
Repair existing gabions utilized for bank stabilization	Flooding	City of Aztec
Conduct inspection of private properties to identify and inventory existing conditions in the floodplain; continue annual inspections to prevent illegal fill activities, enforcing Flood Hazard Mitigation Regulations and subsequent violations as required	Flooding	City of Aztec
Inspect, inventory and mitigate floodplain fill/obstructions	Flooding	City of Aztec
Secure funding for the replacement of failing water storage tank	Drought	City of Aztec
Construct a new water storage tank	Drought	City of Aztec
Provide rebates for the conversion of existing home toilets and showerheads to low flow systems as well as renovations that include the installation of gray water recovery systems	Drought	City of Aztec
Implement regulations restricting the amount of non-drought resistant landscaping materials that can be planted/installed in new commercial construction within the City	Drought	City of Aztec
Provide public education concerning water-wise programs and drought-tolerant vegetation	Drought	City of Aztec
Identify areas of the river bottom in the public domain and create priorities and thinning projects to reduce the potential for wild land fire throughout the County	Wildfire	City of Aztec; City of Bloomfield; City of Farmington
Clear the public property identified as the "Swire-Townsend" land preserve and complete invasive species mitigation to ensure fire loading does not continue to pose a threat in this area of the City	Wildfire	City of Aztec; City of Bloomfield; City of Farmington

Table 27: Mitigation & Projects Summary (Cont'd)

Mitigation Projects Summary		
Mitigation Project or Activity	Hazard(s) Addressed	Jurisdiction(s)
Provide private landowners in the river bottom area with information concerning the necessity for clearing potential fuel from their land and instructions for creating defensible space around all structures	Wildfire	San Juan County; City of Aztec; City of Bloomfield; City of Farmington
Finalize funding and contract agreements for Phase 1B; identify the amount and types of hazardous material(s) presently moving through the City	Hazardous Materials	City of Aztec
Complete construction of Phase 1B	Hazardous Materials	City of Aztec
Secure funding for the design and construction of Phase 2	Hazardous Materials	City of Aztec
Mandate regulations preventing the transportation of hazardous materials through downtown Aztec, requiring all HAZMAT transports to utilize the East Aztec Arterial route, once construction is complete	Hazardous Materials	City of Aztec
Educate the public about actions to take during a HAZMAT incident	Hazardous Materials	City of Aztec
Create internal policy and procedure to ensure all proposed development, structural and non-structural, have floodplain determinations prior to approval of development	Flooding	San Juan County
Partner with local utility agencies and other jurisdictions to ensure floodplain determinations are completed prior to development approval	Flooding	San Juan County
Partner with Federal and State agencies to ensure floodplain determinations are completed prior to development approval	Flooding	San Juan County
Identify flash flood hazard areas using past event and future development trends; using engineering consultation, develop new Special Flood Hazard Area (SFHA) boundaries or enhance existing NFIP flood hazard boundaries	Flooding	San Juan County
Enact legislation for San Juan County concerning the responsibility for keeping waterways clear of debris and vegetation that can magnify the effects of flooding	Flooding	San Juan County
Identify and plan for bank stabilization projects along waterways in the County	Flooding	San Juan County

Table 27: Mitigation & Projects Summary (Cont'd)

Mitigation Projects Summary		
Mitigation Project or Activity	Hazard(s) Addressed	Jurisdiction(s)
Enact legislation regarding water use during drought conditions that raises the level of restriction as drought conditions become more severe	Drought	San Juan County
Establish a public education and awareness program to provide residents with information concerning drought and water conservation	Drought	San Juan County
Identify all unlined irrigation ditches within San Juan County and develop a plan to line them	Drought	San Juan County
Enact legislation concerning the mandatory use of low flow toilets and showerheads in all new construction within the unincorporated areas of the County	Drought	San Juan County
Provide rebates for the conversion of existing home toilets and showerheads to low flow systems, and the retrofitting of gray water recovery systems	Drought	San Juan County
Identify areas of the river bottom in the public domain and create priorities and thinning projects to reduce the potential for wildland fire throughout the County	Wildfire	San Juan County
Provide private landowners in the river bottom area with information concerning the necessity for clearing potential fuel from their land and instructions for creating defensible space around all structures	Wildfire	San Juan County
Identify the amount and types of hazardous material presently moving through the County	Hazardous Materials	San Juan County; New Mexico State Highway Department
Determine the most critical locations where hazardous material transport accidents have been occurring within San Juan County	Hazardous Materials	San Juan County
Develop a bypass route that will eliminate the transport of hazardous material through the most heavily populated areas of the County	Hazardous Materials	San Juan County
Educate the public about actions to take during a HAZMAT incident	Hazardous Materials	San Juan County
Improve the emergency communications system in order to provide a reverse 911 alert system for the county and its jurisdictions	Hazardous Materials	San Juan County

Table 27: Mitigation & Projects Summary (Cont'd)

Mitigation Projects Summary		
Mitigation Project or Activity	Hazard(s) Addressed	Jurisdiction(s)
Second Source Upgrades	Drought; Hazardous Materials	City of Bloomfield
Water Treatment Plant Emergency Generator	Drought; Flooding	City of Bloomfield
Water Supply Protection	Drought; Flooding	Town of Kirtland
Roadway Flooding	Flooding	Town of Kirtland
Wildfire Prevention	Wildfire	Town of Kirtland
Safe Pedestrian Highway Crossing	Hazardous Materials	Town of Kirtland
Wildfire Prevention and Planning	Wildfire	City of Farmington
Kirtland Youth Association Backup Generator	Drought; Flooding; Wildfire	Town of Kirtland
Scott Reservoir	Drought	City of Bloomfield
Nevada Street Detention Basin	Flooding	City of Bloomfield

5.4 – Mitigation Project Evaluations & Prioritization

5.4.1 – STAPLE+E

San Juan County and its participating jurisdictions' primary hazard risks, and thus priorities are droughts, hazardous materials, flooding, and, wildfire.

A composite evaluation matrix was used to prioritize San Juan County and its participating jurisdictions' mitigation projects and activities. The evaluation was conducted for each mitigation project and activity for each participating jurisdiction. The composite evaluation matrix is comprised of the three factors detailed below.

The first factor is the STAPLE+E evaluation which is best for measuring feasibility and ease of implementation. The tables in Section 5.4.1 provide the STAPLE+E evaluation criteria and the evaluation itself.

The second factor is the effectiveness of the mitigation project. How well does it mitigate the impact of a particular hazard? This is determined by its ability to protect citizens, property, and systems. For instance, wires installed to pin down trees and other objects will reduce their ability to become uprooted or take flight during hazards of high wind but are not as effective at reducing impacts from tornadoes or strong winds as are properly constructed and reinforced buildings. This factor is rated as: Low = 0.5, Medium = 1, and High = 1.5.

The third factor is a hazard risk-based evaluation. It draws on the hazard risk summary found in Section 4.3 of this plan. Each risk rating is assigned a value based on the assessment (None = 0, Low = 5, Medium = 10, and High = 15). A summary of these results is displayed in this section, while the full, per jurisdiction per hazard tables are located in Appendix E.

$$(HRT) = (HR_1 + HR_2 + HR_n)$$

The total evaluation score is based on the hazard risk total multiplied by the effectiveness factor, added to the STAPLE+E score.

Hazard Risk Total (HRT): The sum of values (low through high) of each hazard the project is designed to mitigate.

Mitigation Project Effectiveness (MPE): A multiplier based on the project's effectiveness to mitigate against a chosen hazard.

STAPLE+E Evaluation: A raw score comprised of positive and negative feasibility.

$$(Priority) = (STAPLE+E) + (MPE * HRT)$$

Upon completing the evaluations, a composite score is calculated and prioritized based on their total score (Low = 0 – 25, Medium = 26 – 50, High = > 50).

Table 28: STAPLE+E Criteria

STAPLE+E Criteria	
Evaluation Category	Sources of Information
Social	Mitigation actions are acceptable to the community if they do not adversely affect a particular segment of the population, do not cause relocation of lower income people, and if they are compatible with the communities' social and cultural values.
Technical	Mitigation actions are technically most effective if they provide long-term reduction of losses and have minimal secondary adverse impacts.
Administrative	Mitigation actions are easier to implement if the jurisdiction has the necessary staffing and funding.
Political	Mitigation actions can truly be successful if all stakeholders have been offered an opportunity to participate in the planning process and if there is public support for the action.
Legal	It is critical that the jurisdiction or implementing agency have the legal authority to implement and enforce a mitigation action.
Economic	Budget constraints can significantly deter the implementation of mitigation actions. Hence, it is important to evaluate whether an action is cost-effective, as determined by a cost-benefit review, and possible to fund.
Environmental	Sustainable mitigation actions that do not have an adverse effect on the environment, that comply with Federal, State, and local environmental regulations, and that are consistent with the community's environmental goals, have mitigation benefits while being environmentally sound.

Table 29: STAPLE+E Rankings

STAPLE+E Rankings																								
X = N/A - Even Impact	X = N/A - Even Impact										X = N/A - Even Impact													
STAPLE+E Criteria	Social		Technical			Administrative			Political			Legal			Economic				Environmental					Total Impact
Considerations	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribute to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Community Goals	Consistent with Federal Law	
Wildfire Mitigation	+	-	+	+	X	-	+	+	+	X	+	X	+	+	+	-	X	+	+	-	-	X	+	13
SJC Flood Damage Prevention Program	+	+	+	+	X	+	+	+	+	X	X	X	+	-	+	-	X	-	-	-	-	X	+	11
Hood Arroyo Detention Pond, Upgrade Crossing	+	-	+	+	X	-	+	+	+	X	X	X	+	-	+	+	+	-	-	-	-	X	+	11
Navajo Street Crossing at Glade Arroyo	+	-	+	+	X	-	+	+	+	X	+	X	+	-	+	+	X	+	-	-	-	X	+	12
Streambed protection at Pinon Hills Crossing of the La Plata River	+	-	+	+	X	-	+	+	+	X	X	X	-	-	+	+	+	+	-	-	-	X	+	11
Install storm sewer system in old downtown Farmington area	+	-	+	+	X	-	+	+	+	X	X	X	+	-	+	+	X	+	-	-	-	X	+	11

Incorporate all future comprehensive planning for Farmington with the San Juan County Mitigation Project	+	-	+	+	X	-	+	+	+	X	+	X	+	-	+	-	X	+	-	-	-	X	+	11
Keep all waterways clear of debris and unwanted vegetation	+	-	+	+	X	-	+	+	+	X	+	X	+	-	+	-	X	+	-	-	-	X	+	11
Conversion Rebate Program	+	-	+	+	X	-	+	+	+	X	+	X	+	-	+	+	X	+	-	-	-	X	+	12
Public Education	+	-	+	+	X	-	+	+	+	X	+	X	+	-	+	-	X	+	-	-	-	X	+	11
Promoting Rainwater Harvesting Systems	+	-	+	+	X	-	+	+	+	X	+	X	+	-	-	-	X	+	+	-	-	X	+	11
Continue regular wildland urban interface (WUI) fire training for firefighters	+	-	+	+	X	-	+	+	+	X	X	X	+	-	+	-	X	X	-	-	-	X	+	9
Continue thinning projects to reduce the severity of a wildland fire throughout the City (Farmington)	+	-	+	+	X	-	+	+	+	X	-	X	+	+	+	-	X	X	-	-	-	X	+	10
Implement a maintenance program to maintain previous thinned areas. The program may include fire training on fuel removal techniques, prescribed burning, and a yearly chemical application to prevent excess growth	+	-	+	+	X	-	+	+	+	X	+	X	+	-	+	-	X	+	-	-	-	X	+	11

Code enforcement on private property to reduce hazardous fuels	+	-	+	-	X	-	+	+	+	X	+	X	+	+	+	-	X	-	-	-	+	X	+	11
Implement a Firewise™ community program with information concerning the necessity for clearing fuel from public/private lands and with instructions for creating defensible space around all structures	+	-	+	+	X	-	+	+	+	X	+	X	+	-	+	-	X	+	-	-	-	X	+	11
Install a local Emergency Warning System	+	-	+	+	X	-	+	+	+	X	+	X	+	+	+	-	X	+	-	-	-	X	+	12
Establish a current floodplain map for Bloomfield.	+	-	+	+	X	-	+	+	+	X	X	X	+	+	+	-	X	+	+	-	-	X	+	12
Seek updated floodplain maps for Bloomfield	+	-	+	+	X	-	+	+	+	X	X	X	+	-	+	-	X	-	+	-	-	X	+	10
Restrict future growth into city floodplains	+	-	+	+	X	-	+	+	+	X	+	X	+	+	+	-	X	+	+	-	-	-	+	13
Enact legislation establishing the need for maintaining clear waterways and fix responsibility for this maintenance	+	-	+	+	X	-	+	+	+	X	X	X	+	+	+	-	X	+	+	-	-	-	+	12
Identify waterways that require clearing and ensure that this maintenance is accomplished	+	-	+	+	X	-	+	+	+	X	X	X	+	+	+	-	X	X	+	-	-	X	+	11

Identify and stabilize public waterway banks that are being eroded	+	+	+	+	X	-	+	+	+	+	X	X	+	+	+	-	X	X	+	-	-	-	+	13
Create an incentive program for the conversion of older toilets and showerheads to low flow systems	+	-	+	-	X	-	+	+	+	X	+	X	+	-	+	-	X	X	+	-	-	X	+	10
Create a public education program concerning the use of drought resistant landscaping vegetation	+	-	+	-	X	-	+	+	+	X	+	X	+	+	+	-	X	-	+	-	-	X	+	11
Enact legislation for the mandatory installation of gray water recovery systems in new construction projects	+	+	+	+	X	-	-	+	+	X	-	X	+	+	+	-	X	X	+	-	-	X	+	11
Complete application for National Flood Insurance Program (NFIP) Community Rating System (CRS)	+	-	+	+	X	-	+	+	+	X	X	X	+	-	+	-	X	X	+	-	-	X	+	10
Conduct public informational sessions on Flood Hazard risks in the community and initiate meetings with individual landowners whose properties fall within the floodplain	+	+	+	+	X	-	+	+	+	X	+	X	+	+	+	-	X	X	+	-	-	-	+	13

Design Flood Hazard Mitigation website for the City to provide existing and future residents and business owners with easy access to vital information, data and maps, and forms on Flood Hazard Mitigation regulations and activities (Aztec)	+	+	+	-	X	-	+	+	+	X	+	X	+	+	+	-	X	X	+	-	-	-	+	12
Develop regulations governing the maintenance of waterways within the City (Aztec)	+	-	+	+	X	-	+	-	+	X	+	X	+	+	+	-	X	X	+	-	-	X	+	11
Complete cleanup and mitigation activities on properties bordering waterways, particularly underneath or near bridges experiencing high overgrowth and accumulation of debris against pylons and supports	+	-	+	+	X	-	+	+	+	X	-	X	+	+	+	-	X	X	-	-	-	-	+	10
Conduct regular inspections of private properties traversed by waterways to identify obstruction or overgrowth hazards	+	-	+	+	X	-	+	+	+	X	X	X	+	+	+	-	X	X	-	-	-	X	+	10

