



Multi-Jurisdictional
Natural Hazard Mitigation
Plan
San Juan County,
New Mexico



Submitted to
New Mexico Department of
Homeland Security &
Emergency Management

B-Sting Ventures, LLC

November 26, 2013



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Albuquerque, NM 87114

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Plan Adoption Resolutions

In accordance with Part 201.6 of the Disaster Mitigation Act of 2000 (DMA 2000), San Juan County, New Mexico has developed this Multi-Jurisdictional Hazard Mitigation Plan to identify hazards that threaten the County and ways to reduce future damages associated with these hazards.

Following this page are the signed adoption resolutions of the County and all participating jurisdictions that have adopted this plan, authorizing municipal government staff to carry out the actions detailed herein.

Signed resolutions of adoption by all participating jurisdictions shall be inserted following this page after FEMA has reviewed and determined that the Draft plan is approvable.

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San Juan County HMP Adoption Resolution

SAN JUAN COUNTY

RESOLUTION NO. _____

ADOPTING THE SAN JUAN COUNTY
HAZARD MITIGATION PLAN

WHEREAS, natural and man-made hazards exist within San Juan County and these hazards have the potential of causing harm to the citizens, property, economy, and environment within San Juan County; and

WHEREAS, the hazards identified for immediate consideration include drought, flooding, and hazardous material transport; and

WHEREAS, a San Juan County Hazard Mitigation Plan has been developed that provides strategies for elimination or reduction of these hazards; and

WHEREAS, the San Juan County Hazard Mitigation Plan is the result of a cooperative effort of governmental agencies and community input.

NOW, THEREFORE, BE IT RESOLVED by the Board of County Commissioners:

1. The San Juan County Hazard Mitigation Plan is adopted as the County's official plan.
2. San Juan County will ensure that all future planning, including comprehensive plans, will take into consideration the hazards that can affect future projects.

- 3. The County’s Emergency Manager will monitor the progress in implementing the strategies of the San Juan County Hazard Mitigation Plan.

- 4. San Juan County officials and agencies, identified by the San Juan County Hazard Mitigation Plan as responsible for specific mitigation tasks under this Plan, will provide the County’s Emergency Manager a progress report by July 1 of each year.

- 5. The County’s Emergency Manager, with input from governmental planning agencies and the public, will review and modify the San Juan County Hazard Mitigation Plan as necessary to reflect the progress made in implementing this Plan and any new hazard strategies that have been identified.

- 6. The County’s Emergency Manager will provide an annual progress report to the Board of County Commissioners concerning these efforts by September 1 of each year. This report will (1) identify the progress of mitigation efforts in meeting the plan’s goals and objectives, and (2) include all new strategies that have been developed.

PASSED, APPROVED AND ADOPTED this ____ day of _____, 2013.

BOARD OF COUNTY COMMISSIONERS
OF SAN JUAN COUNTY, NEW MEXICO

By: _____

Scott Eckstein, Chairman

ATTEST:

Debbie Holmes, County Clerk



City of Aztec HMP Adoption Resolution

The City Commission for the City of Aztec acknowledges that natural and man-made hazards exist within the county. These hazards have the potential of causing harm to the citizens, property, economy, and environment within the city.

The hazards identified for immediate consideration include drought, flooding, wildfire, and hazardous material transport.

A San Juan County Multi-Jurisdictional Mitigation Plan has been developed that provides strategies for elimination or reduction of these hazards, including those of the City of Aztec.

The San Juan County Multi-Jurisdictional Mitigation Plan is the result of a cooperative effort of governmental agencies and community input.

Be it resolved by the Aztec City Commission that:

The San Juan County Multi-Jurisdictional Mitigation Plan be adopted as the city's official plan.

The City of Aztec will ensure that all future planning, including comprehensive plans, will take into consideration the hazards that can affect future projects. In addition, the Community Development Department's office will consult the San Juan County Multi-Jurisdictional Mitigation Plan and the County and City Emergency Managers prior to the approval of future construction within the city to ensure that it does not conflict with the process of mitigating existing hazards.

The City Manager will monitor the progress in implementing the strategies of the San Juan County Multi-Jurisdictional Mitigation Plan.

Aztec city officials and agencies, identified by the San Juan County Multi-Jurisdictional Mitigation Plan as responsible for specific mitigation tasks under this plan, will provide the County's Emergency Manager a progress report by July 1 of each year.

The County's Emergency Manager, with input from governmental planning agencies and the public, will review and modify the San Juan County Multi-Jurisdictional Mitigation Plan as necessary to reflect the progress made in implementing this plan and any new hazard strategies that have been identified.

The County's Emergency Manager will provide an annual progress report to the City of Aztec concerning these efforts by September 1 of each year. This report will (1) identify the progress of mitigation efforts in meeting the plan's goals and objectives, and (2) include all new strategies that have been developed.

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City of Bloomfield HMP Adoption Resolution

The City Council for the City of Bloomfield acknowledges that natural and man-made hazards exist within the county. These hazards have the potential of causing harm to the citizens, property, economy, and environment within the city.

The hazards identified for immediate consideration include drought, flooding, wildfire, and hazardous material transport.

A San Juan County Multi-Jurisdictional Mitigation Plan has been developed that provides strategies for elimination or reduction of these hazards, including those of the City of Bloomfield.

The San Juan County Multi-Jurisdictional Mitigation Plan is the result of a cooperative effort of governmental agencies and community input.

Be it resolved by the Bloomfield City Council that:

The San Juan County Multi-Jurisdictional Mitigation Plan be adopted as the city's official plan.

The City of Bloomfield will ensure that all future planning, including comprehensive plans, will take into consideration the hazards that can affect future Plans. In addition, the building inspector's office will consult the San Juan County Multi-Jurisdictional Mitigation Plan and the county and city emergency managers prior to the approval of future construction within the city to ensure that it does not conflict with the process of mitigating existing hazards.

The City Manager will monitor the progress in implementing the strategies of the San Juan County Multi-Jurisdictional Mitigation Plan.

Bloomfield city officials and agencies, identified by the San Juan County Multi-Jurisdictional Mitigation Plan as responsible for specific mitigation tasks under this plan, will provide the County's Emergency Manager a progress report by July 1 of each year.

The County's Emergency Manager, with input from governmental planning agencies and the public, will review and modify the San Juan County Multi-Jurisdictional Mitigation Plan as necessary to reflect the progress made in implementing this plan and any new hazard strategies that have been identified.

The County's Emergency Manager will provide an annual progress report to the City of Bloomfield concerning these efforts by September 1 of each year. This report will (1) identify the progress of mitigation efforts in meeting the plan's goals and objectives, and (2) include all new strategies that have been developed.

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City of Farmington HMP Adoption Resolution

The City Council for the City of Farmington acknowledges that natural and man-made hazards exist within the county. These hazards have the potential of causing harm to the citizens, property, economy, and environment within the city.

The hazards identified for immediate consideration include drought, flooding, wildfire, and hazardous material transport.

A San Juan County Multi-Jurisdictional Mitigation Plan has been developed that provides strategies for elimination or reduction of these hazards, including those of the City of Farmington.

The San Juan County Multi-Jurisdictional Mitigation Plan is the result of a cooperative effort of governmental agencies and community input.

Be it resolved by the Farmington City Council that:

The San Juan County Multi-Jurisdictional Mitigation Plan be adopted as the city's official plan.

The City of Farmington will ensure that all future planning, including comprehensive plans, will take into consideration the hazards that can affect future Plans. In addition, the building inspector's office will consult the San Juan County Multi-Jurisdictional Mitigation Plan and the county and city emergency managers prior to the approval of future construction within the city to ensure that it does not conflict with the process of mitigating existing hazards.

The City Manager will monitor the progress in implementing the strategies of the San Juan County Multi-Jurisdictional Mitigation Plan.

Farmington city officials and agencies, identified by the San Juan County Multi-Jurisdictional Mitigation Plan as responsible for specific mitigation tasks under this plan, will provide the County's Emergency Manager a progress report by July 1 of each year.

The County's Emergency Manager, with input from governmental planning agencies and the public, will review and modify the San Juan County Multi-Jurisdictional Mitigation Plan as necessary to reflect the progress made in implementing this plan and any new hazard strategies that have been identified.

The County's Emergency Manager will provide an annual progress report to the City of Farmington concerning these efforts by September 1 of each year. This report will (1) identify the progress of mitigation efforts in meeting the plan's goals and objectives, and (2) include all new strategies that have been developed.

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Executive Summary

San Juan County, New Mexico is threatened by a number of different natural hazards. These hazards endanger the health, safety, and welfare of the County's population; jeopardize its economic vitality; and imperil the quality of its environment. To avoid or minimize vulnerability to these hazards, the New Mexico Department of Homeland Security and Emergency Management (NMDHSEM) and the Federal Emergency Management Agency (FEMA) provided support to San Juan County to undertake a hazard mitigation planning process. The resulting *Multi-Jurisdictional Hazard Mitigation Plan for San Juan County, New Mexico* (hereinafter referred to as the "Plan") identifies and profiles those hazards that can affect San Juan County, assesses the County's vulnerability to these hazards, and identifies alternative mitigation actions. The Plan also includes an implementation strategy for preferred mitigation actions as selected and prioritized by a multi-jurisdictional community based planning team.

The San Juan County Office of Emergency Management provided the lead in soliciting the participation of both incorporated municipalities and unincorporated areas of the County to form the *San Juan County Mitigation Planning Group* (hereinafter referred to as the *MPT*) to undertake a comprehensive planning process that has culminated in the publication of this document. In addition, because of the diversity of interests in the County and municipalities, the MPT encouraged citizens to add their voices to the planning process and the decisions that will affect their future. As a result, this document represents the work of citizens, elected and appointed government officials, business leaders, and volunteers of non-profit organizations to develop a plan that will help protect community assets, preserve the economic viability of the community, and save lives. The following summarizes the results of this effort and is organized according to the major sections of the Plan:

Introduction (Section One) – provides an overview of county and jurisdictions incorporated in the plan, an overall county vulnerability assessment and the process towards developing the plan. The vulnerability analysis overviews the county socioeconomics, the built environment, growth and development and a list of identified public sector-owner and operated critical facilities for each jurisdiction identified in this HMP. Section two provides additional vulnerability analysis for each hazard at it relates to the jurisdictions.

Hazard Identification and Risk Assessment (Section Two) – identifies and profiles natural hazards that can affect San Juan County as follows:

- Drought
- Flooding
- Wildfires/Wildland Urban Interface (WUI)
- Hazardous Materials Transportation

These hazards are listed in order of priority as determined by the majority of the MPT. The location of communities within the County impacts their rating of hazards. A majority of jurisdictions rate flood, drought and wildfire, as their priority, while others prioritize wildfires,

severe storms and flooding as most important. A brief summary of the relevant issues is provided for these four hazards with more detail regarding the entire list within the Plan.

- **Drought** – As the entire Southwest continues to feel the effects of a reduction in rain and snowfall, the demands for water put a strain on this limited resource. Presently the extent and duration of this drought remain unknown. Speculation varies concerning the severity of this drought from a ten-year drought cycle to a two thousand-year drought cycle. No matter what drought cycle this is, two facts remain: (1) there is a drought at this time that is straining the water resources within San Juan County, and (2) the county's water needs will continue to climb as its population increases. Mitigation strategy concerning drought cannot eliminate its existence. However, it can help ease the demands on the limited water supply in order to create continuation of sustainable growth within the county and the affected jurisdictions
- **Floods/Flash Floods – Flooding** continues to plague San Juan County and the Cities of Aztec, Bloomfield and Farmington. The Animas River runs through Aztec and the San Juan River runs through Bloomfield. Farmington sits at the confluence of these two rivers and the confluence of the La Plata River and the San Juan River. In addition to the potential flooding caused by these rivers, there are also possible dangers of dam failure or flash floods. Further, severe rainstorms can create localized flooding due to runoff and overwhelm the present storm drainage systems.

Additionally, the present drought conditions in San Juan County specifically add to the flooding danger in two ways. The continuation of the drought conditions results in a reduction of ground vegetation, which reduces the land's ability to slow down runoff. Additionally, as the drought continues, the ground hardens, resulting in a reduction in its ability to absorb moisture. The combination of these two factors increases the chance of potential damage caused by flash flooding throughout the county.

- **Wildfire/Wildland Urban Interface** – The amount of fuel accumulating along the river bottoms in San Juan County combined with the present drought conditions throughout the southwest has created a very dangerous environment. As seen during the Albuquerque Bosque fires in the summer of 2003, the threat to structures in the area is high, and increases with arid conditions, wind events, and the area's overgrowth. Unlike the Bosque surrounding the Rio Grande River in the Albuquerque metropolitan area, San Juan County has three rivers coming together in one location, which also happens to be the county's largest population center. In addition, while the Bosque area in Albuquerque mostly consists of public recreational lands, the river bottom lands in San Juan County are for the most part privately owned.
- **Hazardous Materials Transportation** – As the amount of hazardous material transported through San Juan County continues to increase, the potential for an accidental hazardous material release also increases. The only possible way to eliminate this potential hazard would be to ban the transport of all hazardous materials

within the county. Since this is not a practical solution, the county must take all other reasonable measures to reduce this risk.

Risk Assessment The Risk Assessment portrays the threats of natural hazards, the vulnerabilities of San Juan County to the hazards, and the consequences of hazards impacting the community. Each natural hazard identified is addressed as a threat and is identified and profiled in the Hazard Identification. The vulnerabilities to and consequences of a given hazard are addressed in the Vulnerability Analysis. Vulnerability is analyzed in terms of exposure of both population and infrastructure to each hazard. Consequences are identified as anticipated, predicted, or documented impacts caused by a given hazard when considering the vulnerability analysis and the characteristics of the hazard as outlined in its identification.

Goals, Objectives, and Alternative Mitigation Actions (Section Three) – This section of the Plan presents a series of goals and objectives to guide hazard mitigation actions. In addition, this section identifies a series of alternative mitigation actions to address these goals and objectives on a community-by-community basis.

Mitigation Plan and Implementation Strategy (Section Four) – This section of the Plan identifies preferred and prioritized mitigation actions as determined by the MPT as an overall approach to reducing the County’s vulnerability to natural hazards. This section recommends specific actions and an implementation strategy including details about the organizations responsible for carrying out the action, their estimated cost, possible funding sources, and timelines for implementation.

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Acknowledgements

The adoption of the San Juan County Multi-Jurisdictional Mitigation Plan will establish initial measures to reduce or eliminate the hazards that exist within the county. This resolution establishes a commitment by San Juan County, the City of Aztec, the City of Bloomfield, and the City of Farmington to the ongoing process of mitigation. The strategies set forth in this plan strive to create a better quality of life and a more sustainable future for the residents of San Juan County.

The San Juan County Multi-Jurisdictional Mitigation Plan further establishes a process whereby the mitigation strategies and the progress made toward implementing them will receive an annual review and evaluation. This review and evaluation will determine if projects have been completed, and whether pending projects will continue to effectively reduce or eliminate the intended hazards. The annual review of the San Juan County Multi-Jurisdictional Mitigation Plan will also identify new or changing hazardous conditions within San Juan County and design mitigation strategies to reduce or eliminate them.

Mitigation Planning Team	Agency	Title
Don Cooper	San Juan County	Emergency Manager
Mike Mestas	San Juan County	Emergency Management Coordinator
Michele Truby-Tillen	San Juan County	Floodplain Manager
Roshana Moojen	City of Aztec	Community Development Director
George Duncan	City of Bloomfield	Fire Chief
Ray Barns	City of Bloomfield	Planning & Zoning Director
Donica Sharp (2011)	City of Bloomfield	Planning & Zoning Director
Hubert Quintana II	City of Farmington	Public Works Department/Engineer
Virginia King	City of Farmington	Public Works Department/Engineer
Duane Bair	City of Farmington	Fire Department/Wildfire Coordinator



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Distribution List

Federal

Regional Administrator FEMA, Region VI, Denton, Texas
U.S. Army Corps of Engineers, District Office, Emergency Management

State

Director Homeland Security and Emergency Management, Department of

Local

San Juan County Office of Emergency Management
City of Aztec
City of Bloomfield
City of Farmington

Other Jurisdictions

Rio Arriba County OEM, New Mexico
Sandoval County OEM, New Mexico
McKinley County OEM, New Mexico
Montezuma County OEM, Colorado
Archuleta County OEM, Colorado
La Plata County OEM, Colorado
Apache County OEM, Arizona
Navajo Nation OEM

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Acronyms Used In This HMP Plan

Acronym	Term
AEGL	Acute Exposure Guidance Levels
ALHOA	Aerial Location of Hazardous Atmosphere
ASCE	American Society of Civil Engineers
BCA	Benefit/Cost Analysis
BD/DR	Business Continuity/Disaster Recovery
BFE	Base Floodplain Elevation
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BNSF	Burlington Northern Santa Fe (Railroad)
BOR	Bureau of Reclamation
BSV	B-Sting Ventures, LLC
BWS	Beaufort Wind Scale
CAMEO	Computer Aided Management of Emergency Operations
CBR	Cost/Benefit Review
CDBG	Community Development Block Grant
CFM	Certified Floodplain Manager
CFOI	Census of Fatal Occupational Injuries
cg	Cloud-to-Ground (lightning)
CMMS	Computerized Maintenance Management System
COE	College of Economics
CRS	Community Rating System (for NFIP)
CWPP	Community Wildfire Protection Plan
DFIRM	Digital Flood Insurance Rate Map
DMA	Disaster Mitigation Act
DMA 2000	Disaster Mitigation Act of 2000
DMA2K	Disaster Mitigation Act of 2000

Acronym	Term
DOC	Department of Commerce
DOD	Department of Defense
DOI	Department of the Interior
DRMS	NSF Directorate for Social, Behavioral and Economic Science, Division of Social Behavioral and Economic Research, Decision, Risk, and Management Science Program
EAP	Emergency Action Plan
EDA	Economic Development Administration
EF	Enhanced Fujita Scale
EM	Emergency Manager
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPA	Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
ERC	Energy Release Component
ERP	Enterprise Resource Planning
ESRI	Economic and Social Research Institute
FEMA	Federal Emergency Management Agency
FDRS	Fire Danger Rating System
FHBM	Flood Hazard Boundary Map
FIMA	Federal Insurance and Mitigation Administration
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Studies
FMA	Flood Mitigation Assistance
FRCC	Fire Regime Condition Class
FWS	Fish and Wildlife Service
FY	Fiscal Year
GIS	Geographic Information System
GOES	Geostationary Operational Environmental Satellite
GPS	Global Positioning System

Acronym	Term
GSD	General Services Department
HAZWOPER	Hazardous Waste Emergency Operations Response
HAZUS-MH	Hazards U.S. Multi-Hazard
HIRA	Hazard Identification and Risk Assessment
HMGP	Hazard Mitigation Grant Program
HMO	Hazard Mitigation Officer
HMP	Hazard Mitigation Plan
HUD	Housing and Urban Development
IA	Individual Assistance
IBC	International Building Code
IFR	Interim Final Rule
KBDI	Keetch-Byram Drought Index
LAL	Lightning Activity Level
LOMR	Letters of Map Revision
LTER	Long Term Ecological Research
MHIRAM	Multi-Hazard Identification and Risk Assessment
MMI	Modified Mercalli Intensity
MPT	Mitigation Planning Group
MPH	Miles Per Hour
NCDC	National Climatic Data Center
NCHS	National Centers for Health Statistics
NDFD	National Digital Forecast Database
NEHRP	National Earthquake Hazard Reduction Program
NEPA	National Environmental Policy Act
NFHL	National Flood Hazard Layer
NFIP	National Flood Insurance Program
NHPA	National Historic Properties Act

Acronym	Term
NIBS	National Institute of Building Sciences
NIMS	National Incident Management System
NMDHSEM	New Mexico Department of Homeland Security and Emergency Management
NMDOT	New Mexico Department of Transportation
NPS	National Park Service
NRCS	National Resources Conservation Service
NSF	National Science Foundation
NWR	National Wildlife Refuge
NWS	National Weather Service
OCP	Office of Capital Projects
OEM	Office of Emergency Management
PA	Public Assistance
PCD	Planning and Campus Development
PCPI	Per Capita Personal Income
PDA	Preliminary Damage Assessment
PDM	Pre-Disaster Mitigation
PDSI	Palmer Drought Severity Index
PGA	Peak Ground Acceleration
PI	Principle Investigator
PNM	Public Utility Company of New Mexico
POC	Point of Contact
RAOB	Radiosonde Observation
RGIS	Resource Geographic Information System
RH	Relative Humidity
RHS	Rural Housing Service
ROTC	Reserve Officers Training Corp
RUS	Rural Utilities Service

Acronym	Term
SBA	Small Business Administration
SC	Spread Component
SJ MPT	San Juan County Mitigation Planning Team
SFHA	Special Flood Hazard Area
SHMO	State Hazard Mitigation Officer
SRS	Safety and Risk Services
STAPLE+E	Social, Technical, Administrative, Political, Legal, Economic, and Environmental
TERA	Terminal Effects Research and Analysis
TPI	Total Personal Income
USACE	US Army Corp of Engineers
USDA	US Department of Agriculture
USGS	United States Geological Survey
VEI	Volcanic Explosivity Index
WFAS	Wildland Fire Assessment System
WIPP	Waste Isolation Pilot Plant
WUI	Wildland-Urban Interface

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Definitions and Terms

Asset: Any manmade or natural feature that has value, including people; buildings; infrastructure such as bridges, roads, and sewer and water systems; lifelines such as electricity and communication resources; and environmental, cultural, or recreational features such as parks, dunes, wetlands, and landmarks.

Building: A structure that is walled, roofed, principally above ground, and permanently affixed to a site. The term also applies to a manufactured home on a permanent foundation on which the wheels and axles carry no weight.

Capability Assessment: An assessment that provides an inventory and analysis of a community or state's current capacity to address the threats associated with hazards. The capability assessment attempts to identify and evaluate existing policies, regulations, programs, and practices that positively or negatively affect the community or state's vulnerability to hazards or specific threats.

Comprehensive Plan: A document, also known as a "general plan," which covers the entire geographic area of a community and expressing community goals and objectives. The plan lays out the vision, policies, and strategies for the future of the community, including all of the physical elements that will determine the community's future development. This plan can discuss the community's desired physical development, desired rate and quantity of growth, community character, transportation services, location of growth, and citing of public facilities and transportation. In most states, the comprehensive plan has no authority in and of itself, but serves as a guide for community decision-making. Not all governmental jurisdictions maintain a plan of this type.

Comprehensive Range of Mitigation Actions: As required by the mitigation strategy, at least two distinct mitigation actions per hazard that are inclusive in nature and which relate to accomplishing the goals and objectives of the plan.

Cost-Benefit Review: An evaluation of the favorable returns that result vs. the monetary expenditures required to complete proposed mitigation actions. When prioritizing actions in a mitigation strategy, a special emphasis shall be made on this economic evaluation. *Note: The Cost-Benefit Review should not be confused with FEMA's Benefit-Cost Analysis software. Though this software can provide you with a method for this evaluation, it is not a required step for completing this prioritization.*

Critical facility: Facilities vital to the health, safety, and welfare of the population and that are especially important following hazard events. Critical facilities include, but are not limited to, shelters, police and fire stations, and hospitals.

Disaster Mitigation Act of 2000 (DMA 2000): DMA 2000 (PL 106-390) is legislation designed to improve the planning process signed into law on October 30, 2000 to amend the Stafford Act. This legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur.

Duration: How long a hazard event lasts.

Essential Facility: Elements important to ensure a full recovery of a community or state following a hazard event. These would include: government functions, major employers, banks, schools, and certain commercial establishments, such as grocery stores, hardware stores, and gas stations.

Evapotranspiration: means the total loss of water from a crop into the air. Water evaporates from any moist surface into the air unless the air is saturated. Water surfaces in contact with air, such as lakes, plant leaves, and moist soils, all evaporate water.

Extent of a Hazard: The magnitude or severity of a hazard. Not to be confused with the location or site of a hazard. The extent and damage predicted by a hazard can be established by comparing previous or predicted hazard events to established technical measures, such as the Fujita Scale for tornados. For example, a community might predict that the typical tornado that would affect them is an F2 storm, with speeds of 150 mph. The Fujita Scale predicts impacts that include “considerable damage, roofs torn off houses, mobile homes demolished, boxcars pushed over” etc. This demonstrates the extent, which is the typical magnitude and impact expected on the community.

Frequency: A measure of how often events of a particular magnitude are expected to occur. Frequency describes how often a hazard of a specific magnitude, duration, or extent typically occurs. Statistically, a hazard with a 100-year recurrence interval is expected to occur once every 100 years on average and has a 1% chance (its probability) of happening in any given year. The reliability of frequency information varies depending on the kind of hazard being considered.

Goals: General guidelines that explain what you want to achieve. They are usually broad policy-type statements, long term in nature, and represent global visions.

Governing Body: The governing body of a Tribe, County, Parish or City having legislative and administrative powers, such as passing ordinances and appropriating funds, e.g. city council, county commissioners, quorum court, policy jury, tribal council, etc.

Hazard: A source of potential danger or adverse conditions. A natural event is a hazard when it has the potential to harm people or property. Per the Section 322 of the Disaster Mitigation Act of 2000, only natural hazards are required to be assessed for mitigation planning.

Hazard Event: A specific occurrence of a particular type of hazard.

Hazard Identification: The process of identifying all the types of hazards that threaten or affect a specific planning area.

Hazard Mitigation: Sustained actions taken to reduce or eliminate long-term risk from hazards and their effects.

Hazard Mitigation Grant Program (HMGP): Authorized under Section 404 of the Stafford Act, HMGP is administered by FEMA and provides grants to states, tribes, and local governments to implement hazard mitigation actions after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to disasters and to enable mitigation activities to be implemented as a community recovers from a disaster.

Hazard Profile: It is a description of the physical characteristics of each hazard identified and a presentation of its various descriptors, including location, extent (magnitude), previous occurrences, and the probability of future events. In most cases, a community can most easily use these descriptors when they are displayed on maps.

Impact: The damage that is expected or predicted by a hazard occurring in a specific area.

Infrastructure: Public services of a community that have a direct impact on the quality of life. Infrastructure includes communication technologies (e.g., telephone lines and Internet access); vital services (e.g., public water supplies and sewer treatment facilities); transportation system components (e.g., airways, airports, and heliports); highways, (e.g., bridges, tunnels, roadbeds, overpasses, railways, rail yards, and depots); and waterways (e.g., canals, locks, seaports, ferries, harbors, dry-docks, piers, and regional dams).

Intensity: A measure of the effects of a hazard event at a particular place.

Interim Final Rule on Local Mitigation Planning (IFR): The governing regulations found in 44 CFR 201.6 which provide the criteria for completing a local hazard mitigation plan, originally published in the Federal Register on February 26, 2002.

Inventory: The assets identified in a study region, which include buildings and infrastructure.

Location of a Hazard: The area affected by a hazard or hazard event. Some hazards are general to the whole of a planning area (thunderstorms, earthquakes) while others are very specific to known areas (flooding, landslides).

Loss Estimation: Estimation of potential losses by assigning hazard-related costs and losses to inventory data such as data for populations, building stocks, transportation and utility lines, regulated facilities, and more). Loss estimation is essential to decision-making at all levels of

government and provides a basis for developing mitigation plans and policies. Loss estimation also supports planning for emergency preparedness, response, and recovery.

Magnitude: A measure of the strength of a hazard event. The magnitude (also referred to as severity) of a given hazard event is usually determined using technical measures to be specific to the hazard.

Mitigate: To cause something to become less harsh or hostile, to make less severe or painful.

Mitigation Actions: Activities or projects that help achieve the goals and objectives of a mitigation plan.

Mitigation Plan: Authorized by Section 322 of the Stafford Act, it is a document that presents a systematic evaluation of the nature and extent of an area's vulnerability to the effects of natural hazards and a description of actions to minimize future vulnerability to hazards. Note: Local Hazard Mitigation Plans must be written to meet 44 CFR Part 201.6 (Interim Final Rule on Local Mitigation Planning) and approved by FEMA for continued eligibility for FEMA mitigation grant programs.

Multi-jurisdictional Mitigation Plan: A mitigation plan that represents the participation of more than one governmental entity in its risk assessment, mitigation strategy, plan maintenance, and adoption. This is opposed to a single-jurisdictional mitigation plan which represents only one governmental entity.

Objectives: Measurable strategies or implementation steps to attain a goal. They are shorter in range and more specific than goals.

Ordinance: A term for a law or regulation adopted by a local government.

Plan Maintenance: An on-going planning function designed to maintain the reliability and accuracy of an approved mitigation plan. This process will include a method and schedule for monitoring, evaluating and updating of the plan following its approval.

Planning: The act or process of making or carrying out plans; the establishment of goals, policies and procedures for a social or economic unit.

Planning Team: A group composed of government, private sector, and individuals with a variety of skills and areas of expertise, usually appointed by a city or town manager, or chief elected official. The group finds solutions to community mitigation needs and seeks community acceptance of those solutions.

Preparedness: Actions that strengthen the capability of government, citizens, and communities to respond to disasters.

Probability: The numeric or statistical likelihood that a hazard event will occur. Theoretically, the probability of the occurrence of an event is between 0% (indicating that the event will never occur) and 100% (indicating that the event always occurs).

Public Education and Outreach: Any campaign to make the public more aware of hazard mitigation and mitigation programs, including hazard information centers, mailings, public meetings, etc.

Recovery: The actions taken by an individual or community after a catastrophic event to restore order and lifelines in a community.

Reoccurrence Interval: The time between hazard events of similar size in a given location. It is based on the probability that the given event will be equaled or exceeded in any given year.

Resolutions: Expressions of a governing body's opinion, will, or intention that can be executive or administrative in nature. Most planning documents must undergo a council resolution, which must be supported in an official vote by a majority of representatives to be adopted.

Response: The actions taken during and immediately after an event to address immediate life and safety needs and to minimize further damage to properties.

Risk: The estimated impact that a hazard event would have on people, services, facilities, and structures in a community, or the likelihood of a hazard event resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate, or low likelihood of damage being sustained above a particular threshold as a result of a specific type of hazard event. Risk also can be expressed in terms of potential monetary losses associated with the intensity of the hazard event. In mathematical terms, Risk=Hazard x Vulnerability.

Risk Assessment: A methodology used to assess potential exposures and estimated losses associated with likely hazard events. A risk assessment process includes four steps: identifying hazards, profiling hazard events, inventorying assets, and estimating losses.

Severity: See magnitude

Stafford Act: The Robert T. Stafford Disaster Relief and Emergency Assistance Act (PL100-107) was signed into law November 23, 1988 and amended the Disaster Relief Act of 1974 (PL 93-288). The Stafford Act is the statutory authority for most federal disaster response activities, especially as they pertain to FEMA and its programs. It was most recently amended with the enactment of the Disaster Mitigation Act of 2000 (PL 106-390).

STAPLEE: A systematic evaluation and prioritization method used to assess whether existing and potential alternative mitigation actions fulfill the plan's objectives and if they are appropriate for the planning area. The method evaluates the **S**ocial, **T**echnical, **A**ministrative, **P**olitical, **L**egal, **E**conomic, and **E**nvironmental (STAPLEE) opportunities and constraints of implementing a particular mitigation action within the jurisdiction.

State Hazard Mitigation Officer (SHMO): The state government representative who is the primary point of contact with FEMA, other state and federal agencies, and local units of government in the planning and implementation of pre- and post-disaster mitigation activities. This position usually resides in the State Emergency Management Agency.

Strategy: A collection of actions developed to achieve the goals and objectives. In a mitigation plan, the actions are aimed at reducing or eliminating the risk that a hazard presents to a community.

Vulnerability: How exposed or susceptible to damage an asset is. Vulnerability depends on an asset's construction, its contents, and the economic value of its functions. Vulnerability of an asset may differ from one hazard to another. As well, indirect effects can often be much more widespread and damaging than direct effects of a hazard.

Vulnerability Assessment: An assessment of the extent of injury and damage that may result from a hazard event of a given intensity in a given area. The vulnerability assessment should address the impacts of hazard events on both existing and future conditions.

Section 1 – Introduction

Purpose of the Plan

Across the United States, natural disasters have led to mounting levels of casualties, injury, property damage, and disruption of business and government services. The effect on families and individuals can be enormous and damaged businesses cannot contribute to the economy. The time, money and effort in responding to and recovering from these events redirect public resources and attention from other important programs and problems.

For San Juan County, this experience is recent and directly felt through major events such as flash flooding and wildfires. Smaller events lead to more commonplace disruptions such as flooding of bridges and roadways challenging access to those homes and businesses beyond these impasses. Some events, such as droughts present more subtle indirect impacts to the community. The *Hazard Mitigation Plan for San Juan County, New Mexico* is intended to serve many purposes. These include the following:

Enhance Public Awareness and Understanding – to help residents of the County better understand the natural caused hazards that threaten public health, safety, and welfare; economic vitality; and the operational capability of important institutions.

Create a Decision Tool for Management – to provide information that managers and leaders of local government, business and industry, community associations, and other key institutions and organizations need to take action to address vulnerabilities to future disasters.

Promote Compliance with State and Federal Program Requirements – to ensure that San Juan County and its incorporated communities can take full advantage of state and federal grant programs, policies, and regulations that encourage or mandate that local governments develop comprehensive hazard mitigation plans.

Enhance Local Policies for Hazard Mitigation Capability – to provide the policy basis for mitigation actions that should be promulgated by participating jurisdictions to create a more disaster-resistant future.

Inter-Jurisdictional Coordination of Mitigation-Related Programming – to ensure that proposals for mitigation initiatives are reviewed and coordinated among the participating jurisdictions within the County.

The elected and appointed officials of San Juan County know that mitigation actions in the form of projects and programs can become long-term, cost effective means for reducing the effects of natural hazards. The goal of mitigation is to save lives, reduce injuries, property damage and recovery times. Mitigation can reduce the enormous cost of disasters to property owners and all levels of government. In addition, mitigation can protect critical facilities, reduce exposure to

liability and minimize community disruption. Preparedness, response, and recovery measures support the concept of mitigation and may directly support identified mitigation actions.

Plan Preparation

The *San Juan County Multi-Jurisdictional Hazard Mitigation Plan* (the “Plan”) utilizes a multi-agency planning process to identify hazards that can affect the county and to devise mitigation strategies to reduce or eliminate the effects of those hazards. It draws upon the State Plan which provides guidance to local governments in preparing their own mitigation plans by prioritizing mitigation goals and objectives, proposing solutions to certain mitigation problems, and identifying possible funding sources for mitigation projects.

This plan has been prepared in compliance with Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U.S. C. 5165, enacted under Sec. 104 the Disaster Mitigation Act of 2000, (DMA2K) Public Law 106-390 of October 30, 2000. This plan identifies hazard mitigation measures intended to eliminate or reduce the effects of future disasters throughout the county. DMA2K requires rigorous local and state mitigation planning as a condition of receiving grant funding for disaster recovery and mitigation.

The San Juan County Multi-Jurisdictional Mitigation Plan previously approved by FEMA on April 23, 2007, must be updated every five years. This Plan Update will demonstrate the County and participating jurisdiction’s commitment to reducing risk and serve as a guide for decision makers as they commit resources to minimize the effects of natural hazards. It just makes sense to be pro-active and not wait for disaster to strike before the County and participating jurisdiction’s take action to reduce risk to human life and property.

In August of 2011 a working group was formed and began the process to update the 2007 Plan. Each section of the County’s Multi-Jurisdictional Hazard Mitigation Plan was reviewed and revised as appropriate to reflect changes in development, updated property values, and progress in local mitigation efforts

This updated plan has been developed by the San Juan County Hazard Mitigation Planning Team, with support from an outside consultant, B-Sting Ventures, LLC (“BSV,” the contractor responsible for providing the Planning Committee with hazard mitigation planning support services). The Plan represents the collective efforts of citizens, elected and appointed government officials, business leaders, volunteers of non-profit organizations, and other stakeholders. This plan does not necessarily represent the views, policies, and procedures of FEMA, although all attempts have been made to comply with common mitigation policies, procedures, and methods employed throughout the country.

San Juan County will continue to comply with all applicable federal laws and statutes during the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c), and will amend this plan whenever necessary to reflect changes in state or federal laws and statutes as required in 44 CFR 13.11(d). It is important to note that this document is designed as an

instrument of mitigation primarily for natural disasters. Natural disasters cannot be prevented from occurring. However, over the long-term, the continued implementations of this Plan will gradually, but steadily, lessen the impacts associated with hazard events.