Conduct inspections and complete an inventory of all existing culverts and bridges crossing waterways in Aztec; replace, repair, or remove culverts and bridges as necessary (Aztec)	+	-	+	-	X	-	+	+	+	X	+	X	+	+	+	-	X	+	+	-	-	X	+	12
Complete riverbank stabilization projects along the Animas River in areas experiencing erosion and severe stream change that has the potential to impact structures and public facilities (Aztec)	+	+	+	+	X	-	+	+	+	X	X	X	+	+	+	-	X	X	+	-	-	X	+	12
Repair existing gabions utilized for bank stabilization (Aztec)	+	-	+	-	X	-	+	+	+	X	X	X	+	-	+	-	X	X	+	-	-	X	+	9
Conduct inspection of private properties to identify and inventory existing conditions in the floodplain; continue annual inspections to prevent illegal fill activities, enforcing Flood Hazard Mitigation Regulations and subsequent violations as required (Aztec)	+	-	+	-	X	-	+	+	+	X	X	X	+	-	+	-	X	X	+	-	-	X	+	9

Inspect, inventory, and mitigate floodplain fill/obstructions (Aztec)	+	-	+	-	X	-	+	+	+	X	+	X	+	-	+	-	X	X	+	-	-	X	+	10
Secure funding for the replacement of failing water storage tank (Aztec)	+	-	+	+	X	-	-	+	+	X	X	X	+	-	+	+	X	X	+	-	-	X	+	10
Construct a new water storage tank (Aztec)	+	-	+	+	X	-	+	+	+	X	+	X	+	+	+	-	X	+	+	-	-	-	+	13
Provide rebates for the conversion of existing home toilets and showerheads to low flow systems as well as renovations that include the installation of gray water recovery systems (Aztec)	+	-	+	-	X	-	+	+	+	X	X	X	+	+	+	-	X	-	+	-	-	X	+	10
Implement regulations restricting the amount of non-drought resistant landscaping materials that can be planted/installed in new commercial construction within the City of Aztec	+	-	+	-	X	-	+	+	+	X	X	X	+	-	+	-	X	X	+	-	-	X	+	9
Provide public education concerning water-wise programs and drought-tolerant vegetation (Aztec)	+	-	-	+	X	-	+	+	+	X	+	X	+	-	+	-	X	X	-	-	-	X	+	9

Identify areas of the river bottom in the public domain and create priorities and thinning projects to reduce the potential for wild land fire throughout the County	+	+	+	-	X	-	+	+	+	X	X	X	+	-	+	-	X	X	-	-	-	X	+	9
Clear the public property identified as the "Swire-Townsend" land preserve and complete invasive species mitigation to ensure fire loading does not continue to pose a threat in this area of the Cities of Aztec, Bloomfield and Farmington	+	+	+	-	X	-	+	+	+	X	X	X	+	-	+	-	X	-	-	+	-	X	+	10
Provide private landowners in the river bottom area with information concerning the necessity for clearing potential fuel from their land and instructions for creating defensible space around all structures	+	+	+	+	X	-	+	+	+	X	+	X	+	-	+	-	X	X	-	-	-	X	+	11

Finalize funding and contract agreements for Phase 1B; identify the amount and types of hazardous material presently moving through the City of Aztec	+	-	+	+	X	+	+	+	+	X	+	X	+	-	+	+	X	X	-	-	-	X	+	12
Complete construction of Phase 1B (Aztec)	+	-	+	+	X	-	+	+	+	X	+	X	+	+	+	+	X	X	-	-	-	X	+	12
Secure funding for the design and construction of Phase 2 (Aztec)	+	-	+	+	X	-	-	-	+	X	+	X	+	+	+	+	X	X	X	X	X	X	+	10
Mandate regulations preventing the transportation of hazardous materials through downtown Aztec, requiring all HAZMAT transports to utilize the East Aztec Arterial route, once construction is complete (Aztec)	+	-	-	+	X	-	+	+	+	X	+	X	+	+	-	-	X	X	-	-	-	X	+	9
Educate the public about actions to take during a HAZMAT incident (Aztec)	+	-	+	-	X	-	+	+	+	X	+	X	+	-	+	-	X	X	-	-	-	X	+	9

Create internal policy and procedure to ensure all proposed development, structural and non-structural, have floodplain determinations prior to approval of development	+	-	-	+	X	-	-	-	+	X	+	X	+	+	+	-	X	X	-	-	-	X	+	8
Partner with local utility agencies and other jurisdictions to ensure floodplain determinations are completed prior to development approval	+	-	+	-	X	-	-	-	+	X	+	X	+	+	+	-	X	X	+	-	-	X	+	9
Partner with Federal and State agencies to ensure floodplain determinations are completed prior to development approval	+	-	+	+	X	-	X	+	+	X	+	X	+	+	+	-	X	X	+	-	-	X	+	11
Identify flash flood hazard areas using past event and future development trends. Using engineering consultation, develop new Special Flood Hazard Area boundaries or enhance existing NFIP flood hazard boundaries	+	-	+	+	X	-	+	-	+	X	+	X	+	+	+	-	X	X	+	-	-	X	+	11

Enact legislation for San Juan County concerning the responsibility for keeping waterways clear of debris and vegetation that can magnify the effects of flooding	+	-	+	-	X	-	+	+	+	X	+	X	+	+	+	-	X	X	+	-	-	X	+	11
Identify and plan for bank stabilization projects along waterways in the County	+	-	+	+	X	-	-	-	+	X	+	X	+	+	+	-	X	X	+	-	-	X	+	10
Enact legislation regarding water use during drought conditions that raises the level of restriction as drought conditions become more severe	+	-	+	+	X	-	X	-	+	X	X	X	+	+	+	-	X	X	+	-	-	X	+	9
Establish a public education and awareness program to provide residents with information concerning drought and water conservation	+	-	-	-	X	-	+	+	+	X	+	X	+	-	+	-	X	X	+	-	-	X	+	9
Identify all unlined irrigation ditches within San Juan County and develop a plan to line them	+	-	+	-	X	-	+	+	+	X	+	X	+	-	+	-	X	X	+	-	-	X	+	10

Enact legislation concerning the mandatory use of low flow toilets and showerheads in all new construction within the unincorporated areas of the County	+	-	+	+	X	-	+	-	+	X	+	X	+	+	+	-	X	X	+	-	-	X	+	11
Enact legislation concerning the mandatory use of gray water recovery systems in all new construction within the unincorporated areas of the County	+	-	+	-	X	-	-	-	+	X	+	X	+	-	+	-	X	X	+	-	-	X	+	8
Provide rebates for the conversion of existing home toilets and showerheads to low flow systems and the retrofitting of gray water recovery systems	+	-	+	-	X	-	+	+	+	X	+	X	+	-	+	-	X	X	+	-	-	X	+	10
Identify areas of the river bottom in the public domain and create priorities and thinning projects to reduce the potential for wild land fire throughout the County	+	-	+	+	X	-	+	+	+	X	+	X	+	-	+	-	X	X	+	-	-	X	+	11

Provide private landowners in the river bottom area with information concerning the necessity for clearing potential fuel from their land and instructions for creating defensible space around all structures	+	-	+	-	X	-	+	+	+	X	+	X	+	-	+	-	X	+	+	-	-	X	+	11
Identify the amount and types of hazardous material presently moving through the County	+	-	+	-	X	-	+	+	+	X	X	X	+	-	+	-	X	X	-	-	-	X	+	8
Determine the most critical locations where hazardous material(s) transport accidents have been occurring within San Juan County	+	+	+	-	X	-	+	+	+	X	X	X	+	-	+	-	X	X	-	-	+	X	+	10
Develop a bypass route that will eliminate the transport of hazardous material through the most heavily populated areas of the County	+	-	+	+	X	+	X	+	+	X	X	X	+	+	+	-	X	X	-	-	+	X	+	11
Educate the public about actions to take during a HAZMAT incident	+	-	+	-	X	-	+	+	+	X	+	X	+	-	+	-	X	X	-	-	+	X	+	10

Improve the emergency communications system in order to provide a reverse 911 alert system for the county and its jurisdictions	+	-	+	+	X	-	+	+	+	X	+	X	+	-	+	-	X	X	-	-	-	X	+	10
Second Source Upgrades (Bloomfield)	+	-	+	+	X	-	+	+	+	X	X	X	+	-	+	-	X	X	-	-	-	X	+	9
City of Bloomfield - Water Treatment Plant Emergency Generator	+	-	+	-	X	-	X	+	+	X	X	X	+	-	-	-	X	X	+	-	-	X	+	7
Water Supply Protection (Kirtland)	+	-	+	+	X	-	+	+	+	X	X	X	+	-	+	+	X	X	-	-	-	X	+	10
Roadway Flooding (Kirtland)	+	-	+	+	X	-	+	+	+	X	+	X	+	-	+	+	X	X	-	-	-	X	+	11
Wildfire Prevention (Kirtland)	+	+	+	+	X	-	X	+	+	X	X	X	+	+	+	-	X	X	-	-	-	X	+	10
Safe Pedestrian Highway Crossing (Kirtland)	+	-	+	+	X	-	+	+	+	X	+	X	+	-	+	+	X	X	-	-	-	X	+	11
Wildfire Prevention and Planning (Farmington)	+	-	+	-	X	-	+	+	+	X	+	X	+	-	-	-	X	X	-	-	-	X	+	8
Kirtland Youth Association Backup Generator	+	-	+	+	X	-	+	+	+	X	+	X	+	-	-	+	X	X	-	-	-	X	+	10
Scott Reservoir (Bloomfield)	+	-	+	+	X	-	+	+	+	X	+	X	+	-	+	-	X	X	-	-	-	X	+	10
Nevada Street Detention Basin (Bloomfield)	+	-	+	+	X	-	+	+	-	X	-	X	+	-	+	-	X	X	-	-	-	X	+	8

The following tables identify mitigation action items for San Juan County and each participating jurisdiction, along with the following information: Hazard Addressed, Responsible Party, Overall Priority (STAPLE+E), Goal(s) Addressed, Cost Estimate, Potential Funding Source, and Current Status.

Table 30: Mitigation Action Project Prioritization, San Juan County

Action Identification	Project Name	Project Description	Hazard(s) Addressed	Responsible Department(s)	Overall Priority (STAPLE+E)	Structural Emphasis	Cost Estimates	Potential Funding Source	Status	Current Status
San Juan 1	Partner with Federal and State agencies to ensure floodplain determinations are completed prior to development approval	Identify flood hazard areas and establish flood hazard boundaries. Develop a list of areas based on past flooding events and future development risks. Contract engineering to take the identified risk areas and develop Special Flood Hazard Areas/ Floodplain Boundary Maps. Achievable results: The identification and regulation of high-risk areas that may not have been identified by the NFIP in past mapping can reduce the risk of flood damage and danger to life in future development.	Flood	San Juan Office of Emergency Management/Floodplain Management; San Juan Community Development	Medium (26)	Existing	Unknown	San Juan County	Included; Ongoing	Carry over from 2014 plan

San Juan 2	Identify flash flood hazard areas using past event and future development trends. Using engineering consultation, develop new Special Flood Hazard Area boundaries or enhance existing NFIP Flood Hazard boundaries.	Identify flood hazard areas and establish flood hazard boundaries. Develop a list of areas based on past flooding events and future development risks. Contract engineering to take the identified risk areas and develop Special Flood Hazard Areas/ Floodplain Boundary Maps.	Flood	San Juan County Office of Emergency Management/ Floodplain Management; San Juan Community Development	Medium (26)	Existing	Unknown	San Juan County	Included; Ongoing	Carry over from 2014 plan
San Juan 3	Enact legislation for San Juan County concerning the responsibility for keeping waterways clear of debris and vegetation that can magnify the effects of flooding.	Waterway cleaning legislation. The County Commission will enact legislation that establishes the need to keep San Juan County waterways clear of undesirable vegetation.	Flood	San Juan County Commission; San Juan County Attorney; San Juan County Floodplain Manager; San Juan County Volunteer Fire Department; U.S. Army Corp of Engineer	Medium (26)	Existing	Unknown	San Juan County	Included; Ongoing	Carry over from 2014 plan

San Juan 4	Identify areas of the river bottom in the public domain and create priorities and thinning projects to reduce the potential for wild land fire throughout the County	Public land clearing program. All public lands along the banks of the Animas, La Plata, and San Juan Rivers will be inspected and cleared as necessary in order to reduce the potential fuel load existing in these areas. Clearing public lands along the rivers of excess fuel load will significantly reduce the potential for a major urban/wildland fire. In addition, if the local governments want private property owners to create defensible space on their properties by reducing fuel load, the County's demonstration of such actions may spur landowners to follow suit. Further benefits of such brush-clearing projects include increasing areas available for public activity along the river bottoms and reducing the amount of debris that could become water-borne during flooding.	Wildfire	County/City Emergency Managers; County/City Fire Departments; County/City Public Works; County/City Parks and Recreation	Medium (26)	Existing	Unknown	San Juan County; City of Aztec; City of Bloomfield; City of Farmington	Included; Ongoing	Carry over from 2014 plan
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<p>San Juan 5</p>	<p>Provide private landowners in the river bottom area with information concerning the necessity for clearing potential fuel from their land and instructions for creating defensible space around all structures</p>	<p>Private property defensible space. All local jurisdictions will institute a public education program, such as Fire Wise™, concerning the need for defensible space around structures in the urban/wild land interface. This program will be carried out through public service announcements and directed mailings to property owners identified as having land within the urban/wildland interface. Introducing a Fire Wise™ program for property owners along the river bottoms will highlight the necessity for reducing the area's fuel load. There will be positive results throughout the entire area, even if only some of these landowners comply with the program. In addition to mitigating potential fire hazard, removing the excess fuel load will also reduce problems that occur during flooding. The accumulation of debris in culverts and similar areas restricts water flow, creating backups and, in some cases, damage to structures and roadways. Removing this debris will decrease collateral damage that occurs during flooding events, as well as wildfire.</p>	<p>Wildfire</p>	<p>County/City Public Information Officers; County Emergency Manager</p>	<p>Medium (26)</p>	<p>Existing</p>	<p>Unknown</p>	<p>County/City Jurisdictions</p>	<p>Included; Ongoing</p>	<p>Carry over from 2014 plan</p>
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<p>San Juan 6</p>	<p>Develop a bypass route that will eliminate the transport of hazardous material through the most heavily populated areas of the County</p>	<p>San Juan County HAZMAT route. Based on the results of Actions 1 and 2, a long-term solution to the accidental release of hazardous material within the populated areas of San Juan County may indicate the construction of a bypass that will ensure that such traffic avoids the Aztec, Bloomfield, and Farmington areas. Such a route would ideally run southeast from U.S. 64 prior to reaching Farmington, and join U.S. 550 south of Bloomfield. In addition to the design and construction of such a route, legislation shall be enacted to mandate the use of this route by all HAZMAT carriers transferring San Juan County. The construction of a specific hazardous material route through San Juan County would reduce the risk of a HAZMAT incident affecting the most heavily populated areas of the county. Although it is impossible to completely eliminate the risk of a HAZMAT event, this action would minimize the risk to the residents of the county as much as possible. Constructing an alternate hazardous material transportation route is the only way to ensure that accidents involving large amounts of hazardous material affect the minimum number of residents in San Juan County. An alternate route will never completely eliminate the possibility of a hazardous material release in</p>	<p>Hazardous Materials</p>	<p>San Juan County Engineer; San Juan County Sheriff's Department; Farmington Fire Department; New Mexico State Highway Department</p>	<p>Medium (26)</p>	<p>Existing</p>	<p>Unknown</p>	<p>San Juan County; New Mexico State Highway Department</p>	<p>Included; Ongoing</p>	<p>Carry over from 2014 plan</p>
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a populated area of the county; however, it will minimize such exposure.