Community Background

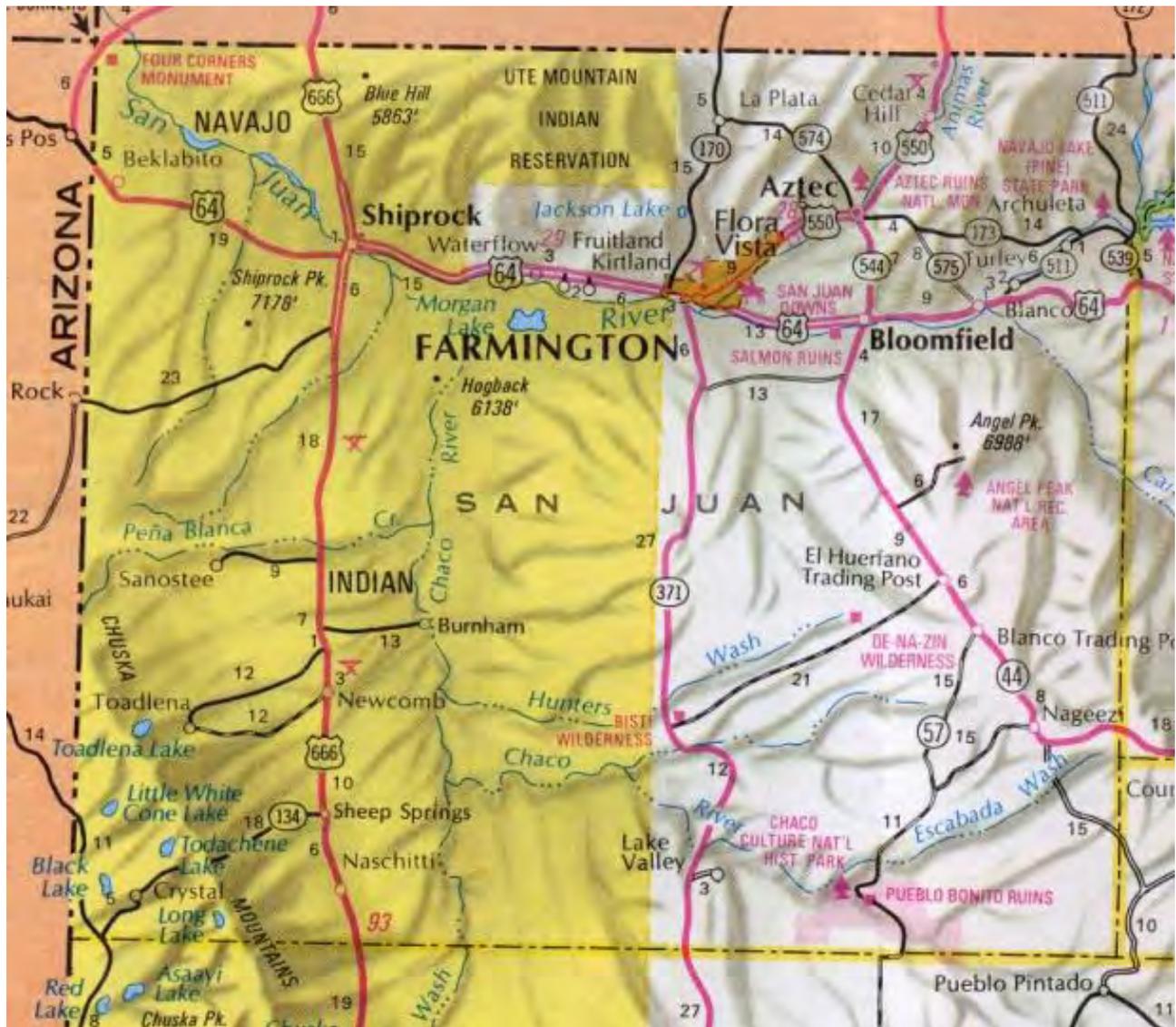
Overview – San Juan County

San Juan County is located in the northwest corner of New Mexico. The northwest corner of the county forms the “Four Corners” area where it borders Colorado, Utah, and Arizona (Figure 1). It takes its name from the San Juan River, which has its headwaters in the nearby San Juan Mountains. Ancient Anasazi ruins are located in Aztec, the county seat, at Aztec Ruins National Park. Large parts of Chaco Canyon National Monument and the Navajo Reservation are also contained within county boundaries. Farmington is its largest city. The county’s economy is largely based on natural resources, power production, agriculture, and regional trade. San Juan County contains 5,514.02 square miles and has a population density of 23.6 persons per square mile.

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 to the south. U.S. 550 enters the county from Durango, Colorado in the north and runs through Aztec and Bloomfield and into Sandoval County to the southeast. N.M. 170 starts at the Colorado border, and ends in Farmington. N.M. N. M. 371 runs south from Farmington and into McKinley County. In addition, San Juan County is traversed along an east/west axis by U.S. 64, which runs from Rio Arriba County to the east to Arizona to the west.

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

Figure 1: Map of San Juan County



Source: San Juan County 2007 Mitigation Plan

According to the U.S. Census Bureau, the population of San Juan County increased by more than 14% between 2000 and 2010 (113,801 to 128,200), Table 1. The Census Bureau projected the population to be 164,012 by the year 2030.

According to the 2010 U.S. Census, there were 49,341 housing units in San Juan County during 2010. Of these units, 44,404 are occupied, with a vacancy rate of 2.3% for rental units. San Juan County has shown consistent growth based on building permits. Over the past six years, an average of 80 building permits per year has been issued in the county's unincorporated area until a decline in 2009 probably due to the nationwide economic downturn (Table 2).

Table 1: San Juan County Population

San Juan County Population History											
Year	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010
Population	8,504	8,333	14,701	17,115	18,292	53,306	52,517	81,433	91,605	113,801	128,200

Source: U. S. Census data, 2010

Table 2: San Juan County Building Permits

San Juan County Building Permits			
Year	Type	Number of Units	Value
2005	Single Family Unit	119	\$24,523,170.00
2006	Single Family Unit	132	\$25,419,062.00
2007	Single Family Unit	114	\$23,368,881.00
2008	Single Family Unit	91	\$2,122,497.00
2009	Single Family Unit	50	\$10,409,715.00
2010	Single Family Unit	54	\$10,314,564.28

Source: SJC Building Department, 2013

Overview – City of Aztec

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 Bloomfield, is intersected by NM 173 on the east and is connected to Farmington by N.M. 516 on the west.

Aztec is governed by a City Commission, with a City Manager running the City’s day-to-day operations. The City’s public safety needs are provided by a municipal Police Department and a Volunteer Fire Department. These services are augmented by the San Juan County Sheriff’s Department, the New Mexico State Police, and various municipal and volunteer fire departments.

Aztec’s present population is 6,763, which is a 6% increase over the 2000 level of 6,378 (Table 3). Presently 2,892 housing units exist in Aztec, with a vacancy of approximately 215 units. Aztec’s population is expected to grow at a modest rate for the next ten years, with growth predicted between 0.3% and 0.5%.

Table 3: Aztec New Mexico Population

Aztec, New Mexico Population History											
Year	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010
Population	975	851	1,183	756	885	4137	4,137	5,512	5,239	6,378	6,763

Source: U. S. Census data, 2010

Overview – City of Bloomfield

Bloomfield is located to the east of Farmington and south of Aztec in the northwest corner of San Juan County. The city 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. Located outside of Bloomfield is a large amount of petroleum-related industry. 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 in the east to 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. Public safety for Bloomfield is provided by the Bloomfield Police Department and the Bloomfield Fire Department. These efforts are augmented by the County Sheriff’s Department, the New Mexico State Police, and other area fire departments and volunteer fire departments.

According to the 2010 U.S. Census, Bloomfield’s present population is 8,112, which is a 20.9% increase from the 2000 figure of 6,417 (Table 4). In addition, Bloomfield has 2,446 housing units, with only 224 units vacant.

Table 4: Bloomfield, New Mexico Population

Bloomfield, New Mexico Population History											
Year	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010
Population	316	258	407	---	---	1,292	1,574	4,881	5,367	6,417	8,112

Source: U. S. Census data, 2010

Overview – City of Farmington

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 Farmingtown, due to its largely agricultural economy. The city was incorporated in 1901 and the w was dropped from its name, finally becoming Farmington. The 1950’s proved to be a major economic boom for Farmington due to the development of the oil and gas industry. Between 1950 and 1960, Farmington’s population went from 3,637 to 23,786 (Table 5). Although the community continues to grow, it is not presently expected that there will be a rapid population increase anytime soon.

The Farmington Metropolitan Planning Organization (MPO) published a document, adopted on April 15, 2010, titled the *Existing and Future Population & Employment Conditions*, which estimated the population growth of Farmington through 2035 for use with planning of future transportation needs. The document estimated that Farmington will reach a population of 51,929 in 2015, 54,147 in 2020, 58,072 in 2030, and 59,900 in the year 2035. Farmington consists of 33.1 square miles, is located at an elevation of 5,625 feet, and has a population density of 1,386 persons per square mile.

Table 5: Farmington, New Mexico Population

Farmington, New Mexico Population History											
Year	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010
Population	785	728	1,350	2,161	3,637	23,786	21,979	32,677	33,997	37,844	45,877

Source: U. S. Census data, 2010

Farmington is governed by a Mayor/City Council/City Manager form of government which has four council members. The community’s public safety needs are served by a municipal police department of 120 sworn officers and a municipal fire department of 84 fire fighters. The Farmington Fire Department maintains a HAZMAT capability and is responsible for responding to HAZMAT emergencies throughout the region. Public safety is further augmented by the San Juan County Sheriff’s Department, the New Mexico State Police, and volunteer fire departments located throughout the area.

According to the 2010 U.S. Census, there were 16,997 housing units in Farmington, of which approximately 1,031 were vacant. Over the past five years the number of new building starts has varied from a high of 173 in 2008 to a low of 86 in 2011. The average number of building starts is approximately 128 (Table 6).

Table 6: Farmington, New Mexico Building Permits

Farmington, New Mexico Building Permits			
Year	Type	Number of Units	Value
2008	Single Family Unit	165	\$26,084,980
	3-4 Family Unit	4	\$2,324,330
2009	Single Family Unit	134	\$20,685,530
	3-4 Family Unit	3	\$1,369,760
2010	Single Family Unit	123	\$24,256,300
	3-4 Family Unit	6	\$5,149,500
2011	Single Family Unit	83	\$16,226,068
	3-4 Family Unit	3	\$4,009,243
2012	Single Family Unit	109	\$20,937,255

Source: City of Farmington Building Inspection/Permitting Department, 2013

Plan Development Process**Multi-Jurisdictional Approach****Mitigation Plan Funding**

The Robert T. Stafford Act, Section 404, allows the Federal Emergency Management Agency (FEMA) to provide hazard mitigation assistance. The Disaster Mitigation Act of 2000 amended the Stafford Act to require communities to have a Hazard Mitigation Plan approved in order to receive funding assistance from FEMA. To facilitate the preparation of Hazard Mitigation Plans, FEMA established the Hazard Mitigation Grant Program (HMGP). Funding for development of the San Juan County Multi-Jurisdictional Hazard Mitigation Plan was provided by grant through the Federal Emergency Management Agency and funding the New Mexico Department of Homeland Security and Emergency Management. This grant funding was provided to establish the County's long-term strategy for reducing its risks from natural hazards. San Juan County Office of Emergency Management was the recipient of the funding with the Floodplain Manager responsible for coordinating planning and development of the hazard mitigation plan.

Plan Preparation

The San Juan County Multi-Jurisdictional Mitigation Plan began on January 30, 2003 with a meeting at the San Juan County Emergency Management Office in Aztec, New Mexico. That meeting established a working group that included members from San Juan County, the City of Aztec, the City of Bloomfield, and the City of Farmington. The chairman of this working group is Don Cooper, the Emergency Manager for San Juan County. Many members of the original HMP participated in the Plan Update and will continue to participate on the current planning team.

Regular meetings of the San Juan County working group were held, including public meetings and the mailing of questionnaires, in order to identify the region's potential hazards and to develop strategies for their reduction or elimination.

PLAN UPDATE

The San Juan County Multi-Jurisdictional Mitigation Plan previously approved by FEMA on April 23, 2007, must be updated every five years. The 2013 Plan Update demonstrates the County and participating jurisdiction's commitment to reducing risk and serve as a guide for decision makers as they commit resources to minimize the effects of natural hazards

The planning process for the 2013 Mitigation Plan Update began in August 2011 when a working group was formed and for the next two years the group met to review and update the plan. Copies of the agenda and meeting summaries are located in Appendix A.

Each section of the County's Multi-Jurisdictional Hazard Mitigation Plan was reviewed and revised as appropriate to reflect changes in development, updated property values, and progress in local mitigation efforts. The Plan will be resubmitted for approval to New Mexico

Department of Homeland Security and Emergency Management and FEMA. If FEMA determines the plan is “approvable pending adoption,” the County will then proceed with the adoption process by the San Juan County Commission and the Municipalities City Councils as required in the prerequisites. Adoption legitimizes the plan and authorizes responsible agencies to execute their responsibilities. The plan, upon adoption, shall include documentation of adoption in the form of Resolutions from each of the participating jurisdictions.

The San Juan County Mitigation Planning Team (MPT) identified hazards and an effort was made to determine the risk each hazard posed to county residents, and its historic frequency of occurrence. This process was accomplished by a historical review of local newspapers, county documents, public input, New Mexico state government records, and university sources. Additionally, the hazard risk was planned from the aspect of the worst-case scenario for both the present population and the planned increase in population five years later. This information is located in Part II, Risk Identification and Analysis.

Currently the jurisdictions of San Juan County, the City of Aztec, the City of Bloomfield, and the City of Farmington are participating in the San Juan County Multi-Jurisdictional Mitigation Plan. The members of the working group are Don Cooper, San Juan County Emergency Manager; Mike Mestas, San Juan County Emergency Management Coordinator; Michele Truby-Tillen, San Juan County Floodplain Manager; George Duncan, Bloomfield Fire Chief; Ray Barns, and Donica Sharp, Bloomfield Planning & Zoning Director; Roshana Moojen, Aztec Community Development Director; Duane Bair, Farmington Fire Dept.; Virginia King, City of Farmington Public Works Department; and Hubert Quintana II, City of Farmington Public Works Department. Also invited but not currently attending these meetings is Chris Wabis, US Army Corps of Engineers.

Invitations to be part of the working group were e-mailed to each of the historical planning group members as well as the agencies they were associated with. Invitations were also e-mailed to the US Army Corps of Engineers due to their involvement in issues related to the three rivers in San Juan County and to each of the community floodplain managers, Farmington Fire Wildland Fire/Urban Interface, and San Juan County Fire Wildland Fire, Bloomfield Police Department. The working group meets twice a year to identify and analyze the hazards that could affect San Juan County.

In addition to meetings of the working group, the public has been invited to participate in the planning process through Community Emergency Response Trainings (CERT), the San Juan County Local Emergency Planning Committee (LEPC), through public outreach at the San Juan County Fair and through use of a questionnaire available online or in paper form. (See Appendixes A and B for additional details of meetings and the questionnaire.)

The online questionnaire was introduced to the public through presentations at CERT and LEPC meetings. The questionnaire was also mentioned during radio interviews several times during the year. The original working group findings were reviewed by the current working group and compared to updated information. The updates made to the San Juan County Multi-

Jurisdictional Mitigation Plan were based on the 2010 and 2013 review. As a living document, the San Juan County Multi-Jurisdictional Mitigation Plan includes provisions for its annual review and updating.

Regulatory Compliance

To qualify for certain forms of federal aid for pre- and post-disaster funding, local jurisdictions must comply with the federal Disaster Mitigation Act of 2000 (DMA 2000) and its implementing regulations (44 CFR Section 201.6, published February 26, 2002). DMA 2000 intends for hazard mitigation plans to remain relevant and current. Therefore, it requires that State hazard mitigation plans are updated every three years and local plans, including San Juan County’s, every five years. This means that the Hazard Mitigation Plan for San Juan County uses a five year planning horizon that is designed to carry the County through the next five years, after which its assumptions, goals, objectives, etc. will be revisited and the plan resubmitted for approval

Mitigation Planning Participants

The members of the MPT and other subject matter experts who were consulted in the planning process brought to the table a wide variety of experience not necessarily related to their current jobs. Their institutional knowledge, along with the specific program experience of their current job positions, made all participants in the planning process uniquely qualified to assist the mitigation planning effort. These people, agencies, and interested groups participated by attending meetings, sharing information by email, and contributing general and specific information as needed. A list of the SJC MPT members is provided in Table 7.

Table 7: 2013 San Juan County Mitigation Planning Team (SJC MPT)

Name	Organization	Title	Jurisdiction	Contribution
Don Cooper	San Juan County Office of Emergency Management	Emergency Manager	San Juan County	Provided plan reviews, information on disasters in San Juan County and information on community needs.
Mike Mestas	San Juan County Office of Emergency Management	Emergency Management Coordinator	San Juan County	Provided demographics, disaster information and mitigation project input and Plan reviews.
Michele Truby-Tillen	San Juan County	Floodplain Manager	San Juan County	Provided Plan oversight, floodplain statistics and information for all jurisdictions in the county and Plan reviews.
Roshana Moojen	City of Aztec	Community Development Director	City of Aztec	Provided demographics, local Aztec disaster information and mitigation project input and Plan reviews.
George Duncan	City of Bloomfield	Fire Chief	City of Bloomfield	Provided hazmat, wildfire and other disaster information and mitigation project input and Plan reviews.

SECTION 1 – INTRODUCTION

Name	Organization	Title	Jurisdiction	Contribution
Ray Burns Donica Sharp	City of Bloomfield	Planning & Zoning Director	City of Bloomfield	Provided zoning information, local disaster information and mitigation project input and Plan reviews.
Hubert Quintana II	City of Farmington	Public Works Department Engineer	City of Farmington	Provided local disaster information and mitigation project input and Plan reviews.
Virginia King	City of Farmington	Public Works Department Engineer	City of Farmington	Provided demographics, disaster information and mitigation project input ion project input and Plan reviews.
Duane Blair	City of Farmington	Fire Department Wildfire Coordinator	City of Farmington	Provided wildfire disaster information and mitigation project input and Plan reviews.

The San Juan County MPT coordinator kept agencies and subject matter experts that did not participate with the MPT on a regular basis informed of the status and content of the plan. They will receive copies of the approved plan soon after it is approved in order for them to comment and correct errors and omissions for future updates. The San Juan County Emergency Manager will continue to expand the list of interested parties as opportunities arise and will send to them copies of the plan and invite their participation. In addition, the plan will be available on each jurisdiction’s website.

Section 2 – Hazard Identification / Risk Assessment

Overview

Section Two: Hazard Identification/Risk Assessment summarizes the results of the first fundamental task in the planning process wherein hazards that may affect San Juan County are identified, profiled, and their potential effects quantified. It describes previous occurrences, physical characteristics, the likelihood of future occurrence, and the potential severity of an occurrence. The steps in the process include:

- ✓ *Hazard Identification* - investigates the existence of certain types of natural and human caused conditions in and around the County. Hazards that have harmed the County in the past are likely to happen in the future. Consequently, the hazard identification process begins with determining whether or not the hazard has occurred previously. In addition, a variety of sources were used to determine the possibility of other hazards within San Juan County that may have occurred in recent history.
- ✓ *Hazard Profiles* - determine the frequency or probability of future events, their severity, and factors that may exacerbate their severity. The Mitigation Planning Team and hazard mitigation planners used national maps available online from sources such as the U.S. Geological Survey (USGS), GIS information available from San Juan County, and NOAA to further investigate the possible implications of a range of hazards. The data sets used to generate the assessment were sometimes out of date or lacked sufficient data. In those cases, hazard probabilities and severities identified in this document are discussed in broad terms, reflecting the lack of available detailed information. These data limitations are discussed in the appropriate sections.
- ✓ *Vulnerability Assessment* - uses the information generated in the hazard identification and profiles to identify locations where San Juan County residents could suffer the greatest injury or property damage in the event of a disaster. The vulnerability assessment process identified the effects of natural hazard events by estimating the relative exposure of people, buildings, and infrastructure to hazardous conditions. The assessment helped the County and its municipalities set mitigation priorities by allowing them to focus attention on areas most likely to be damaged or most likely to require early emergency response during a hazard event. The vulnerabilities identified in this section consist of an inventory of affected structures completed primarily using FEMA mapping and CWPP identified hazard areas.
- ✓ *Risk Assessment* - in hazard events requires a full range of information and accurate data. Several site-specific characteristics—first-floor elevations for flooding, the number of stories, construction type, foundation type, and the age and condition of the structure for multiple hazards—determine a structure’s ability to withstand hazards. In San Juan County, much of this type of detailed information is not yet available. Projected loss estimates used in this document are based on 2010 U.S. Census data. The percentage of potential damage to

SECTION 2 – Hazard Identification / Risk Assessment

structures varies depending upon the specific hazard. For example, drought will have no impact on residential structures, while wildfires typically destroy the entire structure.

The Hazard Identification and Risk Assessment (HIRA) is the foundation upon which subsequent mitigation strategies are based. It is a fundamental requirement for the County Hazard Mitigation Plan to comply with the DMA 2000. This section identifies the natural hazards that can occur within the county and provides a systematic analysis of risk and vulnerability to which the county's population and critical infrastructure are subject. In the past, the Stafford Act only provided funding for disaster response and recovery and the Hazard Mitigation Grant Program (HMGP). DMA 2000 stresses the importance of hazard mitigation planning through the HMGP and establishes new requirements for HMGP and the Public Assistance Program.

DMA 2000 is intended to facilitate cooperation between the state and local authorities. It encourages and rewards local HMP planning, and promotes sustainability as a strategy for disaster resistance. This enhanced planning network will better enable the county and those jurisdictions identified in this Plan to project their mitigation needs, resulting in faster allocation of funding and more effective risk reduction projects.

Hazard Analysis

The geographic area in which San Juan County is located contains a number of natural hazards of sufficient likelihood of occurrence to warrant discussion. Hazards the MPT identified as significant to include in this HMP plan include:

- Drought
- Flood/Flash Flooding
- Wildfires
- Hazardous Materials Transportation

This section details the hazard identification and hazard profile steps taken in the risk assessment. It includes an identification of the natural hazards that could occur throughout the county, a description of those hazards, the damage they could cause, a historical review of hazard occurrences, and a discussion of the probability of future occurrences.

Hazard Identification

The first step in preparing a risk assessment for the multi-jurisdiction is to identify which natural hazards affect the county. Numerous documents were consulted to include:

- *New Mexico Natural Hazard Mitigation Plan; October 2007;*
- *San Juan County Natural Hazard Mitigation Plan; 2007;*
- *The San Juan Basin Community Wildfire Protection Plan; 2006;*
- *New Mexico Drought Task Force, New Mexico Drought Plan, Update: December 2013*
- *FEMA Maps of the Communities; 2012; and*
- *Other documents and information provided by each jurisdiction identified in the HMP*

These Plans were reviewed and the information provided was used to identify and assess risk to the population and to structures located in areas defined by these plans. (i.e. structures located in the flood plain, in Wildland Urban Interface). The New Mexico Natural Hazard Mitigation Plan provided information to the MPT of other hazards that may occur in the State.

Table 8 presents a description of the hazards that were identified as likely to occur, how they were identified, and why they were identified. Hazards were assessed based on the probability, Magnitude/Severity and Risk in the jurisdictions'. As noted, hazard identification involved a combination of input from concerned residents and preliminary research from several state and federal resources. The MPT began with the hazards identified in the previous HMP and added the hazards identified in the New Mexico Hazard Mitigation Plan, October 2007 and the draft plan currently under development. A copy of the form used to evaluate hazards is located in Appendix A. The form used the following criteria to identify hazards.

Table 8: Hazard Analysis Criteria for San Juan County

Probability		
No	0	Has not occurred
Nuisance	1	Occurs less than once every 10 years or more
Medium	2	Occurs less than once every 5 to 10 years
High	3	Occurs once every year or up to once every five years

Magnitude/Severity		
No	0	<ul style="list-style-type: none"> • Has not Occurred
Nuisance	1	<ul style="list-style-type: none"> • Negligible property damages (less than 5% of all buildings and infrastructure) • Negligible loss of quality of life • Local emergency response capability is sufficient to manage the hazard
Medium	2	<ul style="list-style-type: none"> • Moderate property damages (15% to 50% of all buildings and infrastructure) • Some loss of quality of life • Emergency response capability, economic and geographic effects of the hazard are of sufficient magnitude to involve one or more counties
High	3	<ul style="list-style-type: none"> • Property damages to greater than 50% of all buildings and infrastructure • Significant loss of quality of life • Emergency response capability, economic and geographic effects of the hazard are of sufficient magnitude to require federal assistance

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Risk		
No	0	Has not occurred
Nuisance	1	Loss of critical facilities and services for up to one week
Medium	2	Loss of critical facilities and services from one week to three weeks
High	3	Loss of critical facilities and services for more than three weeks

Table 9 presents a description of the hazards that were identified as likely to occur, how they were identified, and why they were identified.

Table 9: Summary of Hazard Identification

Natural Hazards	Probability / Frequency	Magnitude / Severity	Risk
Wildland / Urban Interface Fires	High/med	High/med	High/med
Drought	High/med	High/med	High/med
Floods / Flash Floods	High/med	High/med	High/med
Hazardous Materials Transport	High/med	High/med	High/med
Land Subsidence	No/nuisance	No/nuisance	No/nuisance
Landslide	No/nuisance	No/nuisance	No/nuisance
Dam Failure	No/nuisance	No/nuisance	No/nuisance
Volcanoes	No/nuisance	No/nuisance	No/nuisance
Tornado	No/nuisance	No/nuisance	No/nuisance
Extreme Heat	No/nuisance	No/nuisance	No/nuisance
Earthquake	No/nuisance	No/nuisance	No/nuisance
Expansive Soil	No/nuisance	No/nuisance	No/nuisance

Although it is acknowledged that each of these hazards does exist, the San Juan County working group chose to limit the scope of the plan to the four most likely hazards as had been established in the 2007 Plan. Additionally, the MPT determined all hazards identified as no/nuisance (probability/frequency, magnitude/severity and risk) would not be profiled.

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Therefore, it was determined that the updated San Juan County Mitigation Plan would concentrate on flooding, drought, wildfire, and hazardous material releases. During the recent review of the plan the HMT determined the previously defined hazards still posed the greatest danger to the residents of San Juan County.

It is the intent of the San Juan County working group to re-evaluate the hazards within the county on an annual basis and address the additional identified hazards at that time taking into consideration any changes that may occur in priorities.

Strategies were formulated in order to reduce or eliminate each hazardous situation. These plans were developed as a result of the working group, public input, and research conducted from sources including state drought planners, the National Weather Service, the U.S. Army Corps of Engineers, FIRM floodplain maps and other local sources. These action plans were prioritized based on risk factors and frequency of occurrence. Once the plan strategies and priority were established by the working group, they were presented to the San Juan County Commission; the Aztec, Bloomfield, and Farmington City Councils; and members of the public by online posting on the San Juan County Mitigation website for review and comment.

FEMA Disaster Declarations

Disaster declarations, for the county or counties affected by a disaster, are declared by the President of the United States under the authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. FEMA then manages the entire process, including making federally-funded assistance available in declared areas; coordinates emergency rescue and response efforts; provides emergency resources; and provides other related activities/funding in the process of aiding citizens and local governments in a nationally-declared disaster. Tables 10, 11 and 12 provide a summary of disaster and emergency declarations for the State of New Mexico (based on review of the FEMA web site and the New Mexico State Hazard Mitigation Plan), with an indication as to whether San Juan County was part of the declared area.

Table 10: State of New Mexico Major Disaster Declarations: 1954 - 2012

Year	Date	Disaster Type	Disaster Number	San Juan County Declared?
2010	13 Sept	Severe Storms and Flooding	1936	No
2008	14 Aug	Severe Storms & Flooding	1783	No
2007	5 Apr	Severe Storms & Tornadoes	1690	No
2006	30 Aug	Severe Storms & Flooding	1659	No
2004	29 Apr	Severe Storms & Flooding	1514	No
2000	13 May	New Mexico Wildfire	1329	No
1999	29 Sep	Severe Storms & Flooding	1301	yes
1998	29 Jan	Severe Winter Storms	1202	Unknown
1993	7 Jun	Flooding, Severe Storm	992	Unknown

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Year	Date	Disaster Type	Disaster Number	San Juan County Declared?
1992	18 Jun	Flooding, Hail, Thunderstorms	945	Unknown
1985	18 Jan	Severe Storms, Flooding	731	Unknown
1984	6 Sep	Severe Storms, Flooding	722	Unknown
1983	24 Oct	Severe Storms, Flooding	692	Unknown
1979	23 Jun	Severe Storms, Snowmelt, Flooding	589	Unknown
1979	29 Jan	Flooding	571	Unknown
1973	11 May	Severe Storms, Snow Melt, Flooding	380	Unknown
1972	20 Nov	Heavy Rains, Flooding	361	Unknown
1972	20 Sep	Heavy Rains, Flooding	353	Unknown
1972	1 Aug	Severe Storms, Flooding	346	Unknown
1965	1 Jul	Severe Storms, Flooding	202	Unknown
1955	15 Aug	Flood	38	Unknown
1954	31 Oct	Flood	27	Unknown

Source: FEMA online at <http://www.fema.gov/femaNews/disasterSearch.do>

Table 11: State of New Mexico Emergency Declarations: 1954 - 2010

Year	Date	Disaster Type	Disaster Number	San Juan County Declared?
2005	7 Sep	Hurricane Katrina Evacuation	3229	No
Year	Date	Disaster Type	Disaster Number	San Juan County Declared?
2000	10 May	New Mexico Fire	3154	No
1998	2 Jul	Extreme Fire Hazard	3128	Yes
1997	2 Mar	Drought	3034	Yes

Source: FEMA online at <http://www.fema.gov/femaNews/disasterSearch.do>

Table 12: State of New Mexico Fire Management Assistance Declarations: 1954 - 2010

Year	Date	Disaster Type	Disaster Number	Was San Juan County Declared?
2012	06/1//2012	Blanco Fire	4904	Yes
2010	06/02/2010	Rio Fire	2843	No
2010	05/24/2010	Cabazon Fire	2842	No
2009	05/07/2009	Buckwood Fire	2818	No

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Year	Date	Disaster Type	Disaster Number	Was San Juan County Declared?
2008	06/25/2008	Big Springs Fire	2777	No
2008	04/21/2008	Trigo Fire	2762	No
2007	11/21/2007	Ojo Peak Fire	2741	No
2007	02/24/2007	Belen Fire	2682	No
2006	06/21/2006	Rivera Mesa Fire	2647	No
2006	06/16/2006	Malpais Fire	2644	No
2006	04/12/2006	Ojo Feliz Fire	2636	No
2006	03/01/2006	Casa Fire	2631	No
2006	01/02/2006	Southeast New Mexico Fire	2600	No
2004	06/18/2004	Bernardo Fire	2522	No
2004	05/25/2004	Peppin Fire	2518	No
2003	06/25/2003	Atrisco Fire (Formerly Bosque Fire)	2472	No
2003	05/10/2003	Walker Fire	2467	No
2002	08/26/2002	Lakes Fire Complex	2459	No
2002	06/13/2002	Roybal Fire Complex	2424	No
2002	06/06/2002	Ponil Fire	2416	No
2002	06/04/2002	Cerro Pelado Fire	2415	No
2002	06/04/2002	Turkey Fire	2414	No

Source: FEMA online at <http://www.fema.gov/femaNews/disasterSearch.do>

USDA Disaster Declarations

Agriculture-related disasters and disaster designations are quite common. One-half to two-thirds of the counties in the United States have been designated as disaster areas in each of the past several years, even in years of record crop production.

The Secretary of Agriculture is authorized to designate counties as disaster areas to make emergency loans (EM) to producers suffering losses in those counties and in counties that are contiguous to a designated county. In addition to EM eligibility, other emergency assistance programs, such as Farm Service Area (FSA) disaster assistance programs, have historically used disaster designations as an eligibility requirement trigger. The FSA administers four types of disaster designations:

- USDA Secretarial disaster designation (This designation is most widely used).
- Presidential major disaster and Presidential emergency declarations,
- FSA Administrator's Physical Loss Notification and,

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- Quarantine designation by the Secretary under the Plant Protection Act or animal quarantine laws as defined in § 2509 of the Food, Agriculture, Conservation and Trade Act of 1990 (mentioned in 7 CFR part 761, which includes a definition of "quarantine" in accordance with 7 U.S.C. 1961).

The FSA process provides for nearly an automatic designation for any county in which drought conditions, as reported in the U.S. Drought Monitor (<http://droughtmonitor.unl.edu/>) when any portion of a county meets the D2 (Severe Drought) drought intensity value for eight consecutive weeks. A county that has a portion of its area in a drought intensity value of D3 (Extreme Drought) or higher at any time during the growing season also would be designated as a disaster area.

- On January 9, 2013, the USDA (FSA) declared 19 counties in New Mexico, including San Juan County a designated disaster area due to drought conditions.

As identified in Table 9, only these 4 hazards are profiled in this plan. Other hazards certainly exist, although their occurrence is rare and/or their occurrence has been deemed of relatively little impact. Future editions of this plan could include revision and re-ranking of hazards, as well as re-evaluation of potential loss estimation based upon evolution of data available for use in the HAZUS–MH application. Future impacts have the capability of changing this plan and may necessitate revision before that identified in Section 4 Plan Maintenance. Information about hazardous events was obtained by reviewing past state and federal declarations of disasters, conducting internet searches, and interviewing MPT members.

Hazard Profiles and Vulnerability Assessment

The remainder of this section presents profiles and vulnerability assessment information for the hazards identified above. The order that these hazards are discussed in the remainder of this report reflects the order of priority by the majority of jurisdictions as determined by the Mitigation Planning Team. Table 13 summarizes the comparison of each jurisdiction’s vulnerability to each identified hazard, according to the data presented in the remainder of Section Two. As discussed in the Introduction Section, the following table is a result of an Emergency Manager and Planner, resident, and City Council hazard vulnerability assessment. In order to concentrate on hazards that would have the highest impact on San Juan County as a whole, the MPT reviewed all hazards and determined wildfire to be the largest risk to the County.

Appendix B provides an example of the assessment used for determining each jurisdictions risk the identified natural hazards.

Table 13: Multi-Jurisdictional Risk Assessment

Multi-Jurisdictional Risk Assessment												
Hazard	San Juan County			Farmington			Bloomfield			Aztec		
	Risk	Extent	Freq	Risk	Extent	Freq	Risk	Extent	Freq	Risk	Extent	Freq
Wildfire	High	Med	High	High	Med	High	High	Med	High	High	Med	Med
Floods	High	High	Med	High	High	Med	High	High	Med	High	High	Low
Drought	Med	Med	Med	Med	Med	Low	Med	Med	Low	Med	Med	Low
Hazardous Materials	High	Low	Low	Low	Low	Low	Low	Low	Med	Med	Low	High

High: Extreme probability to hazard, 75% chance of occurrence in any given year
 Medium: Average probability to hazard, 50% chance of occurrence in any given year
 Low: Small probability to hazard, 25% chance of occurrence in any given year

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Wildland/WUI Fire

Overview – Wildfires in San Juan County, New Mexico

Wildland fire is defined as any fire burning wildland vegetation-fuels; it includes prescribed fire, wildland fire use, and wildfire. Prescribed fires are planned fires ignited by land managers to accomplish specific natural resource improvement objectives. Fires that occur from natural causes, such as lightning, that are then used to achieve management purposes under carefully controlled conditions with minimal suppression costs are known as wildland fire use (WFU). Wildfires are unwanted and unplanned fires that result from natural ignition, unauthorized human-caused fire, escaped WFU, or escaped prescribed fire. A wildland-urban interface (WUI) fire is a wildfire occurring in areas where structures and other human developments meet or intermingle with wildland vegetation-fuels. WUI fires are a specific concern because they directly pose risks to human lives, property, structures, and critical infrastructure more so than the other types of wildland fires.

Fire behavior is a description of the manner in which a fire reacts to the influences of fuel, weather, and topography. Fire behavior is observed and assessed at the flaming front of the fire and described most simply in terms of fire intensity (heat released) and rate of spread. The implications of observed or expected fire behavior are important components of suppression strategies and tactics, particularly in terms of the difficulty of control and effectiveness of various suppression resources. Fire risk is the probability that wildfire will start from natural or human-caused ignitions. Fire hazard is the presence of ignitable fuel coupled with the influences of topography and weather, and is directly related to fire behavior. Fire severity, on the other hand, refers to the immediate effect a fire has on vegetation and soils.

A WUI involves areas where communities and wildland fuel intermix. Every fire season, catastrophic losses occur as a result of wildfire in WUI areas throughout the western United States. Homes are lost, businesses are destroyed, community infrastructure is damaged, and most tragically, lives are lost. Precautionary action taken before a wildfire strikes often makes the difference between saving and losing a structure. Creating a defensible space around homes, businesses, and other structures is an important component in wildfire hazard reduction. Providing an effective defensible space can be as basic as pruning trees, planting low-flammable vegetation, and cleaning up surface vegetation-fuels and other hazards near a home. These efforts are typically concentrated at a minimum of 30 feet from a building to increase the chance for structure survival and to create an area for firefighters to safely work.