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San Juan 7	Identify and plan for bank stabilization projects along waterways in the County	Bank stabilization projects. The banks of arroyos, rivers, and other waterways in San Juan County will be inspected for erosion. Once an inventory of these areas has been made, a priority list will be created for the stabilization of problem banks based on the potential to cause damage due to further erosion.	Flood	San Juan County Floodplain Manager; San Juan County Public Works Department; U.S. Army Corp of Engineers	Low (25)	Existing	Unknown	San Juan County; New Mexico Highway Department; U.S. Army Corp of Engineers	Included; Ongoing	Carry over from 2014 plan
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<p>San Juan 8</p>	<p>Identify all unlined irrigation ditches within San Juan County and develop a plan to line them</p>	<p>San Juan County irrigation ditch inventory and lining program. Establish the number of unlined irrigation ditches that exist in San Juan County and the amount of use they receive. A priority schedule for lining the irrigation ditches will be established based on their amount of use. Lining irrigation ditches will reduce the amount of water that is wasted prior to its intended arrival at agricultural locations. Presently most irrigation ditches in San Juan County are unlined dirt canals. As a result, there is a significant loss of water caused by absorption and evaporation. If these ditches were lined, the loss of water due to absorption could be avoided, but evaporation would continue to be an issue. If these ditches were completely enclosed, the loss of water from absorption and evaporation would be eliminated.</p>	<p>Drought</p>	<p>San Juan County Extension Agent; San Juan County Public Works Department; San Juan County Commission</p>	<p>Low (25)</p>	<p>Existing</p>	<p>Unknown</p>	<p>San Juan County; Irrigation Districts</p>	<p>Included; Ongoing</p>	<p>Carry over from 2014 plan</p>
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San Juan 9	Provide rebates for the conversion of existing home toilets and showerheads to low flow systems and the retrofitting of gray water recovery systems	<p>Conversion Rebate Program. The County will institute a rebate program designed to provide county residents with an incentive to replace older toilets and showerheads with low flow units. An additional incentive program will be developed concerning the installation of gray water recovery systems. These programs will further the conservation efforts in water usage and help sustain growth for the county. The estimated savings of 90,000,000 gallons of water annually, based on requiring the use of gray water recovery systems in newly-constructed residences, will be further enhanced by encouraging owners of older homes to convert to low flow toilets, showerheads, and gray water recovery systems. The result of this savings will extend the amount of economic development and growth that can take place in the County.</p>	Drought	San Juan County Commission; San Juan County Attorney; San Juan County Planning Office	Low (25)	Existing	Unknown	San Juan County	Included: Ongoing	Carry over from 2014 plan
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San Juan 10	Improve the emergency communications system in order to provide a "reverse 911" alert system for the County and its jurisdictions	<p>"Reverse 911" system. Funding will be sought in order to purchase an emergency notification system for use within San Juan County and its included jurisdictions in order to provide rapid warning of HAZMAT incidents and provide instructions as to what actions residents should take for their safety. The installation of such system will provide rapid dissemination of information to San Juan County residents during a HAZMAT event. The ability to communicate emergency information in this manner will reduce the actual number of response personnel required to perform this function. During a hazardous material release incident, rapidly evacuating a populated area may be necessary to save lives and prevent injury. Using a "reverse 911" system can provide rapid dissemination of safety information to those living in the affected area. This type of system can also be used during other emergency response situations where rapid dissemination of information will assist the area's law enforcement efforts.</p>	Hazardous Materials	San Juan County Emergency Manager; San Juan County Sheriff's Department	Low (25)	Existing	Unknown	San Juan County; U.S. Department of Justice	Included; Ongoing	Carry over from 2014 plan
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San Juan 11	Enact legislation regarding water use during drought conditions that raises the level of restriction as drought conditions become more severe.	<p>Drought usage restrictions. The County Commission will draft a water use restriction program based on a sliding scale with increasingly restrictive measures based on the severity of existing drought conditions. By enacting a sliding scale of water restrictions based on the severity of a drought, the available water will be used in a more efficient manner. It is understood that sustaining human life is of primary importance during drought conditions. Therefore, the loss of ornamental landscaping becomes acceptable in order to meet the basic water needs of San Juan County residents. Presently there are no formal water restrictions in place in the county. Therefore, residents can use water any way they want. By enacting water restrictions, the use of the water that is available can be regulated. Legislation of this type has been instituted in many areas of New Mexico to reduce the stress on available water resources that occurs during drought conditions.</p>	Drought	San Juan County Commission	Low (24)	Existing	Unknown	San Juan County	Included; Ongoing	Carry over from 2014 plan
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San Juan 12	Establish a public education and awareness program to provide residents with information concerning drought and water conservation	<p>Public education and awareness program. The County will provide information to the media for release to the public concerning the state of drought conditions and the level of water restrictions in force at any given time. In addition, information concerning water conservation will be provided to the public through the use of pamphlets, school age and adult education, and public meetings. The public will be better educated about the need for water use restrictions and the actions they can take in order to conserve water during drought conditions. This knowledge will assist in assuring voluntary compliance with the instituted water restrictions. A similar public education program has been instituted in Albuquerque, which lies on the Rio Grande River. As the largest community in New Mexico, there is a high demand on available water. The public education initiative in Albuquerque has resulted in a significant reduction in water usage in the service area of the municipal water system.</p>	Drought	San Juan County; San Juan County Public Schools	Low (24)	Existing	Unknown	State of New Mexico's Engineers Office; San Juan County	Included; Ongoing	Carry over from 2014 plan
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San Juan 13	Enact legislation concerning the mandatory use of grey water recovery systems in all new construction within the unincorporated areas of the County	<p>Required installation of gray water recovery systems. The County Commission will enact legislation requiring the installation of gray water recovery systems in all new construction within the unincorporated areas of the county. The mandatory use of gray water recovery systems will reduce the amount of water used on a daily basis. Initial benefits would be modest but would increase over the long term. Gray water is water that has been used for washing and is no longer considered to be potable, but it is not in the same category of wastewater as toilet water. A gray water recovery system captures the non-toilet water used and recycles it for use in irrigation. In 2003 the State of New Mexico enacted legislation that allows the use of gray water for irrigation use. Average household water usage is approximately 186,363 gallons annually, including standard toilet use of approximately 12,000 gallons.</p>	Drought	San Juan County Commission; San Juan County Attorney's Office	Low (23)	Existing	Unknown	San Juan County	Included; Ongoing	Carry over from 2014 plan
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San Juan 15	SJC Flood Damage Prevention Program	Control future development encroachment in identified Special Flood Hazard Areas within San Juan County Unincorporated. 1. Create internal policy and procedure to ensure all proposed development have floodplain determinations prior to approval of development 2. Partner with local utility agencies and other jurisdictions to ensure floodplain determinations are completed prior to development approval 3. Partner with Federal and State agencies to ensure floodplain determinations are completed prior to development.	Flood	San Juan County Emergency Management	Low (18.5)	New	Unknown	San Juan County	Included; Ongoing	New Project for 2020 Plan Update
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<p>San Juan 16</p>	<p>Enact legislation concerning the mandatory use of low flow toilets and showerheads in all new construction within the unincorporated areas of the County</p>	<p>Required installation of low flow toilets and showerheads. The County Commission will enact legislation requiring the use of low flow toilets and showerheads in all new construction within the unincorporated areas of the County. The mandatory use of low flow toilets and showerheads will reduce the amount of water used on a daily basis. Initial benefits would be modest but would increase over the long term. Most toilets in use today use approximately 7 gallons of water per flush, while a low flow toilet uses less than 2 gallons per flush. The construction industry estimates that a low flow toilet saves approximately 10,000 gallons of water annually. Based on San Juan County's projected population increasing from a 2000 population of 113,801 to approximately 122,564 by 2010, there will be 8,763 more residents in the county. Based on an average family size of 4, this means that there could be approximately 2,190 new families in San Juan County. If each of these families resides in a home with one toilet, the estimated annual water use for toilets alone is 219,000,000 gallons.</p>	<p>Drought</p>	<p>San Juan County Commission; San Juan County Attorney's Office</p>	<p>Low (18.5)</p>	<p>Existing</p>	<p>Unknown</p>	<p>San Juan County</p>	<p>Included; Ongoing</p>	<p>Carry over from 2014 plan</p>
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San Juan 17	Identify the amount and types of hazardous material presently moving through the County	San Juan County HAZMAT transport survey. Conduct a 30-day hazardous material transport survey within San Juan County. This survey will detail the number and types of hazardous material transports traversing San Juan County for one month. The survey will include the number and types of transports moving through the county, the roadway on which they were observed, and the identity of the hazardous material being carried.	Hazardous Materials	San Juan County Fire Department; San Juan County Emergency Managers	Low (18)	Existing	Unknown	San Juan County; State of New Mexico Highway Department	Included; Ongoing	Carry over from 2014 plan
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<p>San Juan 18</p>	<p>Partner with local utility agencies and other jurisdictions to ensure floodplain determinations are completed prior to development approval</p>	<p>Partner with local utility agencies and other jurisdictions. Develop policies and procedures that coordinate utility service activation or placement of utility tanks and compliance with floodplain regulation. Achievable results: By creating a working relationship, including policy and procedure agreements, with local utility providers, early detection of development activity can prevent future flood related damage by increasing compliance with floodplain regulation.</p>	<p>Flood</p>	<p>Farmington Electric Utility; Aztec Electric Utility; San Juan County Water Users; New Mexico State LP&G Inspections</p>	<p>Low (16.5)</p>	<p>Existing</p>	<p>Unknown</p>	<p>San Juan County</p>	<p>Included; Ongoing</p>	<p>Carry over from 2014 plan</p>
<p>San Juan 19</p>	<p>Create internal policy and procedure to ensure all proposed development, structural and non-structural, have floodplain determinations prior to approval of development</p>	<p>Internal policy and procedure. Development of policy and procedure requiring that prior to approval of development, including subdivisions, building permits and manufactured home placement permits, all areas will be checked for floodplain involvement and will comply with SJC Ordinance No. 58.</p>	<p>Flood</p>	<p>San Juan County Assessors; San Juan County Community Development; San Juan County Floodplain Manager; San Juan County Treasurers</p>	<p>Low (15.5)</p>	<p>Existing</p>	<p>Unknown</p>	<p>San Juan County</p>	<p>Included; Ongoing</p>	<p>Carry over from 2014 plan</p>

San Juan 20	Determine the most critical locations where hazardous material transport accidents have been occurring within San Juan County.	San Juan County HAZMAT response survey. Statistical data will be collected over a six-month period to examine the location of the most serious traffic accident locations in San Juan County with a concentration on identified HAZMAT routes within the county. In addition, the survey will document all accident is involving hazardous material transport and they type of material being carried. This survey will provide information concerning specific locations where the potential for a transportation-related HAZMAT event may take place. An examination of this data may identify specific actions that can be taken to reduce the danger of future HAZMAT events. Knowing where hazardous material transportation accidents are most likely to occur will allow detailed analysis of the dynamics causing collisions. Such information may lead to appropriate redesign of the transportation route at those locations.	Hazardous Materials	San Juan County Emergency Manager; Farmington Fire Department	Low (15)	Existing	Unknown	San Juan County	Included; Ongoing	Carry over from 2014 plan
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Table 31: Mitigation Action Project Prioritization, City of Aztec

Action Identification	Project Name	Project Description	Hazard(s) Addressed	Responsible Department(s)	Overall Priority (STAPLE+E)	Structural Emphasis	Cost Estimates	Potential Funding Source	Status	Current Status
Aztec 1	Construct a new water storage tank	Replace Water Storage Tank. Design and install new water storage tank. Installation of a new water tank will ensure the City will not be severely impacted by a drought event and will ensure the City can continue to provide treated water to its residents during a drought event.	Drought	City of Aztec	Medium (35.5)	Existing	Unknown	City of Aztec; State of New Mexico; FEMA	Included; Ongoing	Carry over from 2014 plan
Aztec 2	Complete riverbank stabilization projects along the Animas River in areas experiencing erosion and severe stream change that has the potential to impact structures and public facilities	Riverbank Stabilization. Complete riverbank stabilization projects and repair existing stabilization infrastructure. Completion of riverbank stabilization projects will minimize risk of catastrophic riverine flooding.	Flood	City of Aztec; U.S. Army Corp of Engineers; FEMA	Medium (34.5)	Existing	Unknown	FEMA; City of Aztec	Included; Ongoing	Carry over from 2014 plan
Aztec 3	Complete cleanup and mitigation activities on properties bordering waterways, particularly underneath or near bridges experiencing high overgrowth and accumulation of	Regulate, Inspect and Clear Waterways. Inspect waterways and inventory obstructions and hazards, addressing as required. Establish regulations emphasizing the need for maintaining clear waterways in Aztec. These regulations will identify property owners as being responsible for maintaining clear	Flood	City of Aztec; U.S. Army Corp of Engineers; FEMA; Local Ditch Associations; Private and Public Landowners	Medium (32.5)	Existing	Unknown	FEMA; National Resource Conser. Service; Local Ditch Association; City of Aztec	Included; Ongoing	Carry over from 2014 plan

	debris against pylons and supports	waterways existing on their property and will further establish the authority to enforce the requirement for maintaining clear waterways and the penalties for noncompliance. Compiling an updated inventory of waterway impediments and existing conditions will allow the City of Aztec to effectively monitor and mitigate flood hazards. Flood								
Aztec 4	Conduct regular inspections of private properties traversed by waterways to identify obstruction or overgrowth hazards	Regulate, Inspect and Clear Waterways. Inspect waterways and inventory obstructions and hazards, addressing as required. Establish regulations emphasizing the need for maintaining clear waterways in Aztec. These regulations will identify property owners as being responsible for maintaining clear waterways existing on their property and will further establish the authority to enforce the requirement for maintaining clear waterways and the penalties for noncompliance. Compiling an updated inventory of waterway impediments and existing conditions will allow the City of Aztec to effectively monitor and mitigate flood hazards.	Flood	City of Aztec; U.S. Army Corp of Engineers; FEMA; Local Ditch Associations; Private and Public Landowners	Medium (32.5)	Existing	Unknown	FEMA; National Resource Conser. Service; Local Ditch Association; City of Aztec	Included; Ongoing	Carry over from 2014 plan

Aztec 5	Secure funding for the replacement of failing water storage tank.	Replace Water Storage Tank. Design and install new water storage tank. Installation of a new water tank will ensure the City will not be severely impacted by a drought event and will ensure the City can continue to provide treated water to its residents during a drought event	Drought	City of Aztec	Medium (32.5)	Existing	Unknown	City of Aztec; State of New Mexico; FEMA	Included; Ongoing	Carry over from 2014 plan
Aztec 6	Provide rebates for the conversion of existing home toilets and showerheads to low flow systems as well as renovations that include the installation of gray water recovery systems	Conversion Rebate Programs. A rebate program will be developed to provide the City's residents with an incentive to replace older toilets and showerheads with low flow units. An additional incentive program will be developed addressing the installation of gray water recovery systems. These programs will further the conservation efforts in water use and help ensure sustainable growth for the city. Based on average use of 10,000 gallons per toilet and 21,000 gallons per showerhead, each residence that converts to a low flow toilet and showerhead would save approximately 31,000 gallons of water annually.	Drought	City of Aztec	Medium (32.5)	Existing	Unknown	City of Aztec; State of New Mexico; FEMA	Included; Ongoing	Carry over from 2014 plan

Aztec 7	Repair existing gabions utilized for bank stabilization	Riverbank Stabilization. Complete riverbank stabilization projects and repair existing stabilization infrastructure. Completion of riverbank stabilization projects will minimize risk of catastrophic riverine flooding.	Flood	City of Aztec; U.S. Army Corp of Engineers; FEMA	Medium (31.5)	Existing	Unknown	FEMA; City of Aztec	Included; Ongoing	Carry over from 2014 plan
Aztec 8	Design Flood Hazard Mitigation website for the City to provide existing and future residents and business owners with easy access to vital information, data and maps, and forms on Flood Hazard Mitigation regulations and activities	Educating citizens about Flood Hazard Mitigation and Stormwater Management regulations will assist the City and its citizens in mitigating risks of exacerbating the impacts of a potential flood event and will also ensure that, should a flood event occur, citizens and business owners are prepared and can respond swiftly and effectively with minimal loss of life and property.	Flood	City of Aztec; Sam Juan County Office of Emergency Management; U.S. Army Corp of Engineers; FEMA; Aztec School District	Medium (27)	Existing	Unknown	City of Aztec	Included; Ongoing	Carry over from 2014 plan
Aztec 9	Conduct inspections and complete an inventory of all existing culverts and bridges crossing waterways in Aztec; replace, repair or remove culverts and bridges as necessary	Regulate, Inspect and Clear Waterways. Inspect waterways and inventory obstructions and hazards, addressing as required. Establish regulations emphasizing the need for maintaining clear waterways in Aztec. These regulations will identify property owners as being responsible for maintaining clear waterways existing on their property and will further establish the authority to enforce the requirement for	Flood	City of Aztec; U.S. Army Corp of Engineers; FEMA; Local Ditch Associations; Private and Public Landowners	Medium (27)	Existing	Unknown	FEMA; National Resource Conser. Service; Local Ditch Association; City of Aztec	Included; Ongoing	Carry over from 2014 plan

		maintaining clear waterways and the penalties for noncompliance. Compiling an updated inventory of waterway impediments and existing conditions will allow the City of Aztec to effectively monitor and mitigate flood hazards.								
Aztec 10	Finalize funding and contract agreements for Phase 1B. Identify the amount and types of hazardous material presently moving through the City	Aztec HAZMAT route. In addition to completing the design and construction of the East Aztec Arterial, regulations/legislation shall be enacted to mandate the use of this route by all HAZMAT carriers traversing Aztec. The construction of a specific hazardous material route for Aztec will reduce the risk of a HAZMAT incident affecting the city. Although it is impossible to completely eliminate the risk of a HAZMAT event, this action would minimize the risk to the residents of the city. Constructing an alternate hazardous material transportation route is the only way to ensure that accidents involving large amounts of hazardous material affect the minimum number of residents in Aztec.	Hazardous Materials	City of Aztec; State of New Mexico	Medium (27)	Existing	Unknown	City of Aztec; State of New Mexico; Federal Highway Administration; FEMA	Included; Ongoing	Carry over from 2014 plan

Aztec 11	Complete construction of Phase 1B.	Aztec HAZMAT route. In addition to completing the design and construction of the East Aztec Arterial, regulations/legislation shall be enacted to mandate the use of this route by all HAZMAT carriers traversing Aztec. The construction of a specific hazardous material route for Aztec will reduce the risk of a HAZMAT incident affecting the city. Although it is impossible to completely eliminate the risk of a HAZMAT event, this action would minimize the risk to the residents of the city. Constructing an alternate hazardous material transportation route is the only way to ensure that accidents involving large amounts of hazardous material affect the minimum number of residents in Aztec.	Hazardous Materials	City of Aztec; State of New Mexico	Medium (27)	Existing	Unknown	City of Aztec; State of New Mexico; Federal Highway Administration; FEMA	Included; Ongoing	Carry over from 2014 plan
Aztec 12	Develop regulations governing the maintenance of waterways within the City	Establish regulations emphasizing the need for maintaining clear waterways in Aztec. These regulations will identify property owners as being responsible for maintaining clear waterways existing on their property and will further establish the authority to enforce the requirement for maintaining clear waterways and the	Flood	City of Aztec; U.S. Army Corp of Engineers; FEMA; Local Ditch Associations; Private and Public Landowners	Medium (26)	Existing	Unknown	FEMA; National Resource Conser. Service; Local Ditch Association; City of Aztec	Included; Ongoing	Carry over from 2014 plan

		penalties for noncompliance. Compiling an updated inventory of waterway impediments and existing conditions will allow the City of Aztec to effectively monitor and mitigate flood hazards. By ensuring that all waterways, storm drainage systems, and culverts remain clear of debris and unwanted vegetation, the city will ensure unrestricted flow of floodwaters and reduce the chance of flooding.								
Aztec 13	Complete application for National Flood Insurance Program (NFIP) Community Rating System (CRS)	Complete application for National Flood Insurance Program (NFIP) Community Rating System (CRS)	Flood	City of Aztec; San Juan County Office of Emergency Management; U.S. Army Corps of Engineers; FEMA	Low (25)	Existing	Unknown	City of Aztec	Included; Ongoing	Carry over from 2014 plan
Aztec 14	Inspect, inventory and mitigate floodplain fill/obstructions	Completion of this inventory will allow the City of Aztec to effectively monitor and mitigate flood hazards.	Flood	City of Aztec; U.S. Army Corp of Engineers; FEMA; Local Ditch Associations; Private and Public Landowners	Low (25)	Existing	Unknown	City of Aztec	Included; Ongoing	Carry over from 2014 plan

Aztec 15	Secure funding for the design and construction of Phase 2	Aztec HAZMAT route. In addition to completing the design and construction of the East Aztec Arterial, regulations/legislation shall be enacted to mandate the use of this route by all HAZMAT carriers traversing Aztec. The construction of a specific hazardous material route for Aztec will reduce the risk of a HAZMAT incident affecting the city. Although it is impossible to completely eliminate the risk of a HAZMAT event, this action would minimize the risk to the residents of the city. Constructing an alternate hazardous material transportation route is the only way to ensure that accidents involving large amounts of hazardous material affect the minimum number of residents in Aztec.	Hazardous Materials	City of Aztec	Low (25)	Existing	Unknown	City of Aztec; State of New Mexico; Federal Highway Administration; FEMA	Included; Ongoing	Carry over from 2014 plan
Aztec 16	Conduct inspection of private properties to identify and inventory existing conditions in the floodplain; continue annual inspections to prevent illegal fill activities, enforcing Flood Hazard Mitigation Regulations and	Riverbank Stabilization. Complete riverbank stabilization projects and repair existing stabilization infrastructure.	Flood	City of Aztec; U.S. Army Corp of Engineers; FEMA	Low (24)	Existing	Unknown	FEMA; City of Aztec	Included; Ongoing	Carry over from 2014 plan

	subsequent violations as required									
Aztec 17	Implement regulations restricting the amount of non-drought resistant landscaping materials that can be planted/installed in new commercial construction within the City	Commercial Landscape Regulations. Improve regulations addressing landscape requirements and restrictions for commercial development to limit the amount of non-drought resistant vegetation that can be used in new landscape projects based on a specific percentage of the overall area to be landscaped.	Drought	City of Aztec	Low (24)	Existing	Unknown	City of Aztec; Private Developers	Included; Ongoing	Carry over from 2014 plan
Aztec 18	Provide public education concerning water-wise programs and drought-tolerant vegetation	Public Education Campaign. The City will increase education and outreach activities with its residents and businesses and provide information concerning wise water usage and recommendations concerning drought resistant vegetation for use in both residential and commercial landscapes. This program would provide a long-term change in attitude concerning the appropriate use of the City's limited water resources. Presently non-native vegetation with a high demand for water is typically used for	Drought	City of Aztec; San Juan County Extension Office; State of New Mexico	Low (24)	Existing	Unknown	City of Aztec; State of New Mexico	Included; Ongoing	Carry over from 2014 plan

		landscaping in most areas of the southwest, including Aztec. The presence of an extended drought throughout the southwest has redirected thinking concerning landscaping with native plants that require less water. In addition, many other wasteful water use habits are being reevaluated.								
Aztec 19	Mandate regulations preventing the transportation of HAZMAT materials through downtown Aztec, requiring all HAZMAT transports to utilize the East Aztec Arterial route, once construction is complete	Aztec HAZMAT route. In addition to completing the design and construction of the East Aztec Arterial, regulations/legislation shall be enacted to mandate the use of this route by all HAZMAT carriers traversing Aztec. The construction of a specific hazardous material route for Aztec will reduce the risk of a HAZMAT incident affecting the city. Although it is impossible to completely eliminate the risk of a HAZMAT event, this action would minimize the risk to the residents of the City. Constructing an alternate hazardous material transportation route is the only way to ensure that accidents involving large amounts of hazardous material affect the minimum number of residents in Aztec.	Hazardous Materials	City of Aztec; State of New Mexico	Low (24)	Existing	Unknown	City of Aztec; State of New Mexico; Federal Highway Administration; FEMA	Included; Ongoing	Carry over from 2014 plan

Aztec 20	Conduct public informational sessions on Flood Hazard risks in the community and initiate meetings with individual landowners whose properties fall within the floodplain	Educating citizens about Flood Hazard Mitigation and Stormwater Management regulations will assist the City and its citizens in mitigating risks of exacerbating the impacts of a potential flood event and will also ensure that, should a flood event occur, citizens and business owners are prepared and can respond swiftly and effectively with minimal loss of life and property.	Flood	City of Aztec; San Juan County Office of Emergency Management; U.S. Army Corps of Engineers; FEMA	Low (20.5)	Existing	Unknown	City of Aztec	Included; Ongoing	Carry over from 2014 plan
Aztec 21	Educate the public about actions to take during a HAZMAT incident	Public education program. Public education meetings will be designed and conducted to provide Aztec's residents with information concerning the actions they should take prior to and during a HAZMAT event. This education will be in the form of pamphlets, public meetings, and exercises with vulnerable facilities	Hazardous Materials	City of Aztec; San Juan County Office of Emergency Management; Farmington Fire Department	Low (14)	Existing	Unknown	San Juan County; City of Aztec	Included; Ongoing	Carry over 2014 plan

Table 32: Mitigation Action Project Prioritization, City of Bloomfield

Action Identification	Project Name	Project Description	Hazard(s) Addressed	Responsible Department(s)	Overall Priority (STAPLE+E)	Structural Emphasis	Cost Estimates	Potential Funding Source	Status	Current Status
Bloomfield 1	Identify and stabilize public waterway banks that are being eroded	Identify and stabilize public waterway banks that are being eroded. Bank stabilization projects. The banks of arroyos, rivers and other waterways in Bloomfield will be inspected for erosion. Once an inventory has been made, a priority list will be created to stabilize problem banks based on their potential to cause further erosion damage. Stabilizing waterway banks can reduce or eliminate erosion danger during flooding. Such stabilization can prevent foundation undercutting, which is a major source of structural damage during floods. When flooding occurs, the power of the waters rushing through Bloomfield's waterways erodes banks and changes the waterway over time. The use of riprap and other bank stabilization techniques can reduce or even eliminate the changes caused during flooding.	Flood	Bloomfield Floodplain Manager; Bloomfield Public Works Department U.S. Army Corp of Engineers	Medium (35.5)	Existing	Unknown	City of Bloomfield; New Mexico Highway Department; U.S Army Corp of Engineers	Included; Ongoing	Carry over from 2014 plan

Bloomfield 2	Install a local Emergency Warning System	<p>Seek funding for an all-hazards siren system that can be used to warn the general population of a potential danger in a short amount of time and to notify them that the emergency has passed. The installation of an all-hazard siren system will provide rapid dissemination of information to San Juan County residents during a flood event or HAZMAT event. The ability to communicate emergency information in this manner will reduce the actual number of response personnel required to perform this function. During a hazardous material release incident, rapidly evacuating a populated area may be necessary to save lives and prevent injury. Using an all-hazard system can provide rapid dissemination of safety information to those living in the affected area. This type of system can also be used during other emergency response situations where rapid dissemination of information will assist the area's law enforcement efforts.</p>	Flood	Bloomfield City Council	Medium (34.5)	Existing	Unknown	City of Bloomfield	Included; Ongoing	Carry over from 2014 plan
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Bloomfield 3	Enact legislation establishing the need for maintaining clear waterways and fix responsibility for this maintenance	<p>Clear waterways: Establish legislation establishing the need to maintain clear waterways in Bloomfield. This legislation should further establish who is responsible for this maintenance and the penalties for noncompliance. The enactment of a clear waterway policy will ensure that debris and undesirable vegetation is removed from the waterways. Clearing these obstructions will reduce the potential for flooding by allowing floodwaters to move easily through waterways without choke points, which create bank overflow. Unfortunately, many waterways that run through areas accessible by vehicle are used for debris disposal. Although such dumping of debris is illegal, it is difficult to enforce these laws when local law enforcement is already overextended in its normal role of criminal abatement. When such dumping occurs in waterways on public land, county public works assets can be utilized in its removal.</p>	Flood	Bloomfield City Council; Bloomfield City Attorney; Bloomfield Floodplain Manager; Bloomfield Public Works Department; U.S. Army Corps of Engineers	Medium (34.5)	Existing	Unknown	City of Bloomfield	Included; Ongoing	Carry over from 2014 plan
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Bloomfield 4	Seek updated floodplain maps for Bloomfield	<p>Updating floodplain maps. A petition to FEMA requesting the updating of Bloomfield floodplain maps will be made. Enact legislation to restrict future growth into floodplains in Bloomfield. By updating Bloomfield's floodplain maps, a more comprehensive inventory can be established for the existence of structures in floodplains. Additionally, new areas susceptible to flooding due to erosion and other types of construction will be identified. The floodplain maps for Bloomfield were last evaluated 25 years ago in 1978. Since 1978, Bloomfield has annexed many areas into the city limits. According to the San Juan County floodplain maps, which also date from 1978, some of these areas are part of the floodplain. Because Bloomfield's floodplain maps are so out of date, many of these areas cannot be regulated by the City's floodplain management system. Presently only seven residential structures are identified as being in Bloomfield's floodplain.</p>	Flood	City of Bloomfield	Medium (32.5)	Existing	Unknown	FEMA	Included; Ongoing	Carry over from 2014 plan
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Bloomfield 5	Scott Reservoir	Construct a new reservoir for the Bloomfield Water System.	Drought	City of Bloomfield	Medium (32.5)	New	\$12,700,000	Homeland Security Grant Program; Pre-Disaster Mitigation Grant Program; Other Local Funding Source; Other Funding Source	Proposed	New project for 2020 plan
Bloomfield 6	Nevada Street Detention Basin	Install Stormwater Detention Basin in Bloomfield Wash Drainage Area to control downstream flooding.	Flood	City of Bloomfield	(Medium (30.5)	New	\$2,500,000	Homeland Security Grant Program; Pre-Disaster Mitigation Grant Program; Other Local Funding Source	Proposed	New project for 2020 plan
Bloomfield 7	Water Treatment Plant Emergency Generator	Install a 400 KW emergency generator to the Bloomfield Water Treatment Plant.	Drought; Flood	City of Bloomfield	Medium (29.5)	Existing	\$179,640	Unknown	Included; Ongoing	Carry over from 2014 plan