WUI studies suggest that the intense radiant heat of a wildfire is unlikely to ignite a structure that is more than 30 feet away as long as there is no direct flame impingement. Studies of home survivability indicate that homes with noncombustible roofs and a minimum of 30 feet of defensible space have an 85-percent survival rate (Cohen and Saveland 1997). Conversely, homes with wood shake roofs and less than 30 feet of defensible space have a 15 percent survival rate. During a wildfire, structures will burn, wildlife will die or be injured due to burns or smoke inhalation, and death/injury to humans may occur. Wildfires may also create mudslides,

landslides by removing the vegetative covering along slopes, and floods and flashfloods due to heat damaged soils that can resist water penetration.

Wildfire Occurrence

Wildfires are uncontrolled fires often occurring in wildland areas, which can consume houses or agricultural resources if not contained. Wildfires/urban interface is defined as the area where structures and other human development blend with undeveloped wildland.

Forest and grassland fires can occur any day throughout the year. Most of the fires occur during the spring season. The length and severity of burning periods largely depend on the weather conditions. Low humidity, high winds, below-normal precipitation, and high temperatures that are frequently present during the spring result in extremely high fire danger. Drought conditions can also hamper efforts to suppress wildfires as decreased water supplies may not prove adequate to quickly contain the fire. 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.

As more people choose to build homes, operate businesses, and engage in recreational activities in areas where wild-lands border more urban areas, the threat to private property from wildland fire increases. Creating "defensible" or "survivable" space around structures can make the difference between returning to an intact home or a smoldering pile of ashes if a wildfire moves through the area.

Hazard Characteristics

A wildfire is any fire occurring in a wildland area (e.g., grassland, forest, bosque, brush land) except for fire under prescription. Wildfires are part of the natural management of forest ecosystems, but may also be caused by human factors. Nationally, over 80 percent of forest fires are started by negligent human behavior such as smoking in wooded areas or improperly extinguishing campfires. The second most common cause for wildfire is lightning.

There are three classes of wildland fires: surface fire, ground fire and crown fire. A surface fire is the most common of these three classes and burns along the floor of a forest, moving slowly and killing or damaging trees. A ground fire (muck fire) is usually started by lightning or human carelessness and burns on or below the forest floor. Crown fires spread rapidly by wind and move quickly by jumping along the tops of trees. Wildland fires are usually signaled by dense smoke that fills the area for miles around.

Severity of Occurrence

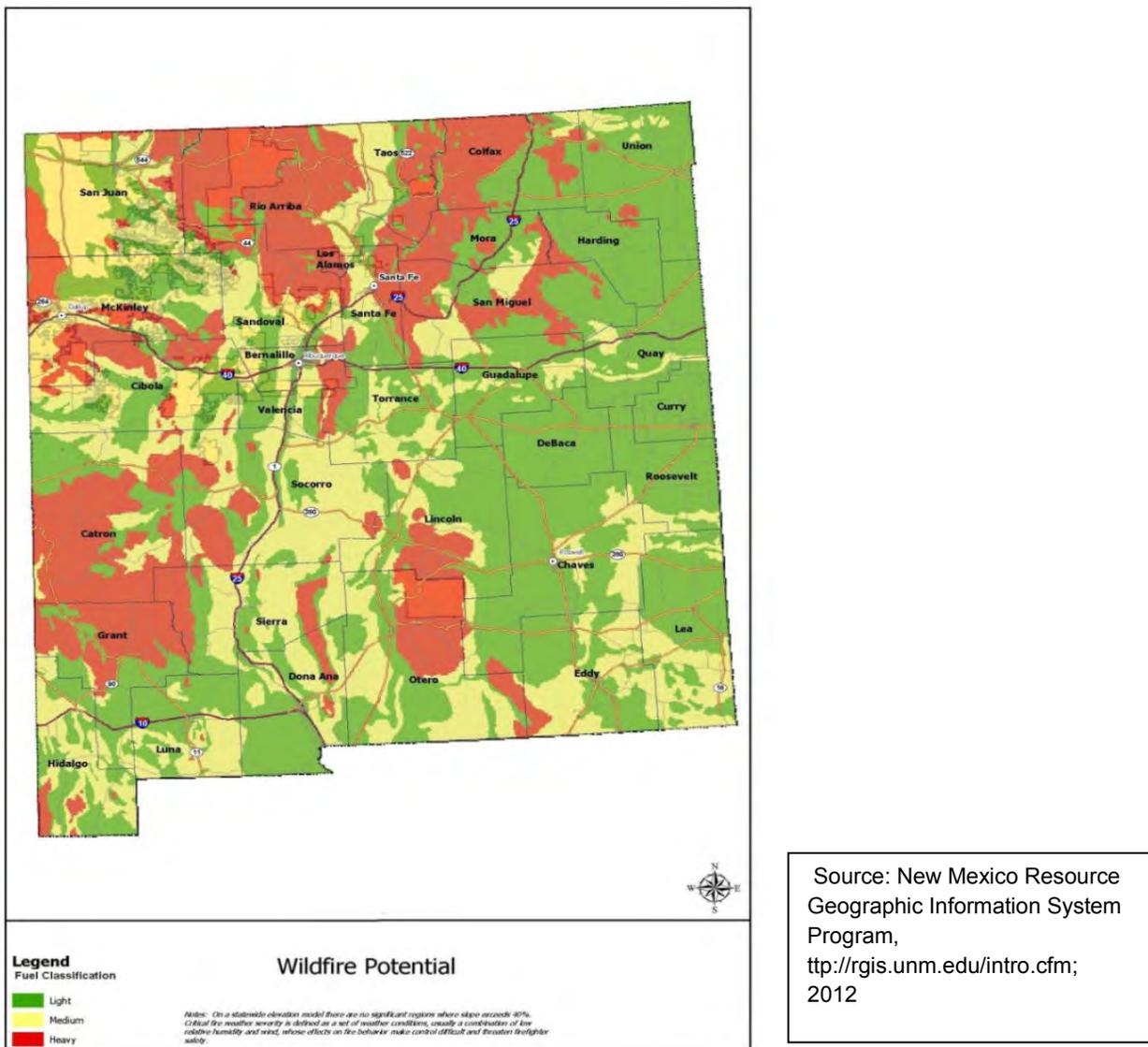
Topography, fuel, and weather are the three main factors that influence the behavior of a wildfire. Topography can direct the course of a fire. Depressions, such as canyons, funnel air and act as chimneys, intensifying the fire, causing a faster rate of spread. Saddles on ridge tops draw fires and steep slopes can double the rate of spread, due to the close proximity of fuel

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(vegetation). The rate of spread is generally stated in chains per hour, feet per minute, or meters per minute.

Fuel type, continuity of fuel, and the moisture content of the fuel all effect wildfire behavior. Continuity of fuel applies both horizontally across the landscape and vertically, from the ground surface up to tree crowns via the understory. Weather can have a profound influence on wildfires. Wind can direct the course of a fire and increase the rate of spread. High temperatures and low humidity can intensify fire, while low temperatures and high humidity can greatly limit the potential of a fire. Figure 2 identifies those potential wildfire hazard areas in the state of New Mexico according to fuel type. Several areas in San Juan County have been identified with medium to high fuel classification.

Figure 2: Potential Wildfire Hazard Areas



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Many factors that determine the potential for fire include relative humidity, moisture content of the fuel, atmospheric stability, drought, available energy of the fuel, probability of ignition, rate of spread, and the slope and fuel levels of the area. These factors are taken into account when determining the fire danger for a specific area.

Relative humidity – Relative humidity is the ratio of the amount of moisture in the air to the amount of moisture necessary to saturate the air at the same temperature and pressure. Relative humidity (RH) is expressed in percent. RH is measured directly by automated weather stations or by taking wet and dry bulb readings with a psychrometer and then applying the National Weather Service psychrometric tables applicable to the elevations where the reading were taken.

Fuel moisture – Fuel moistures in live herbaceous (annual and perennial), woody (shrubs, branches, and foliage) fuels, and dry (dead) fuels are calculated and represent approximate moisture content of the fuel. Fuel moisture levels are measured in 1-, 10-, 100-, and 100-hour increments.

The Lower Atmosphere Stability Index or Haines Index – This index is computed from the morning soundings from Radiosonde Observation (RAOB) stations across North America. The index is composed of a stability term and a moisture term. The stability term is derived from the temperature difference at two atmospheric levels. The moisture term is derived from the dew point depression at a single atmosphere level. This index has been shown to correlate with large fire growth on initiating and existing fires where surface winds do not dominate fire behavior. Haines Indexes range from 2 to 6 for indicating the potential for large fire growth:

- 2 = Very Low Potential (moist, stable lower atmosphere)
- 3 = Very Low Potential
- 4 = Low Potential
- 5 = Moderate Potential
- 6 = High Potential (dry, unstable lower atmosphere)

Keetch-Byram Drought Index (KBDI) – used to measure the affects of seasonal drought on fire potential. The actual numeric value of the index is an estimate of the amount of precipitation (in 100ths of inches) needed to bring soil back to saturation (a value of 0 being saturated). The index deals with the top 8 inches of soil profile so the maximum KBDI value is 800 (8 inches), the amount of precipitation needed to bring the soil back to saturation. The index's relationship to fire is that as the index values increase, the vegetation is subjected to greater stress because of moisture deficiency. At higher values, living plants die and become fuel, and the duff/litter layer becomes more susceptible to fire.

KBDI = 0–200: Soil moisture and large class fuel moistures are high and do not contribute much to fire intensity. This is typical of spring dormant season following winter precipitation.

KBDI = 200–400: Typical of late spring, early growing season. Lower litter and duff layers are drying and beginning to contribute to fire intensity.

KBDI = 400–600: Typical of late summer, early fall. Lower litter and duff layers actively contribute to fire intensity and will burn actively.

KBDI = 600–800: Often associated with more severe drought with increased wildfire occurrence. Intense, deep burning fires with significant downwind spotting can be expected. Live fuels can also be expected to burn actively at these levels.

The Energy Release Component (ERC) – the estimated potential available energy released per unit area in the flaming front of a fire. The day-to-day variations of the ERC are caused by changes in the moisture contents of the various fuel classes, including the 1,000-hour time lag class. The ERC is derived from predictions of the rate of heat release per unit area during flaming combustion and the duration of flaming.

The Ignition Component – a number that relates the probability that a fire will result if a firebrand is introduced into a fine fuel complex. The ignition component can range from zero, when conditions are cool and damp, to 100 on days when the weather is dry and windy. Theoretically, on a day when the ignition component registers a 60 approximately 60% of all firebrands that encounter wildland fuels will require suppression action.

The Spread Component – a numerical value derived from a mathematical model that integrates the effects of wind and slope with fuel bed and fuel particle properties to compute the forward rate of spread at the head of the fire. Output is in units of feet per minute. A Spread Component of 31 indicates a worst-case, forward rate of spread of approximately 31 feet per minute. The inputs required in to calculate the SC are wind speed, slope, fine fuel moisture (including the effects of green herbaceous plants), and the moisture content of the foliage and twigs of living, woody plants. Since the characteristics through which the fire is burning are so basic in determining the forward rate of spread of the fire front, a unique SC table is required for each fuel type.

(Indicators Source: http://www.nps.gov/nifc/public/pub_und_understandingfire.cfm)

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Previous Occurrences – San Juan County – Aztec, Bloomfield, Farmington

On June 18, 2012 on the Northwest Plateau, A wildfire burned out of control 10 miles east of Bloomfield consuming more than 350 acres. The wildfire along CR 1491 burned quickly out of control in the bosque along the San Juan River and consumed more than 350 acres, 5 homes, and 12 outbuildings. Property Damage was \$1 Million.

Each year the San Juan County Fire Department responds to hundreds of wildfires throughout the County as outlined in Table 14 below:

Table 14: Wildfires in San Juan County from January 2005 to the August 2013

Year	Number of Wildfire Incidents
2005	232
2006	202
2007	359
2008	600
2009	542
2010	452
2011	605
2012	709
2013	593* through August 20, 2013

Source: San Juan County Fire Department, 2013

The State of New Mexico Energy, Minerals, and Natural Resources Department's (EMNRD) State Forestry Division collects data on wildfires that occur within New Mexico. Table 15 outlines characteristics of those wildfires that were reported in San Juan County.

Table 15: Wildfires in San Juan County from January 2004 to the August 2013

Fire Cause	Total Number of Fires	Private Acres Burned	State Acres Burned	Statistical Acres Burned	Total Acres Burned	*Est. State Expenditure
Cause Not Designated	15	0	0	0	1.45	\$18,088.06
Human Caused	152	783.13	17.25	719.37	1,026.32	\$790,250.19
Natural Caused	114	137.83	12.75	145.58	154.68	\$197,415.88
Total	281	920.96	30	864.95	1,182.45	\$1,005,754.13
Number of Fires and Acres Burned by Forest Type						
Forest Type	Total Number of Fires	Private Acres Burned	State Acres Burned	Statistical Acres Burned	Total Acres Burned	Est. State Expenditure

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Type Not Designated	14	0	0	0	3	\$21,338.06
Commercial Forest	1	0.1	0	0.1	0.1	\$0.00
NonCommercial Forest	130	673.19	20.95	676.34	898.73	\$906,208.53
NonForest Watershed	136	247.67	9.05	188.51	280.62	\$78,207.54
Total	281	920.96	30	864.95	1,182.45	\$1,005,754.13
Number of Fires and Acres Burned by Size Class						
Size Class	Total Number of Fires	Private Acres Burned	State Acres Burned	Statistical Acres Burned	Total Acres Burned	Est. State Expenditure
Size Not Designated	8	0	0	0	0	\$200.00
.25 Acre or less	147	13.61	4.15	13.08	20.14	\$68,939.03
.26 to 9.99 Acres	107	179.16	15.85	148.71	211.76	\$93,266.00
10 to 99.99 Acres	17	341.53	0	306.5	395.55	\$293,349.10
100 to 299.99 Acres	1	44.66	0	44.66	203	\$300,000.00
300 to 999.99 Acres	1	342	10	352	352	\$250,000.00
Total	281	920.96	30	864.95	1,182.45	\$1,005,754.13
*includes only costs to the state of New Mexico, not included; federal, local governments and public costs						

Source: EMNRD, State Forestry data base, August 2013

Frequency

Topography, fuel, and weather are the three main factors that influence the behavior of a wildfire. Topography can direct the course of a fire. Depressions, such as canyons, funnel air and act as chimneys, intensifying the fire, causing a faster rate of spread. Saddles on ridge tops draw fires and steep slopes can double the rate of spread, due to the close proximity of fuel (vegetation). The rate of spread is generally stated in chains per hour, feet per minute, or meters per minute.

Fuel type, continuity of fuel, and the moisture content of the fuel all effect wildfire behavior. Continuity of fuel applies both horizontally across the landscape and vertically, from the ground surface up to tree crowns via the understory. Weather can have a profound influence on wildfires. Wind can direct the course of a fire and increase the rate of spread. High temperatures and low humidity can intensify fire, while low temperatures and high humidity can greatly limit the potential of a fire.

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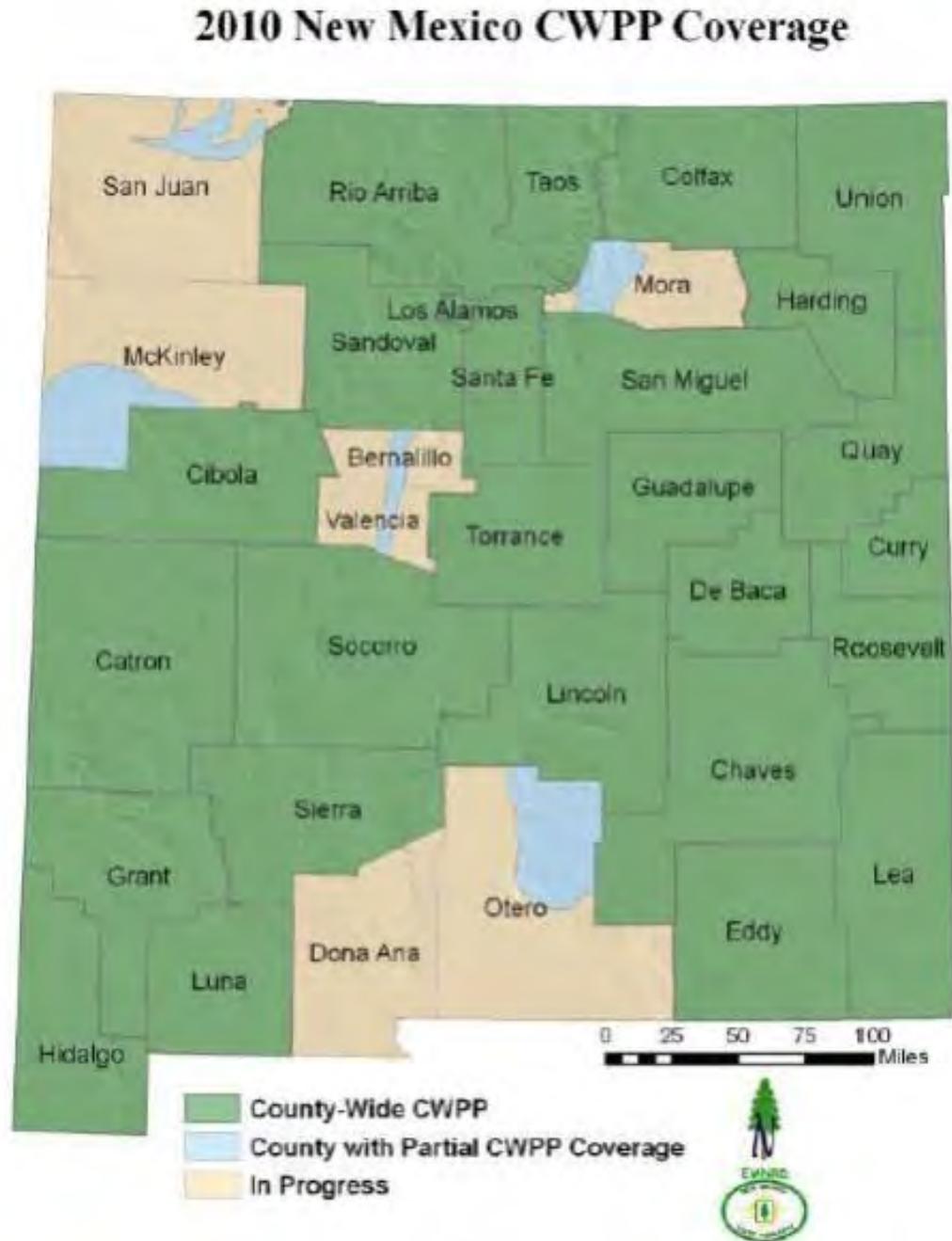
According to the US Forestry Service, Wildfires can occur at any time of day and during any month of the year, but the peak fire season in New Mexico is normally from March through June. The length of the fire season and the peak months vary appreciably from year to year. Land use, vegetation, amount of combustible materials present, and weather conditions such as wind, low humidity, and lack of precipitation are the chief factors in determining the number of fires and acreage burned. Generally, fires are more likely when vegetation is dry from a winter with little snow and/or a spring and summer with sparse rainfall.

In 2011, the New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division, updated the State Fire Plan, which identifies the communities (geographically distinct areas including small towns and subdivisions) and tribal areas that are most vulnerable to wildland-urban interface fires. The criteria used to rank the areas included:

- Proximity of vegetation type to homes
- Availability of water
- Ease of evacuation
- Topography – ridge, valley, slope, and exposure
- Type of fuels (forest type)
- Number and size of previous fires
- Direction of prevailing and local winds in each community
- Ability of community/subdivision to protect homes

The fire plan identified San Juan County as updating their Community Wildfire Protection Plans (CWPPs). Figure 3 on the following page provides an overview of CWPP coverage in New Mexico and identifies San Juan County's plan status.

Figure 3: New Mexico CWPP Coverage as of December 1, 2012



Source: New Mexico Fire Plan <http://www.emnrd.state.nm.us/FD/FireMgt/Fire.htm>

Figure 3 shows CWPP coverage in New Mexico as of December 1, 2012 which identifies San Juan County's CWPP as in progress. Information provided by New Mexico Communities at Risk Assessment Plan, New Mexico Energy, Minerals and Natural Resources Department Forestry Division; New Mexico Fire Plan <http://www.emnrd.state.nm.us/FD/FireMgt/Fire.htm>

Probability of Occurrence – The threat of wildland/urban interface fires continues to be a high hazard for San Juan County. With drought conditions persisting and more and more people locating their residences in the forest, 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 number of households displaced as a result of a wildfire will depend on fire proximity to communities, rate of spread, and severity. Displacement includes households evacuated from within or near to the wildfire. Residents evacuated will need to seek temporary shelter in designated public locations. In addition, shelter locations will need to be provided for livestock and other animals in the event evacuation is necessary. 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. Rangeland and forest losses from wildfire would be accrued over several years until the resources recover. Wildfire concerns for San Juan County and the communities of Aztec, Bloomfield, and Farmington are very similar, since it runs along the river bottoms throughout the region.

The impact of wildfire on a community should not be measured by the number of acres or structures burned or the actual cost of suppression. A recent study, *The Full Cost of New Mexico Wildfires*, January 2013 sites less obvious costs:

- Alteration of wildlife habitat
- Damage to watershed and water supply
- Damage to public recreation facilities
- Evacuation of adjacent communities
- Tourism impact
- Damage to timber resources
- Destruction of cultural and archaeological sites
- Costs of rehabilitation and restoration
- Public health impacts
- Transpiration impacts.

These costs do not end when the wildfire is contained but can continue for years after an event. Additionally these impacts will affect neighboring communities with no regard to political boundaries.

San Juan County The threat of wildland/urban interface fires continues to be a high hazard for several locations within the County. There are 246,491 acres identified in the WUI in the unincorporated County.

The City of Aztec is considered at a lower risk of the effect of a wildfire to homes and other structures. Due to the close proximate to other municipalities any occurrences in the area will affect Aztec, including health, economic impact and resources.

The City of Bloomfield is considered at a lower risk of the effect of a wildfire to homes and other structures. Due to the close proximity to other municipalities any occurrences in the area will affect Bloomfield, including health, economic impact and resources.

The City of Farmington is identified The San Juan Basin CWPP (2008) with the highest potential for wildfire in the Farmington Area of the county.

Conclusions – Wildfires

Summary of Hazard Identification and Vulnerability Assessment

Wildfires can be a significant threat to the citizens, structures, infrastructure, and natural resources within the County. Fourteen of these areas have a High Hazard assessment and should be considered the first priority for wildfire mitigation projects. As a result, the Hazard Mitigation Planning Team has identified the wildfire hazard as a priority in the Plan.

What Can Be Mitigated?

Mitigation options for wildland fire need to address not only the management of fuels, but also the potential for growing population in wildfire threat areas. Traditional tactics for preventing wildfires have focused on fire suppression. Rather than trying to stop all wildfires, mitigation measures such as reducing fuel loads and creating defensible spaces aim to minimize the damage caused by wildfires. More specific mitigation goals and actions are detailed in Section Three of this document.

Data Limitations

The San Juan County Assessor database may not be accurate due to residents in land grant communities, and illegal structures built in the National Forest not reporting their structure value (or existence). In addition, new residences built after the yearly tax assessment may not be included in estimating potential losses.

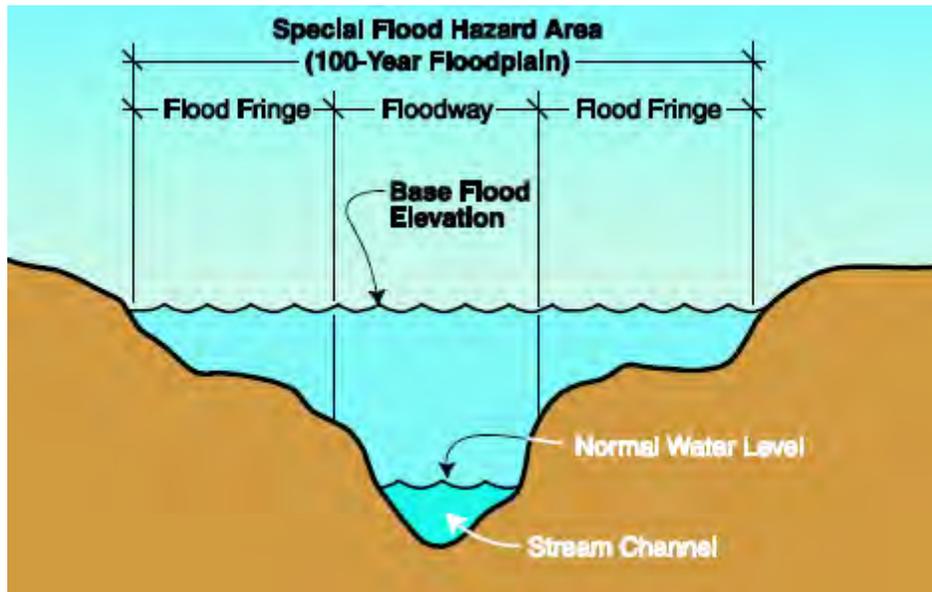
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Flood / Flash Floods

Overview – Flood/Flash Floods in San Juan County, New Mexico

Nationwide, hundreds of floods occur each year; making flooding one of the most common hazards in all 50 states and U.S. territories. Most injuries and deaths from flooding happen when people are swept away by flood currents, and most property damage results from inundation by sediment-filled water. The majority of flood events in the United States involve inundation of floodplains (Figure 4) associated with rivers and streams and shoreline inundation along lakes and coastlines.

Figure 4: Definition Sketch for Floodplains



Source: Understanding Your Risks – FEMA Publication 386-2, page 2-12

This type of flooding typically results from large-scale weather systems generating prolonged rainfall from locally intense storms or snowmelt. For the purposes of this report, this type of flooding is referred to as —riverine floodingll and is characterized by a gradual and predictable rise in a river or stream due to persistent precipitation. After the stream or river overflows its banks, the land nearby remains under water for an extended period of time. Although the State of New Mexico and San Juan County may experience riverine flooding, *flash flooding* is a more common and a more damaging type of flooding.

Flash floods are aptly named: they occur suddenly after a brief but intense downpour; they move quickly and end abruptly. Although the duration of these events is usually brief, the damages can be quite severe. People are often surprised at how quickly a normally dry arroyo can become a raging torrent. Flash floods are the primary weather-related killer with around 140 deaths recorded in the United States each year. Flash floods are common and frequent in New Mexico, and as a result, New Mexico has the tenth highest flash flood fatality rate in the nation.

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Flash floods also result as a secondary effect from other types of disasters, including large wildfires. Wildfires remove vegetative cover and alter soil characteristics, increasing the quantity and velocity of storm water runoff. In addition, drought conditions exacerbate flash flooding and erosion due to soils becoming hydrophobic and increasing velocity of storm water runoff. Floods can cause erosion along riverbanks and undermine buildings and bridges, tear out trees, wash out access roads, and cause loss of life and injuries.

National Flood Insurance Program

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer funded disaster relief for flood victims and the increasing amount of damage caused by floods. The Federal Insurance and Mitigation Administration (FIMA) manage the National Flood Insurance Program (NFIP) and implement a variety of programs authorized by Congress to reduce losses that may result from natural disasters. FIMA is a component of the FEMA manages the NFIP, and oversees the floodplain management and mapping components of the Program.

Nearly 20,000 communities across the United States and its territories participate in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in these communities.

The NFIP Community Rating System (CRS) was implemented in 1990 as a program to recognize and encourage community floodplain management activities that exceed minimum NFIP standards. The National Flood Insurance Reform Act of 1994 codified the CRS in the NFIP. Under the CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that meet the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote the awareness of flood insurance.

Flood damage is reduced by nearly \$1billion a year through partnerships with NFIP and CRS communities, the insurance industry, and the lending industry. Buildings constructed in compliance with NFIP building standards also suffer approximately 80% less damage annually than those not built in compliance. Further, every \$3 paid in flood insurance claims saves \$1 in disaster assistance payments.

The NFIP is self-supporting for the average historical loss year, which means that operating expenses and flood insurance claims are not paid for by the taxpayer, but through premiums collected for flood insurance policies. The program has borrowing authority from the U.S. Treasury for times when losses were heavy; however, these loans are usually paid back with interest. To obtain secured financing to buy, build, or improve structures in Special Flood Hazard Areas (SFHAs), flood insurance must be purchased. Lending institutions that are federally regulated or federally insured must determine if the structure is located in a SFHA and must provide written notice requiring flood insurance. Flood insurance is available to any

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property owner located in a community participating in the NFIP. All areas are susceptible to flooding, although to varying degrees. In fact, 25% of all flood claims occur in low-to-moderate risk areas.

The most widely adopted design and regulatory standard for floods in the United States is the 1% annual chance flood and this is the standard formally adopted by FEMA. The 1% annual flood, also known as the base flood elevation, has a 1% chance of occurring in any particular year. It is also often referred to as the “100-year flood” since its probability of occurrence suggests it should only reoccur once every 100 years (although this is not the case in practice). Experiencing a 100-year flood does not mean a similar flood cannot happen for the next 99 years; rather it reflects the probability that over a long period of time, a flood of that magnitude should only occur in 1% of all years.

Two hundred (247) NFIP policies were in force in San Juan County at the end of 2012, for a total flood insurance coverage of more than \$72 million (Table 16). Over \$39,000 has been paid out in San Juan County for flood damage since the establishment of the NFIP in 1978. At present, there are no identified repetitive-loss properties in San Juan County.

Table 16: National Flood Insurance Statistics for San Juan County

NFIP Flood Insurance Statistics for San Juan County	
Policies In-force	247
Insurance In-force	72,682,800
Premiums In-force	188,767
Total Losses	13
Total Payments	39,000
<i>Data includes the jurisdictions of Aztec, Bloomfield, Farmington and San Juan County</i>	

Source: <http://www.fema.gov/business/nfip/statistics/pcstat.shtm>

National Flood Insurance Program (NFIP) in San Juan County

Flooding within San Juan County is an ongoing issue. San Juan County has been a member of the National Flood Insurance Program (NFIP) since 2003 and holds a combined Community Rating Service (CRS) rating of 8. The communities of Aztec, Bloomfield and Farmington became members later. The County Emergency Manager, Don Cooper, CFM, is the Floodplain Administrator and Michele Truby-Tillen, CFM, is the Floodplain Manager and CRS Coordinator. Presently San Juan County Flood Damage Prevention Ordinance is ranked as a Class D Ordinance under the National Flood Insurance Program (NFIP).

Flood/Flash Flooding

Flooding concerns within San Juan County and its participating jurisdictions have been established through meetings of the San Juan County working group, questionnaires, the New Mexico State All-Hazards Emergency Operations Plan, the jurisdiction's floodplain managers / National Flood Insurance Program, and historical information. Flooding will continue to occur within San Juan County depending on the amount of rainfall and snowmelt occurring during any given year. Two types of flooding appear to be of most concern within San Juan County: flash flooding and riverine flooding.

Flash flooding: A flash flood is an extremely dynamic event in which a high volume of water moves through an area at high velocity during a very short time period. This type of flooding can be very difficult to predict and can occur with little or no warning. In many cases, flash floods can move through an area miles from where rain has occurred, thereby increasing the danger to people within the flood's path.

Flash floods are created as a result of rainfall. As rain water runs into small channels, it begins to collect. As these channels merge together, 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 along with it. This debris then increases the amount of force available and increases the flood's destructive power.

Other factors that affect the dynamics of this type of flood include slope, width, and vegetation in place along the banks of the water course. The slope that a flash flood traverses has a definite relationship to the overall speed in which the water will travel. The steeper the incline, the faster 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 the channel will be created, since the water digs the channel deeper as it flows. When the water flows on a shallower slope, the water tends to spread out more, which can decrease its potential to cause mass damage. However, it must still be 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 that has no surrounding vegetation is at risk of having its foundation undercut, which can cause structure damage, or in some cases, the building's complete collapse.

Riverine flooding The Animas, LaPlata, and San Juan Rivers all run through San Juan County. Each has the potential of causing flooding along its path. The amount of water flowing through a river at any given time determines the river's depth. When a higher than normal amount of water finds its way into a river or stream, the height of the water, relative to its path, increases and the river will overflow its normal banks and flood the surrounding area to the water's present height. The height of the river's banks and the change in ground elevation moving away from the banks, determines how far out a flood will spread.

High flood discharge due to snowmelt has occurred on the Animas River in 1909, 1911, 1927, 1929 and 1942, and in more recent time, 1995 and 2006. In addition, the National Weather

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Service (NWS) reports an average of four flash flood warnings per year in San Juan County. However, due to terrain blockage in the area, the NWS estimates that at least eight flash floods will occur in the county annually, with an additional four weather patterns going undetected by their present observation capability, which is blocked from covering the entire area because of the mountains. Flash flooding in San Juan County is generally expected to occur from July through September.

Previous Occurrences in San Juan County

In 2006, an arroyo overtook NM 170 at the 3 mile mark, destroying the highway and one residence. In 2007 flash flooding occurred on CR 350 at the intersection of CR 390, stopping traffic and inundating several manufactured homes in the area. In 2008, the Sullivan Arroyo overtook CR 4990 damaging the roadway, major water lines, and residences on RD 4996. In 2010, flash flooding on Kiffin Creek Arroyo catastrophically damaged the bridge crossing at CR 2900. In the Fall of 2010, a flash flood produced over a million dollars in damage to the Country Club area of Farmington.

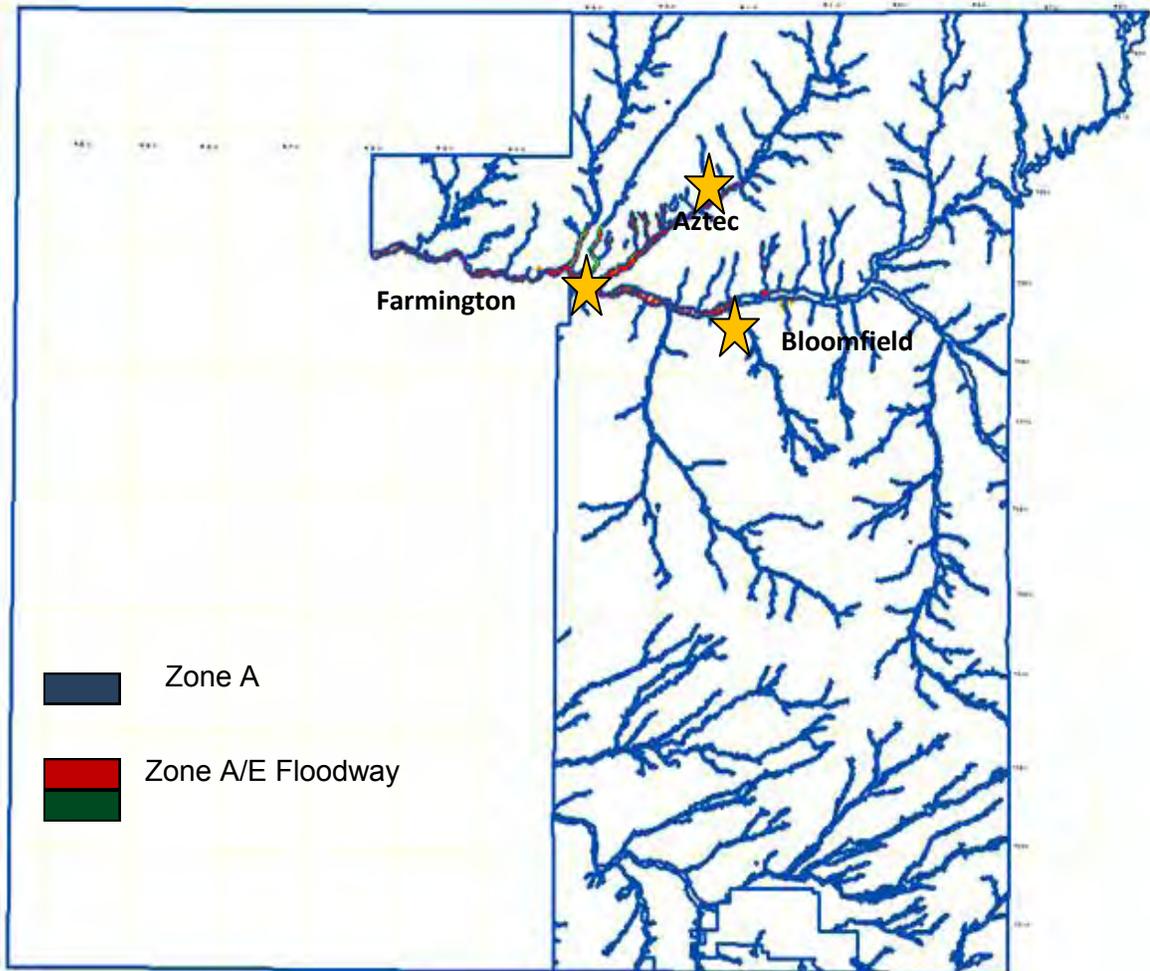
In August of 2008, Sullivan Arroyo washed out part of County Road 4990, destroying the local water users water line, a hay field and several private homes North-East of the wash out.