Bloomfield 8	Restrict future growth into the City's floodplains.	<p>Building/zoning codes. Revise the existing building/zoning codes so that newly incorporated areas of the City that are not presently covered by the City's current floodplain maps can be regulated. At present, newly annexed areas of Bloomfield remain controlled by the unincorporated areas of the National Flood Insurance maps. As such, the Bloomfield Floodplain Manager is unable to restrict construction and use in these areas. The inclusion of all incorporated areas under Bloomfield's current floodplain restrictions will restrict growth into known floodplain areas. Enacting such legislation will reduce the overall costs from future floods. Additionally, the replacement of structures destroyed by future floods can be restricted, thereby eliminating or reducing repetitive loss. This legislation will establish the city's control over areas that have been annexed since the 1978 update of the floodplain maps.</p>	Flood	Bloomfield City Council; Bloomfield City Attorney; Bloomfield Floodplain Manager	Medium (28)	Existing	Unknown	City of Bloomfield	Included; Ongoing	Carry over from 2014 plan
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Bloomfield 9	Second Source Upgrades	Upgrades to the Second Source Pump Station located on the San Juan River. Project will create an alternate source of water for the Bloomfield Water System.	Drought; Hazardous Materials	City of Bloomfield	Medium (27.75)	Existing	\$2,400,838	Unknown	Included; Ongoing	Carry over from 2014 plan
Bloomfield 10	Establish a current floodplain map for Bloomfield	Updating floodplain maps. A petition to FEMA requesting the updating of Bloomfield floodplain maps will be made. Enact legislation to restrict future growth into floodplains in Bloomfield. By updating Bloomfield's floodplain maps, a more comprehensive inventory can be established for the existence of structures in floodplains. Additionally, new areas susceptible to flooding due to erosion and other types of construction will be identified. The floodplain maps for Bloomfield were last evaluated 25 years ago in 1978. Since 1978, Bloomfield has annexed many areas into the city limits. According to the San Juan County floodplain maps, which also date from 1978, some of these areas are part of the floodplain.	Flood	City of Bloomfield Floodplain Manager; San Juan County Floodplain Manager	Medium (27)	New	Unknown	FEMA	Included; Ongoing	Carry over from 2014 plan

Bloomfield 11	Identify waterways that require clearing and ensure that this maintenance is accomplished	<p>Waterway assessment. With legislation enacted to clear and maintain Bloomfield's waterways, each waterway will need to be examined in order to determine need.</p> <p>Once the waterways have been assessed, a priority plan can be established to ensure that they are cleared and maintained, and any necessary notices can be issued. As with waterways located on privately-owned land, waterways located in the public domain require periodic clearing. By ensuring that all waterways, storm drainage systems, and culverts remain clear of debris and unwanted vegetation, the City will ensure that floodwaters are not restricted and minimize the risk of flooding. Restricted waterways can also result in damage to roadways and bridges due to the pressure created by the force of the water.</p>	Flood	Bloomfield City Council; Bloomfield City Attorney; Bloomfield Public Works; U.S. Army Corp of Engineers	Medium (26)	Existing	Unknown	City of Bloomfield	Included; Ongoing	Carry over from 2014 plan
Bloomfield 12	Enact legislation for the mandatory installation of gray water recovery systems in new construction projects	Required installation of gray water recovery systems. The City Council will enact legislation requiring the installation of gray water recovery systems in all new construction within the City.	Drought	Bloomfield City Council; Bloomfield City Attorney	Medium (26)	Existing	Unknown	City of Bloomfield	Included; Ongoing	Carry over from 2014 plan

Bloomfield 13	Create an incentive program for the conversion of older toilets and showerheads to low flow systems	Incentive/Rebate Program. The City will develop a rebate program to provide city residents with an incentive to replace older toilets and showerheads with low flow units. An additional incentive program will be developed concerning the installation of gray water recovery systems.	Drought	Bloomfield City Council; Bloomfield City Attorney; Bloomfield City Planning Office	Low (25)	Existing	Unknown	City of Bloomfield	Included; Ongoing	Carry over from 2014 plan
Bloomfield 14	Create a public education program concerning the use of drought resistant landscaping vegetation	Public Education. A program for school age children and adults will be designed to provide information concerning wise water usage and recommendations concerning drought resistant vegetation for use in both residential and commercial landscapes.	Drought	Bloomfield City Planning; County Extension Agent; New Mexico State Engineer's Offices	Low (18.5)	Existing	Unknown	City of Bloomfield; State of New Mexico Engineer's Office	Included; Ongoing	Carry over from 2014 plan

Table 33: Mitigation Action Project Prioritization, City of Farmington

Action Identification	Project Name	Project Description	Hazard(s) Addressed	Responsible Department(s)	Overall Priority (STAPLE+E)	Structural Emphasis	Cost Estimates	Potential Funding Source	Status	Current Status
Farmington 1	Wildfire Mitigation	200 acres of public and private wildfire mitigation.	Wildfire	City of Farmington	Medium (35.5)	Existing	\$450,000	Unknown	Included; Ongoing	Carry over from 2014 plan
Farmington 2	Navajo Street Crossing at Glade Arroyo	Eliminate or reduce the potential for flooding within known flood risk areas. An examination of the flooding dynamics for the Glade Arroyo at Navajo Crossing will determine possible solutions. A project plan will then be created to reduce or avoid potential future flooding. Project Update: Souder, Miller & Associates has provided a design to the City of Farmington.	Flood	City of Farmington Community Works	Medium (34.5)	Existing	\$2,000,000	City of Farmington; U.S. Army Corps of Engineers	Included; Ongoing	Carry over from 2014 plan

Farmington 3	Hood Arroyo Detention Pond, Upgrade Crossing	Reduce the risk of flooding in arroyos with documented historical damage with the construction of a detention pond. Project Update: Bohannon Huston Inc. has provided a conceptual layout to the City of Farmington.	Flood	City of Farmington Community Works	Medium (33.5)	Existing	\$2,000,000	FEMA; City of Farmington	Included; Ongoing	Carry over from 2014 plan
Farmington 4	Develop a plan for additional protection of both the streambed and the newly installed box culvert structure at the Pinon Hills Crossing of the La Plata River	Develop a plan for additional protection of both the streambed and the newly installed box culvert structure at the Pinon Hills crossing of the La Plata River. Project Update: The downstream concrete apron was extended and a cable concrete articulated block mat was installed. Update: Additional protection may be required.	Flood	City of Farmington Community Works	Medium (33.5)	Existing	\$1,000,000	City of Farmington	Included; Ongoing	Carry over from 2014 plan
Farmington 5	Develop a plan and install storm sewer system that can adequately handle the currently developed surrounding areas near the old downtown Farmington area	Upgrade the current storm sewer system in the older Downtown area of Farmington along Main Street and Broadway Avenue between Butler and Auburn. Project Update: The Downtown Main Street, from Miller Street to Auburn Ave. is being reconstructed to	Flood	City of Farmington Community Works	Medium (33.5)	Existing	Unknown	City of Farmington	Included; Ongoing	Carry over from 2014 plan

		include roundabouts, wider sidewalks, additional parking, and upgrades to the water and storm sewer. The storm sewer in Broadway Ave. will still need to be upgraded.								
Farmington 6	Incorporate all future comprehensive planning for Farmington with the San Juan County Mitigation Project	Ensure that Farmington's growth does not expand into areas that expose the community to increased flood risks. Farmington has an ongoing planning effort to ensure that its growth is done in an organized manner. It is vital that all planning efforts consider the identified hazard locations in and around Farmington to avoid increasing the community's exposure to hazard risk. To accomplish this goal, the City Council will enact legislation to ensure that all future city planning will take into consideration the San Juan County Mitigation Plan. Project Update: The Community Works Department inspects areas, that will be	Flood	City of Farmington Community Works	Medium (26)	Existing	\$5,000	City of Farmington	Included; Ongoing	Carry over from 2014 plan

		incorporated into the City of Farmington, for increased flood risk and a recommendation is made to City Council for approval or dis-approval.								
Farmington 7	Keep all waterways clear of debris and unwanted vegetation	<p>Clean public waterways. Waterways lying in the publicly-held areas of Farmington will be inspected annually for the presence of debris or unwanted vegetation. Upon the completion of this inspection, debris and vegetation will be cleared based on its priority and the availability of manpower and equipment. Project Update: The Community Works Department has a cleaning schedule for all publicly-held arroyos within city limits. The arroyos are on a 3-year rotation schedule. Areas where no easement or right-of-way exists, the City will work with the property owner to grant an easement for cleaning.</p>	Flood	City of Farmington Community Works	Medium (26)	Existing	\$5,000	City of Farmington	Included; Ongoing	Carry over from 2014 plan

Farmington 8	Promoting Rainwater Harvesting Systems	The City Council will adopt a resolution recognizing the benefits to the City of rainwater harvesting systems. Project Update: The Community Works Department provides information on the rainwater harvesting systems to the community at the Annual Home Expo.	Drought; Flood	City of Farmington Community Works	Medium (26)	Existing	Unknown	Unknown	Included; Ongoing	Carry over from 2014 plan
Farmington 9	Implement a maintenance program to maintain previous thinned areas. The program may include fire training on fuel removal techniques, prescribed burning, and a yearly chemical application to prevent excess growth	Public land clearing program. All public lands, listed as high hazard areas, located within the City of Farmington will be prioritized and cleared as necessary in order to reduce the potential fuel load in these areas. Clearing public lands of excess fuel load will significantly reduce the potential for a major urban/wild land fire. In addition, the City of Farmington wants private property owners to create defensible space on their properties by reducing fuel load. Further benefits of such brush-clearing projects include increasing areas available for public activity along the river bottoms and	Wildfire	County/City Emergency Managers; City of Farmington Fire Department; City of Farmington Code Enforcement; Count/City Public Works; County/City Parks and Recreation	Medium (26)	Existing	Unknown	City of Farmington	Included; Ongoing	Carry over from 2014 plan

		reducing the amount of debris that could become water-borne during flooding.								
Farmington 10	Code enforcement on private property to reduce hazardous fuels	<p>Continue code enforcement on private property to reduce hazardous fuels. In addition to mitigating potential fire hazards, removing the excess fuel load will also reduce problems that occur during flooding. The accumulation of debris in culverts and similar areas restricts water flow, creating backups and, in some cases, damage to structures and roadways.</p> <p>Removing this debris will decrease collateral damage that occurs during flooding events, as well as wildfire.</p>	Wildfire	City of Farmington; City of Farmington Code Enforcement	Medium (26)	Existing	Unknown	City of Farmington	Included; Ongoing	Carry over from 2014 plan

<p>Farmington 11</p>	<p>Implement a Firewise™ community program with information concerning the necessity for clearing fuel from public/private lands and with instructions for creating defensible space around all structures</p>	<p>Private property defensible space. The City of Farmington will institute a public education program, such as Fire Wise™, concerning the need for defensible space around structures in the urban/wild land interface. This program will be carried out through public service announcements and directed mailings to property owners identified as having land within the urban/wild land interface. Introducing a Fire Wise™ program for property owners in the high hazard areas will highlight the necessity for reducing the area's fuel load. There will be positive results throughout the entire area, even if only some of these landowners comply with the program. In addition to mitigating potential fire hazards, removing the excess fuel load will also reduce problems that occur during flooding.</p>	<p>Wildfire</p>	<p>County/City Managers; City of Farmington Fire Department; City of Farmington Code Enforcement</p>	<p>Medium (26)</p>	<p>Existing</p>	<p>Unknown</p>	<p>City of Farmington</p>	<p>Included; Ongoing</p>	<p>Carry over from 2014 plan</p>
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<p>Farmington 12</p>	<p>Continue thinning projects to reduce the severity of a wildland fire throughout the city</p>	<p>Public land clearing program. All public lands, listed as high hazard areas, located within the City of Farmington will be prioritized and cleared as necessary in order to reduce the potential fuel load in these areas. Clearing public lands of excess fuel load will significantly reduce the potential for a major urban/wild land fire. In addition, the City of Farmington wants private property owners to create defensible space on their properties by reducing fuel load. Further benefits of such brush-clearing projects include increasing areas available for public activity along the river bottoms and reducing the amount of debris that could become water-borne during flooding.</p>	<p>Wildfire</p>	<p>County/City Emergency Managers; City of Farmington Fire Department; City of Farmington Code Enforcement; County/City Public Works; County/City Parks and Recreation</p>	<p>Low (25)</p>	<p>Existing</p>	<p>Unknown</p>	<p>City of Farmington</p>	<p>Included; Ongoing</p>	<p>Carry over from 2014 plan</p>
<p>Farmington 13</p>	<p>Continue regular wildland urban interface (WUI) fire training for firefighters</p>	<p>Continue funding for training that will include familiarization of hazard areas and stop loss tactics in the event of a WUI fire</p>	<p>Wildfire</p>	<p>County/City Managers; City of Farmington Fire Department</p>	<p>Low (24)</p>	<p>Existing</p>	<p>Unknown</p>	<p>City of Farmington</p>	<p>Included; Ongoing</p>	<p>Carry over from 2014 plan</p>

Farmington 14	Wildfire Prevention and Planning	Community wildfire and prevention planning. Public education. Planning and training for community members and first responders.	Wildfire	City of Farmington	Low (23)	New	\$10,000	National Preparedness Grant Program; Other Local Funding Source; Other Funding Source	Proposed	New project for 2020 plan
Farmington 15	Conversion Rebate Program	A rebate program will be developed to provide city residents with an incentive to replace older toilets and showerheads with low flow units. An additional incentive program will be developed evaluating the benefits of rainwater harvesting. Project Update: The Community Works Department has made no progress on this program.	Flood	City of Farmington Community Works	Low (19.5)	Existing	\$5,000	Unknown	Included; Ongoing	Carry over from 2014 plan
Farmington 16	Public Education	A program will be created for school age children and adults designed to provide information concerning wise water usage and recommendations concerning drought resistant vegetation for use in both residential and commercial landscapes. Project Update: The Community Works Department	Flood	City of Farmington Community Works	Low (18.5)	Existing	\$15,000	Unknown	Included; Ongoing	Carry over from 2014 plan

		provides education to the community at the Annual Home Expo.								
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Table 34: Mitigation Action Project Prioritization, Town of Kirtland

Action Identification	Project Name	Project Description	Hazard(s) Addressed	Responsible Department(s)	Overall Priority (STAPLE+E)	Structural Emphasis	Cost Estimates	Potential Funding Source	Status	Current Status
Kirtland 1	Roadway Flooding	US 64 is the main route through the Town of Kirtland. The highway is maintained by the NMDOT. The local drainage has been adversely affected due to the roadside businesses' driveways and lot development with no consideration for drainage. The medians do not drain correctly and the right-of-way's stand water during significant rain events. This project will correct the roadway drainages.	Flooding	Town of Kirtland; New Mexico Department of Transportation	Medium (33.5)	New	\$2,500,000	National Preparedness Grant Program; Pre-Disaster Mitigation Grant Program; Other Local Funding Source; Other Funding Source	Proposed	New project for 2020 plan

Kirtland 2	Wildfire Protection	This project includes the clearing and cleanup of the fire fuels along the north bank of the San Juan River. The houses have cleared most brush with exception of the 100 feet north of the river. This project will protect the residence adjacent to the river.	Wildfire	Town of Kirtland	Medium (32.5)	New	\$120,000	National Preparedness Grant Program; Pre-Disaster Mitigation Grant Program; Other Local Funding Source; Other Funding Source	Proposed	New project for 2020 plan
Kirtland 3	Water Supply Protection	The residents of the Town of Kirtland and surrounding areas obtain their drinking water from Lower Valley Water Users Association. The Association obtains its raw water from Farmers Mutual Ditch. The ditch has begun a portion of the \$9 Million upgrade project to install conduits. The conduit will protect the ditch from rockslides and failures. This project will assure the residents that the water supply will be protected.	Drought; Flooding	Town of Kirtland	Medium (32.5)	New	\$3,000,000	National Preparedness Grant Program; Pre-Disaster Mitigation Grant Program; Other Local Funding Source; Other Funding Source	Proposed	New project for 2020 plan
Kirtland 4	Kirtland Youth Association Backup Generator	The Kirtland Youth Association Building is the only building in the Town of Kirtland large enough to be used as a community meeting location in case of an emergency. The building is owned by the Town of Kirtland. It does not have a backup generator to be used in times of power outage. The building	Drought; Flooding; Wildfire	Town of Kirtland	Medium (32.5)	New	\$100,000	Homeland Security Grant Program; Pre-Disaster Mitigation Program	Proposed	New project for 2020 plan

		will be used for Town officials and emergency responders.								
Kirtland 5	Safe Pedestrian Highway Crossing	San Juan County is currently planning, designing, and constructing pedestrian walk paths for traffic in the Kirtland area. The Central Consolidated Schools is the main beneficiary of the walk paths. The schools have a high school and middle school on the south side of the highway and elementary school on the north side of the highway. There is no local pedestrian crossing for the general public. This project is to construct a safe pedestrian fly over across US 64 for all pedestrian traffic crossing the highway. It will mitigate the conflict between pedestrian and vehicular traffic.	Hazardous Materials	Town of Kirtland	Medium (26)	New	\$4,000,000	Other Local Funding Source; Other Funding Source	Proposed	New project for 2020 plan