In 2006 a flash flood destroyed a section of NM 170 near the 3 mile marker and NM 574 near the 7 ½ mile marker.

In addition, some county residents have filled in sections of existing flash flood channels or Arroyos in an effort to maximize the area available for construction. Filling in these sections creates choke points, which will cause higher water levels in the channel. As the water rises, it will have the potential of overflowing its banks, thereby flooding any structure in the area. The choke points also create higher pressure on the new channel banks, which increases the possibility of erosion and undercutting foundations.

San Juan County's vulnerability to riverine flooding along the Animas, La Plata, and San Juan Rivers has been determined to threaten approximately 4,596 people in 1,013 homes, 136 small businesses and other structures (per SJC 2009 NFIP Biennial Report). With mitigation the number of structures may not decrease, but the type of construction used for new structures will limit the amount of damage and increase the safety of occupants during a flood event. Figure 5 shows the floodplain map of San Juan County. The Blue lines indicate Zone A and the Red/Green indicate Zone AE/Floodway

Figure 5: Floodplain Map of San Juan County



Source: San Juan County Office of Emergency Management Floodplain Manager

City of Aztec

Flooding in Aztec presents a significant risk and hazard as the Animas River runs directly through town, in addition to six arroyos that traverse the City. During a flood event, numerous highways, arterials and collectors may be impacted by flooding from the Animas River or the arroyos. The City's Historic District, numerous buildings listed on the National Register of Historic Places and the New Mexico Register of Cultural Properties, as well as various municipal and school facilities would also be at risk of flood impacts. Specific roadways in Aztec that are susceptible to flooding include, but are not limited to, Creekside Village Court, Blanco Street, Chaco Street, Church Avenue, Heiland Road, Mesa Verde Avenue, Sabena Street, N. Light Plant Road (NM 574), and U.S. Hwy. 550. These roadways, among others, have been identified in the most recent FEMA Flood Insurance Rate Maps, which were created in August 2010.

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The issue of flooding in Aztec has been addressed by the City Commission with the adoption of Chapter Nine of Aztec Municipal Code, Flood Damage Prevention, and the designation of a Floodplain Manager. Acknowledging that these codes exist, there are still provisions within this section that allow for use of flood-prone areas for structural use. Flooding can occur in Aztec due to river rise, or more likely due to the encroachment of arroyos created during construction and debris that builds up in waterways. Debris can damage or clog up waterways, acting like a dam and causing water to flood outside the normal waterway.

Aztec's flood vulnerability has been created over a long period of time. Located within Aztec's floodplain are twelve structures (the Aztec Historic District) that are listed on the National Register of Historic Places and the New Mexico Register of Cultural Properties. The New Mexico Cultural Properties Protection Act N.M. Stat. §§ 18-6A-1 through 6, encourages state agencies to work with the Historic Preservation Division to develop programs for identifying cultural properties under its jurisdiction and to ensure that cultural properties are not inadvertently damaged or destroyed.

The Aztec Historic District is a mixture of churches, homes and commercial structures that are vital to the cultural identity and the economy of Aztec (Table 17). These structures and locations have been identified in the floodplain and the costs are included in Section 3, Vulnerabilities.

Table 17: Historical Structures in the City of Aztec

Location
309 N. Mesa Verde, built 1905
401 Lovers Lane, built 1906
405 Lovers Lane, built 1906
406 Lovers Lane, built 1906
314 N. Church, built 1906
116 N. Mesa Verde, built 1906
309 Lovers Lane, built 1906
302 N. Mesa Verde, built 1907
216 N. Church, built pre-1907
407 Lovers Lane, built 1910
122 N. Mesa Verde, built 1925
203 N. Main

Source: Register of Historic Places and the New Mexico Register of Cultural Properties

Previous Occurrences in the City of Aztec

NOAA’s National Climatic Data Center (NCDC) receives Storm Data from the National Weather Service. The National Weather service receives their information from a variety of sources, which include but are not limited to: county, state and federal emergency management officials, local law enforcement officials, SKYWARN spotters, NWS damage surveys, newspaper clipping services, the insurance industry and the general public. The NCDC contains data from January 1996 to April 2013. The NCDC was reviewed and the following events were listed for the City of Aztec (Table 18).

Table 18: Historical Flood Events in the City of Aztec

Aztec Flood Events		
Event Date	Cost	Details
8/4/1997	None reported	Three to 6 inches of mud and debris covered parts of Highway 550 in Aztec following heavy rain of 1 to 2 inches on the mesa above town near the airport. Several other city streets were temporarily closed by the runoff.

Source: National Climatic Data Center, 2013

City of Bloomfield

Flooding in Bloomfield has been addressed by the City Council with the adoption of city ordinances and the designation of a city floodplain manager. Presently there are seven residential structures within the Bloomfield floodplain. However, until recently floodplain maps had not been updated since 1978, and these maps do not reflect the city’s present incorporated area. New maps recently updated will be available for future development, however, the city’s floodplain manager was unable to control construction in areas not covered by the 1978 maps. In addition, certain areas where construction in floodplains has not been previously restricted have been annexed into the city limits.

The most common type of flooding in Bloomfield is flash flooding, with the last major occurrence occurring in 1997. This event was primarily caused by the encroachment of a waterway and an undersized culvert that caused an increased water level, resulting in flooding outside of the waterway. According to Ray Barnes, Planning/Zoning Administrator and floodplain manager for Bloomfield, this flood caused damage to area residents and structural damage to a roadway bridge. The undersized culvert has since been replaced with a larger one. The dangers of flash flooding are increased due to the encroachment of construction and the presence of debris in waterways.

Previous Occurrences in the City of Bloomfield

NOAA’s National Climatic Data Center (NCDC) receives Storm Data from the National Weather Service. The National Weather service receives their information from a variety of sources,

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which include but are not limited to: county, state and federal emergency management officials, local law enforcement officials, SKYWARN spotters, NWS damage surveys, newspaper clipping services, the insurance industry and the general public. The NCDC contains data from January 1996 to April 2013. The NCDC was reviewed and the following events were listed for the City of Bloomfield (Table 19).

Table 19: Historical Flood Events in the City of Bloomfield

Bloomfield Flood Events		
Event Date	Cost	Details
8/24/1996	\$25,000	Heavy rain to the north during the evening and culverts clogged by debris from rain the previous day produced a river of mud and debris 12 to 26 inches deep which swept into several homes in Bloomfield.
8/27/1996	Non reported	Flash flooding was reported at the Navajo Irrigation Project headquarters
8/1/1999	\$150,000	After a series of moderate rain showers, ditches and small arroyos which were clogged with mud and debris, overflowed with water and mud damaging about 5 homes and also closing streets into some neighborhoods.
7/31/2010	\$100,000	Four trees washed into Kutz Canyon along with portion of a neighboring horse corral. Four feet of the embankment was eroded away.

Source: National Climatic Data Center, 2013

City of Farmington

Farmington is situated along the confluence of the La Plata, San Juan, and Animas Rivers, causing flooding to be a major issue. According to the Farmington Comprehensive Plan, strict and consistent adherence to floodplain use restrictions is strongly recommended. The plan further noted the present lack of floodplain restrictions throughout the unincorporated area of the county. As with the other jurisdictions within San Juan County, certain areas have been annexed into Farmington city limits in which structures are presently located within existing floodplains. However, all new construction within Farmington requires the contractor to verify flood elevations as part of the city's approval process.

Presently there has been little history of flooding along the San Juan and Animas Rivers. However, limited flooding has occurred along the La Plata River. No critical infrastructure for the City of Farmington currently lies within the floodplain. The Farmington Floodplain Manager has identified four specific locations within the city where localized flooding has occurred. This flooding has been due to sudden unpredictable flash flood situations along arroyos and one irrigation ditch. Although it is not possible to warn residents in these areas prior to a flood,

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redesign of these areas can reduce or eliminate the overall problem. Without mitigation, it is understood that flooding in these areas will occur again.

Previous Occurrences in the City of Farmington

NOAA’s National Climatic Data Center (NCDC) receives Storm Data from the National Weather Service. The National Weather service receives their information from a variety of sources, which include but are not limited to: county, state and federal emergency management officials, local law enforcement officials, SKYWARN spotters, NWS damage surveys, newspaper clipping services, the insurance industry and the general public. The NCDC contains data from January 1996 to April 2013. The NCDC was reviewed and the following events were listed for the City of Farmington (Table 20).

Table 20: Historical Flood Events in the City of Farmington

Flood Event in Farmington		
Event Date	Cost	Details
7/28/1997	None reported	Heavy rain of 1/2 to 3/4 inch in about an hour produced considerable street and road flooding in the area of Farmington, Aztec and Bloomfield, with several homes flooded after mud and debris clogged drainage systems. Arroyos ran strong elsewhere across San Juan County with several areas of mud and rock slides which briefly blocked roads.
7/8/2006	None reported	A flash flood on Cottonwood Wash overtopped the road, taking out the large culverts on Highway 170.
8/1/2010	\$2,000,000	<p>Significant flooding plagued the Farmington area during the evening hours of August 1st. More than 2.5 inches of rain fell in 3 hours, but most of the rain fell in about a 30 minute time frame. Some of the hardest hit areas are described in the following paragraphs.</p> <p>The Webb Chevrolet-Toyota dealership and neighboring businesses along East Main Street between Gila St. and Hannon Dr. was described as a swamp. Weeds and shrubs were wrapped around the tires of each truck as water, mud and debris flooded into the lot. The force of the water moved one truck about six feet, and moved a nearby dumpster approximately 100 yards. Also in this area, a man whose car got stuck at the intersection of Cliffside Dr. and East Main got trapped in shallow, quick moving water. The man was rescued by firefighters and was unharmed.</p> <p>Near the intersection of Largo St. and Railroad St., water was estimated to be 6 to 12 inches deep at the height of the event. Water</p>

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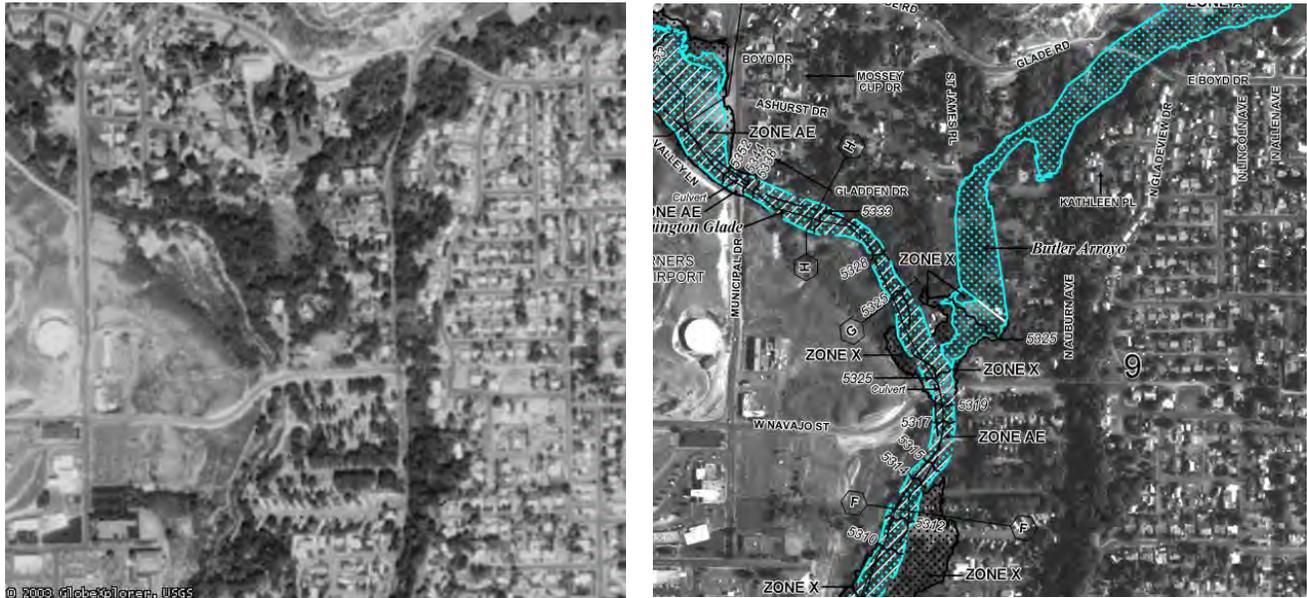
Flood Event in Farmington		
Event Date	Cost	Details
		<p>damage was evident to at least two residences.</p> <p>An arroyo that crosses Hubbard St. near Peace Valley Road was flowing over the roadway. A high school senior attempted to drive through the waters, when her car was washed away. Her car traveled approximately 80 yards down the arroyo before she was rescued. She was unharmed, but her car was destroyed. After the waters receded, it became evident that Peace Valley Road was partially eroded away beneath the pavement.</p> <p>Due to a holding pond that overflowed, five homes around the Country Club suffered significant damage, including one basement that was completely filled with water. Most of these homes were filled with no less than 6 inches of water on the ground level, resulting in damage of carpet, tile and other objects or furniture that was on the floor. Landscaping was completely eroded away, and fence lines were downed.</p> <p>A mudslide was also reported on County Road 3000 at mile marker 9.5. The road was impassible until the mud was cleaned off the road.</p>

Source: National Climatic Data Center, 2013

In 2009 the La Plata Crossing on Pinon Hills Blvd was upgraded to Box Culverts to replace the existing/failing Corrugated Metal Pipe drainage structure, however, drop structures will further preserve the immediate area riverbed, as well as preserve the structure itself. In August 2010, a flash flood in the Farmington area identified the Porter Arroyo as a problematic arroyo which flows straight through an eastern area of Farmington and caused damage. Carl Arroyo is another arroyo east of Foothills Drive that received an abundance of water in the same storm event (Figures 6 – 10). Ongoing improvement to downtown drainage in the older part of downtown, continued effort to keep bridge crossings clear of debris along the Animas River, and additional detention ponds within the area will help reduce flooding damage.

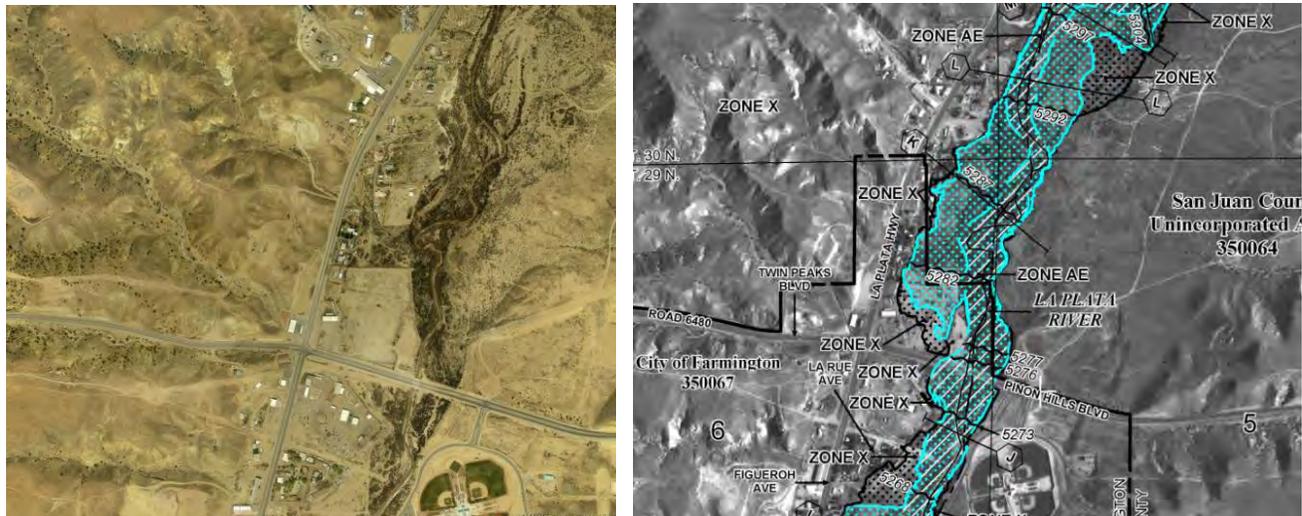
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Figure 6: Floodplain Map of the Navajo Crossing Glade Arroyo



Source: Floodplain Map, Firm Map Panel 35045C1002F

Figure 7: Floodplain Map of the Pinon Hills, La Plata Crossing



Source: Floodplain Map, Firm Map Panel 35045C0690F

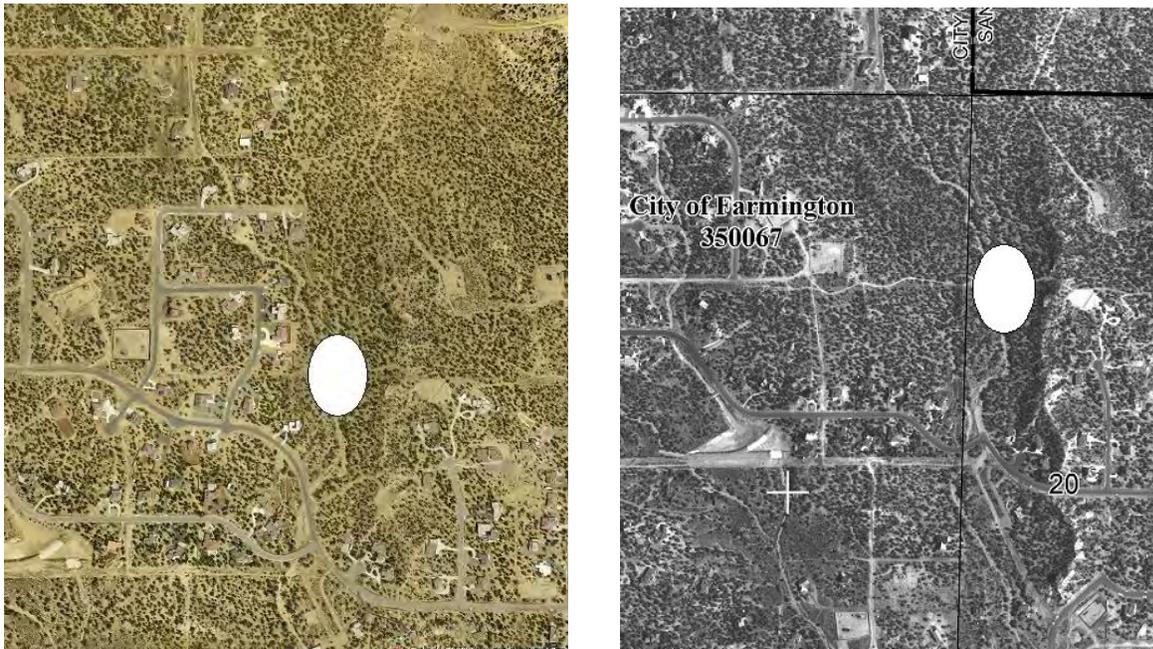
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Figure 8: Floodplain Maps of Crestwood Drive, Hood Arroyo



Source: Floodplain Map, Firm Map Panel 35045C0695F

Figure 9: Floodplain Map of Carl Arroyo (Circle is Prop Det Pond Site)



Source: Floodplain Map, Firm Map Panel 35045C0695F

Figure 10: Floodplain Maps of Porter Arroyo (X is Prop. Det. Pond Site)



Source: Floodplain Map, Firm Map Panel 35045C0695F

What Can Be Mitigated?

For a county with extremely limited resources like San Juan County, mitigation actions have to be very specific and cost effective. As a result, mitigation actions should focus on property protection, localized corrective measures for drainage and erosion in developed areas, and ensuring that future development is sited out of the floodplain as identified by the study. One priority is to protect critical infrastructure such as municipal wellheads. There are many existing programs that deal with mitigating problems associated with flash flooding. One such program is the New Mexico Wellhead Protection Program, which is part of the Drinking Water Bureau of the New Mexico Environment Department. They work with communities and residents to protect and manage wellhead areas to prevent pollution during flooding.

Data Limitations

The flood vulnerability analysis has the following limitations:

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- Flash Flood Predictability: The location and occurrence of flash floods are difficult to predict and are dependent on local conditions of terrain, land use, and extent of impervious cover.
- Data for Structures – Attributes: First-floor elevations and structure replacement values are useful for loss estimation. Replacement value (the cost to rebuild) is a necessary component in estimating the dollar amount of losses in a flood and, when coupled with a range of flood probabilities from the 100-year to 500-year flood depths, can help in describing the benefits and costs of mitigation actions in monetary terms. Reliable information about the quantity and type of structures at-risk for flooding is not available at the time of this plan being developed. Future updates to this plan will account for and will be included accordingly.
- Flood Zone Data – Flood zone data is currently being assessed with all results not expected in 2013.

The county is currently participating in a floodplain review. Data deficiencies do exist and in the next 5 years, the county will gather data to support occurrences and enhanced mitigation strategies and actions. Future updates to the HMP will include a more in-depth review of past flood events experienced by the county. Future updates to the mitigation plan will include a more in-depth review of the risks to the county, identify strategies and associated mitigation actions. A mitigation action will be identified for the county and jurisdictions profiled in this HMP to determine those areas vulnerable to flood losses.

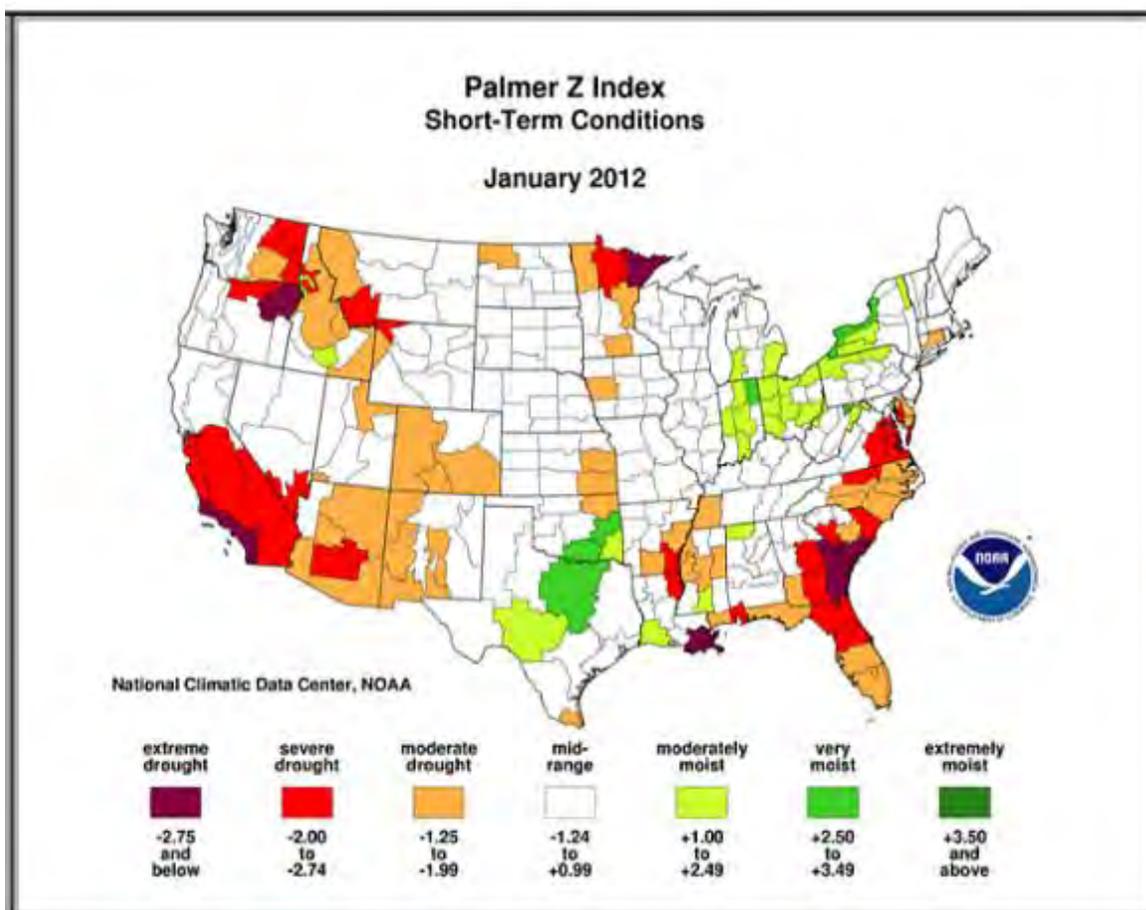
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Drought

Overview – Drought in San Juan County, New Mexico

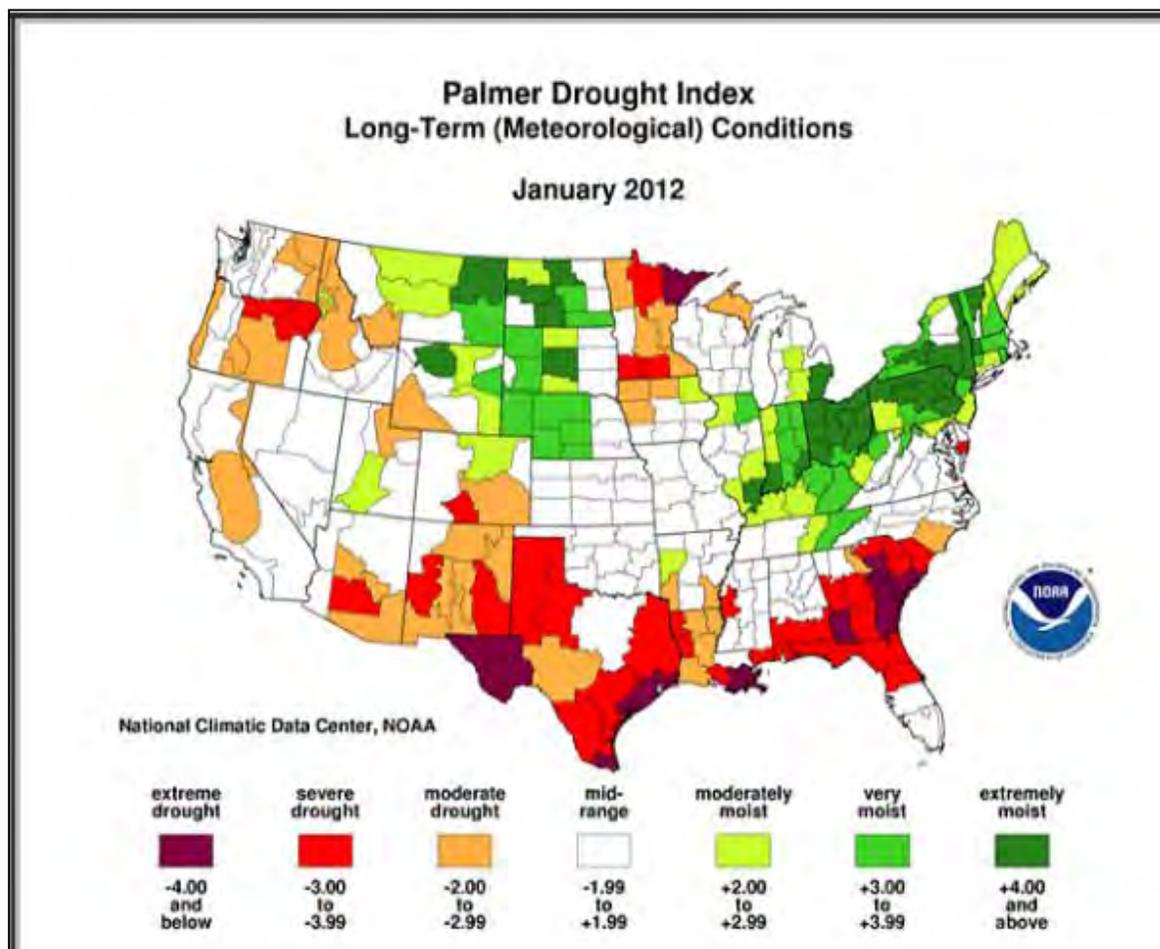
The concerns for drought conditions within San Juan County and the participating jurisdictions has been established through meetings of the San Juan County working group, public meetings, questionnaires, the National Oceanic and Atmospheric Administration, the National Weather Service, the U.S. Geological Survey, the New Mexico Drought Task Force, and New Mexico State University. Drought, as defined by the National Oceanic and Atmospheric Administration (NOAA), is a period of abnormally dry weather that persists long enough to produce a serious hydrologic imbalance. The severity of the drought depends upon the degree of moisture deficiency, the duration, and the size of the affected area. Drought status is determined through the use of the Palmer Drought Severity Index, the Standardized Precipitation Index, and the Surface Water Supply Index. In New Mexico, drought is known to occur on an average of every ten years. Drought will always be a concern in San Juan County. Figures 11 and 12 identify the Palmer Drought Severity Index Short-Term and Long Term Conditions.

Figure 11: Palmer Drought Severity Index - Short-Term Conditions



Source: National Climatic Data Center, National Oceanic and Atmospheric Administration
<http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/palmer.html>

Figure 12: Palmer Drought Index - Long-Term Conditions



Source: National Climatic Data Center, National Oceanic and Atmospheric Administration
<http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/palmer.html>

Characteristics

In New Mexico, Drought is a regular event. It visits the state in recurring cycles. Experts predict that drought conditions are likely to continue for the foreseeable future. Drought increases the probability and severity of wildfire. Drought also increases the severity of flash flooding due to soils becoming hydrophobic, repelling or incapable of dissolving in water, resulting in increased runoff and erosion. The State of New Mexico has recorded periods of drought for the past few years. In every drought, agriculture is adversely impacted, especially in non-irrigated areas such as dry land farms and rangelands. 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.

Drought is nature's way of reminding us that we live in a desert. New Mexico is entering the ninth year of a drought, which magnifies the challenge of balancing our limited water supplies with growing demand. A drought is caused by a variety of factors. Scientists who study climate changes believe that conditions in the North Atlantic Ocean and the Eastern Pacific Ocean play a significant role in determining the amount of precipitation that New Mexico and the rest of the country receive. Studies show current conditions in those two oceans are similar to conditions that existed during the severe drought of the late 1940s and 1950s in New Mexico.

Drought is a condition of climatic dryness that reduces soil moisture, water or snow levels below the minimum necessary for sustaining plant, animal, and economic systems. Drought conditions are usually not uniform over the entire state. Local and regional differences in weather, soil condition, geology, vegetation, and human influence need to be considered when assessing the impact of drought on any particular location. The most commonly used drought definitions are based on meteorological, agricultural, hydrological, and socio-economic effects.

- **Meteorological** drought is defined by a period of substantially diminished precipitation duration and/or intensity. The commonly used definition of meteorological drought is an interval of time, generally on the order of months or years, during which the actual moisture supply at a given place consistently falls below the climatically appropriate moisture supply
- **Agricultural** drought occurs when there is inadequate soil moisture to meet the needs of a particular crop at a particular time. Agricultural drought usually occurs after or during meteorological drought, but before hydrological drought and can affect livestock and other dry-land agricultural operations
- **Hydrological** drought refers to deficiencies in surface and subsurface water supplies. It is measured as stream flow, snow pack, and as lake, reservoir, and groundwater levels. There is usually a delay between lack of rain or snow and less measurable water in streams, lakes, and reservoirs. Therefore, hydrological measurements tend to lag behind other drought indicators
- **Socio-economic** drought occurs when physical water shortages start to affect the health, well-being, and quality of life of the people, or when the drought starts to affect the supply and demand of an economic product

Although different types of drought may occur at the same time, they can also occur independently of one another. Drought differs from other natural hazards in three ways. First, the onset and end of a drought are difficult to determine due to the slow accumulation and lingering of effects of an event after its apparent end. Second, the lack of an exact and universally accepted definition adds to the confusion of its existence and severity. Third, in contrast with other natural hazards, the impact of drought is less obvious and may be spread over a larger geographic area. These characteristics have hindered the preparation of drought contingency or mitigation plans by many governments.

Drought status is calculated using several indices that measure how much precipitation for a given period of time has deviated from historically established norms. The Palmer drought severity index (PDSI) is used by the U.S. Department of Agriculture (USDA) to determine allocations of grant funds for emergency drought assistance (Table 21). The Palmer index is based on the supply-and-demand concept of the water balance equation, taking into account

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more than the precipitation deficit at specific locations. The PDSI provides a measurement of moisture conditions that are “standardized” so that comparisons using the index can be made between locations and months.

Table 21: Palmer Drought Severity Index

Drought Severity	Return Period (years)	Description of Possible Impacts	Drought Monitoring Indices		
			Standardized Precipitation Index (SPI)	NDMC* Drought Category	Palmer Drought Index
Minor Drought	3 to 4	Going into drought; short-term dryness slowing growth of crops or pastures; fire risk above average. Coming out of drought; some lingering water deficits; pastures or crops not fully recovered.	-0.5 to -0.7	D0	-1.0 to -1.9
Moderate Drought	5 to 9	Some damage to crops or pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested.	-0.8 to -1.2	D1	-2.0 to -2.9
Severe Drought	10 to 17	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed.	-1.3 to -1.5	D2	-3.0 to -3.9
Extreme Drought	18 to 43	Major crop and pasture losses; extreme fire danger; widespread water shortages or restrictions.	-1.6 to -1.9	D3	-4.0 to -4.9
Exceptional Drought	44+	Exceptional and widespread crop and pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells creating water emergencies.	less than -2	D4	-5.0 or less

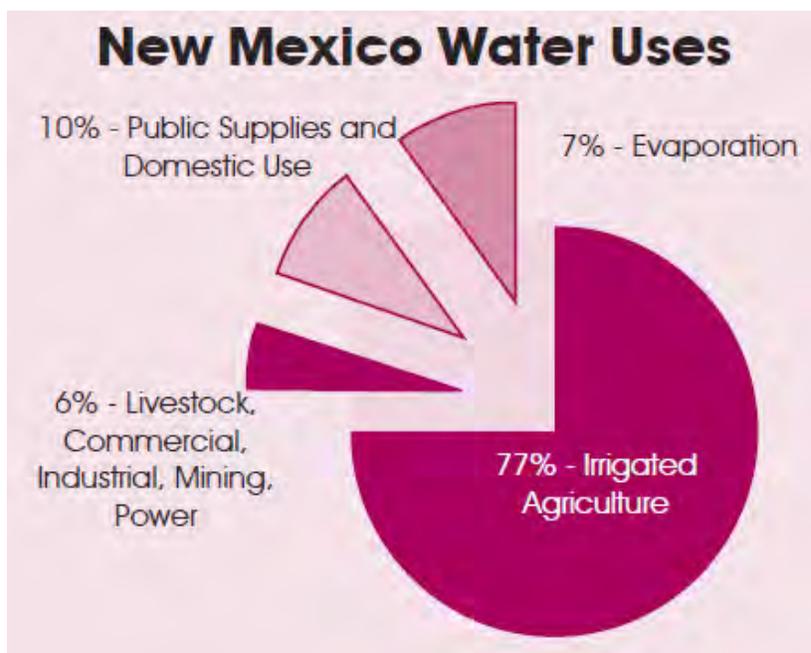
*NDMC - National Drought Mitigation Center

Table 15 outlines the standardized measurements of moisture conditions for use in determining the severity of drought. Information provided by NOAA at <http://www.drought.noaa.gov/>

New Mexico precipitation for the first ten months of 2012 was 60 percent of average and ranked as the 6th driest start to any year on record. This makes 2012 the second consecutive year with a very dry start to the calendar year for New Mexico, as 2011 began as the 2nd driest January to October period. The past 24 months have been the second driest 24 month period on record ending in October for New Mexico, just behind the period that ended in October 1956.

Water in New Mexico is distributed among a variety of users, as the following pie chart indicates (Figure 13). About 6% goes to livestock, commercial, industrial, mining, and power companies; about 10% goes to public supplies and domestic use; about 7% is lost to evaporation; and about 77% goes to irrigated agriculture. Drought is a regular event in all areas of New Mexico. It visits the state in recurring cycles. Experts predict that drought conditions are likely to continue for the foreseeable future. When drought begins, agriculture is usually first to be affected because of its heavy dependence on stored moisture in the soil. Soil moisture can be rapidly depleted during extended dry periods. Dry land farming and ranching are most at risk from drought. Impact on these activities can be seen during a short-term drought.

Figure 13: New Mexico Water Uses



Information provided by the Office of the State Engineer in the annual report for the period of 2009-2011. The PDF file is available at http://www.ose.state.nm.us/publications_index.html

Drought increases the probability and severity of wildfire. Drought also increases the severity of flash flooding due to soils becoming hydrophobic, repelling or incapable of dissolving in water, resulting in increased runoff and erosion. The State of New Mexico has recorded periods of drought for the past few years. In every drought, agriculture is adversely impacted, especially in non-irrigated areas such as dry land farms and rangelands. 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.

In the summer of 2008, the agriculture community was in a panic as the state was dealing with the endangered silvery minnow. Farmers were faced with a low snowpack that feeds irrigation reservoirs in northern New Mexico and low rainfall with forecasted continuing dry conditions cut irrigation supplies dramatically. Compounding issues more, legal issues were being considered ordering farmers to share the river supply to save the silvery minnow. This impacts financial capabilities in the agricultural community and decreases agricultural supply.

Drought status is calculated using several indices that measure how much precipitation for a given period of time has deviated from historically established norms. The Palmer drought

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severity index (PDSI) is used by the U.S. Department of Agriculture (USDA) to determine allocations of grant funds for emergency drought assistance (Table 22). The Palmer index is based on the supply-and-demand concept of the water balance equation, taking into account more than the precipitation deficit at specific locations. The PDSI provides a measurement of moisture conditions that are “standardized” so that comparisons using the index can be made between locations and months.

Table 22: Palmer Drought Severity Index

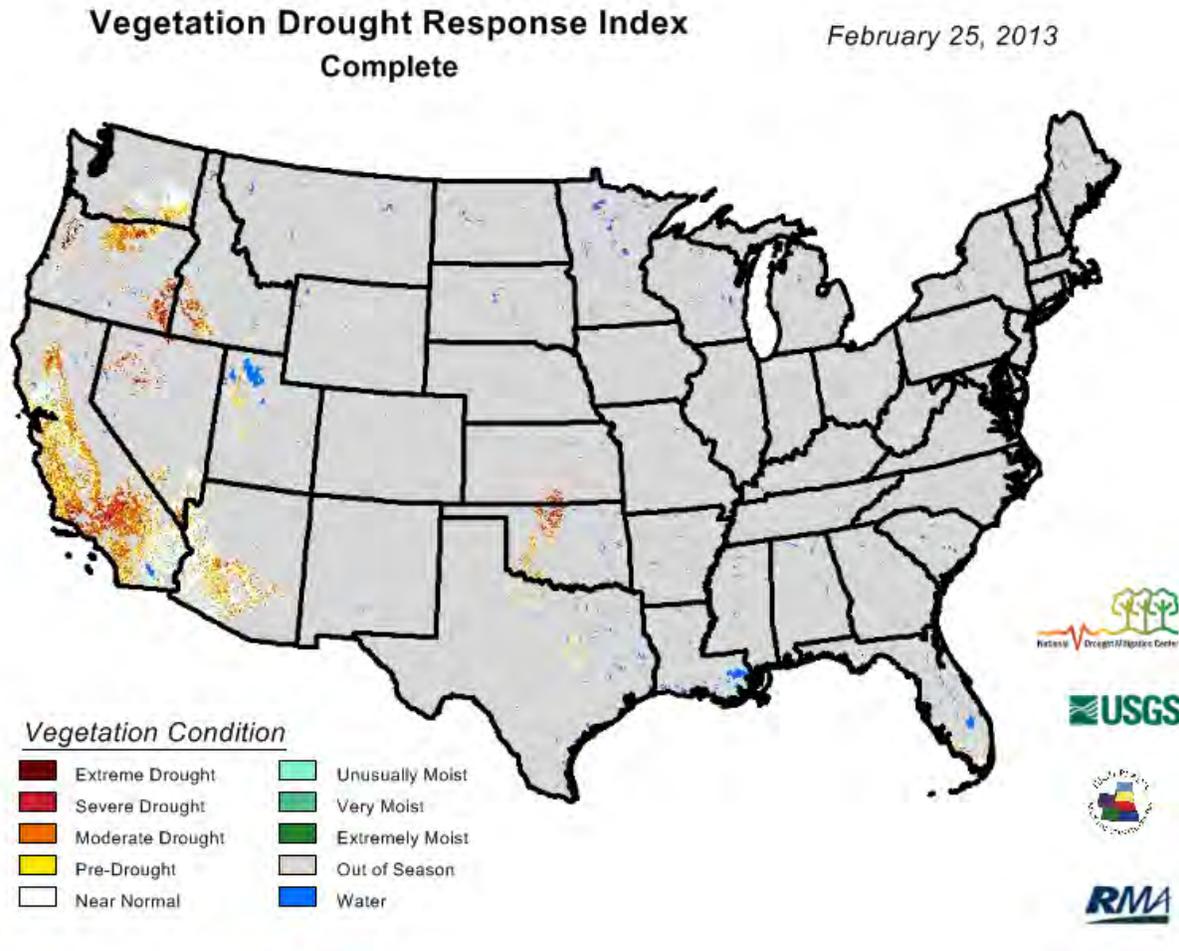
PDSI Classifications	
4.00 or more	Extremely Wet
3.00 to 3.99	Very Wet
2.00 to 2.99	Moderately Wet
1.00 to 1.99	Slightly Wet
0.50 to 0.99	Incipient Wet Spell
0.49 to -0.49	Near Normal
-0.50 to -0.99	Incipient Dry Spell
-1.00 to -1.99	Mild Drought
-2.00 to -2.99	Moderate Drought
-3.00 to -3.99	Severe Drought
-4.00 or less	Extreme Drought

Source: <http://drought.unl.edu/whatis/indices.htm>

According to the New Mexico Drought Plan, the latest predictions call for a deepening of the drought in the next few years, even though 2006 was one of the wettest years on record. One final measurement of drought, though highly temporal, is the Vegetation Drought Response Index (VegiDRI) which is available for two-week intervals (Figure 14). The Vegetation Drought Response Index, or VegDRI, is a computer modeling and monitoring method that provides continuous drought information over large regions and supplies finer spatial detail than other commonly used drought indicators. The index is available at two-week intervals across the conterminous 48 states of the United States.

This resource can be used by anyone monitoring agricultural conditions, particularly ranching, or with interests in natural resource management. Data provides a regional overview with enough definition to know how specific rangelands and crops are doing. VegDRI integrates time-series observations of vegetation with climate, land cover-land use type, ecological setting, and soil characteristics to show drought's effect on vegetation at a 1-kilometer resolution. The massive remote sensing archives at the U.S. Geological Survey Earth Resources Observation and Science Center (USGS-EROS) supply historical satellite data from the last 20 years that are critical in establishing a sound comparison of normal conditions over a longer historical period.

Figure 14: Vegetation Drought Response Index (VegiDRI)



Source: <http://www.drought.unl.edu/monitor/monitor.htm>

Previous Occurrences

According to the New Mexico Drought Plan, the state has experienced droughts since prehistoric times. Extended drought conditions in the region evidently led to the collapse of many early civilizations. Periods of drought since 1950 have been documented during 1950-1957, 1963-1964, 1976-1978, 1989, 1996, 1998-1999, 1999-2003, 2003-2006. Though the current Drought Plan for New Mexico is dated 2006, New Mexico is very proactive with the Governor’s Drought Task Force. This Task Force meets regularly to discuss current precipitation, agriculture, and other issues as they relate to the current drought experienced by all of New Mexico.

Location

The entire County is subject to drought conditions, areas most vulnerable in the county include rangeland used for livestock grazing and agriculture land use and those areas used for develop land use. The more populated areas of Aztec, Bloomfield, and Farmington face the problem of threats to the municipal water supply, affecting both the citizens and the potential commercial development. The following outline by location the affects drought has on the communities:

San Juan County

Presently San Juan County has very few measures in place to deal with the problems of drought. While some cities have drought plans that restrict the use of water during drought conditions, county residents are free to use water as they like. These types of restrictions are generally based on a sliding scale, with higher restrictions occurring as drought conditions worsen or having the restrictions relaxed as the drought conditions improve. Implementing a realistic plan of water restrictions and providing for its enforcement will not only help make the available water last longer, it will also help prevent an area's water system from being overstressed. As the demand for water increases, the stress on water pipes increases, which in turn increases the possibility of pipe failure and service interruptions.

The amount of water use within San Juan County is further restricted based on water rights. No matter how much water may flow through the Animas and San Juan Rivers, county residents are not permitted unlimited access to it. These water rights restrictions also apply to ground water usage. Presently the amount of water being used in the unincorporated areas of San Juan County is not being monitored, and the actual amount of water being used is unknown.

A further source of water use in San Juan County is the large number of irrigation ditches, many of which are unlined. The United States Department of Agriculture has identified unlined irrigation ditches as a major source of water waste.

City of Aztec

Aztec, as part of San Juan County, also feels the effects of drought conditions. Presently the city relies on surface water for its water supply. As such, the city draws its water from the Aztec Ditch, the Lower Animas River Ditch, and the Animas River. Presently, the average daily treated water production in Aztec is approximately 1.1 million gallons per day, with current production capacity 3 million gallons per day. However, as the city continues to grow, so does the demand on its water system; Aztec's current storage capacity for treated water is 5.5 million gallons. The present system is completely dependent on the presence of surface water and the effects of prolonged drought can reduce its availability which will stress the amount of water there is available for use.

City of Bloomfield

Bloomfield, as a part of San Juan County, also feels the effects of the drought conditions. Presently the city relies on surface water drawn from the San Juan River for its water supply.

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The average service volume supplied to the residents of Bloomfield is 1.4 to 1.6 million gallons of water per day. The maximum amount of water that can presently be supplied is three million gallons of water per day. The present system is completely dependent on the presence of surface water and the effects of prolonged drought can reduce its availability, which will stress the amount of water there is available for use.

City of Farmington

Farmington, as a part of San Juan County, also feels the effects of drought conditions. Presently the City relies on surface water drawn from the Animas Rivers for its municipal water supply. Table 17 identifies the water flow from the Animas River. Water is pumped into Farmington Lake, the City's primary raw water storage reservoir. The recently completed Animas-La Plata Project (Lake Nighthorse Reservoir) is shared with numerous water purveyors in the county and serves the City's as a secondary raw water storage reservoir. During 2012 Farmington's average daily water demand was 12.77 million gallons per day; the peak summer demand was 22.88 gallons per day. The City maintains two water treatment facilities having a combined capability of 30 million gallons per day.

Farmington is focusing on two primary water issues that are of concern. First, the amount of water rights to which the City is entitled is currently being adjudicated. Until this issue is settled by the Courts, the total amount of water rights in Farmington's portfolio is unclear. Secondly, current drought conditions may worsen, affecting the amount of "wet" water in the Animas and San Juan Rivers. The Animas River dried up in 2003, however with the addition of Animas-La Plata Project storage water (Figure 15); this is less likely to happen in the future. Both of these events potentially limit Farmington's available water supply.

Figure 15: Animas-La Plata Project Storage Water Project



Source: Data Collection Station on the Animas River at Farmington
(Courtesy of <http://waterdata.usgs.gov>)

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Table 23: Water Flow for the Animas River

Daily discharge, cubic feet per second -- statistics for Jan 11 based on 88 years of record						
Min (1996)	Most Recent Instantaneous Value Jan 11	25th percentile	Median	Mean	75th percentile	Max (2005)
147	192	227	268	282	311	897

Source: Data Collection Station on the Animas River at Farmington (Courtesy of <http://waterdata.usgs.gov>)

Frequency

Drought is a regular event in San Juan County and all of the State of New Mexico and visits the state in recurring cycles. Experts predict that drought conditions are likely to continue for the foreseeable future. Periods of recent extreme meteorological drought, as defined by a Palmer drought index of -4.0 or lower, have been noted in the San Juan County area. (<http://nmcc.nmsu.edu/en/climate-new-mexico/>)

San Juan County has and continues to experience drought conditions. The Governor of New Mexico has signed an executive order that assists in obtaining federal funding for communities and to establish the Governor's Drought Task Force, led by the State Engineer, to examine ways the state can prepare for and mitigate the problems that occur in New Mexico due to the persistent drought conditions. This Task Force is proactive in following the current drought situation.

Severity of Occurrence

In every drought, agriculture is adversely impacted, especially in non-irrigated areas such as dry land farms and rangelands. 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.

San Juan County is an agricultural area, and is therefore extremely susceptible to the effects of drought. According to the NOAA, San Juan County is currently experiencing mid-range drought conditions, but has been in a severe drought for many years. This drought has had agricultural and hydrological impacts throughout the county.

Drought conditions can create serious problems for many New Mexico communities, farms, ranches, and open spaces. Fire danger is high, water reservoirs run low, and in some cases, some towns have taken dramatic steps to reduce basic water consumption in their residents' homes and businesses. According to State Engineer's Office, 90 percent of New Mexico faced severe drought conditions at some point during the 2012, with the remaining areas facing moderate drought. The 2011 water year was also the second driest on record. (Source: <http://www.nmdrought.state.nm.us/conditions.html>). The probability for this hazard event is 100%

What Can Be Mitigated?

The best practices include early assessment, public education, water conservation programs, and diversifying sources of water. Identifying the first phases of the drought and reacting with water conservation at the earliest time will help to mitigate drought later in the disaster. Mitigation management for drought is a proactive process. However, most of the process has been at the local and state level since there is no federal water conservation or drought policy.

The long-term future of water is a fundamental concern to all local governments in the area. Water use projections indicate that depletion of regional water resources will continue unless actions are taken to conserve and utilize water more efficiently with the ideal goal of balancing supply with demand.

The State has also taken initiatives designed to increase regional cooperation on water plans. Regional Water Plans were directed by the State Legislature in 1987 in part due to a critical lawsuit on water resources appropriation by out of state parties (*El Paso v. Reynolds* 597 F. Supp. 694 (D.N.M. 1984)). The legislation created a regionally based water resources planning program (§§72-14-43 & 44 NMSA 1978), in sixteen statewide regions, administered by the Interstate Stream Commission.

Data Limitations

It is difficult to determine when a drought hazard event starts. In most cases, the dry weather conditions that cause droughts will need to persist for a while before it becomes clear that drought conditions exist. There are also data limitations in determining the available quantity and quality of groundwater. The costs associated with the drought are difficult to quantify. Crop losses are straightforward, but losses from tourism dollars due to drought and uncertainty about availability of water are more difficult to define.

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Hazardous Materials

The concern of hazardous material release has been established through meetings with the San Juan County working group, public meetings, questionnaires, research by the University of New Mexico, the U.S. Department of Transportation, and the New Mexico All-Hazards Emergency Operations Plan. The production and safe transportation of hazardous materials is of great concern in most parts of the United States.

City of Aztec

Truck traffic moving along State Road 516 travels directly through Aztec. This traffic is required to make a 90-degree turn in Aztec in order to proceed south on U.S. 550. Each of these routes contains numerous intersections, which increases the risk of an accident. U.S. 550 moves traffic through downtown Aztec, which is congested with local traffic during the day. This area's congestion increases the possibility of accidents that can involve hazardous material transport. Based on the Hazardous Material Emergency Response Guidelines, a hazardous material release at or near the intersection of State Road 516 and U.S. 550 could potentially shut down the entire city of Aztec for the duration of the response and recovery from the incident.

One of the hazardous materials currently being transported through Aztec is liquid nitrogen. According to the 2000 Emergency Response Guide, the evacuation distance for a large spill is initially 100 meters. If this spill involves a fire, the evacuation distance increases to a half mile in all directions. The effects of just one such spill would cause a considerable portion of Aztec to be shut down. If a more hazardous material cargo was involved, a much larger area could be affected.

City of Bloomfield

Hazardous material is transported through Bloomfield from two directions, north via U.S. 550 from Aztec, and east via U.S. 64 from Farmington. In each case, traffic leaves Bloomfield south on U.S. 550. 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. Traffic through this area can become extremely congested due to the high school and normal traffic moving along U.S. 64. A hazardous material release anywhere along this route could cause the shutdown and evacuation of a considerable area of Bloomfield.

During the time traffic moves through Bloomfield it is routed through a series of intersections, including three that are controlled by red light signals.

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schools and businesses in the affected area. Such an incident could also close down major traffic routes in the area.

City of Farmington

Traffic moving into Farmington from the east can take one of several routes in order to proceed to Albuquerque. As traffic moves into Farmington it can take an existing truck route via U.S. 64, which proceeds to Bloomfield and south onto U.S. 550. Although this is considered a truck route, there are numerous intersections along this route, as well as a hospital and other commercial enterprises. The second route currently in use through Farmington runs along either Broadway or Main, both of which run through the center of downtown. Traffic along both Broadway and Main involves numerous intersections and a high degree of traffic congestion. Based on the 2000 Emergency Response Guidelines, a hazardous material release along any of these three routes would cause a large-scale evacuation and a major disruption to the area's economic vitality.

Although none of these routes involves the level of maneuvering that occurs in Aztec or Bloomfield, the routes still present the clear danger of an accident involving the transport of hazardous materials.

One of the hazardous materials known to travel through the Farmington area is liquid nitrogen. According to the 2000 Emergency Response Guide, the evacuation distance for a large spill is initially 100 meters. If this spill involves a fire, the evacuation distance increases to a half mile in all directions.

Hazard Profile – Hazardous Materials

In New Mexico, transportation routes and facilities including pipelines, airports, highways, railroad routes, storage facilities, and other related facilities may become involved in the release of hazardous materials. For transportation purposes, the New Mexico Department of Transportation (NMDOT) classifies HAZMAT in one or more of the following categories:

- Explosive
- Blasting agent
- Flammable liquid
- Flammable solid
- Oxidizer
- Organic peroxide
- Corrosive material
- Compressed gas
- Flammable compressed gas
- Poison – A and B
- Irritating materials
- Inhalation hazard
- Etiological agent
- Radioactive materials
- Other regulated material

The 1986 Act requires that companies report releases of designated hazardous chemicals to the USEPA, even if the release does not result in human exposure. The different types of releases can range from air emissions of gases or particles from a pressure relief valve, smokestack, ruptured reaction vessel, broken pipe, broken, loose-fitting or punctured

equipment, containers or cylinders on transportation vehicles and from solid or liquid discharges onto the ground or into water; discharges into bodies of water from damaged ships, barges, underwater pipelines and trucks or railroad cars that fall into the water; outflows from sewer or drain outfalls, runoff from spills on land, runoff of water used to control fires, or contaminated groundwater; discharges onto land; solid waste disposal in onsite landfills; injection of wastes into underground wells; transfers of wastewater to public sewage plants; and transfers of offsite facilities for treatment or storage.

Hazard Characteristics

Hazardous materials are substances that are harmful to life and the environment. The materials are generally man-made and some are extremely toxic. Hazardous materials and incidents dealing with their release are referred to as HAZMAT incidents. The United States Department of Transportation (USDOT) has identified 308 specific chemicals from 20 chemical categories as HAZMAT under the Emergency Planning and Right to Know Act of 1986. These chemicals cover a wide range of toxicities, and in small doses many have minimal or no effect on humans. Various U.S. and international organizations, including the United States Environmental Protection Agency (USEPA), the United States Department of Transportation, the National Fire Protection Agency (NFPA), the United States Coast Guard (USCG), and the International Maritime Organization (IMO) have defined, for regulatory purposes, the following list of HAZMAT classes:

- Toxic agents – irritants, asphyxiates, anesthetics and narcotics, sensitizers, hepatotoxic and nephrotoxic agents, carcinogens and mutagens
- Hazardous wastes
- Hazardous substances
- Toxic pollutants
- Extremely hazardous substances

Previous Occurrences – San Juan County

A recent significant event report follows:

On Sunday 07/11/2010 @ 17:04 Farmington Fire/Hazmat was contacted by a Scientific Drilling (903 S. Hutton (employee)) via phone at Fire Station 4, South Hutton Road. He stated that he and his fellow coworkers were experiencing a burning sensation to their mouths and noses whenever they went outside. The employee was advised to evacuate all of the occupants of the building. Fire/Hazmat contacted 911 dispatch and requested a Hazmat Level 2 response for a possible chemical release from the Schlumberger facility on Bloomfield Hwy.

A two-man Entry team in “Level A” discovered a large hydrochloric acid spill in the secondary containment area of the tank battery in the Schlumberger yard. Civilians in the area were advised to shelter in place. At this point the Hazmat team members not on duty were called in. Schlumberger personnel arrived and advised that it had to be 28% hydrochloric acid. They

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suggested to pump the acid back into an empty tank using the existing equipment. A two men team in “level A” was sent in to the HOTZONE with a Schlumberger Hazardous Waste Emergency Operations Response (HAZWOPER) trained employee in level-B. The Ph level was checked and showed 0 (very strong acid). The site “fixed” air powered pump was hooked up to the tank but the pump did not work. Hazmat tried another portable pump to replace it but connection did not work. The affected public in the area were now advised to evacuate to an evacuation center set up by the Red Cross.

The decision to try to neutralize the spill with soda ash was planned. A Schlumberger employee had calculated that about 3,000 pounds of soda ash was needed for that. Schlumberger who was in the process of dismantling their yard and had recently shipped off their supply of soda ash the day before. A cleanup company who was responding (Envirotech) tried to get soda ash from BJ Oil field services without any success. Using the Computer Aided Management of Emergency Operations (CAMEO) data base (Tier 2); FFD/Hazmat found a supply of soda ash at Univar. Hazmat picked up 6,000 pounds. Several 2 men teams in “Level-A” dumped 5,000 pounds into the spill. The Ph was still 0. A plume model made in the ALOHA (Aerial Location of Hazardous Atmosphere) program noted the vapors would be above the AEGL-1 (Acute Exposure Guidance Levels) south of the Bloomfield highway. The evacuation area was extended. Farmington Police was sent to the surrounding area to advise the public to evacuate. The officers were complaining about a burning sensation in their mouths.

Envirotech brought a portable tank. An Entry team entered once again, setup pumping operations. Environment pumped the product and all visible acid were transferred to the holding tank. This operation mitigated the spill and Hazard. The scene was turned over to Envirotech for cleanup. The public was allowed back into their houses. FFD stood by during the main part of the cleanup. The incident was concluded at 12:15 on 07/12/2010.

Frequency

Due the potential for loss of life and property from just one large HAZMAT incident, the Planning Team did not feel the frequency of events in the past affected the importance of the preparing and planning mitigation efforts for San Juan County today.

Probability of Occurrences

Presently 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 largest portion of this route traverses lightly populated areas, there is danger to life and property in the concentrated population areas of

Aztec, Bloomfield, and Farmington, which represent the largest economic dynamic within San Juan County.

Highway transportation of HAZMAT involves tanker trucks or trailers and specialized bulk-cargo vehicles. Railroad releases consist of two main types: (1) collisions and derailments that result in large spills or discharges, and (2) HAZMAT releases from leaks in fittings, seals or relief valves, and improper closures or defective equipment. Natural hazards that increase transportation-related accidents are heavy rain or snowfall, causing slippery road conditions. The potential for a HAZMAT event will continue to remain high within San Juan County.

Conclusions – Hazardous Materials

The threat of possible hazardous material releases remains high in San Juan County, partly as a result of the large amount of petroleum production, exploration, and other related operations that take place throughout the county. There are also a large number of pipelines that cross the county. At present the bulk of petroleum operations take place in lightly populated areas, and the greatest occurrence of hazardous material incidents comes from their transport through the county.

Summary of Hazard Identification and Vulnerability Assessment

Due to the population density relative to the location of the existing HAZMAT route, evacuation would be challenging and would involve evacuating numerous daycare facilities, the Aztec Senior Center, as well as numerous senior living complexes and assisted living centers. Depending on the location and type of a HAZMAT incident in Aztec, Bloomfield, and Farmington, any or all of the cities' schools could be affected. This can become a problem with not only the evacuation of students, but also due to the fact that schools are generally used as temporary shelters during evacuations. If the schools are evacuated, they will not be available for use as shelter.

What Can Be Mitigated?

Understanding where and what HAZMAT events are likely to occur and will provide information for both responders and the public to enable the most appropriate response. Studies of HAZMAT locations where the potential for a transportation-related HAZMAT event may take place can provide this information. 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.

Data Limitations

It is difficult to determine when and where a HAZMAT event will occur since HAZMAT is transported throughout the County frequently. The Planning Team has identified the need for further study to provide more information to mitigation the HAZMAT hazard in San Juan County.

Conclusion – Hazard Identification/Risk Assessment

The hazard identification and risk assessment presented in this section were developed using best available data and result in what may be considered principally a qualitative assessment as recommended by FEMA in its “How-to” guidance document titled *Understanding Your Risks: Identifying Hazards and Estimating Losses* (FEMA Publication 386-2). It relies heavily on historical and anecdotal data, stakeholder input, and professional and experienced judgment regarding observed and/or anticipated hazard impacts. It also carefully considers the findings in other relevant plans, studies and technical reports.

This hazard analysis and risk assessment is based on the best and most up-to-date available data from local, state and federal sources. It presents a reasonable range of hazards that have affected the county and in some cases the state in the past. By extrapolation, those same hazards can be expected to affect the county in the future. Nevertheless, there are a number of conclusions that we can make from the hazard analysis and risk assessment:

- County and State-owned and critical facilities are no more exposed to natural hazards than are other structures in the same general vicinity. In many ways, these structures are less exposed to natural hazards than other structures due to existing understanding of commonly occurring events, such as floods, and the deliberate consideration of these hazards in the situation (locating) of these structures
- Critical facilities deserve additional mitigation attention because of the higher potential life and property loss or environmental harm in the unlikely event that they suffer significant damage
- As with other counties in the state, San Juan County has within its borders a sovereign native government that places additional challenges in the furtherance of hazard mitigation planning and actions. San Juan County requires support in the coordination of these activities with both State of New Mexico and the Bureau of Indian Affairs.
- Improving our understanding of the risk associated with the natural hazards in San Juan County through better understanding of the complexities and dynamics of risk, how levels of risk can be measured and compared, and the myriad of factors that influence risk. An understanding of these relationships is critical in making balanced and informed decisions on managing the risk
- Comparing the risk among the natural hazards addressed. The ability to quantify the risk to all these hazards relative to one another helps in a balanced, multi-hazard approach to risk management at each level of governing authority. This ranking provides a systematic framework to compare and prioritize the very disparate natural hazards that are present in San Juan County. This final step in the risk assessment provides the necessary information for local officials to craft a mitigation strategy to focus resources on only those hazards that pose the most threat to the county.

It is important to note that, although some hazards are classified as low or moderate in probability of occurrence, it does not mean that they cannot affect San Juan County in any significant way, only that such an occurrence is relatively less likely. The hazard analysis in this document provides helpful insights for planning purposes and determination of priorities, but it cannot offer guarantees.

Section 3 – San Juan County Vulnerabilities

Along with identifying the hazards that exist within San Juan County, the City of Aztec, the City of Bloomfield, and the City of Farmington, it is also necessary to consider these hazards and their relationship to the area’s existing infrastructure.

Infrastructure: According to the Encarta World English Dictionary, infrastructure, with regard to public services or systems, consists of the large-scale public systems, services, and facilities of a country or region that are necessary for economic activity, including power and water supplies, public transportation, telecommunications, roads, and schools. Table 24 below outlines the infrastructure identified as vulnerable to the hazards most likely to occur in San Juan County.

The most vital factor in identifying any area’s infrastructure is consideration of what facilities and functions create an improvement in public health, both physically and mentally. Power and water supplies, public transportation, telecommunications, roads, and schools are all important to the community’s welfare. However, other critical services include hospitals, medical centers, public safety organizations, and other government divisions that assist in the community’s response and recovery during a hazardous event.

Vulnerability: Any location’s or structure’s vulnerability to a hazard must be evaluated for exposure to the hazard, frequency of occurrence, and damaging effects. Any area’s existing hazards will expose population and structures to their effects. However, if the frequency of occurrence is low, mitigation of any particular hazard may not be necessary. Another factor in determining whether mitigation strategies are appropriate is cost-effectiveness: if the cost of mitigation is higher than the cost of repairing potential damages, mitigation may not be worthwhile.

San Juan County’s identified infrastructure, locations, and hazard or risk exposure are noted in Table 24. The hazard/risk exposure notations have the following meanings: “No specific vulnerability” indicates that the structure is not located in a potential hazard area; “Potential HAZMAT area” indicates that the structure is located within 800 meters of a HAZMAT route; “Potential flooding” indicates that the structure is located in the floodplain.;

Table 24: Vulnerable Infrastructure in San Juan County

Infrastructure	Location	Hazard/Risk Exposure
Law Enforcement instillations		
San Juan County Sheriff's	211 S. Oliver, Aztec	Potential HAZMAT area
Sheriff's Office	538 CR 6100, Kirtland	No specific vulnerability
Sherriff's Office	5764 US HWY 64, Farmington	Potential HAZMAT area
Aztec PD	201 W. Chaco, Aztec	Potential HAZMAT area
Bloomfield PD	915 N. 1 st , Bloomfield	Potential HAZMAT area

SECTION 3 – San Juan County Vulnerabilities

Infrastructure	Location	Hazard/Risk Exposure
Farmington PD	900 Municipal Dr., Farmington	No specific vulnerability
New Mexico State Police	1025 W. Navajo, Farmington	No specific vulnerability
911 Communications Center	207 S. Oliver, Aztec	Potential HAZMAT area
Fire Stations		
Aztec Fire Department	201 W Chaco, Aztec	Potential HAZMAT area
Bloomfield Fire Dept.	915 N 1 st , Bloomfield	Potential HAZMAT area
Bloomfield Fire Dept.	1152 S Church, Bloomfield	Potential HAZMAT area
Farmington Fire Dept.	301 N Auburn, Farmington	Potential HAZMAT area
Station 2	3800 English, Farmington	No specific vulnerability
Station 3	1401 W. Navajo, Farmington	No specific vulnerability
Station 4	790 S. Hutton, Farmington	No specific vulnerability
Station 5	609 E. 30 th St, Farmington	No specific vulnerability
Station 6	3101 W. Main, Farmington	No specific vulnerability
Valley Vol. Fire Dept.	1152 S. Church, Bloomfield	No specific vulnerability
Fire Dept.	532 CR 6100, Kirtland	Potential HAZMAT area
Fire Dept.	3524 US HWY 64, Waterflow	Potential HAZMAT area
Fire Dept.	4 CR 6200, Kirtland	Potential HAZMAT area
Flora Vista Vol. Fire Dept.	2 CR 3275, Flora Vista	Potential HAZMAT area
Fire Dept.	790 US HWY 516, Flora Vista	Potential HAZMAT area
Fire Dept.	1029 NM HWY 574, Aztec	Potential HAZMAT area
Cedar Hill Vol. Fire Dept.	4 CR 2343, Aztec	No specific vulnerability
Fire Dept.	294 CR2900, Aztec	Potential HAZMAT area
La Plata Vol. Fire Dept.	1457 NM HWY 170, La Plata	Potential HAZMAT area
Fire Dept.	679 NM HWY 170, Farmington	Potential HAZMAT area
Blanco Vol. Fire Dept.	7372 US HWY 64, Blanco	No specific vulnerability
Lee Acres Vol. Fire Dept.	29 CR 5500, Farmington	Potential HAZMAT area
Center Point Vol. Fire Dept.	16 CR 2755, Aztec	No specific vulnerability
Hart Valley Vol. Fire Dept.	100 CR 3100, Aztec	No specific vulnerability
Fire Dept.	76 CR 3950, Farmington	No specific vulnerability
Sullivan Vol. Fire Dept.	305 CR 4990, Bloomfield	Potential flooding
Navajo Dam Vol. Fire Dept.	815 NM HWY 511, Navajo Dam	Potential HAZMAT area
D-Z Vol. Fire Dept.	12670 NM HWY 550, Bloomfield	Potential HAZMAT area
Shiprock Vol. Fire Dept.	North on 666, Shiprock	Potential HAZMAT area
Newcomb Vol. Fire Dept.	NM 56.6 HWY 666, Newcomb	No Specific Vulnerability
Hospitals		
San Juan Regional Medical Center	801 W. Maple St., Farmington	Potential HAZMAT area
Life Course Rehab Service	525 S. Schwartz, Farmington	Potential HAZMAT area
Northern Navajo Medical Center	US HWY 666 N, Shiprock	Potential HAZMAT area

SECTION 3 – San Juan County Vulnerabilities

Infrastructure	Location	Hazard/Risk Exposure
Water Treatment plant		
Aztec Water Treatment Plant	201 Navajo Dam Rd., Aztec	Potential HAZMAT area
Aztec Waste Water Plant	900 S Oliver, Aztec	Potential flooding
Bloomfield Water Treat. Plant	406 E Blanco Blvd., Bloomfield	No specific vulnerability
Bloomfield Waste Water Plant	1176 S Church St. Bloomfield	No specific vulnerability
Farmington Water Treat. Plant	921 Farmington Ave, Farmington	Potential flooding
Farmington Waste Water Plant	921 Farmington Ave, Farmington	Potential flooding
Electrical Supply		
Aztec Electrical	303 S. Ash St., Aztec	No specific vulnerability
Farmington City Power Plant	755 Murray Drive, Farmington	No specific vulnerability
Electrical Substation	402 S Light Plant Rd, Aztec	No specific vulnerability
Schools		
Aztec High School	500 E. Chaco, Aztec	Potential HAZMAT area
Koogler Jr. High School	455 N. Light Plant Rd., Aztec	No specific vulnerability
Lydia Rippey Elem. School	401 Rio Pecos Rd., Aztec	No specific vulnerability
McCoy Elem. School	901 N. McCoy Ave., Aztec	Potential HAZMAT area
Park Ave. Elem. School	Principal Park Ave., Aztec	No specific vulnerability
Blanco Elem. School	2163 US HWY 64, Bloomfield	Potential HAZMAT area
Bloomfield High School	520 N. 1 st , Bloomfield	Potential HAZMAT area
Bloomfield Alternative School	924 S. Bloomfield Blvd., Bloomfield	Potential HAZMAT area
Central Primary School	310 Sycamore Ave., Bloomfield	Potential HAZMAT area
Charlie Y. Brown Scd. School	924 S. Bloomfield Blvd., Bloomfield	Potential HAZMAT area
Naaba Ani Elem. School	1201 N 1 st , Bloomfield	Potential HAZMAT area
Rio Vista Elem. School	1110 Rio Vista Ln, Bloomfield	Potential HAZMAT area
Bloomfield Family Learning Ct.	310 La Jara St., Bloomfield	No specific vulnerability
Farmington High School	2200 Sunset Ave, Farmington	No specific vulnerability
Piedra Vista High School	5700 College Blvd., Farmington	No specific vulnerability
Rocinate High School	3250 30 th St., Farmington	No specific vulnerability
Heights Jr. High School	3700 College Blvd., Farmington	No specific vulnerability
Hermosa Jr. High School	1500 E 25 th Farmington	No specific vulnerability
Mesa View Jr. High School	4451 Wildflower Dr., Farmington	No specific vulnerability
Tibbetts Jr. High School	312 E. Apache, Farmington	No specific vulnerability
Animas Elem. School	1612 Hutton, Farmington	No specific vulnerability
Apache Elem. School	700 W Apache, Farmington	No specific vulnerability
Bluffview Elem. School	1204 Camino Real, Farmington	Potential HAZMAT area
Country Club Elem. School	5300 Foothills Dr., Farmington	No specific vulnerability
Ladera Elem. School	308 E 35 th , Farmington	No specific vulnerability
Esperanza Elem. School	4501 Wildflower Dr., Farmington	No specific vulnerability
McCormick Elem. School	701 McCormick School Rd, FM	No specific vulnerability
McKinley Elem. School	1201 N Butler Ave., Farmington	No specific vulnerability

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Infrastructure	Location	Hazard/Risk Exposure
Mesa Vista Elem. School	3801 College Blvd., Farmington	No specific vulnerability
Northeast Elem. School	1400 E 23 rd Farmington	No specific vulnerability
Swinburne Elem. School	301 N Court Ave, Farmington	No specific vulnerability
Central High School	550 RD 6100, Kirtland	No specific vulnerability
Kirtland Middle School	538 RD 6100, Kirtland	No specific vulnerability
Grace B Wilson Elem. School	40 RD 6575, Kirtland	No specific vulnerability
Ojo Amarillo Elem. School	Kirtland	No Specific vulnerability
Ruth N. Bond Elem. School	5 RD 6575, Kirtland	Potential HAZMAT area
Government Buildings		
New Mexico National Guard	1101 W Navajo, Farmington	No specific vulnerability
Federal Bureau of Investigations	650 W Main, Farmington	Potential HAZMAT area
Aztec City Hall	201 W. Chaco, Aztec	No specific vulnerability
Bloomfield City Hall	915 N 1 st , Bloomfield	Potential HAZMAT area
Bloomfield MOC	1152 S Church, Bloomfield	No specific vulnerability
Farmington City Admin.	800 Municipal Dr. Farmington	No specific vulnerability
Farmington MOC	101 N Browning Pkwy, Farmington	No specific vulnerability
San Juan County Detention	105 S. Oliver, Aztec	Potential HAZMAT area
San Juan County Admin bldg.	100 S. Oliver, Aztec	Potential HAZMAT area
Bureau of Land Management	1235 La Plata Hwy, Farmington	Potential HAZMAT area
Special Needs Groups		
Bridge of Life Care Center	1091 W. Murray Dr. Farmington	Potential HAZMAT area
Cranes Roost Care Home	104 S. Park Ave., Aztec	Potential HAZMAT area, flooding

Community Vulnerabilities by Hazard

Flooding

Flooding continues to plague San Juan County and the cities of Aztec, Bloomfield and Farmington. The Animas River runs through Aztec and the San Juan River runs through Bloomfield. Farmington sits at the confluence of these two rivers and the confluence of the La Plata River and the San Juan River. In addition to the potential flooding caused by these rivers, there are also possible dangers of dam failure or flash floods. Further, severe rainstorms can create localized flooding due to runoff and overwhelm the present storm drainage systems.