Table 35: Mitigation Action Project Prioritization, City of Aztec, City of Bloomfield, and City of Farmington

Action Identification	Project Name	Project Description	Hazard(s) Addressed	Responsible Department(s)	Overall Priority (STAPLE+E)	Structural Emphasis	Cost Estimates	Potential Funding Source	Status	Current Status
San Juan, Aztec, Bloomfield, Farmington 1	Clear the public property identified as the "Swire-Townsend" land preserve and complete invasive species mitigation to ensure fire loading does not continue to pose a threat in this area of the City	Public land clearing program. All public lands along the banks of the Animas, La Plata, and San Juan Rivers will be inspected and cleared as necessary in order to reduce the potential fuel load existing in these areas. Clearing public lands along the rivers of excess fuel load will significantly reduce the potential for a major urban/wild land fire. In addition, if the local governments want private property owners to create defensible space on their properties by reducing fuel load, the County's demonstration of such actions may spur landowners to follow suit. Further benefits of such brush-clearing projects include increasing areas available for public activity along the river bottoms and reducing the amount of debris that could become water-borne during flooding.	Wildfire	San Juan County/City of Aztec, Bloomfield, and Farmington Emergency Managers; San Juan County/City of Aztec, Bloomfield, and Farmington Fire Departments; San Juan County/City of Aztec, Bloomfield, and Farmington Public Works; San Juan County/City of Aztec, Bloomfield, and Farmington Parks and Recreation	Medium (32.5)	Existing	Unknown	San Juan County; City of Aztec; City of Bloomfield; City of Farmington	Included; Ongoing	Carry over from 2014 plan

<p>San Juan, Aztec, Bloomfield, Farmington 2</p>	<p>Provide private landowners in the river bottom area with information concerning the necessity for clearing potential fuel from their land and instructions for creating defensible space around all structures</p>	<p>Private property defensible space. All local jurisdictions will institute a public education program, such as Firewise™, concerning the need for defensible space around structures in the urban/wild land interface. This program will be carried out through public service announcements and directed mailings to property owners identified as having land within the urban/wild land interface. Introducing a Firewise™ program for property owners along the river bottoms will highlight the necessity for reducing the area's fuel load. There will be positive results throughout the entire area, even if only some of these landowners comply with the program. In addition to mitigating potential fire hazard, removing the excess fuel load will also reduce problems that occur during flooding.</p>	<p>Wildfire</p>	<p>County/City of Aztec, Bloomfield and Farmington Emergency Managers; San Juan County/City of Aztec, Bloomfield, and Farmington Fire Departments; San Juan County/City of Aztec, Bloomfield, and Farmington Public Works; San Juan County/City of Aztec, Bloomfield, and Farmington Parks and Recreation</p>	<p>Medium (26)</p>	<p>Existing</p>	<p>Unknown</p>	<p>San Juan County; City of Aztec; City of Bloomfield; City of Farmington (County/City Jurisdictions)</p>	<p>Included; Ongoing</p>	<p>Carry over from 2014 plan</p>
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<p>San Juan, Aztec, Bloomfield, Farmington 3</p>	<p>Identify areas of the river bottom in the public domain and create priorities and thinning projects to reduce the potential for wild land fire throughout the county</p>	<p>Public land clearing program. All public lands along the banks of the Animas, La Plata, and San Juan Rivers will be inspected and cleared as necessary in order to reduce the potential fuel load existing in these areas. Clearing public lands along the rivers of excess fuel load will significantly reduce the potential for a major urban/wild land fire. In addition, if the local governments want private property owners to create defensible space on their properties by reducing fuel load, the County's demonstration of such actions may spur landowners to follow suit. Further benefits of such brush-clearing projects include increasing areas available for public activity along the river bottoms and reducing the amount of debris that could become water-borne during flooding.</p>	<p>Wildfire</p>	<p>San Juan County/City of Aztec, Bloomfield and Farmington Emergency Managers; San Juan County/City of Aztec, Bloomfield, and Farmington Fire Departments; San Juan County/City of Aztec, Bloomfield, and Farmington Public Works; San Juan County/City of Aztec, Bloomfield, and Farmington Parks and Recreation</p>	<p>Low (24)</p>	<p>Existing</p>	<p>Unknown</p>	<p>San Juan County; City of Aztec; City of Bloomfield; City of Farmington</p>	<p>Included; Ongoing</p>	<p>Carry over from 2014 plan</p>
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5.5 – Planning Integration

Mitigation does not end at plan approval. Plan approval is only the beginning. The successful implementation of any number of mitigation activities and projects requires the coordination and collaboration of a number of local agencies, departments, and organizations. Each group has varying decision-making processes and authorities governing their actions. This plan, once approved, must be integrated into their decision-making processes as a tool for improving their respective resiliencies.

This plan is not only useful for implementing mitigation activities and projects but is also critical in making development plans and capital improvement projects. The risk assessment in this plan can prevent unmanaged and dangerous development into identified hazard areas or other portions of the planning area that decrease a community's overall resiliency.

Democratic Governments and Boards

These organizations rely on agenda proposals, deliberation, discussion, and voting to solidify their decision-making. This type of decision-making makes up the majority of San Juan County's participating jurisdictions and stakeholders.

This plan should be integrated into agenda proposal's designs and cross-referenced during deliberation and discussion of the proposed activity. By using this plan's risk assessment, development and capital improvement projects can be appropriately implemented taking into consideration a community's resiliency.

The San Juan County Multi-Jurisdictional Natural Mitigation Plan Update will be incorporated into existing planning mechanisms in varying processes. These processes will be tailored to the unique characteristics of the planning mechanism and the governing structure of San Juan County and its participating jurisdictions.

Mitigation Plan Funding

Funding for development of the San Juan County Multi-Jurisdictional Natural Hazard Mitigation Plan Update was provided by a grant through the FEMA and funding from the New Mexico Department of Homeland Security and Emergency Management Agency (NMDHSEM). This was provided to establish the County's long-term strategy for reducing risk from natural hazards. San Juan County Office of Emergency Management (SJCOEM) was the recipient of the funding with the Floodplain Manager responsible for coordinating planning and development of the hazard mitigation plan.

As stated in the previous plan, the County's hazard mitigation planning process closely integrates with and is, in fact, dependent on FEMA's mitigation programs and initiatives. The driving force behind the entire planning effort is the Disaster Mitigation Act of 2000 (DMA2K), which stipulates the necessity for and content of both state and local mitigation plans. DMA2K established a timeline for plan completion and describes penalties for non-compliance. States that did not have their mitigation plans approved by the specified date (November 1, 2004) were not be able to receive public assistance funding (Category C through G) for declared disasters occurring after this date nor was any jurisdiction within the state. Funding from the Pre-Disaster Mitigation (PDM) program and the Hazard Mitigation Grant Program (HMGP) are similarly denied until the state and local mitigation plans are approved for possible support of mitigation or multiple objective actions including:

- San Juan County along with the Cities of Aztec, Bloomfield, and Farmington have been members of the National Flood Insurance Program (NFIP) since 2003. Aztec, Bloomfield and Farmington are not yet participating in the Community Rating Service (CRS). Both San Juan County and the City of Farmington holds a CRS rating of 8.
- Prior to flood regulations in San Juan County, many structures were built in the floodplains along the Animas and San Juan Rivers. Flooding along either of these rivers or dam failure will cause destruction or damage to these The Flood Mitigation Assistance (FMA) Program is another FEMA program whereby local jurisdictions may obtain grant funds to do flood mitigation plans and projects
- Debt Capacity: Authority to incur debt through special tax, general obligation bonds, revenue bonds, and private activity bonds
- Taxes: The County and municipalities have the authority to levy sales taxes and property taxes. The County is responsible for all property tax assessment and collection
- Fees: The County and municipalities have the authority to levy fees for water, sewer, gas, trash collection, landfills, and electric service

Emergency Management Planning

All participating jurisdictions in the San Juan County Multi-Jurisdictional Natural Hazard Mitigation Plan Update, have deferred their emergency management authority to SJCOEM.

Emergency Operations Plans (EOPs) – The San Juan County EOP’s next update will reflect the most probable and dangerous hazard event scenarios from this mitigation plan update’s risk assessment. Additionally, the mitigation plan update will be added in its entirety as an Appendix to the EOP. This revision is the responsibility of SJCOEM for all the jurisdictions participating in this plan. Upon revision completion, all participating jurisdictions and appropriate emergency services will be notified of the revisions and sent out new copies of the EOP.

State of New Mexico Hazard Mitigation Plan (2018) – The State’s HMP is required by FEMA regulations to include assessments and integration of local and tribal mitigation plans. The process of integrating the San Juan County Multi-Jurisdictional Natural Hazard Mitigation Plan Update into the State’s plan is already an established process and is managed by NMDHSEM.

Infrastructure, Development & Construction Projects Related to Hazard Mitigation

All jurisdictions in San Juan County approach infrastructure, development, and construction projects related to hazard mitigation in the same way. The demographics of San Juan County allows for planning to exist only through collaboration with their Local Emergency Planning Committee (LEPC).

San Juan County Local Emergency Planning Committee (LEPC)

The San Juan County LEPC (<https://www.sjcounty.net/government/emergency-management/lepc>) is a conduit for all mitigation actions and projects. It is headed by SJCOEM and meets on the third Thursday of every month, although there is flexibility in their schedule.

Their meetings are held in the San Juan County Office of Emergency Management Administration Building. Members of the LEPC come from all jurisdictions and from a wide variety of local agencies and departments as well as industry and local citizenry.

Mitigation Projects & Actions Implementation

Upon adoption of a mitigation plan or other emergency management-related plans, SJCOEM will notify all participating jurisdictions when reviewing mitigation project and action selections will be the next LEPC meeting topic. Each jurisdiction then approves a list of mitigation actions and projects they want to pursue according to the mechanism listed in the table on the following page. During the LEPC meeting, SJCOEM will assist the jurisdictions in determining which grant program and path will be appropriate for the project. After selection, the jurisdictions return to SJCOEM, through the LEPC, for assistance on funding and managing the project. If additional funding is necessary, the jurisdictions will have to return to their community and pass a resolution to secure the funding. The resolution is subject to the process listed in table on the following page.

SJCOEM may assist in every facet from project inception to completion as well as working with other external organizations for tasks such as grant writing, project monitoring, and project management where appropriate.

Capital Improvement & Economic Development Planning Related to Hazard Mitigation

None of the participating jurisdictions currently have capital improvement or economic development plans.

Upon adoption of this plan, SJCOEM will notify each participating jurisdictions' governing authority. The notification will also contain a special notice to incorporate the following procedure to any capital improvement or economic development plans related to hazard mitigation that may be developed in the future.

Upon project conception, the county commissioners, mayors, and council members, may contact SJCOEM for funding guidance and grant assistance. In San Juan County and its participating jurisdictions, improvement and development projects rely on grant funding. SJCOEM may advise the project proposing jurisdiction on which grant program is appropriate.

Following a funding source decision, the proposals will then be returned to the project proposing jurisdiction and undergo a vote by the appropriate governing body for approval. Upon approval by the governing body, SJCOEM may assist in applying for the grant funding for the new improvement or development project.

All economic development plans initiated or supported by a jurisdiction will undergo a hazard application process in which all hazard risk assessments from the HMP plan will be weighed into the benefit cost analysis. This can be done at the local level prior to working with the San Juan County LEPC or SJCOEM, or exist as a known future consideration and requirement. However, if done at the local level, it must be reviewed and approved by the San Juan County LEPC.

Appendix A – Reference Documents

Federal Meteorological Handbook No. 1, Surface Weather Observations and Reports, U.S. Department of Commerce / NOAA, 2005

Guidelines and Specifications for Flood Hazard Mapping Partners, FEMA, 2002

Local Mitigation Plan Review Guide, FEMA, 2011

Local Mitigation Planning Handbook, FEMA, 2013

Mitigation Ideas A Resource for Reducing Risk to Natural Hazards, FEMA, 2013

Multi-hazard Loss Estimation Methodology – Flood Model – HAZUS®-MH – User Manual, FEMA, 2012

Multi-hazard Loss Estimation Methodology – Flood Model – HAZUS®-MH – Technical Manual, FEMA, 2012

Multi-Hazard Mitigation Planning Guidance Under the Disaster Mitigation Act of 2000, FEMA, 2008

National Mitigation Framework, Department of Homeland Security, 2013

Understanding Your Risks: Identifying Hazards and Estimating Losses (FEMA 386-2), FEMA, 2001

Appendix B – Data Sources

Quantitative Data Sources

FEMA

NOAA/NCEI (formerly NCDC)

U.S. Census Bureau

United States Environmental Protection Agency TRI Explorer

San Juan County/Farmington Fire, HazMat Division

Geographic Data Sources

BOLDplanning Inc.

Google® Maps

FEMA HAZUS®-MH (4.2)

FEMA NFHL

NOAA/NWS Storm Prediction Center

San Juan County, NM, GIS Department

U.S. Census Bureau

United States Environmental Protection Agency TRI Explorer

U.S Drought Monitor

Vegetation Drought Response Index (VegDRI)

San Juan County, NM, Floodplain Management Department

State of New Mexico Hazard Mitigation Plan, 2018

San Juan Basin Community Wildfire Protection Plan, 2014

Appendix C – Public Participation

THE DAILY TIMES

AFFIDAVIT OF PUBLICATION

Ad No.
0001291021

Theresa Barrera
SAN JUAN COUNTY/LEGALS ACCOUNT
100 S. OLIVER DR
ATTN FIN DEPT THERESA BARRERA
AZTEC NM 87410

I, being duly sworn say: THE DAILY TIMES, a daily newspaper of general circulation published in English at Farmington, said county and state, and that the hereto attached Legal Notice was published in a regular and entire issue of the said DAILY TIMES, a daily newspaper duly qualified for the purpose within the State of New Mexico for publication and appeared in the internet at The Daily Times web site on the following days(s):

07/12/19



Legal Clerk

Subscribed and sworn before me this
13th of July 2019.



State of WI, County of Brown
NOTARY PUBLIC



My Commission Expires

Ad#:0001291021
P O :
of Affidavits :0.00

Notice San Juan County Hazard Mitigation Plan Kick-Off Meeting

Hazard Mitigation planning is an initiative aimed at lessening the impact of natural hazards that the County and its jurisdiction face. This is done by completing an assessment of the hazards and how vulnerable the County is to those hazards. The next step is to come up with mitigation projects for each hazard that affects the County and its jurisdictions. The public is invited to add input to the plan. By participating in this meeting, you can represent your community and give valuable experiences and ideas to the planning process. To learn more please join us at the meeting.