The present drought conditions in San Juan County specifically add to the flooding danger in two ways. The continuation of the drought conditions results in a reduction of ground vegetation, which reduces the land's ability to slow down runoff. Additionally, as the drought continues, the ground hardens, resulting in a reduction in its ability to absorb moisture. The combination of these two factors increases the chance of potential damage caused by flash flooding throughout the county. FEMA estimates the average damage to a home with as little as (6) six inches of flooding will produce from \$20,000 to \$40,000 dollars in damage to the structure and contents.

Almost 40% of small businesses never reopen their doors following a disaster because just a few inches of water can cause tens of thousands of dollars in damage. From 2007 to 2011, the average commercial flood claim was over \$75,000 (FEMA 2013).

San Juan County

Flooding has historically occurred in San Juan County. The 1% chance flood has been identified by the NFIP as the October 5, 1911 event, with the last major flood occurring in 1940 along the San Juan River. More flooding occurred in 1995, 1999, 2006, 2009, and 2010 when rapidly developing storms resulted in runoff that damaged roads in the county. A declaration of emergency was made as a result of the 1999 and 2010 flooding, and funding for repairs was provided through the Federal Emergency Management Agency (FEMA).

San Juan County's vulnerability to riverine flooding along the Animas, La Plata, and San Juan Rivers has been determined to threaten approximately 4,596 people in 1,013 homes, 136 small businesses and other structures (per SJC 2009 NFIP Biennial Report).

Using the 2010 Census Data and the current floodplain maps for San Juan County the planning team identified the population and structures located within the floodplain in the unincorporated portion of San Juan County. **Based on 2010 Census data the median single family home in San Juan County is \$154,200 potential damages and loss at \$156,204,600 for structures in the NFIP.**



Table 25: San Juan County Floodplain Statistics

San Juan County Floodplain Statistics	
Population	20,674
Housing Units	8,301
Commercial and Commercial mix	122
Residential	2,124
Mobile Home Parks	15
Multi-family	2

Source: 2010 U.S. Census/FEMA Floodplain Maps

City of Aztec

The City of Aztec’s Floodplain Management program is relatively new and many residents within Aztec still do not understand the need for Flood Hazard Mitigation regulations, nor do they understand the regulations. The City has numerous structures that are in the floodplain due to the structures’ construction date (including numerous structures on the National Register of Historic Places and the New Mexico Register of Cultural Properties) relative to the implementation of flood mapping in this region. Along with the exposure of historic structures in Aztec to flooding damage, two highways (N.M. 516 and N.M. 550) fall within the floodplain (Figure 16).

Additionally, numerous residential subdivisions exist within the City with only one access point, which falls within the floodplain. Therefore, depending on the severity of possible flood events, vital transportation and evacuation routes could be obstructed until water levels receded and flood debris was cleared from the roadways. The economic losses from such a flood would affect areas well outside of Aztec. Aztec’s flood vulnerability has been created over a long period of time. Located within Aztec’s floodplain are twelve structures (the Aztec Historic District) that are listed on the National Register of Historic Places and the New Mexico Register of Cultural Properties. The New Mexico Cultural Properties Protection Act N.M. Stat. §§ 18-6A-1 through 6, encourages state agencies to work with the Historic Preservation Division to develop programs for identifying cultural properties under its jurisdiction and to ensure that cultural properties are not inadvertently damaged or destroyed.

The State Register of Cultural Properties was authorized in 1969. The Register is the official list of historic properties worthy of designation in New Mexico. HPD administers the State Register and all state listings are approved by the Cultural Properties Review Committee. The National Register of Historic Places, authorized under the National Historic Preservation Act in 1966, is the official list of the nation’s historic places worthy of preservation. The National Register is administered by the National Park Service under the Interior Secretary.

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The Aztec Historic District is a mixture of churches, homes and commercial structures that are vital to the cultural identity and the economy of Aztec. The following historic buildings are located in the floodplain identified in Aztec (Table 16).

309 N. Mesa Verde, built 1905	401 Lovers Lane, built 1906
302 N. Mesa Verde, built 1907	405 Lovers Lane, built 1906
122 N. Mesa Verde, built 1925	406 Lovers Lane, built 1906
116 N. Mesa Verde, built 1906	407 Lovers Lane, built 1910
203 N. Main	314 N. Church, built 1906
309 Lovers Lane, built 1906	216 N. Church, built pre-1907

Figure 16: City of Aztec Flood Vulnerabilities



Source: City of Aztec FEMA Firm Panel 35045C0730F

SECTION 3 – San Juan County Vulnerabilities

Using the 2010 Census Data (Table 26) and the current floodplain maps for San Juan County the planning team identified the population and structures located within the floodplain in Aztec.

Table 26: City of Aztec Flood Plan Statistics

City of Aztec Floodplain Statistics	
Population	3,252
Housing Units	1,302
Commercial and Commercial mix	20
Residential	146
Mobile Home Parks	3
Multi-family	4

Source: 2010 U.S. Census/FEMA Floodplain Maps

Twelve structures within the Aztec Historic District are in the floodplain and have been identified as a concern to the economic and cultural health of the City of Aztec. There are currently 24 structures with an estimated value of \$6,015,000 covered by the NFIP in Aztec.

City of Bloomfield

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 (Figure 17). Because Bloomfield’s floodplain maps are so out of date, many of these areas cannot be regulated by the city’s floodplain management system. It is acknowledged that the annexations that have occurred since 1978 have added additional residences to Bloomfield that are located in floodplains; however, the actual numbers are not known.

Figure 17: City of Bloomfield Flood Vulnerabilities



Source: City of Bloomfield FEMA Firm Panel 35045C0730F

Using the 2010 Census Data and the current floodplain maps the planning team identified the population and structures located within the floodplain (Table 27).

Table 27: City of Bloomfield Floodplain Statistics

City of Bloomfield Floodplain Statistics	
Population	1,943
Housing Units	749
Commercial and Commercial mix	24
Residential	136
Mobile Home Parks	3
Multi-family	0

Source: 2010 U.S. Census/FEMA Floodplain Maps

Presently seven residential structures are identified within Bloomfield in the NFIP. With the median value of family structures in New Mexico being \$154,200, this gives a known exposure of approximately \$1,079,400.

City of Farmington

Farmington is situated along the confluence of the La Platte, San Juan, and Animas Rivers, causing flooding to be a major issue. According to the Farmington Comprehensive Plan, strict and consistent adherence to floodplain use restrictions is strongly recommended. The plan further noted the present lack of floodplain restrictions throughout the unincorporated area of the county. As with the other jurisdictions within San Juan County, certain areas have been annexed into Farmington city limits in which structures are presently located within existing floodplains. However, all new construction within Farmington requires the contractor to verify flood elevations as part of the city’s approval process.

Presently there has been little history of flooding along the San Juan and Animas Rivers. However, limited flooding has occurred along the La Plata River. No critical infrastructure for the City of Farmington currently lies within the floodplain. The Farmington Floodplain Manager has identified four specific locations within the city where localized flooding has occurred. This flooding has been due to sudden unpredictable flash flood situations along arroyos and one irrigation ditch. Although it is not possible to warn residents in these areas prior to a flood, redesign of these areas can reduce or eliminate the overall problem. Without mitigation, it is understood that flooding in these areas will occur again.

In 2009 the La Plata Crossing on Pinon Hills Blvd was upgraded to Box Culverts to replace the existing/failing Corrugated Metal Pipe drainage structure, however, drop structures will further preserve the immediate area riverbed, as well as preserve the structure itself. In August 2010,

SECTION 3 – San Juan County Vulnerabilities

a flash flood in the Farmington area identified the Porter Arroyo as a problematic arroyo which flows straight through an eastern area of Farmington and caused damage. Carl Arroyo is another arroyo east of Foothills Drive that received an abundance of water in the same storm event. Ongoing improvement to downtown drainage in the older part of downtown, continued effort to keep bridge crossings clear of debris along the Animas River, and additional detention ponds within the area will help reduce flooding damage.

Using the 2010 Census Data (Table 28) and the current floodplain maps the planning team identified the population and structures located within the floodplain.

Table 28: City of Farmington Floodplain Statistics

City of Farmington Floodplain Statistics	
Population	11,533
Housing Units	4,575
Commercial and Commercial mix	196
Residential	499
Mobile Home Parks	9
Multi-family	8

Source: 2010 U.S. Census/FEMA Floodplain Maps

There are currently 126 structures with an estimated value of \$43,662,500 in the NFIP in Farmington.

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Wildfire

Wildfire probability depends on local weather conditions, outdoor activities such as camping, debris burning and construction, and the degree of public cooperation with fire prevention measures. Drought conditions and other natural hazards (tornadoes, high winds, etc.) increase the probability of wildfires by producing fuel in both urban and rural settings. Forest damage from high winds and tornadoes may also block interior access roads and fire breaks, pull down overhead power lines or damage pavement and underground utilities.

Wildfires can cause significant damage to property and threatens the lives of people who are unable to evacuate wildfire-prone areas. Many individual homes and cabins, subdivisions, resorts, recreational areas, organizational camps, businesses and industries are located within high wildfire hazard areas. Further, the increasing demand for outdoor recreation places more people in wildlands during holidays, weekends and vacation periods. Unfortunately, wildland residents and visitors are rarely educated or prepared for wildfire events that can sweep through the brush and timber and destroy property within minutes.

Wildfires can result in severe economic losses. Businesses that depend on timber, such as paper mills and lumber companies, experience losses that are often passed along to consumers through higher prices, and sometimes jobs are lost. The high cost of responding to and recovering from wildfires can deplete state resources and increase insurance rates. The economic impact of wildfires can also be felt in the tourism industry if roads and tourist attractions are closed due to health and safety concerns, such as reduced air quality by means of wildfire smoke and ash.

Potential aftermath of wildfires includes severe erosion and the silting of streambeds and reservoirs, resulting in damage to the watershed and flooding due to a loss of ground cover.

San Juan County, Aztec, Bloomfield, and Farmington

The San Juan Basin CWPP (2008) identifies the highest for wildfire potential areas in the Farmington Area of the county. The Cities of Aztec and Bloomfield are considered at a lower risk of the effect of a wildfire. Rural areas in the county would be of concern and identified as having a higher threat. Unlike the threat of flooding, which could affect large portions of this population at one time, the threat of wildland fire would most likely threaten a smaller portion of this population during any given event with longer range effects to the entire County. Table 29 lists the Wildland Urban Interface (WUI) Communities identified in the San Juan Basin CWPP.

SECTION 3 – San Juan County Vulnerabilities

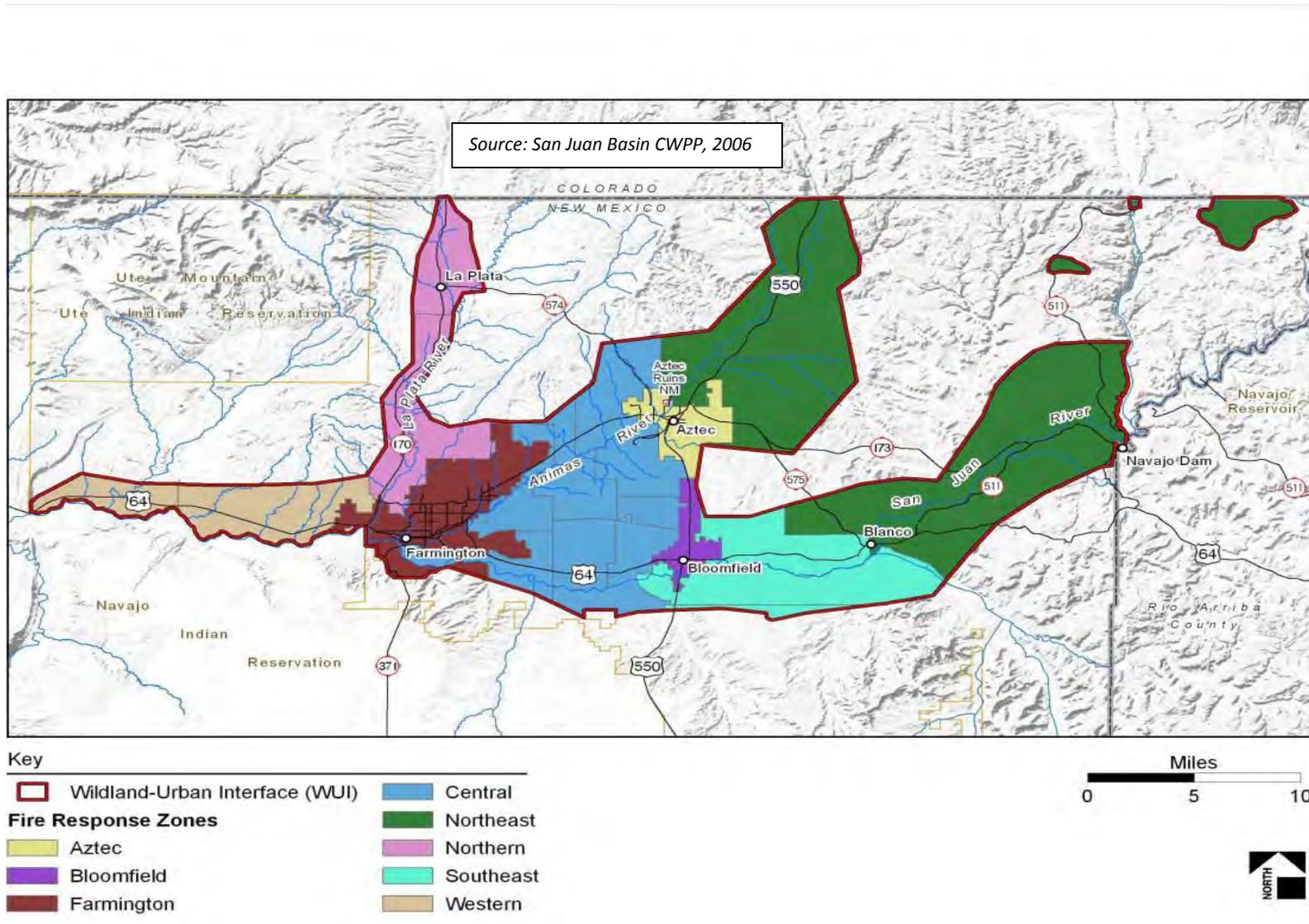
Table 29: WUI Communities in San Juan County

San Juan County WUI AREAS	ACREAGE	Structures
Farmington Area	23,019	4,575
Aztec Area	8,558	1,302
Bloomfield Area	4,904	749
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	108,746	8,301
Southeast San Juan County Zone includes portions of the San Juan River corridor and the intermix	31,756	
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.	58,659	
Northern San Juan County Zone consists of significant private lands associated with the La Plata	25,417	
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.	21,913	

Source: San Juan Basin Community Wildfire Protection Plan, October, 2006

The wildland fire areas threatened by fire are the same as the areas threatened by riverine flooding. 6,250 persons live within these heavily wooded areas, which contain 1,240 residents, 48 small businesses, and 60 other structures.

Figure 18: Wildfire Vulnerabilities



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Drought

The impact of drought falls into several danger areas: fire, agricultural, and hydrological. The fire danger in New Mexico's wildland areas remains very high. Although this danger decreases with July and August thunderstorms, the overall precipitation deficit remains. In the area of agriculture, the soil is suffering from multi-year deficits, and according to the United States Department of Agriculture, 61% of New Mexico range and pasture land is in poor to very poor condition. From the hydrological standpoint, all river basins within New Mexico remain in a moderate (warning status) to severe (emergency status) drought condition, and most reservoir storage is well below normal. Although the July and August rains will continue to ease the fire danger and provide some benefit to range and pasture lands, their effect will be minimal on reservoir storage. As the county population continues to grow, demands for water will increase. With the present drought conditions causing water availability to shrink, resource conservation is needed to ensure a sustainable future. The duration of the present drought conditions in San Juan County are very difficult to predict. At present it is reported that weather patterns are similar to those that occurred in the 1950's. The "Great Drought" was considered to be a disastrous time in New Mexico. However, there are indications that the current drought may be even more severe than that. Although it is not possible to predict the long-term severity of this drought, it is safe to say that San Juan County is presently suffering from the effects of drought conditions.

As water resources are reduced or become limited, the extent of sustainable growth within San Juan County will also become limited. The continuation of drought conditions within San Juan County is considered an issue that needs mitigation consideration. Although it is not possible to provide a mitigation plan that can eliminate the causes of drought, actions are available to reduce its effects on the community. Farmington received 5.06 inches of precipitation in 2012, as measured at Four Corners Regional Airport. About 11 inches is normal, according to the National Weather Service. San Juan County was one of 19 in New Mexico included in a federal natural disaster designation declared by the U.S. Secretary of Agriculture Tom Vilsack in January 2013.

Most of San Juan County is currently in a Warning or Moderate drought situation (Table 14). Given that drought is a slow-moving hazard without an event to mark its arrival, a one-time drought can be difficult to define. However, the consequences of a moderate to severe drought in San Juan County pose significant challenges. Long-term solutions for coping with a limited water supply will require increased cooperation between urban users and agricultural use. Critical facilities in rural parts of San Juan County may need to increase or diversify their sources of water.

A prolonged drought also increases the probability of other hazards. Forests become more susceptible to wildfires and native vegetation dies, leaving exposed soils susceptible to erosion, flash flooding, and dust storms.

The Mitigation Planning Team has identified drought as a priority hazard in San Juan County.

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Hazardous Materials (HAZMAT)

HAZMAT events in San Juan County are generally handled by the Farmington Fire Department. The cost in handling a HAZMAT event is extremely dependent on the materials involved and location of the event. According to the Farmington Fire Department, most HAZMAT calls are small and cost between \$300 and \$500 per hour. Additionally, a large event, requiring the full team and backup personnel, will cost a minimum of \$3,000 per hour. Along with the cost for fire personnel and equipment, additional costs will be incurred depending on the number of law enforcement and emergency medical personnel that will also be required during a given response. Further costs can be expected when a HAZMAT event occurs in an area of high population or business district.

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Vulnerability and Future Growth

The vulnerability existing in San Juan County is further influenced by expected future growth. . . As of the 2010 Census, approximately 130,044 people live in San Juan County as a whole. This reflects a 14.3% increase from the 2000 Census. The Census Bureau projected the population to be 164,012 by the year 2030.

According to the 2010 U.S. Census, there were 49,341 housing units in San Juan County during 2010. Of these units, 44,404 are occupied, with a vacancy rate of 2.3% for rental units. San Juan County has shown consistent growth based on building permits. Over the past six years, an average of 80 building permits per year has been issued in the county's unincorporated area until a decline in 2009 probably due to the nationwide economic downturn.

The City of Aztec's population reported in the 2010 Census was 6,763, a 6% increase from 2000. The City of Bloomfield had 8,112 people in 2010, a 26.4% increase from 2000. The City of Farmington had 45,877 people in 2010, 21.2% increase from 2000.

The incorporated areas of San Juan County are expected to continue to grow toward each other as they have done in the past. This expansion historically has occurred along the main roadways of U.S. 64, N.M. 550, N.M. 516, and N.M. 170. As this growth occurs, the population's exposure to the effects of potential HAZMAT incidents will increase.

In addition, the Farmington Comprehensive Plan indicates that several other areas are being considered for annexation. One such area is the "South Farmington" section south of Pinon Street, including all areas north of the San Juan River, a large part of the Bisti Highway, and the area south of the San Juan River. This annexation will increase the number of people and structures falling within Farmington's floodplain planning. However, if Farmington's presently established floodplain regulations are enforced, there should be no additional structural exposure in the annexed section. Another factor to be considered in this annexation would be an increase in need for present infrastructure, or a higher demand on existing services. Aztec and Bloomfield have similar floodplain regulations, and even if areas within the floodplain are annexed, there would not be an expected increase in structures in these areas.

As the floodplain areas of San Juan County correspond to the areas subject to wildland fire danger, any increase in the population or structures in this area also increase the potential loss due to wildland fires.

Farmington received 5.06 inches of precipitation in 2012, as measured at Four Corners Regional Airport. About 11 inches is normal, according to the National Weather Service. San Juan County was one of 19 in New Mexico included in a federal natural disaster designation declared by the U.S. Secretary of Agriculture Tom Vilsack in Januarys 2013.

Drought conditions have affected the county's agricultural economy and are a factor in the reduction of the area's cash receipts. Although the income from crops in the county has rebounded, the cattle industry has continued to decline.

SECTION 3 – San Juan County Vulnerabilities

The effects of drought on Aztec, Bloomfield, and Farmington have to date remained fairly minor and sufficient water rights are presently available to meet the community's needs. However, the continuation of drought conditions in the county will eventually limit its long-term population growth. Additionally, a long-term drought can result in the prolonged drying-up of the Animas River, which would stress Farmington's available water supply.

Drought will also prolong and increase the threat of wildfire along the floodplains of San Juan County, and as new construction takes place, an increase in the potential loss due to fire can be anticipated.

Along with the population increase along these major routes there are other specific threats that can result from a HAZMAT event. As U.S. 64 traverses Farmington, it passes very close to the San Juan Regional Medical Center, the county's largest hospital. A HAZMAT event in this area could require the evacuation of this hospital and the relocation of its patients. Additionally, the Farmington Comprehensive Plan indicates that some 13,566 vehicles utilize this portion of U.S. 64 daily. These vehicles would require rerouting during a HAZMAT event.

N.M. 516, the primary route from Farmington to Aztec, exits Farmington and accounts for 31,384 vehicles daily. Although it is acknowledged that not all vehicles exiting Farmington arrive in Aztec, it can be assumed that most of them do. In addition to the economic damage done to Aztec if its downtown area were to be evacuated due to a HAZMAT event, the daily traffic through this area would require an alternate route.

N.M. 550 in Bloomfield abuts the campus of Bloomfield High School. A HAZMAT event at this location could potentially require the evacuation of the entire campus as well as closing a major transportation route through the area. Additionally, the city government of Bloomfield is located near the high school and could also require evacuation.

Vulnerability Overview

Summary of Vulnerability and Losses

The County, Aztec, Bloomfield and Farmington are extremely vulnerable to the effects of natural hazards. Each hazard has a unique set of characteristics that can produce different effects and impact the community differently, depending on the magnitude, duration, and intensity. Furthermore, the same hazard events will affect different parts of the county in different ways, based on geography, development, population distribution, and age of buildings. Flooding is easily mapped from previous trends; however, the other hazards (wildfires, drought and HAZMAT incidents) are harder to map due to the potential to affect areas of the county differently, the inconsistency of existing data, lack of trend data, and the lack of feasibility that these hazards would affect the entire county. For example, the nature of hazmat incidents is that they are potentially possible in all parts of the county due to transportation. They strike at random and the number and severity of past events is not necessarily a predictor of future occurrences. Therefore, loss estimation is more difficult to predict for these types of hazards. Existing disaster data is limited for use in predicting potential losses. The FEMA *How-to-Guide* gives no guidance on estimating potential losses for drought or HAZMAT. HAZMAT incidents are more likely to cause injury to individuals than to structures, none the less the threat to the community can be devastating. Very limited guidance is given for wildfires. To complete the loss estimate worksheets, vulnerable critical facilities that the MPT identified were used to complete a potential dollar loss per hazard event based on educated assumptions.

Table 30 provides an estimate of the percent the county, and identified jurisdictions, could be impacted by a natural hazard at any one time. Appendix C provides the complete breakdown for each jurisdiction and hazards identified in this HMP.

Table 30: Estimated Impacts from Natural Hazards

Hazard	Average Percentage Used in Calculating County-wide Loss Scenarios	Logic/Source
Flood	5%	100 Year Flood Model
Wildfire	5%	San Juan Basin Community Wildfire Protection Plan, October 2006 and data provided by San Juan County OEM
Drought	100%	New Mexico Drought Plan (2005)

Vulnerability – Critical Facilities

This section summarizes the total estimated losses for each natural hazard profiled in the hazard identification section that could affect the critical infrastructure of the county and each jurisdiction. More detail on how these estimates based on FEMA methodology were derived can be found in each hazard profile. It should be noted these estimates are based on worse-case

SECTION 3 – San Juan County Vulnerabilities

scenarios and on preliminary, incomplete data. It is generally impossible to predict exactly what damage an event will incur, but nonetheless general estimates can be made to guide planning, preparedness, response and better decision making. Furthermore it can also help increase awareness of the potential effects of natural disasters. These loss estimates also do not take into account potential economic losses, which in many cases may be worse than structural and content losses.

Critical facilities are those facilities that are critical to government response and recovery activities immediately after a disaster. These facilities include but are not limited to police and fire stations, public works facilities, sewer and water facilities, health clinic, bridges and roads, and shelters. Important facilities may not be critical during or immediately after a disaster but are important to the resiliency and recovery of the county from a disaster. Examples of important facilities to the jurisdictions in the county are the Health Centers, Police Department, Fire Department, EMS and special needs facilities. . Table 31 provides a consolidated listing of identified critical facilities in the county by jurisdiction.

Table 31: San Juan County Multi-Jurisdictional Critical Facilities

Facility	San Juan CO	Aztec	Bloomfield	Farmington
Government	Facilities located in incorporated cities	3	2	4
Utility/Services	Facilities located in incorporated cities	2	1	1
Water Treatment	Facilities located in incorporated cities	2	1	1
Fire – HAZMAT	9	6	4	8
Health Services	1	2		
Law Enforcement	3	2	1	2
School	5	5	8	19
Special Needs	Facilities located in incorporated cities	1	0	1
Total	18	23	17	36

Source: Hazard Mitigation Team Members from each jurisdiction

Only one critical facility was identified in a designated natural disaster hazard area (flooding) - the Waste Water Treatment Plant in Aztec.

Additionally several facilities are identified in areas that may be affected by HAZMAT incidents, however, no estimates of damage were applied to these facilities due to the nature of potential events. i.e. loss of lives and very localized loss of commerce.

San Juan County (Multi-Jurisdiction) Critical Infrastructure Loss Estimation

In order to estimate the potential dollar losses to vulnerable critical structures, the HMP Team used the process outlined in FEMA's "*Understanding Your Risks; Identifying Hazards and Estimating Losses.*" This process calls for completing two worksheets: the Vulnerable Asset Inventory Worksheet and the Loss Estimate Worksheet. The HMP Team determined that there are about 18 buildings in the county, 23 buildings in Aztec, 17 in Bloomfield and 36 in Farmington of critical significance. Loss estimates worksheets were not completed for the vulnerable critical facilities since only the Aztec Waste Water Treatment Plant was identified in a specific hazard area. It was not the intent of the HMP to make gross assumptions to estimate total losses.

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Vulnerability Assessment – Flood/Flash Floods

A 100-year flood event is defined as statistically having a 1 percent chance of occurring any one year. The Level 1 flood model loss estimate is based on the HAZUS-MH default data derived from national databases and expert-developed parameters that define the HAZUS-MH software. As stated previously in Section 2, Hazard Identification/Risk Assessment, the county is currently going through a floodplain update. The probability of inundating rural areas in the county that have older constructed buildings and less adequate to no flood diversion structures in place is highest.

Existing Community Assets

Flood vulnerability is described in terms of the community assets that lie in the path of floods. The flood hazard vulnerability assessment for San Juan County focused on the 100-year storm event base flood elevation, though floods of both greater and lesser flood depths are possible. Vulnerability to flash floods is difficult to determine because local terrain, soil conditions, and construction play a role in how much storm water is able to run off, percolate into the soil, or cause flash flooding.

Vulnerability Assessment – Wildfires

The San Juan Basin CWPP (2008) identifies the highest for wildfire potential areas in the Farmington Area of the county. The Cities of Aztec and Bloomfield are considered at a lower risk of the effect of a wildfire. 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. Rangeland and forest losses from wildfire would be accrued over several years until the resources recover. The problem of wildfire for San Juan County and the communities of Aztec, Bloomfield, and Farmington are very similar, since it runs along the river bottoms throughout the region.

The wildland fire areas threatened by fire are the same as the areas threatened by riverine flooding. 6,250 persons live within these heavily wooded areas, which contain 1,240 residents, 48 small businesses, and 60 other structures.

Existing Community Assets

The vulnerability assessment portion of this report uses existing studies to estimate potential losses from wildfire. *The San Juan Basin Community Wildfire Protection Plan (CWPP) (2006)* identified areas of wildland-urban interface within the county.

Critical Facilities

According to the San Juan County MPT no Critical Facilities were identified within San Juan County as vulnerable to wildfire. Though referencing the WUI maps an estimate loss was developed to identify potential losses on a worst case scenario of a wildfire event. Categories of Critical Facilities include infrastructure and public facilities.

Infrastructure

- ✓ The Mitigation Planning Team did not identify any major infrastructure threatened by wildfire. There are all types of utilities throughout the County including overhead and underground utilities and propane tanks. There are electrical distribution lines that cross the WUI. However, more detailed information was not available at the time of the WUI report.
- ✓ The location and relative risk of pipelines in the County were assessed in the 2006 CWPP Assessment. Pipelines carry natural gas across portions of the county that have been classified as Low Risk and High Risk.
- ✓ Communication structures are scattered throughout the county and located in areas identified as Low, Medium and High Risk areas.
- ✓ Transportation routes through the county and are considered a high hazard area due to high volumes of hazardous material traveling through the state.

Public Facilities

- ✓ Schools and municipal structures are located throughout the County. The Hazard Mitigation Team did not identify any public structures located in risk areas.

Estimating Potential Loss

The wildland-urban interface analyses discussed above show that future wildfires could cause substantial loss of property, along with direct and indirect economic effects for residents and community businesses. This report uses census data and information presented in the CWPP to estimate the number and value of non-municipal structures at risk from wildfire. According to the CWPP assessment, there are over 282,972 acres located in areas vulnerable to fire damages in the county. Virtually almost all of the vulnerable areas are located in unincorporated areas of the county. The City of Farmington has areas of High Risk, however, only small portions of Aztec and Bloomfield are identified in the CWPP having a vulnerability of High Risk to wildfires.

To determine an estimated potential loss value, the San Juan County CWPP was used. The CWPP only surveyed non-municipal private land. At the time of writing this plan, data was unavailable for the number of critical facilities in risk areas. The value of critical facilities was not calculated because the available data is a county-wide assessment of non-residential values. Additionally, The CWPP does not list number of homes rather lists by number of lots (non-municipal structures) in the hazard zones. In determining a loss for homes in the WUI areas the median value of homes, \$70,100 was factored and the percent damage expected from different hazard ratings. Utilizing 100% destruction for homes in the High hazard area, 50% for Medium hazard, and 20% for Low hazard rating areas in the WUI, dollar amounts are seen in Table 32. This data provides the county with an overview of areas vulnerable and to prioritize strategies in those areas highest in wildfire potential.

Table 32: Potential Dollar Losses for Homes in WUI Areas

Potential Dollar Losses for Homes in WUI Areas			
Median Home Value: 70,100			
Hazard Rating	Damage	Lots/homes	Value
High	100%	1,240	\$86,924,000.00
Medium	50%	640	\$43,462,000.00
Low	20%	248	\$17,384,800.00
<i>Source: San Juan County Community Wildfire Protection Plan</i>			

Future Development Trends

Mitigation options for wildland fire need to address not only the management of fuels, but also the potential for growing population in wildfire threat areas. Traditional tactics for preventing wildfires have focused on fire suppression. Rather than trying to stop all wildfires, mitigation measures such as reducing fuel loads and creating defensible spaces aim to minimize the damage caused by wildfires. More specific mitigation goals and actions are detailed in Section Three of this document.

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Vulnerability Assessment – Drought

The DHSEM HMP identifies every jurisdiction in the state is vulnerable to drought. Drought measurements are not very precise, and often they are directed toward particular segments of the state. For example, there are drought measurements based upon agricultural conditions; there are measurements of stream flow and water storage in reservoirs; there are measurements of groundwater and effects upon drinking water systems; and there are strictly meteorological and climatic measurements. Some drought indicators might point toward an abatement of drought conditions for the agricultural sector, while the drought continues for drinking water in the same area. Droughts in San Juan County and those jurisdictions in this HMP significantly affect human activities, wildfire suppression, natural resources, and water dependent activities, such as agriculture. The consequences of a moderate-to-severe drought pose significant challenges to include:

- **Agriculture** – Impacts associated with agriculture, farming, and ranching. Examples include damage to crop quality, income loss for farmers due to reduced crop yields, reduced productivity of cropland, insect infestation, plant disease, increased irrigation costs, cost of new or supplemental water resource development, reduced productivity of rangeland, forced reduction of foundation stock, closure/limitation of public lands to grazing, high cost/unavailability of water for livestock, and range fires.
- **Water/Energy** – Impacts associated with surface or subsurface water supplies (i. e., reservoirs or aquifers), stream levels or streamflow, hydropower generation, or navigation. Examples include lower water levels in reservoirs, lakes, and ponds; reduced flow from springs; reduced streamflow; loss of wetlands; estuarine impacts; increased groundwater depletion, land subsidence, reduced 105 recharge; water quality effects; revenue shortfalls and/or windfall profits; cost of water transport or transfer; cost of new or supplemental water resource development; and loss from impaired navigability of streams, rivers, and canals.
- **Environment** – Impacts associated with wildlife, fisheries, forests, and other fauna. Examples include loss of biodiversity of plants or wildlife; loss of trees from urban landscapes, shelterbelts, wooded conservation areas; reduction and degradation of fish and wildlife habitat; lack of feed and drinking water; greater mortality due to increased contact with agricultural producers, as animals seek food from farms and producers are less tolerant of the intrusion; disease; increased vulnerability to predation; migration and concentration; and increased stress to endangered species.
- **Fire** – Impacts associated with forest and range fires that occur during drought events. The relationship between fires and droughts is very complex. Not all fires are caused by droughts and serious fires can result when droughts are not taking place.
- **Other** – Drought impacts that do not easily fit into any of the above categories. Overall, however, most indications are that the drought will continue and will probably get worse before it gets better. Therefore, San Juan County is judged to have high vulnerability to drought.

Existing Community Assets

The effects of drought on Aztec, Bloomfield, and Farmington have to date remained fairly minor and sufficient water rights are presently available to meet the community's needs. However, the continuation of drought conditions in the county will eventually limit its long-term population growth. Additionally, a long-term drought can result in the prolonged drying-up of the Animas River, which would stress Farmington's available water supply.

Drought will also prolong and increase the threat of wildfire along the floodplains of San Juan County, and as new construction takes place, an increase in the potential loss due to fire can be anticipated.

Critical Facilities

Depending on the nature of the operation, critical facilities need water for multiple purposes, from potable water to fire suppression. Groundwater supply provides a buffer from the impact of short-term droughts. In the County, rural fire stations sometimes rely on relatively shallow wells that are sensitive to the impact of moderate droughts, resulting in slower recharge rates for storage tanks and sometimes necessitating drilling new wells to a greater depth.

Estimating Potential Loss

Although no drought events for San Juan County have been recorded by the NCDC, between 2000 and November 2012 there were three state-declared disasters for effects related to drought, primarily for loss of domestic drinking water: May 1996, May 2000, and June 2002. The total cost of drought-related events for this time period is \$279,459. However, indirect costs are estimated to be between \$50 and \$100 million. Over the past 10 years (120 months), New Mexico has had 50 months of drought. Based on this, San Juan County can anticipate at least some type of drought conditions every other year.

Future Development Trends

Although population estimates for San Juan County consistently indicate a decrease in population (US Census, 2010) impacts to the County will continue. Because groundwater is typically recharged by surface water a continuation of the current drought and lower water levels in the region will lower the water table even farther and require deeper wells. The existing groundwater is variable in quality, depending upon hydrogeology of the area. Deeper groundwater also requires more intensive treatment to filter out arsenic and other minerals. A State Drought Task Force is focusing on water project construction, water rights, conservation, and water quality to deal with the State's continuing drought conditions.

Capabilities and Resources

Capabilities

San Juan County and the incorporated jurisdictions have a number of resources that can be called on to help inform, educate and implement and hazard mitigation actions. Resources and regulatory framework for each jurisdiction in San Juan County is summarized in Table 33 and relevant aspects of each regulatory component are discussed below.

Table 33: San Juan County Capability Assessment Matrix

Name of Jurisdiction	San Juan County Mitigation Planning Team	Website	Flood Damage Prevention Ordinance	Capital Improvement Plan	Emergency Operations Plan	Subdivision Regulations	Building Codes ¹	Participation in NFIP	Local Law Enforcement	Local Fire Department	Community Wildfire Protection Plan	Economic Development Plan	San Juan County Comprehensive Plan
San Juan County	X	X	X	X	X	X	X	X	X	X	X	X	X
Aztec	X	X	X	X	X	X	X	X	X	X	X	X	X
Bloomfield	X	X	X	X	X	X	X	X	X	X	X	X	X
Farmington	X	X	X	X	X	X	X	X	X	X	X	X	X

The Mitigation Planning Team – San Juan County and the jurisdictions within the county have had a robust planning team that has been meeting regularly since 2010 and is invested in the Hazard Mitigation Planning process. The MPT includes representation of each jurisdiction.

Websites – Each of the jurisdictions has a website that was used to gather information from the public and to seek input for mitigation planning. The planning team will continue to post meeting notices, meeting notes, information requests, and HMP updates as they occur.