August 6, 2019
San Juan County Fire Operations, 209 S Olive
Dr., Aztec, NM 87410
10:00 a.m. - Noon

Please RSVP (to ensure we have enough handouts) to Michele Truby-Tillen, CFM mtruby@sjcounty.net by Aug. 1, 2019

Legal No. 1291021 published in The Daily Times on July 12, 2019.

RECEIVED
JUL 18 2019
FINANCE - Admin.



San Juan County, NM Hazard Mitigation Plan Survey

Project Engagement

VIEWS	PARTICIPANTS	RESPONSES	COMMENTS	SUBSCRIBERS
496	184	817	156	27

Where do you live?



None

10 months ago

Everynight around 11:00-12:00 I have to close my window because of the awful smell the gas plant put off in Bloomfield. I have been here 4 years now and wonder if I am going to eventually die from inhaling this. It is terrible.

10 months ago

Most hazard in Bloomfield? The trees, bushes planted all along mediums. When in turn lanes to cross over they are an obstruction because you can not see the oncoming cars. Cut them down.

10 months ago

Please make sure all water ways are kept cleaned out/clear of trash and debris

10 months ago

Crime and drugs and dumping of illegal waste a lot hazardous. Bloomfield is just full of weeds and dirty torn up parking lots. Aztec is dirty needles and drugs being sold in every corner and parks. Farmington traffic and drugs. San Juan county needs to face the facts. Crime and drugs are out of control and many of it isnt being managed proactively.

Time to clean up our structures
Deal with the crime and drug problems
And really take care of your people.

10 months ago

As well as the Drunk individuals roaming the City.

10 months ago

Concerned when people burn their weeds.

10 months ago

This county is overgrown. Trees hitting powerlines and sparking (happened to me this summer). Elderly people who have trouble keeping up with overgrown yards. The drought makes it worse and more likely to catch fire.

10 months ago

The so called "salvage" yard on road 5467, will be a Superfund project if SJC does not enforce the laws they voted in. No fence, no regulations followed. Come on SJC!

11 months ago

For my particular home/neighborhood. Flash flooding is also an issue in certain locations.

11 months ago

Change San Juan County laws for vaping and cigarettes. Make vaping stores move out 15 miles from county border, change cigarette and smoking laws to age 25. Agree Dry county. Higher penalty for those holding drugs and even higher penalty for those selling them. Get them out of here!!!

11 months ago

San Juan is already do this use less water when in need.

11 months ago

Water storage, future water rights, and drought proofing infrastructure is paramount to our area. Face it, with the ignorant and science-denying administration and president we have now, climate change is accelerating. Farmington will be unlivable if the current trends don't change.

11 months ago

Add food born illness

11 months ago

It was a tie between flooding and wildfire. We experience both of these events often.

11 months ago

What hazard is your area LEAST at risk for?

33%	Hazard Materials	38 ✓
24%	Flood / Flash Flooding	28 ✓
24%	Wildfire	28 ✓
20%	Not Sure	23 ✓
1%	Drought	1 ✓

115 Respondents

so many natural gas lines all around the area, who is monitoring for leakage/breakage?

11 months ago

👍 2 Agree

Biggest haematology ares is the Envirotech land farm. There's always a chemical smell when ur visiting Angel peak and the surrounding areas.

10 months ago

None

10 months ago

although it can always happen we don't have much forest area

11 months ago

Only because we have a fire/rescue service and hydrant infrastructure to mitigate this. I do live in an area where the homes and vegetation are closely spaced.

11 months ago

At fast when hazard materials happens, have common sense.

11 months ago

Add active shooter

11 months ago

I am used to drought after 30+ years . Hazard materials are a concern because of indiscriminate dumping.

11 months ago

Tell us about your concerns about the following hazards

	No Concern	Some Concern	Moderate Concern	Significant Concern
Flood / Flash Flooding	19% No Concern	38% Some Concern	33% Moderate Concern	11% Significant Concern
Drought	- No Concern	12% Some Concern	30% Moderate Concern	58% Significant Concern
Wildfire	15% No Concern	35% Some Concern	33% Moderate Concern	18% Significant Concern
Hazard Materials	11% No Concern	51% Some Concern	22% Moderate Concern	17% Significant Concern

104 respondents

What is your occupation?

No data to display...

List historical instances when a weather event caused a disruption to your area. List Date, event, and short description.

Drought Last summer and current

8 months ago

Drought in 2018-2019

10 months ago

Drought. Last summer

10 months ago

drought

10 months ago

We have been impacted by drought.

10 months ago

The drought has caused us to make water saving changes

10 months ago

I don't have any historical experience since I just moved here in July 2019 but I have heard about the floods in 2010 & 2013.

10 months ago

Flash floods in 2010 and 2013

10 months ago

wildfire, drought, semi-truck accidents

10 months ago

Can't think of any

10 months ago

This yr we've had lots of fires in my area. Last year a really bad fire burned along the river

10 months ago

1996 flooded arroyo behind Lajara trailer area on and thur Johnson.

10 months ago

A couple of years ago when there was tons of rain and water pipes were washed out. We didn't have water for 3-4 days.

10 months ago

Hazard material dumped into animas 3 years ago

10 months ago

Plugged culverts caused massive flooding over night 64 and wrecked several homes.

10 months ago

Flash flood 2 or 3 years ago newby lane area in Bloomfield. Theres a runoff ditch from the main ditch that flooded and got about 50 foot wide

10 months ago

Flash flooding down 350. About 2 or 3 years ago

10 months ago

Animas River drought, down to a trickle, summer of 2018.

11 months ago

Things that happen to the Animas River, Jun 15 2019 overflowing of The Animas River it flooded Berg Park in Farmington, Jun 29,2018 the 416 fire near Durango Colorado Animas River suffered and are air too.

11 months ago

August 26th, 2015- 500 year flood

11 months ago

Fire in Durango cause poor air quality 2028.

The mine spill a few years back that turned out River yellow!

Every time it rains or the snow melts a lake appears and stays for a long time at intersection of hwy 64 and Road 6509. This is due to no drainage.

11 months ago

Hasnt yet.

11 months ago

September 2015

11 months ago

Gold king mine spill

11 months ago

D

T

Awaiting Screenshot of Open Comment Press Release in the local newspaper

DRAFT

Awaiting Screenshot of Open Comment Press Release on SCJOEM's website

DRAFT

Awaiting Screenshot of Open Comment Press Release on SCJOEM's website

DRAFT

DRAFT

Appendix D – Critical Facilities & Infrastructure

Table 36: Critical Facilities

Critical Facilities for San Juan County, New Mexico, and the Cities of Aztec, Bloomfield, and Farmington, New Mexico, and the Town of Kirtland, New Mexico	
Name	Facility Type
Aztec City Hall	Major Government Building
Aztec Electric Department	Electrical Utility
Aztec Fire	Fire Station
Aztec Fire Department Substation	Fire Station
Aztec High School	Emergency Shelter/School
Aztec Municipal School District	Emergency Shelter/School
Aztec Police Department	Police Station
Aztec Urgent Care	Medical Facility
Aztec Wastewater Plant	Water Treatment Plant/ Pumping Station
Aztec Water Treatment Plant	Water Treatment Plant/ Pumping Station
Bloomfield City Hall	Major Government Building
Bloomfield Fire Department	Fire Station
Bloomfield Fire Station #2	Fire Station
Bloomfield Fire Station #3	Fire Station
Bloomfield MOC	Major Government Building
Bloomfield Police Station	Police Station
Bloomfield Reservoir	Water Treatment Plant/ Pumping Station
Bloomfield Second Source Pump Station	Water Treatment Plant/ Pumping Station
Bloomfield Wastewater Treatment Plant	Water Treatment Plant/ Pumping Station
Bloomfield Water Treatment Plant	Water Treatment Plant/ Pumping Station
Bloomfield-Aztec Pump Station	Water Treatment Plant/ Pumping Station
City of Farmington Substation	Electrical Utility
CV Koogler Middle School	Emergency Shelter/School
Farmington Electric Non-Public	Electrical Utility
Farmington Emergency Operations Center	Emergency Operations Center
Farmington Fire Department - Station #1	Fire Station
Farmington Fire Department - Station #2	Fire Station
Farmington Fire Department - Station #3	Fire Station
Farmington Fire Department - Station #4	Fire Station
Farmington Fire Department - Station #5	Fire Station
Farmington Fire Department - Station #6	Fire Station
Farmington Fire Operations	Fire Station
Farmington High School	Emergency Shelter/School
Farmington Municipal Schools - Apache Elementary School	Emergency Shelter/School
Farmington Municipal Schools Central Office	Emergency Shelter/School
Farmington Municipal Schools Plant Operations	Emergency Shelter/School
Farmington Municipal Schools Transportation	Emergency Shelter/School
Farmington Municipal Schools - Animas Elementary School	Emergency Shelter/School
Farmington Municipal Schools - Bluffview Elementary School	Emergency Shelter/School
Farmington Municipal Schools - Country Club Elementary School	Emergency Shelter/School
Farmington Municipal Schools - Esperanza Elementary School	Emergency Shelter/School

Table 36: Critical Facilities (Cont'd)

Critical Facilities for San Juan County, New Mexico, and the Cities of Aztec, Bloomfield, and Farmington, New Mexico, and the Town of Kirtland, New Mexico	
Name	Facility Type
Farmington Municipal Schools -Heights Middle School	Emergency Shelter/School
Farmington Municipal Schools - Hermosa Middle School	Emergency Shelter/School
Farmington Municipal Schools - Ladera Elementary School	Emergency Shelter/School
Farmington Municipal Schools - McCormick Middle School	Emergency Shelter/School
Farmington Municipal Schools - McKinley Elementary School	Emergency Shelter/School
Farmington Municipal Schools - Mesa Verde Elementary School	Emergency Shelter/School
Farmington Municipal Schools - Northeast Elementary School	Emergency Shelter/School
Farmington Municipal Schools - Piedra Vista High School	Emergency Shelter/School
Farmington Municipal Schools - Rocinate High School	Emergency Shelter/School
Farmington Municipal Schools - Tibbetts Middle School	Emergency Shelter/School
Four Corners Regional Airport	Airport
Lydia Rippey Elementary School	Emergency Shelter/School
McCoy Avenue Elementary School	Emergency Shelter/School
McGee Park	Emergency Shelter/School
Mosaic Academy	Emergency Shelter/School
Navajo Preparatory School	Emergency Shelter/School
New Mexico (NM) National Guard	Major Government Building
New Mexico (NM) State Police Department	Police Department
Pre-K Academy East	Emergency Shelter/School
Pre-K Academy West (CATE)	Emergency Shelter/School
Road 350 Bridge - Animas River	Major Bridge
Road 5500 Bridge-San Juan River	Major Bridge
Road 6675 Bridge - San Juan River	Major Bridge
San Juan College High School	Emergency Shelter/School
San Juan County Administration Building	Major Government Building
San Juan County Adult Detention Center	Major Government Building
San Juan County Central Purchasing/Warehouse	Major Government Building
San Juan County Communications Authority	911 / Communications Center
San Juan County Fire Operations Center	Emergency Operations Center
San Juan County Juvenile Detention/ Farmington District Court Complex	Major Government Building
San Juan County Sheriff's Office	Police Station
San Juan County Sheriff's Office - Kirtland Sub Station	Police Station
San Juan County Sheriff's Office - Lee Acres Sub Station	Police Station
San Juan Health Partners	Medical Facility
San Juan Health Partners	Medical Facility
San Juan Regional Medical Center	Hospital
SJC Fire District 1 - Valley	Fire Station
SJC Fire District 1 - Valley	Fire Station
SJC Fire District 1 - Valley	Fire Station
SJC Fire District 1 - Valley	Fire Station
SJC Fire District 11 - DZILTH-NA-O-DITH-HLE	Fire Station

Table 36: Critical Facilities (Cont'd)

Critical Facilities for San Juan County, New Mexico, and the Cities of Aztec, Bloomfield, and Farmington, New Mexico, and the Town of Kirtland, New Mexico	
Name	Facility Type
SJC Fire District 2- Flora Vista	Fire Station
SJC Fire District 2- Flora Vista	Fire Station
SJC Fire District 2- Flora Vista	Fire Station
SJC Fire District 2- Flora Vista	Fire Station
SJC Fire District 3 – Cedar Hill	Fire Station
SJC Fire District 3 – Cedar Hill	Fire Station
SJC Fire District 4– La Plata	Fire Station
SJC Fire District 4– La Plata	Fire Station
SJC Fire District 5– Blanco	Fire Station
SJC Fire District 5– Blanco	Fire Station
SJC Fire District 5– Lee Acres	Fire Station
SJC Fire District 5– Lee Acres	Fire Station
SJC Fire District 7– Center Point	Fire Station
SJC Fire District 7– Center Point	Fire Station
SJC Fire District 8– Hart Valley	Fire Station
SJC Fire District 8– Hart Valley	Fire Station
SJC Fire District 9– Sullivan Road	Fire Station
Aztec Animal Shelter	Animal Shelter
Aztec Boys & Girls Club	Assembly
Aztec Library	Library
San Juan County Public Works	Other

Appendix E – Mitigation Project Prioritization

Table 37: Mitigation Project Prioritization, San Juan County

Mitigation Project Prioritization, San Juan County											
Mitigation Project or Activity	Jurisdiction	STAPLE+E	Total Impact	Effectiveness Multiplier	Hazards				Hazard Total	Risk Assessment Number (HRT Value)	Priority
					Droughts	Hazardous Materials	Flooding	Wildfire			
Partner with Federal and State agencies to ensure floodplain determinations are completed prior to development approval	San Juan County	26	11	1	-	-	15	-	15	15	Medium
Identify flash flood hazard areas using past event and future development trends. Using engineering consultation, develop new Special Flood Hazard Area boundaries or enhance existing NFIP Flood Hazard boundaries	San Juan County	26	11	1	-	-	15	-	15	15	Medium

<p>Enact legislation for San Juan County concerning the responsibility for keeping waterways clear of debris and vegetation that can magnify the effects of flooding</p>	<p>San Juan County</p>	<p>26</p>	<p>11</p>	<p>1</p>	<p>-</p>	<p>-</p>	<p>15</p>	<p>-</p>	<p>15</p>	<p>15</p>	<p>Medium</p>
<p>Identify areas of the river bottom in the public domain and create priorities and thinning projects to reduce the potential for wild land fire throughout the County</p>	<p>San Juan County</p>	<p>26</p>	<p>11</p>	<p>1</p>	<p>-</p>	<p>-</p>	<p>-</p>	<p>15</p>	<p>15</p>	<p>15</p>	<p>Medium</p>
<p>Provide private landowners in the river bottom area with information concerning the necessity for clearing potential fuel from their land and instructions for creating defensible space around all structures</p>	<p>San Juan County</p>	<p>26</p>	<p>11</p>	<p>1</p>	<p>-</p>	<p>-</p>	<p>-</p>	<p>15</p>	<p>15</p>	<p>15</p>	<p>Medium</p>

Develop a bypass route that will eliminate the transport of hazardous material through the most heavily populated areas of the County	San Juan County	26	11	1.5	-	10	-	-	10	10	Medium
Identify and plan for bank stabilization projects along waterways in the County	San Juan County	25	10	1	-	-	15	-	15	15	Low
Identify all unlined irrigation ditches within San Juan County and develop a plan to line them	San Juan County	25	10	1	15	-	-	-	15	15	Low
Provide rebates for the conversion of existing home toilets and showerheads to low flow systems and the retrofitting of gray water recovery systems	San Juan County	25	10		15	-	-	-	15	15	Low

<p>Improve the emergency communication s system in order to provide a “reverse 911” alert system for the County and its participating jurisdictions</p>	<p>San Juan County</p>	<p>25</p>	<p>10</p>	<p>1.5</p>	<p>-</p>	<p>10</p>	<p>-</p>	<p>-</p>	<p>10</p>	<p>10</p>	<p>Low</p>
<p>Enact legislation regarding water use during drought conditions that raises the level of restriction as drought conditions become more severe</p>	<p>San Juan County</p>	<p>24</p>	<p>9</p>	<p>1</p>	<p>15</p>	<p>-</p>	<p>-</p>	<p>-</p>	<p>15</p>	<p>15</p>	<p>Low</p>
<p>Establish a public education and awareness program to provide residents with information concerning drought and water conservation</p>	<p>San Juan County</p>	<p>24</p>	<p>9</p>	<p>1</p>	<p>15</p>	<p>-</p>	<p>-</p>	<p>-</p>	<p>15</p>	<p>15</p>	<p>Low</p>

Enact legislation for the mandatory installation of gray water recovery systems in new construction projects	San Juan County	23	8	1	15	-	-	-	15	15	Low
Educate the public about actions to take during a HAZMAT incident	San Juan County	20	10	1	-	10	-	-	10	10	Low
SJC Flood Damage Prevention Program	San Juan County	18.5	11	0.5	-	-	15	-	15	15	Low
Enact legislation concerning the mandatory use of low flow toilets and showerheads in all new construction within the unincorporated areas of the County	San Juan County	18.5	11	0.5	15	-	-	-	15	15	Low

Identify the amount and types of hazardous material presently moving through the County	San Juan County; New Mexico State Highway Department	18	8	1	-	10	-	-	10	10	Low
Partner with local utility agencies and other jurisdictions to ensure floodplain determinations are completed prior to development approval	San Juan County	16.5	9	0.5	-	-	15	-	15	15	Low
Create internal policy and procedure to ensure all proposed development, structural and non-structural, have floodplain determinations prior to approval of development	San Juan County	15.5	8	0.5	-	-	15	-	15	15	Low

Determine the most critical locations where hazardous material transport accidents have been occurring within San Juan County	San Juan County	15	10	0.5	-	10	-	-	10	10	Low
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Table 38: Mitigation Project Prioritization, City of Aztec

Mitigation Project Prioritization, City of Aztec											
Mitigation Project or Activity	Jurisdiction	STAPLE+E	Total Impact	Effectiveness Multiplier	Hazards				Hazard Total	Risk Assessment Number (HRT Value)	Priority
					Droughts	Hazardous Materials	Flooding	Wildfire			
Construct a new water storage tank	City of Aztec	35.5	13	1.5	15	-	-	-	15	15	Medium
Complete riverbank stabilization projects along the Animas River in areas experiencing erosion and severe stream change that has the potential to impact structures and public facilities	City of Aztec	34.5	12	1.5	-	-	15	-	15	15	Medium

<p>Complete riverbank stabilization projects along the Animas River in areas experiencing erosion and severe stream change that has the potential to impact structures and public facilities</p>	<p>City of Aztec</p>	<p>33.5</p>	<p>11</p>	<p>1.5</p>	<p>-</p>	<p>-</p>	<p>15</p>	<p>-</p>	<p>15</p>	<p>15</p>	<p>Medium</p>
<p>Complete cleanup and mitigation activities on properties bordering waterways, particularly underneath or near bridges experiencing high overgrowth and accumulation of debris against pylons and supports</p>	<p>City of Aztec</p>	<p>32.5</p>	<p>10</p>	<p>1.5</p>	<p>-</p>	<p>-</p>	<p>15</p>	<p>-</p>	<p>15</p>	<p>15</p>	<p>Medium</p>
<p>Conduct regular inspections of private properties traversed by waterways to identify obstruction or overgrowth hazards</p>	<p>City of Aztec</p>	<p>32.5</p>	<p>10</p>	<p>1.5</p>	<p>-</p>	<p>-</p>	<p>15</p>	<p>-</p>	<p>15</p>	<p>15</p>	<p>Medium</p>

Secure funding for the replacement of failing water storage tank.	City of Aztec	32.5	10	1.5	15	-	-	-	15	15	Medium
Provide rebates for the conversion of existing home toilets and showerheads to low flow systems as well as renovations that include the installation of gray water recovery systems	City of Aztec	32.5	10	1.5	15	-	-	-	15	15	Medium
Repair existing gabions utilized for bank stabilization	City of Aztec	31.5	9	1.5	-	-	15	-	15	15	Medium
Design Flood Hazard Mitigation website for the City to provide existing and future residents and business owners with easy access to vital information, data and maps, and forms on Flood Hazard Mitigation regulations and activities	City of Aztec	27	12	1	15	-	-	-	15	15	Medium

Conduct inspections and complete an inventory of all existing culverts and bridges crossing waterways in Aztec; replace, repair, or remove culverts and bridges as necessary	City of Aztec	27	12	1	-	-	15	-	15	15	Medium
Finalize funding and contract agreements for Phase 1B; identify the amount and types of hazardous material presently moving through the City	City of Aztec	27	12	1.5	-	10	-	-	10	10	Medium
Complete construction of Phase 1B	City of Aztec	27	12	1.5	-	10	-	-	10	10	Medium
Develop regulations governing the maintenance of waterways within the City	City of Aztec	26	11	1	-	-	15	-	15	15	Medium

Complete application for National Flood Insurance Program (NFIP) Community Rating System (CRS)	City of Aztec	25	10	1	15	-	-	-	15	15	Low
Inspect, inventory, and mitigate floodplain fill/obstructions	City of Aztec	25	10	1	-	-	15	-	15	15	Low
Secure funding for the design and construction of Phase 2	City of Aztec	25	10	1.5	-	10	-	-	10	10	Low
Conduct inspection of private properties to identify and inventory existing conditions in the floodplain; continue annual inspections to prevent illegal fill activities, enforcing Flood Hazard Mitigation Regulations and subsequent violations as required	City of Aztec	24	9	1	-	-	15	-	15	15	Low

Implement regulations restricting the amount of non-drought resistant landscaping materials that can be planted/installed in new commercial construction within the City	City of Aztec	24	9	1	15	-	-	-	15	15	Low
Provide public education concerning water-wise programs and drought-tolerant vegetation	City of Aztec	24	9	1	15	-	-	-	15	15	Low
Mandate regulations preventing the transportation of HAZMAT materials through downtown Aztec, requiring all HAZMAT transports to utilize the East Aztec Arterial route, once construction is complete	City of Aztec	24	9	1.5	-	10	-	-	10	10	Low

<p>Conduct public informational sessions on Flood Hazard risks in the community and initiate meetings with individual landowners whose properties fall within the floodplain</p>	<p>City of Aztec</p>	<p>20.5</p>	<p>13</p>	<p>0.5</p>	<p>-</p>	<p>-</p>	<p>15</p>	<p>-</p>	<p>15</p>	<p>15</p>	<p>Low</p>
<p>Educate the public about actions to take during a HAZMAT incident</p>	<p>City of Aztec</p>	<p>14</p>	<p>9</p>	<p>0.5</p>	<p>-</p>	<p>10</p>	<p>-</p>	<p>-</p>	<p>10</p>	<p>10</p>	<p>Low</p>

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Table 39: Mitigation Project Prioritization, City of Bloomfield

Mitigation Project Prioritization, City of Bloomfield											
Mitigation Project or Activity	Jurisdiction	STAPLE+E	Total Impact	Effectiveness Multiplier	Hazards				Hazard Total	Risk Assessment Number (HRT Value)	Priority
					Droughts	Hazardous Materials	Flooding	Wildfire			
Identify and stabilize public waterway banks that are being eroded	City of Bloomfield	35.5	13	1.5	-	-	15	-	15	15	Medium
Install a local Emergency Warning System	City of Bloomfield	34.5	12	1.5	-	-	15	-	15	15	Medium
Enact legislation establishing the need for maintaining clear waterways and fix responsibility for this maintenance	City of Bloomfield	34.5	12	1.5	-	-	15	-	15	15	Medium
Seek updated floodplain maps for Bloomfield	City of Bloomfield	32.5	10	1.5	-	-	15	-	15	15	Medium

Scott Reservoir	City of Bloomfield	32.5	10	1.5	15	-	-	-	15	15	Medium
Nevada Street Detention Basin	City of Bloomfield	30.5	8	1.5	-	-	15	-	15	15	Medium
Water Treatment Plant Emergency Generator	City of Bloomfield	29.5	7	1.5	15	-	15	-	30	15	Medium
Restrict future growth into the City's floodplains	City of Bloomfield	28	13	1	-	-	15	-	15	15	Medium
Second Source Upgrades	City of Bloomfield	27.75	9	1.5	15	10	-	-	25	12.5	Medium
Establish a current floodplain map for Bloomfield	City of Bloomfield	27	12	1.5	-	-	15	-	15	15	Medium
Identify waterways that require clearing and ensure that this maintenance is accomplished	City of Bloomfield	26	11	1	-	-	15	-	15	15	Medium
Enact legislation for the mandatory installation of gray water recovery systems in new construction projects	City of Bloomfield	26	11	1	15	-	-	-	15	15	Medium

Create an incentive program for the conversion of older toilets and showerheads to low flow systems	City of Bloomfield	25	10	1	15	-	-	-	15	15	Low
Create a public education program concerning the use of drought resistant landscaping vegetation	City of Bloomfield	18.5	11	0.5	15	-	-	-	15	15	Low

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Table 40: Mitigation Project Prioritization, City of Farmington

Mitigation Project Prioritization, City of Farmington											
Mitigation Project or Activity	Jurisdiction	STAPLE+E	Total Impact	Effectiveness Multiplier	Hazards				Hazard Total	Risk Assessment Number (HRT Value)	Priority
					Droughts	Hazardous Materials	Flooding	Wildfire			
Wildfire Mitigation	City of Farmington	35.5	13	1.5	-	-	-	15	15	15	Medium
Navajo Street Crossing at Glade Arroyo	City of Farmington	34.5	12	1.5	-	-	15	-	15	15	Medium
Hood Arroyo Detention Pond, Upgrade Crossing	City of Farmington	33.5	11	1.5	-	-	15	-	15	15	Medium
Streambed protection at Pinon Hills Crossing of the La Plata River	City of Farmington	33.5	11	1.5	-	-	15	-	15	15	Medium
Install storm sewer system in old downtown Farmington area	City of Farmington	33.5	11	1.5	-	-	15	-	15	15	Medium

Incorporate all future comprehensive planning for Farmington with the San Juan County Mitigation Project	City of Farmington	26	11	1	-	-	15	15	15	15	Medium
Keep all waterways clear of debris and unwanted vegetation	City of Farmington	26	11	1	-	-	15	-	15	15	Medium
Promoting Rainwater Harvesting Systems	City of Farmington	26	11	1	15	-	15	-	30	15	Medium
Implement a maintenance program to maintain previous thinned areas. The program may include fire training on fuel removal techniques, prescribed burning, and a yearly chemical application to prevent excess growth	City of Farmington	26	11	1.5	-	-	-	15	15	15	Medium

<p>Implement a maintenance program to maintain previous thinned areas. The program may include fire training on fuel removal techniques, prescribed burning, and a yearly chemical application to prevent excess growth</p>	<p>City of Farmington</p>	<p>26</p>	<p>11</p>	<p>1.5</p>	<p>-</p>	<p>-</p>	<p>-</p>	<p>15</p>	<p>15</p>	<p>15</p>	<p>Medium</p>
<p>Code enforcement on private property to reduce hazardous fuels</p>	<p>City of Farmington</p>	<p>26</p>	<p>11</p>	<p>1</p>	<p>-</p>	<p>-</p>	<p>-</p>	<p>15</p>	<p>15</p>	<p>15</p>	<p>Medium</p>
<p>Implement a Firewise™ community program with information concerning the necessity for clearing fuel from public/private lands and with instructions for creating defensible space around all structures.</p>	<p>City of Farmington</p>	<p>26</p>	<p>11</p>	<p>1</p>	<p>-</p>	<p>-</p>	<p>-</p>	<p>15</p>	<p>15</p>	<p>15</p>	<p>Medium</p>

Continue thinning projects to reduce the severity of a wildland fire throughout the City	City of Farmington	25	10	1	-	-	-	15	15	15	Low
Continue regular wildland urban interface (WUI) fire training for firefighters	City of Farmington	24	9	1	-	-	-	15	15	15	Low
Wildfire Prevention and Planning	City of Farmington	23	8	1	-	-	-	15	15	15	Low
Conversion Rebate Program	City of Farmington	19.5	12	0.5	-	-	15	-	15	15	Low
Public Education	City of Farmington	18.5	11	0/5	15	-	15	-	30	15	Low

Table 41: Mitigation Project Prioritization, Town of Kirtland

Mitigation Project Prioritization, Town of Kirtland											
Mitigation Project or Activity	Jurisdiction	STAPLE+E	Total Impact	Effectiveness Multiplier	Hazards				Hazard Total	Risk Assessment Number (HRT Value)	Priority
					Droughts	Hazardous Materials	Flooding	Wildfire			
Wildfire Prevention	Town of Kirtland	32.5	10	1.5	-	-	-	15	15	15	Medium
Roadway Flooding	Town of Kirtland	33.5	11	1.5	-	-	15	-	15	15	Medium
Water Supply Protection	Town of Kirtland	32.5	10	1.5	15	-	15	-	30	15	Medium
Kirtland Youth Association Backup Generator	Town of Kirtland	32.5	10	1.5	15	-	15	15	45	15	Medium
Safe Pedestrian Highway Crossing	Town of Kirtland	26	11	1.5	-	10	-	-	10	10	Medium
Water Supply Protection	Town of Kirtland	32.5	10	1.5	15	-	15	-	30	15	Medium

Table 42: Mitigation Project Prioritization, San Juan County, City of Aztec, City of Bloomfield, and City of Farmington

Mitigation Project Prioritization, City of Aztec, City of Bloomfield, and City of Farmington											
Mitigation Project or Activity	Jurisdiction	STAPLE+E	Total Impact	Effectiveness Multiplier	Hazards				Hazard Total	Risk Assessment Number (HRT Value)	Priority
					Droughts	Hazardous Materials	Flooding	Wildfire			
Clear the public property identified as the "Swire-Townsend" land preserve and complete invasive species mitigation to ensure fire loading does not continue to pose a threat in this area of the City	City of Aztec; City of Bloomfield; City of Farmington	32.5	10	1.5	-	-	-	15	15	15	Medium
Provide private landowners in the river bottom area with information concerning the necessity for clearing potential fuel from their land and instructions for creating defensible space around all structures	City of Aztec; City of Bloomfield; City of Farmington	26	11	1	-	-	-	15	15	15	Medium

Identify areas of the river bottom in the public domain and create priorities and thinning projects to reduce the potential for wild land fire throughout the County	City of Aztec; City of Bloomfield; City of Farmington	24	9	1	-	-	-	15	15	15	Low
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Appendix F – Plan Adoption Resolutions

Awaiting Signed Resolution Letters from the following jurisdictions:

Resolution, San Juan County

Resolution, City of Aztec

Resolution, City of Bloomfield

Resolution, City of Farmington

Resolution, Town of Kirtland

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Appendix G – State of New Mexico Approval Letter

Pending adoption

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Appendix H – FEMA Approval Letter

Waiting for FEMA to send letter

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ⁱ See: <http://www.aztecm.com/aztec/history/index.html>

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