Floodplain Ordinances – Each of the jurisdictions has floodplain ordinances and a floodplain manager to administer the ordinances. Through administration of floodplain ordinances, the municipalities ensure that all new construction or substantial improvements to existing structures located in the 100-year floodplain are built with first-floor elevations above the base flood elevation or are flood proofed.

Zoning – Building Codes -Land Use Regulations – Building codes are important mitigation tools because they can be tailored to fit specific hazards present in each region. At a minimum every jurisdiction in San Juan County has adopted the State of New Mexico Uniform Building Codes. Starting July 1, 2004, New Mexico’s Construction Industries Division, which has oversight and provides inspection services for unincorporated areas of the state, switched from the 1997 Uniform Building Code (UBC) to the 2003 International Building Code (IBC).

San Juan County

San Juan County has adopted the Uniform Building Codes and the State of New Mexico provides implementation and informant in the unincorporated portions of the county. San Juan County has the following departments that include:

- Community Development Division
- Building department
- GIS
- Housing Authority
- A floodplain Manager

Each of these Departments will be given a HMP to use resource tool when updating plans and identifying new projects. Additionally the San Juan County Emergency Manager and Floodplain Manager’s Office have been in the lead agent for the development of the HMP and will continue to provide this support.

City of Aztec

The City of Aztec has a Code Compliance Office that is charged with enforcing a number of City ordinances designed to promote the safety, well being, and appearance of the City of Aztec and its residents. Aztec also has a number of plans that are used to guide planning for both structures and economic development in the City.

- Animas River Trails System Plan
- Comprehensive Plans
- Economic Development Strategy Plan
- Economic Executive Summary
- Median Inventory and Improvement Plan
- Farmington Metropolitan Transportation Plan (regional plan)
- Farmington Transportation Improvement Program (regional plan)

Each of these Departments will be given a HMP to use resource tool when updating plans and identifying new projects. Additionally the Aztec Office of Economic Development has been active on the HMT and will continue to provide guidance to the City of Aztec.

City of Bloomfield

The City of Bloomfield has a Planning & Zoning Director/GIS that is responsible for:

- Planning and Zoning
- Economic Development
- Subdivision review and compliance
- Issuance of Compliance certificates
- Floodplain manager
- Right of Way acquisitions
- Addressing Building Permits - first point of contact
- The management and supervision Planning Department
- The development for long and short range plans
- Evaluating land use proposals for conformity and insures compliance with all laws
- Documentation of subdivisions

Each of these Departments will be given a HMP to use resource tool when updating plans and identifying new projects. Additionally the Bloomfield Planning and Zoning Director has been active on the HMT and will continue to provide guidance to the City of Bloomfield.

City of Farmington

Farmington has a Community Development Department 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, and policies related to building and land use, which are adopted by the City Council.

The department also administers HUD's Community Development Block Grant Program for the city and provides administrative services to the Farmington Metropolitan Planning Organization, which is the regional transportation planning organization for the cities of Farmington, Aztec, Bloomfield, and for San Juan County.

Each of these Departments will be given a HMP to use resource tool when updating plans and identifying new projects. Additionally the Farmington Public Works Director and Wildfire Coordinator have been active on the HMT and will continue to provide guidance to the City of Bloomfield.

Incorporation of Capabilities

The MPT reviewed the initiatives listed above and incorporated these existing efforts where it was applicable into the mitigation actions enumerated in Sections Two and Three of the Plan.

Resources

Additional community-based, technical, and funding resources currently available for San Juan County include the following:

- **Community-based Organizations**
 - Firewise Communities/USA: a Team for *firewise* educational opportunities within the community (www.firewise.org)
 - StormReady: the National Weather Service has a *StormReady* tool kit for Emergency Managers and local officials to help communities improve hazardous weather operations. (http://stormready.noaa.gov/guideline_chart.htm)
- **Technical Resources** – to help in future decision making:
 - GIS capabilities

Funding Opportunities

The county hazard mitigation planning process is closely integrated 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, 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 communities 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). San Juan County 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

- Community Rating System (CRS): This program was established in 1990 for recognizing and encouraging community floodplain management that exceeds the minimum NFIP standards. Under the CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community actions that meet the requirements of CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote awareness of flood insurance.
- Community Development Building Grant (CDBG)

Summary of Capabilities and Resources

The Capabilities and Resources of San Juan County related to mitigation planning can be summarized in term of opportunities and deficiencies to be addressed in the mitigation plan and implementation strategy as follows:

Opportunities

- Periodic updates to the Comprehensive Plans for San Juan County to provide opportunities to integrate information about hazard vulnerability into the land use subdivision and approval process. This integration will help develop appropriate long-range strategies to combat drought, fire, earthquake, and flood hazards
- CRS planning is consistent with and complementary to the mitigation planning process undertaken for the Disaster Mitigation Act of 2000 and can help in developing more detailed mitigation activities for flood-related disasters in San Juan County
- FEMA funding available for Citizens Emergency Response Team (CERT) to train the public to respond to large disasters, both locally and nationally

Deficiencies

- Lack of awareness on part of the public of hazards and mitigation efforts.
- Low economic tax base.
- Communities in San Juan County do not have wildfire prevention ordinances.
- There is a relatively low subscription rate to the flood insurance program.
- Not taking advantage of access to federal and state funding opportunities.

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Section 4 – Goals, Objectives and Mitigation Actions

This section presents a series of goals, objectives, and mitigation actions to help guide the County in addressing its hazard vulnerabilities. The identified mitigation actions reflect the vulnerabilities discussed in Section One by identifying measures that may help the County and included municipalities avoid, prevent, or otherwise reduce damages from hazards.

Terminology

Goals are general guidelines that explain what you want to achieve. Goals are usually expressed, as broad policy statements representing desired long-term results. In this Plan, goals directly respond to the results of the hazard identification and risk assessment.

Objectives describe strategies or implementation steps to attain the identified goals. Objectives are more specific statements than goals. The described steps are usually measurable and can have a defined completion date.

Actions provide more detailed descriptions of specific work tasks to help a community achieve the goals and objectives. For each objective statement, there are alternatives for mitigation actions that must be evaluated to determine the best choices for each situation.

Mitigation Plans include a listing and description of the preferred mitigation actions and the strategy for implementation, i.e., who is responsible, how will they proceed, when should the action be initiated and/or completed.

Mitigation Goals and Objectives

The goals and objectives presented below were developed in light of the risk assessment findings presented in Section One, with direction and guidance provided by the San Juan County Mitigation Planning Team and NMOEM.

Current criteria under DMA 2000 recommend that local mitigation plans be consistent with and support their State's hazard mitigation plan. The State of New Mexico's existing State Hazard Mitigation Plan October 2007, details the mitigation goals, objectives, and strategies based on the State's risk assessment. The State's hazard mitigation goals are presented in Figure 18. The mitigation objectives and actions identified by the Mitigation Planning Team are presented below and according to hazard type in the same order as Section One. However, this listing does not reflect the order in which the projects will be implemented. In Section Three, recommended projects are prioritized for implementation as resources become available.

The ultimate mission of hazard mitigation is the protection and preservation of life and property from the effects of the occurrence of natural hazards.

SECTION 4 – Goals, Objectives and Mitigation Actions

Local governments can make progress toward this goal through coordinated planning and financing to achieve the specific objectives set forth in their hazard mitigation plans. To this end, the Mitigation Planning Team's (MPT) strategy has been to develop several methods for mitigating the hazards identified in Section 2, Hazard Identification/Risk Analysis, as the most likely hazards to have severe consequences in San Juan County: flood, drought wildfire, and HAZMAT. The MPT has developed goals and objectives and has suggested action items that can provide directions and methods for mitigating these hazards. The Team met to discuss goals and objectives. Feedback from local officials and communities stress lack of resources and need to work within San Juan County's limited capabilities.

Mitigation Goals

The overarching goal of mitigation is to save lives, limit injuries, decrease property damage, and reduce recovery time in future responses. Mitigation can reduce the enormous cost of disasters to property owners and all levels of government. In addition, mitigation can protect critical facilities, reduce exposure to liability and minimize community disruption. Preparedness, response, and recovery measures support the concept of mitigation and may directly support identified mitigation actions by 1) *increasing awareness of hazards and their effects*; 2) *decreasing the possibility of impact from the most significant threats*; 3) *decreasing the vulnerability of critical and non-critical facilities*; 4) *increasing established response mechanisms by enhancing partnerships*; and 5) *increasing coordination between levels of government regarding incidents and response mechanisms*. This current HMP is intended to facilitate these goals and actions and to focus on the county's top priorities for hazard mitigation for the next five years. If other hazards that currently are not deemed significant do become significant in the future, updates to this plan will include mitigation strategies to address them.

Figure 19: New Mexico Hazard Mitigation Goals

State of New Mexico Hazard Mitigation Goals
<ul style="list-style-type: none">• Reduce the number of injuries due to natural hazards• Reduce the number of fatalities from natural hazards• Reduce the amount of property damage, both public and private, from natural hazards• Shorten recovery times after natural hazard events• Improve communication, collaboration and integration among state and local emergency management agencies• Increase awareness and understanding of risks and opportunities for mitigation among the citizens and elected officials of New Mexico

SECTION 4 – Goals, Objectives and Mitigation Actions

PAST GOALS AND OBJECTIVES

The Plan Update process requires review of previous goal and objectives that were defined in the previous plan. The following goals and objectives have been realized since the 2005 Mitigation Plan was adopted.

San Juan County 2005 Goals and Objectives		
Goal Number	Objective	Remarks
2005-1	Control future structural encroachment in identified floodplains in San Juan County.	San Juan County Ordinance 58 was revised, adding higher regulatory standards language and including No Adverse Impact principals, on June 4, 2010
2005-1.1	Enact legislation for San Juan County restricting construction within the identified county floodplains.	
2005-1.2	Seek an update of floodplain maps for San Juan County.	<i>DFIRM maps were adopted on August 8, 2010</i>
2005-2	Reduce the damage caused by flash flooding in San Juan County.	<i>Goal was adjusted in 2012.</i>
Action Plan	Building/zoning codes. The County Commission will enact building/zoning codes that restrict building within the county's identified floodplains. Such legislation will require a review and approval of all future construction by the county floodplain manager.	Ord.58 adopted in 2004 and updated in 2010.
Alternative Planning: Flooding	Each city could purchase all areas within the city located in known floodplains and convert these properties to recreational use. It is recognized that this project could be prohibitively expensive.	No updates at this time.
	Aztec could refuse to annex any additional areas containing structures or planned structures lying within a known floodplain. This limited annexation approach would ensure that no new problem areas become an issue for the city.	No updates at this time.

SECTION 4 – Goals, Objectives and Mitigation Actions

City of Farmington 2005 Goals and Objectives		
Goal Number	Objective	Remarks
No number assigned	Establish a current floodplain map for Farmington.	Full area floodplain maps effective 8/5/10 were received by the City Of Farmington.
	Seek updated floodplain maps for Farmington.	
	Ensure that Farmington's future growth does not expand into areas that expose the community to increased flood risks.	<i>Ongoing projects</i>
	Incorporate all future comprehensive planning for Farmington with the San Juan County Mitigation Project.	
	Eliminate or reduce the potential for flooding within known flood risk areas.	In 2009 the La Plata Crossing on Pinon Hills Blvd was upgraded to Box Culverts to replace the existing/failing Corrugated Metal Pipe drainage structure, however, drop structures will further preserve the immediate area riverbed, as well as preserve the structure itself.
	Develop a plan for reducing or eliminating the risk of flooding at the Navajo Crossing of the Glade Arroyo.	
	Develop a plan for reducing or eliminating the risk of flooding at the Crestwood Drive Crossing of the Hood Arroyo.	Ongoing projects
	Keep all waterways in Farmington clear of debris and unwanted vegetation	

SECTION 4 – Goals, Objectives and Mitigation Actions

San Juan County – Flood - Archived Action Plans		
Goal Number	Objective	Remarks
No number assigned	Building/Zoning Codes. The San Juan County building and zoning codes will be reviewed and updated to reflect the county's entrance into the FEMA floodplain management program. This project will be accomplished by the county's floodplain manager, county planning office, and building inspector's office.	This process was completed in 2003.
No number assigned	Update floodplain maps. The San Juan County floodplain manager will work with FEMA in order to request an update of the county floodplain maps. This process will be initiated after the approval of this plan; however, it is a long-range project with an anticipated completion date of 2010.	DFIRM maps were adopted in 2010.

Septic systems are currently permitted through the State of NM – Environmental Department.

San Juan County – Drought - Archived Action Plans		
Goal Number	Objective	Remarks
No number assigned	Building/Zoning Codes. The San Juan County building and zoning codes will be reviewed and updated to reflect the county's entrance into the FEMA floodplain management program. This project will be accomplished by the county's floodplain manager, county planning office, and building inspector's office.	This process was completed in 2003.
No number assigned	Update floodplain maps. The San Juan County floodplain manager will work with FEMA in order to request an update of the county floodplain maps. This process will be initiated after the approval of this plan; however, it is a long-range project with an anticipated completion date of 2010.	DFIRM maps were adopted in 2010.
No number assigned	Required installation of low flow toilets and showerheads. Legislation will be enacted by the San Juan county commission that will recommend the use of both low flow toilets and showerheads in all new construction. This legislation is anticipated to be completed within the year. In addition, legislation	San Juan County has set this aside to tackle larger problems.

SECTION 4 – Goals, Objectives and Mitigation Actions

San Juan County – Drought - Archived Action Plans		
Goal Number	Objective	Remarks
	requiring the use of low flow toilets and shower heads will follow in approximately three years.	
No number assigned	Required installation of gray water recovery systems. Legislation will be enacted by the San Juan county commission that will recommend the use of gray water recovery systems in all new construction. This legislation is anticipated to be completed within the year. In addition, legislation requiring the use of gray water recovery systems will follow in approximately three years.	Septic systems are currently permitted through the State of NM – Environmental Department.

San Juan County – Hazardous Materials - Archived Action Plans		
Goal Number	Objective	Remarks
No number assigned	San Juan County HAZMAT transport survey. The transportation survey is anticipated to be completed within calendar year 2004.	Completed
No number assigned	San Juan County HAZMAT response survey. The HAZMAT response survey is anticipated to be completed within calendar year 2004	Completed
No number assigned	San Juan County HAZMAT bypass route. Planning of the HAZMAT bypass route will depend on the outcome of the transportation and response surveys. If it is deemed appropriate to consider this project, it will be a long-term process, with completion expected no sooner than 2010.	Completed
No number assigned	Public education program. A series of public service announcements and public education sessions will be developed to assist county residents in learning how to prepare and react during HAZMAT events.	This program will begin upon the adoption of this mitigation plan and will become an ongoing program.
No number assigned	Reverse 911 system. A reverse 911 system will be sought for San Juan County. The completion of this project will depend on the availability of funds.	Pending fund availability.

SECTION 4 – Goals, Objectives and Mitigation Actions

Flood Mitigation Actions

San Juan County has been a member in good standing with the NFIP since November 21, 2003 and currently holds a Community Rating System score of 8. Floodplain Management is housed in the Office of Emergency Management, with three Certified Floodplain Managers, one of which is tasked with program management.

San Juan County Ordinance 58 Flood Damage Prevention is an NFIP Class D Ordinance with higher standards. San Juan County has recently passed three resolutions, which designated three areas as Special Flood Hazard Areas for regulatory purposes. San Juan County adopted NFIP DFIRM maps in August, 2010.

San Juan County continues to provide assistance to the community by filing LOMA (Letter of Map Amendment) documentation and acting as a resource for those submitting CLOMR documentation.

Goals and objectives to resolve flood related problems are as follows.

<p align="center">San Juan County Flood Mitigation</p> <p align="center">Goal 1: Control future structural encroachment in identified floodplains</p>	
Objective 1	Create internal policy and procedure to ensure all proposed development, structural and non-structural, have floodplain determinations prior to approval of development
Action	<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 align="center">Funding Source:</p> <p align="center">San Juan County</p> <p align="center">Responsible Agencies:</p> <p align="center">San Juan County Assessors</p> <p align="center">San Juan County Community Development</p> <p align="center">San Juan County Floodplain Manager</p> <p align="center">San Juan County Treasurers</p> <p>Achievable results: Regulation of Special Flood Hazard Areas can better prevent damage to new development and prevent damage to existing development by partnering with other San Juan County regulatory departments to ensure early detection and compliance prior to completion with regards to floodplain management issues.</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

San Juan County Flood Mitigation	
Goal 1: Control future structural encroachment in identified floodplains	
Objective 2	Partner with local utility agencies and other jurisdictions to ensure floodplain determinations are completed prior to development approval.
Action	<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.</p> <p style="text-align: center;">Funding Source: San Juan County</p> <p style="text-align: center;">Responsible Agencies: Farmington Electric Utility Aztec Electric Utility San Juan County Water Users New Mexico State LP&G Inspections</p> <p>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>
Objective 3	Partner with Federal and State agencies to ensure floodplain determinations are completed prior to development approval
Action	<p>Land Management Ordinances. Develop legislation that would support a Land Use Management Plan.</p> <p style="text-align: center;">Funding Source: San Juan County</p> <p style="text-align: center;">Responsible Agencies: San Juan County Office of Emergency Management San Juan County Community Development</p> <p>Achievable results: San Juan County is in the process of developing a Land Use Management Plan. This plan will bridge a gap that currently exists between Building, Subdivision, and Floodplain Management with Community Planning and Storm Water Management</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

San Juan County Flood Mitigation	
Goal 2: Reduce the damage caused by flash flooding	
Objective 1	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.
Action	<p>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.</p> <p style="text-align: center;">Funding Source: San Juan County</p> <p style="text-align: center;">Responsible Agencies: San Juan County Floodplain Management San Juan County Community Development</p> <p>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.</p>
Objective 2	Enact legislation for San Juan County concerning the responsibility for keeping waterways clear of debris and vegetation that can magnify the effects of flooding.
Action	<p>Waterway cleaning legislation. The County Commission will enact legislation that establishes the need to keep San Juan County waterways clear of undesirable vegetation.</p> <p style="text-align: center;">Funding Source: San Juan County</p> <p style="text-align: center;">Responsible Agencies: San Juan County Commission San Juan County Attorney San Juan County Floodplain Manager San Juan County Volunteer Fire Department U.S. Army Corp of Engineers</p> <p>Achievable results: The establishment of legislation requiring property owners to</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

<p align="center">San Juan County Flood Mitigation</p> <p align="center">Goal 2: Reduce the damage caused by flash flooding</p>	
	<p>maintain the waterways on their property will reduce the potential for flooding by allowing unrestricted flow of water. In addition to keeping the waterways open for the free flow of water, such maintenance will reduce the potential of illegal dumping in the waterways.</p> <p>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. However, when dumping occurs in waterways running through lands under private ownership, the owners have no obligation to clean up the debris. This accumulation of debris restricts the water flow through these areas and can cause flooding. In addition, if this debris moves down the waterway during flooding, it can block culverts or other bottlenecks downstream, causing further flooding downstream from its original source.</p> <p>Instituting an obligation for private landowners to clear waterways will ensure that debris-caused flooding is reduced or eliminated when such regulations are in place and enforced.</p>
Objective 3	Identify and plan for bank stabilization projects along waterways in the county
Action	<p>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.</p> <p align="center">Funding Source:</p> <p align="center">San Juan County New Mexico Highway Department U.S. Army Corps of Engineers</p> <p align="center">Responsible Agencies:</p> <p align="center">San Juan County Floodplain Manager San Juan County Public Works Department U.S. Army Corps of Engineers</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

San Juan County Flood Mitigation	
Goal 2: Reduce the damage caused by flash flooding	
	<p>Achievable results: The stabilization of waterway banks can reduce or eliminate the dangers of erosion during times of flooding. Such stabilization can prevent the undercutting of foundations, which is a major source of structural damage during floods.</p> <p>When flooding occurs, over time the power of the water rushing through the county's waterways erodes soil along its banks and changes the course of the waterway. The use of riprap and other bank stabilization techniques can reduce or even eliminate the erosion caused during flooding. Many county roads throughout San Juan County use low water crossings instead of the more costly culverts, bridges, or other elevated roadways. In addition, some of these roadways run parallel to waterways. When flooding occurs in areas without bank stabilization in place, these road surfaces can be washed out and possibly destroyed. The application of bank stabilization in these areas can reduce or eliminate the need to rebuild these roads after flooding occurs. These bank stabilization projects will reduce the possibility of repetitive loss.</p> <p>San Juan County has undertaken two bank stabilization projects. The first was on the Animas River at the San Juan County Fair Grounds - McGee Park. This project was completed in 2005. This project was designed to protect the Fair Grounds from erosion and reduce flooding caused by spring runoff, flash flooding from arroyos.</p> <p>The second project was completed in 2006 on the Animas River in the area of County Road 3020, Aztec, New Mexico. A large area of bank had been eroded causing a bow to form in the river. Risk to the area of flooding and erosion destroying at least one home prompted the reconstruction of the eroded bank and returning the river to a more natural flow path</p>

City of Aztec – Flood Mitigation Goals, Objectives and Actions

The City of Aztec's Floodplain Management program is relatively new and many residents within Aztec still do not understand the need for Flood Hazard Mitigation regulations, nor do they understand the regulations. The City has numerous structures that are in the floodplain due to the structures' construction date (including numerous structures on the National Register of Historic Places and the New Mexico Register of Cultural Properties) relative to the implementation of flood mapping in this region. The combination of public and privately owned properties in the floodplain warrant additional education and mitigation measures to ensure flood risks in the community are minimized.

Along with the exposure of historic structures in Aztec to flooding damage, two highways (N.M. 516 and N.M. 550) fall within the floodplain. Additionally, numerous residential subdivisions exist

SECTION 4 – Goals, Objectives and Mitigation Actions

within the City with only one access point, which falls within the floodplain. Therefore, depending on the severity of possible flood events, vital transportation and evacuation routes could be obstructed until water levels receded and flood debris was cleared from the roadways. The economic losses from such a flood would affect areas well outside of Aztec. Goals and objectives to resolve these problems are as follows.

Aztec Flood Mitigation	
Goal 1: Establish an aggressive Flood Hazard Mitigation education campaign	
Objective 1	Complete application for National Flood Insurance Program Community Rating System
Action	<p>Complete application for National Flood Insurance Program Community Rating System</p> <p style="text-align: center;">Funding Source: City of Aztec</p> <p style="text-align: center;">Responsible Agencies: City of Aztec San Juan County Office of Emergency Management U.S. Army Corps of Engineers FEMA</p>
Objective 2*	Conduct public informational sessions on Flood Hazard risks in the community and initiate meetings with individual landowners whose properties fall within the floodplain.
Objective 3*	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.
Objective 4*	Plan and organize community education events for National Flood Safety Awareness Week
Action	<p>*Action addresses Objective 2,3&4</p> <p>Public Education campaign. Educate and inform citizens and business owners within Aztec of Flood Hazard Mitigation Regulations, as well as risks of flooding, through a website and community events.</p> <p style="text-align: center;">Funding Source: City of Aztec</p> <p style="text-align: center;">Responsible Agencies: City of Aztec San Juan County Office of Emergency Management</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

Aztec Flood Mitigation	
Goal 1: Establish an aggressive Flood Hazard Mitigation education campaign	
	<p style="text-align: center;">U.S. Army Corps of Engineers FEMA Aztec School District</p> <p>Achievable results: 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.</p>

Aztec Flood Mitigation	
Goal 2: Reduce the risk of flooding by maintaining Aztec’s waterways	
Objective 1*	Develop regulations governing the maintenance of waterways within the City.
Objective 2*	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
Objective 3*	Conduct regular inspections of private properties traversed by waterways to identify obstruction or overgrowth hazards
Objective 4*	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.
Action	<p>*Action addresses Objectives 1-4</p> <p>Regulate, Inspect and Clear Waterways. Inspect waterways and inventory obstructions and hazards, addressing as required.</p> <p style="text-align: center;">Funding Sources:</p> <p style="text-align: center;">FEMA Natural Resources Conservation Service Local Ditch Associations City of Aztec</p> <p style="text-align: center;">Responsible Agencies:</p> <p style="text-align: center;">City of Aztec U.S. Army Corps of Engineers</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

Aztec Flood Mitigation	
Goal 2: Reduce the risk of flooding by maintaining Aztec’s waterways	
	<p>FEMA</p> <p>Local Ditch Associations</p> <p>Private and Public Landowners</p> <p>Achievable results: 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. 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. In addition, unrestricted waterways will help prevent damage to roadways and bridges due to the pressure created by the force of the water.</p>

Aztec Flood Mitigation	
Goal 3: Minimize future flood risk by maintaining riverbanks and preventing illegal fill activities in the designated floodplain	
Objective 1*	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
Objective 2*	Repair existing gabions utilized for bank stabilization
Objective 3*	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
Action	<p>*Action addresses Objectives 1-3</p> <p>Riverbank Stabilization. Complete riverbank stabilization projects and repair existing stabilization infrastructure.</p> <p>Funding Source:</p> <p>FEMA</p> <p>City of Aztec</p> <p>Responsible Agencies:</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

<p align="center">Aztec Flood Mitigation</p> <p align="center">Goal 3: Minimize future flood risk by maintaining riverbanks and preventing illegal fill activities in the designated floodplain</p>	
	<p align="center">City of Aztec U.S. Army Corps of Engineers FEMA</p> <p>Achievable results: Completion of riverbank stabilization projects will minimize risk of catastrophic riverine flooding.</p> <p>3. Inspect, Inventory and Mitigate Floodplain Fill/Obstructions. Complete inventory of fill and obstructions and address as required to remove/mitigate impact to floodplain.</p> <p align="center">Funding Source: City of Aztec</p> <p align="center">Responsible Agencies: City of Aztec U.S. Army Corps of Engineers FEMA Local Ditch Associations Private and Public Landowners</p> <p>Achievable results. Completion of this inventory will allow the City of Aztec to effectively monitor and mitigate flood hazards.</p>

ALTERNATIVE PLANNING: FLOODING

1. Aztec could purchase all areas within the city located in known floodplains and convert these properties to recreational use. It is recognized that this project could be prohibitively expensive.
2. Aztec could refuse to annex any additional areas containing structures or planned structures lying within a known floodplain. This limited annexation approach would ensure that no new problem areas become an issue for the city.

SECTION 4 – Goals, Objectives and Mitigation Actions

City of Bloomfield – Flood Mitigation Goals, Objectives and Actions

Bloomfield is mostly subject to flash flooding and not riverine flooding. Many structures exist within both the 100- and 500-year floodplains. Restrictions on future building in these floodplains are hampered by outdated floodplain maps. In addition, new areas of San Juan County with existing floodplain problems have been annexed into the city. Bloomfield’s present flood control ordinances do not allow its floodplain manager to control growth in areas lying beyond the boundaries of the current floodplain maps. As a result, the new annexed areas with floodplain problems do not fall under the city’s floodplain management system.

The city’s waterways become constricted by debris and undesirable vegetation. Presently there is no mechanism in place to (a) establish the need for waterway maintenance, and (b) identify who is responsible for such maintenance. There is also a continuing problem with the erosion of waterway banks. Bank stabilization projects can reduce or eliminate the loss of these banks, leading to the reduction of loss during flooding. Goals and objectives to resolve these problems are as follows.

Bloomfield Flood Mitigation	
Goal 1: Provide an audible warning to the citizens of Bloomfield in the event of an immediate danger.	
Objective 1	Install a local Emergency Warning System.
Action	<p>Seek funding for a 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</p> <p style="padding-left: 40px;">Funding Source: City of Bloomfield</p> <p style="padding-left: 40px;">Responsible Agencies: Bloomfield City Council</p> <p>Achievable results: The installation of an all-hazard siren system will provide rapid dissemination of information to 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 a 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>

SECTION 4 – Goals, Objectives and Mitigation Actions

Bloomfield Flood Mitigation	
Goal 2: Identify floodplain and regulate growth	
Objective 1*	Establish a current floodplain map for Bloomfield.
Objective 2*	Seek updated floodplain maps for Bloomfield.
Action	<p>*Action addresses both objectives</p> <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.</p> <p style="text-align: center;">Funding Source: FEMA</p> <p style="text-align: center;">Responsible Agencies: San Juan County Floodplain Manager Bloomfield Floodplain Manager FEMA</p> <p>Achievable results: 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.</p> <p>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. With the median value of family structures in New Mexico being \$104,000, this gives a known exposure of approximately \$728,000. It is acknowledged that the annexations that have occurred since 1978 have added additional residences to Bloomfield that are located in floodplains; however, the actual numbers are not known.</p> <p>In addition, the historic unregulated growth that has taken place in San Juan County’s unincorporated areas has altered some of the waterways in significant ways. By updating Bloomfield’s floodplain maps, these altered waterways will be identified and a more accurate picture of the floodplains will be established. Although structures that have already been built in the floodplain will still be there, additional construction in these areas can be avoided or highly restricted.</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

Bloomfield Flood Mitigation Goal 2: Identify floodplain and regulate growth	
Objective 3	Restrict future growth into city floodplains.
Action	<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.</p> <p align="center">Funding Source: City of Bloomfield</p> <p align="center">Responsible Agencies: Bloomfield City Council Bloomfield City Attorney Bloomfield Floodplain Manager</p> <p>Achievable results: 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.</p> <p>This legislation will establish the city’s control over areas that have been annexed since the 1978 update of the floodplain maps. The ability to restrict development in flood-prone areas will ensure that inflation will be the only rising cost associated with flooding in these areas. Further, when a flood does occur in the annexed areas, the area’s reconstruction can be restricted to ensure a reduced loss in the future. This legislation can also be written to affect all areas annexed by the city in the future, minimizing future costs associated with flooding.</p>

Bloomfield Flood Mitigation Goal 3: Eliminate and reduce flooding by maintaining waterways.	
Objective 1	Enact legislation establishing the need for maintaining clear waterways and fix responsibility for this maintenance
Action	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.

SECTION 4 – Goals, Objectives and Mitigation Actions

Bloomfield Flood Mitigation	
Goal 3: Eliminate and reduce flooding by maintaining waterways.	
	<p>Funding Source:</p> <p align="center">City of Bloomfield</p> <p>Responsible Agencies:</p> <p align="center">Bloomfield City Council Bloomfield City Attorney Bloomfield Floodplain Manager Bloomfield Public Works Department U.S. Army Corps of Engineers</p> <p>Achievable results: 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.</p> <p>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. However, when dumping occurs in waterways running through lands under private ownership, the owners have no obligation to clean up the debris. This accumulation of debris restricts the water flow through these areas and can cause flooding. In addition, if this debris moves down the waterway during flooding, it can block culverts or other bottlenecks downstream, causing further flooding downstream from its original source.</p> <p>Instituting an obligation for private landowners to clear waterways will ensure that debris-caused flooding is reduced or eliminated when such regulations are in place and enforced.</p>
Objective 2	Identify waterways that require clearing and ensure that this maintenance is accomplished
Action	<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. 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.</p> <p align="center">Funding Source:</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

Bloomfield Flood Mitigation	
Goal 3: Eliminate and reduce flooding by maintaining waterways.	
	<p align="center">City of Bloomfield</p> <p align="center">Responsible Agencies:</p> <p align="center">Bloomfield Floodplain Manager</p> <p align="center">Bloomfield Attorney</p> <p align="center">Bloomfield Public Works Department</p> <p align="center">U.S. Army Corps of Engineers</p> <p>Achievable results: 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> <p>Maintaining clear waterways will reduce the chance of flooding by ensuring that storm drainage systems and waterways function properly. Unlike waterways running through private property, areas in the public sector can be cleared with greater speed based on the availability of city manpower and equipment.</p>

Bloomfield Flood Mitigation	
Goal 4: Stabilize areas of public waterway banks that are being degraded due to erosion	
Objective 1*	Identify and stabilize public waterway banks that are being eroded.
Objective 2*	Create and prioritize projects to stabilize identified erosion areas.
Action	<p>*Action addresses both objectives</p> <p>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.</p> <p align="center">Funding Source:</p> <p align="center">City of Bloomfield</p> <p align="center">New Mexico Highway Department</p> <p align="center">U.S. Army Corps of Engineers</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

Bloomfield Flood Mitigation	
Goal 4: Stabilize areas of public waterway banks that are being degraded due to erosion	
	<p align="center">Responsible Agencies:</p> <p align="center">Bloomfield Floodplain Manager</p> <p align="center">Bloomfield Public Works Department</p> <p align="center">U.S. Army Corps of Engineers</p> <p>Achievable results: 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.</p> <p>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. Many county roads throughout Bloomfield use low water crossings instead of the more costly culverts, bridges, or other elevated roadways. In addition, some of these roadways run parallel to waterways. When flooding occurs in areas without bank stabilization in place, these road surfaces can be washed out and thereby destroyed. Bank stabilization can reduce or eliminate the need to rebuild roads after flooding occurs. Bank stabilization projects will reduce the possibility of repetitive loss.</p>

City of Farmington – Flood Mitigation Goals, Objectives and Actions

Farmington is located on the northern bank of the San Juan and Animas Rivers. The La Plata River runs into Farmington along its western edge before joining the San Juan River in the south. Areas along all three of these rivers are known to be exposed to flood risks. As noted in the Farmington Comprehensive Plan, the city is anticipating annexation and growth south to the San Juan River and west toward the La Plata River. The annexation of these areas involves floodplains that have not been subject to floodplain management in the past. As a result of these annexations, these new areas will include structures that are built in floodplains.

Farmington also has areas that need improvement so that they do not become a problem. The identified areas of concern begin with intentions to improve the Crestwood Drive Crossing of the Hood Arroyo, the Navajo Crossing of the Glade Arroyo, and to further improve the recently upgraded Pinon Hills crossing of the La Plata River. Additionally, the old downtown area of Farmington from Butler to Auburn (East-West limits) along Main Street and Broadway Avenue is in need of improvements to its storm sewer system, as it is close to 50 years old. In each of these locations two factors affecting flooding occur. First, when the amount of storm runoff passing through these waterways is particularly high, the water level will overflow the waterway’s banks, causing localized flooding, in the case of the downtown storm sewer system, the pipes may be undersized to handle flows from new development which has occurred since its original construction. Second, the culvert systems at these crossings can become

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overwhelmed, which not only causes an overflow of the banks, but can also cause structural damage to the roadway. Flooding in these areas is frequent enough that these areas were immediately identified as being of concern. Each area is susceptible to flash flooding that provides for little or no warning prior to its occurrence.

For this reason, two arroyos in the area are the focus for the installation of detention ponds. The first is along the Porter Arroyo at a location just west of Piedra Vista High School (Illustration 4). The second is along the Carl Arroyo at a location north east of the intersection of Naples Drive and Lakewood Street (Illustration 5). In a flashflood event in August 2010, damages occurred along these arroyos to both residential and commercial properties which can be mediated in future storm events with the installation of a detention pond. Goals and objectives to resolve these problems are as follows:

Farmington Flood Mitigation	
Goal 1: Reduce the risk of flooding in arroyos with documented historical damage.	
Objective 1*	Construct a detention pond along the Porter Arroyo.
Objective 2*	Construct a detention pond along the Carl Arroyo.
Objective 3*	Construct a detention pond along the Hood Arroyo, or upgrade crossing.
Action	<p>*Action addresses Objectives 1-3</p> <p>Reduce the risk of flooding in arroyos with documented historical damage, with the construction of a detention pond. The first of two proposed detention pond projects is the Porter Arroyo Detention Facility Project has been planned/designed since 2004, but this project along the Porter Arroyo was originally recognized for improvements in the 1978 City of Farmington Master Drainage Plan. Funding has not been available, however the City of Farmington has budgeted funds to aid with construction during FY 2011-2012. FEMA funding assistance is planned to aid with construction. The second he second is the Lakewood Detention Pond which 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, through Pueblo De Farmington and Green Acres Subdivisions, under Main Street between Mickey Drive and Country Club flowing open channel to the Animas River.</p> <p style="text-align: center;">Funding Source:</p> <p style="text-align: center;">FEMA</p> <p style="text-align: center;">City of Farmington</p> <p style="text-align: center;">Responsible Agencies:</p>

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Farmington Flood Mitigation	
Goal 1: Reduce the risk of flooding in arroyos with documented historical damage.	
	<p align="center">Farmington Floodplain Manager FEMA San Juan County Floodplain Manager</p> <p>Achievable results: Construction plans have been designed for the proposed Porter Arroyo Detention Pond, relocation/rerouting of privately owned gas lines has taken place, and the city is applying for available funds from FEMA to aid in the price of constructing a detention pond at the north end of Porter Arroyo on city property west of Piedra Vista High School.</p> <p>As proposed, the Lakewood Detention Pond will impound the 100 year storm event and release it at the 10-25 year historical flow rate. It will have an energy spillway sized to accommodate flows larger than the 100 year event. The detention area will be designed to drain in 96 hrs per NM Dam Safety Bureau requirements.</p>

Farmington Flood Mitigation	
Goal 2: Eliminate or reduce the potential for flooding within known flood risk areas.	
Objective 1	Develop a plan for reducing or eliminating the risk of flooding at the Navajo Crossing of the Glade Arroyo.
Action	<p>Eliminate or reduce the potential for flooding within known flood risk areas. Navajo Crossing. 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.</p> <p align="center">Funding Sources: City of Farmington U.S. Army Corps of Engineers</p> <p align="center">Responsible Agencies: Farmington City Council Farmington City Engineer Farmington Floodplain Manager U.S. Army Corps of Engineers</p> <p>Achievable results: The results of this project will be to reduce or eliminate the flooding potential on the Glade Arroyo at Navajo Crossing. One solution would be to create an upstream retention pond; another would be to redesign the</p>

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Farmington Flood Mitigation	
Goal 2: Eliminate or reduce the potential for flooding within known flood risk areas.	
	crossing to eliminate the current restriction in water flow. The elimination of this bottleneck will reduce the likelihood of damage to local structures and potential disruption of traffic flow during flooding.
Objective 2	Develop a plan for reducing or eliminating the risk of flooding at the Crestwood Drive Crossing of the Hood Arroyo
Action	<p>Crestwood Drive Crossing. An examination of the flooding dynamics for the Hood Arroyo at Crestwood Drive will determine possible solutions. A project plan will then be created to reduce or avoid potential future flooding.</p> <p style="text-align: center;">Funding Sources:</p> <p style="text-align: center;">City of Farmington U.S. Army Corps of Engineers</p> <p style="text-align: center;">Responsible Agencies:</p> <p style="text-align: center;">Farmington City Council Farmington City Engineer Farmington Floodplain Manager U.S. Army Corps of Engineers</p> <p>Achievable results: The results of this project will be to reduce or eliminate the flooding potential on the Hood Arroyo at the Crestwood Drive Crossing. One solution would be to create an upstream detention pond, which is already a requirement placed on future development of the upstream developer; another would be to redesign the crossing to eliminate the current restriction in water flow. The elimination of this bottleneck will reduce the likelihood of damage to local structures and potential disruption of traffic flow during flooding and could cause issues downstream.</p>
Objective 3	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.
Action	<p>Pinon Hills Crossing: An emergency replacement/upgrade of the drainage structure occurred in the first quarter of 2009. The existing/failing corrugated metal pipe (CMP) structure was upgraded to a box culvert structure, thus increasing its storm flow capability. This improvement to the crossing also resulted in a wider lane area (2 additional driving lanes with shoulders and fencing) in the traveled road for automobile traffic as well as pedestrian traffic in the shoulder areas.</p> <p style="text-align: center;">Funding Sources:</p> <p style="text-align: center;">City of Farmington</p>

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Farmington Flood Mitigation	
Goal 2: Eliminate or reduce the potential for flooding within known flood risk areas.	
	<p align="center">Responsible Agencies:</p> <p align="center">Farmington City Council Farmington City Engineer Farmington Floodplain Manager U.S. Army Corps of Engineers</p> <p>Achievable results: Future flooding can still be mitigated through continued efforts to not only install drop structures to preserve the upstream and downstream riverbed, but also adding protection to the immediate outfall area of the structure to protect it from further undermining.</p>

Farmington Flood Mitigation	
Goal 3: Upgrade the current storm sewer system in the older downtown area of Farmington along Main Street and Broadway Avenue between Butler and Auburn	
Objective 1	Develop a plan and install storm sewer system that can adequately handle the currently developed surrounding areas near the old downtown Farmington area.
Action	<p>Upgrade the current storm sewer system in the older downtown area of Farmington along Main Street and Broadway Avenue between Butler and Auburn.</p> <p align="center">Funding Sources: City of Farmington</p> <p align="center">Responsible Agencies: Farmington City Council Farmington City Engineer Farmington Floodplain Manager</p> <p>Achievable results: Additional funds can be set aside in the city budget under the line item of Storm Sewer Maintenance and Repair. A plan can be devised by the City Engineer and the Floodplain Manager, and constructed by city forces or the city block to block contractor.</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

Farmington Flood Mitigation	
Goal 4: Ensure that Farmington’s future growth does not expand into areas that expose the community to increased flood risks.	
Objective 1	Incorporate all future comprehensive planning for Farmington with the San Juan County Mitigation Project
Action	<p>Ensure that Farmington’s future 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, which also includes Farmington.</p> <p align="center">Funding Sources: City of Farmington</p> <p align="center">Responsible Agencies: Farmington City Council Farmington City Attorney Farmington City Planning Farmington City Engineer Farmington Floodplain Manager</p> <p>Achievable results. Enacting legislation requiring that all expansion in Farmington takes into consideration appropriate sections of the San Juan County Mitigation Plan will ensure that expansion does not occur in areas previously identified as hazard locations. In addition, the city’s planning efforts will be required to consider this plan when designating zoning codes or when considering petitions for zoning changes.</p> <p>Although this legislation will not reduce present exposure to existing hazards, it will ensure that there is no increase in exposure. This legislation will also assist in reducing repetitive loss due to flooding by prohibiting the rebuilding of structures without appropriate flood-proofing measures.</p>

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Farmington Flood Mitigation	
Goal 5: Keep all waterways in Farmington clear of debris and unwanted vegetation.	
Objective 1*	Inspect and clear debris and unwanted vegetation from waterways in publicly-held areas.
Objective 2*	Inspect and ensure that waterways on privately-held lands are clear of debris and unwanted vegetation
Action	<p>*Action addresses both objectives</p> <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.</p> <p align="center">Funding Source: City of Farmington</p> <p align="center">Responsible Agencies: Farmington City Council Farmington Public Works Farmington Floodplain Manager</p> <p>Achievable results: As with waterways lying in areas of private ownership, those that are located within the public domain require periodic cleaning. By ensuring that all waterways, storm drainage systems, and culverts remain clear of debris and unwanted vegetation, the city will ensure that the flow of floodwaters is not restricted, which can cause additional flooding. Restricted waterways can also result in damage to roadways and bridges due to the pressure created by the force of the water.</p> <p>Maintaining clear waterways will reduce the chance of flooding by ensuring that storm drainage systems and waterways function properly. Unlike waterways running through private property, areas in the public sector can be cleared with greater speed based on the availability of city manpower and equipment.</p>

ALTERNATIVE PLANNING: FLOODING

1. Each city could purchase all areas within the city located in known floodplains and convert these properties to recreational use. It is recognized that this project could be prohibitively expensive.

2. Aztec could refuse to annex any additional areas containing structures or planned structures lying within a known floodplain. This limited annexation approach would ensure that no new problem areas become an issue for the city.

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SECTION 4 – Goals, Objectives and Mitigation Actions

Drought Mitigation Actions

Presently San Juan County has very few measures in place to deal with the problems of drought. While some cities have drought plans that restrict the use of water during drought conditions, county residents are free to use water as they like. These types of restrictions are generally based on a sliding scale, with higher restrictions occurring as drought conditions worsen or having the restrictions relaxed as the drought conditions improve. Implementing a realistic plan of water restrictions and providing for its enforcement will not only help make the available water last longer, it will also help prevent an area’s water system from being overstressed. As the demand for water increases, the stress on water pipes increases, which in turn increases the possibility of pipe failure and service interruptions.

At the time of the review, no changes were made to this hazard.

The amount of water use within San Juan County is further restricted based on water rights. No matter how much water may flow through the Animas and San Juan Rivers, county residents are not permitted unlimited access to it. These water rights restrictions also apply to ground water usage. Presently the amount of water being used in the unincorporated areas of San Juan County is not being monitored, and the actual amount of water being used is unknown.

A further source of water use in San Juan County is the large number of irrigation ditches, many of which are unlined. The United States Department of Agriculture has identified unlined irrigation ditches as a major source of water waste. Goals and objectives to resolve these problems are as follows.

San Juan County Drought Mitigation	
Goal 1: Establish measures that can reduce water use during drought conditions in San Juan County	
Objective 1	Enact legislation regarding water use during drought conditions that raises the level of restriction as drought conditions become more severe.
Action	<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.</p> <p align="center">Funding Source: San Juan County</p> <p align="center">Responsible Agency(s): San Juan County Commission</p> <p>Achievable results: By enacting a sliding scale of water restrictions based on the</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

<p align="center">San Juan County Drought Mitigation</p> <p align="center">Goal 1: Establish measures that can reduce water use during drought conditions in San Juan County</p>	
	<p>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 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.</p> <p>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. The need for such legislation is due to the fact that the threat of drought is always present in the Southwest, and must be recognized as an event that will continue to be cyclic in San Juan County.</p>
Objective 2	<p>Establish a public education and awareness program to provide residents with information concerning drought and water conservation</p>
Action	<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.</p> <p align="center">Funding Sources:</p> <p align="center">State of New Mexico Engineer’s Office San Juan County</p> <p align="center">Responsible Agency(s):</p> <p align="center">San Juan County San Juan County Public Schools</p> <p>Achievable results: 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.</p> <p>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</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

San Juan County Drought Mitigation	
Goal 1: Establish measures that can reduce water use during drought conditions in San Juan County	
	municipal water system. A similar reduction of water use in San Juan County can also be expected. This reduction in demand will allow for a longer period of growth in San Juan County before reaching the restrictions to growth based on available water rights.

San Juan County Drought Mitigation	
Goal 2: Identify water conservation measures that can reduce the overall water usage within San Juan County in order to maintain the county’s ability for growth	
Objective 1	Identify all unlined irrigation ditches within San Juan County and develop a plan to line them
Action	<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.</p> <p style="text-align: center;">Funding Sources:</p> <p style="text-align: center;">San Juan County Irrigation districts</p> <p style="text-align: center;">Responsible Agency(s):</p> <p style="text-align: center;">San Juan County Extension Agent San Juan County Public Works Department San Juan County Commission</p> <p>Achievable results: 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>
Objective 2	Enact legislation concerning the mandatory use of low flow toilets and showerheads in all new construction within the unincorporated areas of the county.

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San Juan County Drought Mitigation Goal 2: Identify water conservation measures that can reduce the overall water usage within San Juan County in order to maintain the county’s ability for growth	
Action	<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.</p> <p style="text-align: center;">Funding Source: San Juan County</p> <p style="text-align: center;">Responsible Agency(s): San Juan County Commission San Juan County Attorney’s Office</p> <p>Achievable results: 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. Not all of these families will reside in newly-constructed residential units. However, an average of 80 residential building permits is issued in the county each year. If all newly-constructed houses were required to use low flow toilets and showerheads, based on one toilet per unit, there would be savings of 800,000 gallons of water for newly-constructed structures. Based on the projected number of structures that would be built by 2010, 560, approximately 5,600,000 gallons of water would be conserved in that year alone. Overall water savings would actually be much higher, as this example does not take into account low flow showerheads or other water saving measures.</p> <p>Low flow showerheads also reduce the amount of water used by a household. The average amount of water used in a shower accounts for approximately 22% of household water use. Based on the present water usage of a standard showerhead, the average family will use approximately 42,000 gallons of water per year for showers. A low flow showerhead reduces this amount by approximately 50%, or 21,000 gallons of water. Based on an increase of 2,190 new families in San Juan County by the year 2010, the use of low flow showerheads would save approximately 45,990,000 gallons of water annually.</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

San Juan County Drought Mitigation	
Goal 2: Identify water conservation measures that can reduce the overall water usage within San Juan County in order to maintain the county's ability for growth	
	Adding this saving to that of the use of low flow toilets, the annual water savings would be approximately 51,590,000 gallons by 2010.
Objective 3	Enact legislation concerning the mandatory use of gray water recovery systems in all new construction within the unincorporated areas of the county
Action	<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</p> <p>Funding Source: San Juan County</p> <p>Responsible Agency(s): San Juan County Commission San Juan County Attorney's Office</p> <p>Achievable results: 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 waste water 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. By recycling gray water, approximately 160,000 gallons of water would be available annually for irrigation use. Considering the projected number of new residences in San Juan County by 2010, the reduction in municipal water use would be significant. Based solely on the construction of 560 new homes by 2010, there could be a savings of almost 90,000,000 gallons annually.</p>
Objective 4	Provide rebates for the conversion of existing home toilets and showerheads to low flow systems and the retrofitting of gray water recovery systems
Action	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.

SECTION 4 – Goals, Objectives and Mitigation Actions

San Juan County Drought Mitigation	
Goal 2: Identify water conservation measures that can reduce the overall water usage within San Juan County in order to maintain the county’s ability for growth	
	<p>Funding Source: San Juan County</p> <p>Responsible Agency(s): San Juan County Commission San Juan County Attorney San Juan County Planning Office</p> <p>Achievable results: 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>

SECTION 4 – Goals, Objectives and Mitigation Actions

City of Aztec – Drought Mitigation Goals, Objectives and Actions

The City of Aztec presently has regulations that restrict the use of water during drought conditions. These regulations include a sliding scale of water restrictions based on the severity of the drought. Additional regulations and projects could provide for further drought relief and overall water conservation for the city. Furthermore, one of the City’s primary water storage tanks has deteriorated to the point of needing immediate replacement; its failure in the event of drought would drastically reduce water storage would severely impact residents and could pose an emergency situation for some residents. Goals and objectives to further these objectives and institute others are as follows.

Aztec Drought Mitigation	
Goal 1: Replace the City’s failing water storage tank to ensure the City maintains an adequate reserve of treated water	
Objective 1*	Secure funding for the replacement of the failing water storage tank.
Objective 2*	Construct a new water storage tank.
Action	<p>*Action addresses both objectives</p> <p>Replace Water Storage Tank. Design and install new water storage tank.</p> <p style="text-align: center;">Funding Source:</p> <p style="text-align: center;">City of Aztec State of New Mexico FEMA</p> <p style="text-align: center;">Responsible Agencies:</p> <p style="text-align: center;">City of Aztec</p> <p>Achievable Results: 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.</p>

Aztec Drought Mitigation	
Goal 2: Identify water conservation measures that can reduce the overall water usage in Aztec in order to maintain the city’s capacity for future growth.	
Objective 1	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
Action	Conversion Rebate Programs. 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 addressing the installation of gray water recovery systems.

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<p align="center">Aztec Drought Mitigation</p> <p>Goal 2: Identify water conservation measures that can reduce the overall water usage in Aztec in order to maintain the city’s capacity for future growth.</p>	
	<p>Funding Source: City of Aztec</p> <p>Responsible Agencies: City of Aztec</p> <p>Achievable results: 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. Such programs are already in place in Santa Fe and Albuquerque, resulting in significant water savings. In addition to average savings of 31,000 gallons of water per year, each residence that converts to low flow systems will place lower demands on the waste water system.</p>
Objective 2	<p>Implement regulations restricting the amount of non-drought resistant landscaping materials that can be planted/installed in new commercial construction within the city.</p>
Action	<p>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</p> <p>Funding Sources: City of Aztec Private Developers</p> <p>Responsible Agencies: City of Aztec</p> <p>Achievable Results: New regulations for commercial development will further improve the City’s ability to conserve water at a municipal level. These regulations will allow for a more realistic use of native and other drought-resistant landscaping vegetation that will reduce the water usage in landscape maintenance. At present, all commercial construction projects are required to dedicate a certain amount of the overall construction site to landscaping. This requirement is an effort to ensure that the urban environment’s quality of life is maintained. Generally the landscaping portion of a project has relied on high water use vegetation in order to create a pleasant environment. By enacting regulations that require landscaping but restricts the types of vegetation that can be used to drought-resistant varieties, overall demand for water will be reduced.</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

Aztec Drought Mitigation	
Goal 3: Implement a community education campaign addressing water conservation measures	
Objective 1	Provide public education concerning water-wise programs and drought-tolerant vegetation.
Action	<p>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..</p> <p align="center">Funding Sources: City of Aztec State of New Mexico</p> <p align="center">Responsible Agencies: City of Aztec San Juan County Extension Office State of New Mexico</p> <p>Achievable results: 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 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. Limited water resources in the southwest, coupled with a growing need for water due to population growth and irrigation, requires that new water conservation measures become the normal operating philosophy for both public and private water use.</p>

City of Bloomfield – Drought Mitigation Goals, Objectives and Actions

Presently Bloomfield has a sliding scale of water use restrictions that are based on the severity of drought conditions. Establishing this type of legislation to reduce the demand for water usage becomes critical during periods of sustained drought. However, additional reductions in annual water use can be achieved through the institution of legislation requiring the installation of low flow toilets and gray water recovery systems, educating the public in water conservation measures, and restricting use of non-native, high water demand landscape materials.

Drought is a normal occurrence in the southwest, and New Mexico’s present drought conditions are nothing new. As Bloomfield’s population continues to increase, the limit of available water rights will be reached. Instituting water conservation measures now will help enable Bloomfield’s future growth.

SECTION 4 – Goals, Objectives and Mitigation Actions

Goals and objectives to further these measures and institute others are as follows.

Bloomfield Drought Mitigation	
Goal 1: To provide for the long-term conservation of water resources within Bloomfield.	
Objective 1	Create an incentive program for the conversion of older toilets and showerheads to low flow systems.
Action	<p>Conversion 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.</p> <p style="text-align: center;">Funding Source: City of Bloomfield</p> <p style="text-align: center;">Responsible Agency(s): Bloomfield City Council Bloomfield City Attorney Bloomfield City Planning Office</p> <p>Achievable results: These programs will further the conservation efforts in water use and help sustain 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. Such programs are already in place in Santa Fe and Albuquerque, resulting in significant water savings. In addition to average savings of 31,000 gallons of water per year, each residence that converts to low flow systems will place lower demands on the waste water system.</p>
Objective 2	Create a public education program concerning the use of drought resistant landscaping vegetation.
Action	<p>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.</p> <p style="text-align: center;">Funding Sources: City of Bloomfield New Mexico State Engineer's Office</p> <p style="text-align: center;">Responsible Agency(s) City Planning County Extension Agent</p>

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Bloomfield Drought Mitigation	
Goal 1: To provide for the long-term conservation of water resources within Bloomfield.	
	<p align="center">New Mexico State Engineer’s Office</p> <p>Achievable results: 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 landscaping in most areas of the southwest, including Bloomfield. 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. Limited water resources in the southwest, coupled with a growing need for water due to population growth and irrigation, requires that new water conservation measures become the normal operating philosophy for both public and private water use.</p>
Objective 3	<p>Enact legislation for the mandatory installation of gray water recovery systems in new construction projects</p>
Action	<p>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.</p> <p align="center">Funding Source: City of Bloomfield</p> <p align="center">Responsible Agency(s): Bloomfield City Council Bloomfield City Attorney</p> <p>Achievable results: 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. The use of a gray water recovery system can save as much as 160,000 gallons of water per residence per year. In Bloomfield, the projected population growth by 2010 will increase the number of households by approximately 406. Based on 50% of these families building a new residence, there would be a projected savings of up to 32,480,000 gallons of reusable water annually. Saving this water will not only extend the city’s growth capability from available water rights, but it will further lower demands on both the deliverable water system and the waste water system. Lower stress on these systems could further extend their operational life prior to the need for expansion.</p>

Farmington – Drought Mitigation Goals, Objectives and Actions

Presently Farmington has a sliding scale of water use restrictions that are based on the severity of drought conditions. Establishing water conservation ordinances to reduce the demand for

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water usage becomes critical during periods of sustained drought. However, additional reductions in annual water use can be achieved through the use of low flow toilets and showerheads, educating the public in water conservation measures, and restricting use of non-native, high water demand landscape materials.

Drought is a normal occurrence in the southwest, and New Mexico’s present drought conditions are nothing new. As Farmington’s population continues to increase, the limit of available water rights will be reached. Instituting water conservation measures now will help enable Farmington’s future growth. As the largest incorporated area in San Juan County, Farmington is one of the county’s largest water users. Farmington’s projected population increase will add as many as 1,500 new households by 2020. The city’s average of 120 new residential building permits annually represents over 960 new homes in Farmington by 2020. Goals and objectives to further these objectives and institute others are as follows.

Farmington Drought Mitigation	
Goal 1: To provide for the long-term conservation of water resources within Farmington.	
Objective 1	As Federal requirements dictate low flow toilets, consider evaluating the benefits of a creating an incentive program for the conversion of older toilets and showerheads to low flow systems
Action	<p>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.</p> <p style="text-align: center;">Funding Source: City of Farmington</p> <p style="text-align: center;">Responsible Agency(s): Farmington City Council Farmington City Attorney Farmington City Planning Office Farmington Department of Public Works – Water & Wastewater Division</p> <p>Achievable results: These programs will further conservation efforts in water use and help sustain the city’s growth. 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. Such programs are already in place in Santa Fe and Albuquerque, resulting in significant water savings. In addition to average savings of 31,000 gallons of water per year, each residence that converts to low flow systems will place lower demands on the wastewater system.</p>

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Farmington Drought Mitigation	
Goal 1: To provide for the long-term conservation of water resources within Farmington.	
Objective 2	Create a public education program concerning the use of drought resistant landscaping vegetation
Action	<p>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.</p> <p style="text-align: center;">Funding Sources:</p> <ul style="list-style-type: none"> City of Farmington New Mexico State Engineer’s Office New Mexico Interstate Stream Commission New Mexico Department of Environment <p style="text-align: center;">Responsible Agency(s):</p> <ul style="list-style-type: none"> City of Farmington Department of Public Works – Water & Wastewater Division San Juan County Extension Agent New Mexico State Engineer’s Office New Mexico Interstate Stream Commission New Mexico Department of Environment <p>Achievable results: 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 landscaping in most areas of the southwest, including Farmington. 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. Limited water resources in the southwest, coupled with a growing need for water due to population growth and irrigation, requires that new water conservation measures become the normal operating philosophy for both public and private water use.</p>
Objective 3	Encourage the installation of rain water harvesting systems in new construction projects
Action	<p>Promoting rain water harvesting systems. The City Council will adopt a resolution recognizing the benefits to the city of rain water harvesting systems.</p> <p style="text-align: center;">Funding Source:</p> <ul style="list-style-type: none"> City of Farmington <p style="text-align: center;">Responsible Agency(s):</p> <ul style="list-style-type: none"> Farmington City Council

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Farmington Drought Mitigation	
Goal 1: To provide for the long-term conservation of water resources within Farmington.	
	<p style="text-align: center;">Farmington City Attorney</p> <p>Achievable results: The use of a rainwater collection system in Farmington, where the average annual rainfall is 9 inches per year, we could harvest 39,272 gallons. In Farmington, the projected population growth by 2020 will increase the number of households by approximately 960. Initial benefits would be a gain of 37,700,000 gallons of new supply. Rainwater collection systems and to the community's water supply but will not only extend the city's growth capability from available water rights, but it will further lower demands on both the deliverable water system and the waste water system. Lower stress on these systems could further extend their operational life prior to the need for expansion</p>

ALTERNATIVE PLANNING: DROUGHT

1. A no growth policy could be established in which no new construction or development would be annexed into the city without that development obtaining a 100-year water supply for its development. This would ensure that the city's present population would be secure at its current level of water use. (Prepared by Southwest Training Institute & Consulting, 118)
2. Farmington has instituted a block rate structure for water, which from its implementation, has reduced water demand. Heavy water users pay higher prices in the form of a higher cost per gallon than those who use less. This rate structure should be reviewed regularly to promote water conservation.

SECTION 4 – Goals, Objectives and Mitigation Actions

Wildfire Mitigation

San Juan County, Aztec, Bloomfield, and Farmington all face a similar problem with wildfires within the urban/wild land interface along the Animas, La Plata, and San Juan Rivers. The riverbanks and surrounding areas are overgrown, creating a huge source of potential fuel in the event of a wildfire. Potential mitigation projects for each jurisdiction all involve thinning vegetation and creating defensible space around all structures.

<p align="center">San Juan County Wildfire Mitigation</p> <p align="center">Goal 1: Reduce or eliminate the danger of wildfire within the urban/wild land interface of San Juan County</p>	
Objective 1	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
Action	<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.</p> <p align="center">Funding Sources:</p> <ul style="list-style-type: none"> San Juan County City of Aztec City of Bloomfield City of Farmington <p align="center">Responsible Agencies:</p> <ul style="list-style-type: none"> County/City Emergency Managers County/City Fire Departments County/City Public Works County/City Parks and Recreations <p>Achievable results: 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>

SECTION 4 – Goals, Objectives and Mitigation Actions

San Juan County Wildfire Mitigation Goal 1: Reduce or eliminate the danger of wildfire within the urban/wild land interface of San Juan County	
Objective 2	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
Action	<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/wild land interface.</p> <p style="text-align: center;">Funding Sources: County/City jurisdictions</p> <p style="text-align: center;">Responsible Agencies: County/City Public Information Officers County Emergency Manager</p> <p>Achievable results: 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 land owners comply with the program.</p> <p>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>

SECTION 4 – Goals, Objectives and Mitigation Actions

Aztec – Wildfire Mitigation Goals, Objectives and Actions

San Juan County, Aztec, Bloomfield, and Farmington all face a similar problem with wildfires within the urban/wild land interface along the Animas, La Plata, and San Juan Rivers. The riverbanks and surrounding areas are overgrown, creating a huge source of potential fuel in the event of a wildfire. Potential mitigation projects for each jurisdiction all involve thinning vegetation and creating defensible space around all structures.

Aztec, Bloomfield, and Farmington Wildfire Mitigation	
Goal: Reduce or eliminate the danger of wildfire within the urban/wild land interface of San Juan County.	
Objective 1*	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
Objective 2*	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
Action	<p>*Action addresses both objectives</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.</p> <p style="padding-left: 40px;">Funding Sources:</p> <ul style="list-style-type: none"> San Juan County City of Aztec City of Bloomfield City of Farmington <p style="padding-left: 40px;">Responsible Agencies:</p> <ul style="list-style-type: none"> County/City Emergency Managers County/City Fire Departments County/City Public Works County/City Parks and Recreations <p>Achievable results: 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</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

<p align="center">Aztec, Bloomfield, and Farmington Wildfire Mitigation</p> <p align="center">Goal: Reduce or eliminate the danger of wildfire within the urban/wild land interface of San Juan County.</p>	
	<p>public activity along the river bottoms and reducing the amount of debris that could become water-borne during flooding.</p>
Objective 3	<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>
Action	<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/wild land interface.</p> <p align="center">Funding Sources:</p> <p align="center">County/City jurisdictions</p> <p align="center">Responsible Agencies:</p> <p align="center">County/City Public Information Officers</p> <p align="center">County/City Emergency Managers</p> <p>Achievable results: 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.</p> <p>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>

SECTION 4 – Goals, Objectives and Mitigation Actions

Farmington – Wildfire Mitigation Goals, Objectives and Actions

The City of Farmington Fire Department has listed seventeen high urban/wildland interface hazard areas. (CWPP plan 2006) These areas are overgrown, creating a huge source of potential fuel in the event of a wildfire. Potential mitigation projects involve thinning vegetation, prescribed burning and creating defensible space around all structures. Public education programs such as Firewise safe communities are also essential to reduce life and property risks associated with these types of incidents.

Farmington Wildfire Mitigation Goal: Reduce or eliminate the danger of wildfire, in the wildland urban interface areas, located within the City of Farmington	
Objective 1*	Continue thinning projects to reduce the severity of a wildland fire throughout the city
Objective 2*	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
Action	<p>*Action addresses both objectives</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.</p> <p style="text-align: center;">Funding Sources:</p> <p style="text-align: center;">City of Farmington</p> <p style="text-align: center;">Responsible Agencies:</p> <p style="text-align: center;">County/City Emergency Managers City of Farmington Fire Department City of Farmington Code Enforcement County/City Public Works County/City Parks and Recreations</p> <p>Achievable results: 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.</p> <p>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>

SECTION 4 – Goals, Objectives and Mitigation Actions

Farmington Wildfire Mitigation Goal: Reduce or eliminate the danger of wildfire, in the wildland urban interface areas, located within the City of Farmington	
Objective 3	Continue regular wildland urban interface fire training for firefighters.
Action	<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>Funding Sources: City of Farmington</p> <p>Responsible Agencies: County/City Emergency Managers City of Farmington Fire Department</p>
Objective 4	Code enforcement on private property to reduce hazardous fuels
Action	<p>Continue code enforcement on private property to reduce hazardous fuels</p> <p>Funding Sources: City of Farmington</p> <p>Responsible Agencies: City of Farmington Fire Department City of Farmington Code Enforcement</p> <p>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. Removing this debris will decrease collateral damage that occurs during flooding events, as well as wildfire.</p>
Objective 5	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.
Action	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.

SECTION 4 – Goals, Objectives and Mitigation Actions

Farmington Wildfire Mitigation	
Goal: Reduce or eliminate the danger of wildfire, in the wildland urban interface areas, located within the City of Farmington	
	<p>Funding Sources:</p> <p>City of Farmington</p> <p>Responsible Agencies:</p> <p>County/City Emergency Managers</p> <p>City of Farmington Fire Department</p> <p>City of Farmington Code Enforcement</p> <p>Achievable results: 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 land owners comply with the program.</p> <p>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. Removing this debris will decrease collateral damage that occurs during flooding events, as well as wildfire.</p>

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SECTION 4 – Goals, Objectives and Mitigation Actions

Hazardous Material Transportation Mitigations

San Juan County – Hazardous Material Mitigation Goals, Objectives and Actions

Presently the exact type and amount of hazardous material being transported through San Juan County has not been established. In addition, there are no designated hazardous material transport routes or legislation mandating the use of such routes. In order to ensure the safety of the residents of the county, additional information is needed.

<p align="center">San Juan County Hazardous Materials Mitigation</p> <p align="center">Goal 1: To determine the risk facing San Juan County regarding the transport of hazardous material through the county</p>	
Objective 1	Identify the amount and types of hazardous material presently moving through the county
Action	<p>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 during 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.</p> <p align="center">Funding Sources:</p> <p align="center">San Juan County New Mexico State Highway Department</p> <p align="center">Responsible Agency(s):</p> <p align="center">San Juan County Fire Department San Juan County Emergency Manager</p> <p>Achievable results: This survey will provide a more accurate understanding of the amounts, types, and routes used in the transport of hazardous material through the county. This information can be used to create additional strategies in the mitigation of potential HAZMAT events. Although this action will not in itself reduce the risk of a HAZMAT event, it will assist in establishing a foundation for future actions. Knowledge concerning the specific types of hazardous materials being transported through the county will ensure that appropriate evacuation zones are determined in the event of a HAZMAT situation. This information will also assist in the future planning for construction of public facilities or approval of private construction projects. This survey will not decrease the existing danger in San Juan County of public exposure to hazardous material, but it can prevent an increase in the potential threat.</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

<p align="center">San Juan County Hazardous Materials Mitigation</p> <p align="center">Goal 1: To determine the risk facing San Juan County regarding the transport of hazardous material through the county</p>	
Objective 2	Determine the most critical locations where hazardous material transport accidents have been occurring within San Juan County.
Action	<p>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 accidents involving hazardous material transport and the type of material being carried.</p> <p align="center">Funding Source: San Juan County</p> <p align="center">Responsible Agency(s): San Juan County Emergency Manager Farmington Fire Department</p> <p>Achievable results: 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. Further, information about the specific types of materials that have been involved in these collisions provides the Farmington Fire Department an opportunity to assess and refine its response capabilities to these incidents.</p>
Objective 3	Develop a bypass route that will eliminate the transport of hazardous material through the most heavily populated areas of the county
Action	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

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<p align="center">San Juan County Hazardous Materials Mitigation</p> <p align="center">Goal 1: To determine the risk facing San Juan County regarding the transport of hazardous material through the county</p>	
	<p>this route by all HAZMAT carriers traversing San Juan County.</p> <p align="center">Funding Sources:</p> <p align="center">San Juan County New Mexico State Highway Department</p> <p align="center">Responsible Agency(s):</p> <p align="center">San Juan County Engineer San Juan County Sheriff's Department Farmington Fire Department New Mexico State Highway Department</p> <p>Achievable results: 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 a populated area of the county; however, it will minimize such exposure.</p>

<p align="center">San Juan Hazardous Materials Mitigation</p> <p align="center">Goal 2: To reduce the risks to the residents of San Juan County during the accidental release of hazardous material within the county</p>	
Objective 1	Educate the public about actions to take during a HAZMAT incident.
Action	<p>Public education program. Public education meetings will be designed and conducted to provide the county'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.</p> <p align="center">Funding Source:</p> <p align="center">San Juan County</p> <p align="center">Responsible Agency(s):</p> <p align="center">San Juan County PIOA</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

<p align="center">San Juan Hazardous Materials Mitigation</p> <p align="center">Goal 2: To reduce the risks to the residents of San Juan County during the accidental release of hazardous material within the county</p>	
	<p align="center">San Juan County Emergency Manager Farmington Fire Department</p> <p>Achievable results: Public education will provide county residents with knowledge that will allow them to take steps independent of the formal emergency response to reduce their risk of exposure during a HAZMAT incident.</p> <p>In many cases, the quick actions of individual citizens can reduce their exposure risk during a hazardous material release. Public understanding of what to do in this type of emergency can reduce the number of inquiries that must be handled by the communications center during a HAZMAT event, also reducing the public's fear associated with an incident and easing the burden on emergency responders.</p>
Objective 2	<p>Improve the emergency communications system in order to provide a reverse 911 alert system for the county and its jurisdictions</p>
Action	<p>Reverse 911 system. Funding will be sought in order to purchase a reverse 911 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.</p> <p align="center">Funding Sources:</p> <p align="center">San Juan County U.S. Department of Justice</p> <p align="center">Responsible Agency(s):</p> <p align="center">San Juan County Emergency Manager San Juan County Sheriff's Department</p> <p>Achievable results: The installation of a reverse 911 system will provide rapid dissemination of information to 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>

Aztec – Hazardous Material Mitigation Goals, Objectives and Actions

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Presently all transports moving through Aztec travel along U.S. 550 and NM 516. The fact that these routes intersect and move through downtown Aztec creates the potential for a major HAZMAT event.

<p align="center">Aztec Hazardous Materials Mitigation</p> <p align="center">Goal 1: Complete the design and construction of the East Aztec Arterial route that will eliminate the transport of hazardous material through Aztec.</p>	
Objective 1*	Finalize funding and contract agreements for Phase 1B. Identify the amount and types of hazardous material presently moving through the city.
Objective 2*	Complete construction of Phase 1B.
Objective 3*	Secure funding for the design and construction of Phase 2.
Action	<p>*Action addresses Objectives 1-3</p> <p>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.</p> <p align="center">Funding Sources:</p> <p align="center">City of Aztec State of New Mexico Federal Highway Administration FEMA</p> <p align="center">Responsible Agency(s):</p> <p align="center">City of Aztec State of New Mexico</p> <p>Achievable results: 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. An alternative route will never completely eliminate the possibility of a hazardous material release in a populated area of the city; however, it will minimize such exposure.</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

<p align="center">Aztec Hazard Materials Mitigation</p> <p align="center">Goal 2: Prevent HAZMAT transports from traveling through downtown Aztec.</p>	
Objective 1	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
Action	<p>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.</p> <p align="center">Funding Sources:</p> <p align="center">City of Aztec</p> <p align="center">State of New Mexico</p> <p align="center">Federal Highway Administration</p> <p align="center">FEMA</p> <p align="center">Responsible Agency(s):</p> <p align="center">City of Aztec</p> <p align="center">State of New Mexico</p> <p>Achievable results: 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. An alternative route will never completely eliminate the possibility of a hazardous material release in a populated area of the city; however, it will minimize such exposure.</p>

SECTION 4 – Goals, Objectives and Mitigation Actions

Aztec Hazardous Materials Mitigation	
Goal 3: Reduce risks to the residents of Aztec during the accidental release of hazardous material within the City	
Objective 1*	Educate the public about actions to take during a HAZMAT incident
Objective 2*	Work with area schools, daycares and senior and assisted living centers to conduct evacuation drills and lockdown procedures in preparation for HAZMAT events
Action	<p>*Action addresses both objectives</p> <p>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.</p> <p style="text-align: center;">Funding Sources:</p> <p style="text-align: center;">San Juan County City of Aztec</p> <p style="text-align: center;">Responsible Agency(s):</p> <p style="text-align: center;">City of Aztec San Juan County Office of Emergency Management Farmington Fire Department</p> <p>Achievable results: Public education will provide city residents with knowledge that will allow them to take steps independent of the formal emergency response that will reduce their risk of exposure during a HAZMAT event. In many cases, the quick actions of individual citizens can reduce their exposure risk during a hazardous material release. Public understanding of what to do in this type of emergency can reduce the number of inquiries that must be handled by the communications center during a HAZMAT event, also reducing the public’s fear associated with an incident and easing the burden on emergency responders</p>

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Prioritization of Mitigation Actions

The methodology used here to determine action item priorities was based upon a consensus of the MPT. Factors considered were cost effectiveness, environmental impact, and technical feasibility. However, nothing in this plan should be construed as an absolute. Rather, the priorities identified in this plan are to be viewed as guidelines for San Juan County and its partners in hazard mitigation within the county, not as requirements. San Juan County needs to assess its evolving vulnerability to the hazards it faces and make its own priority determinations. This may result in continual change in the ranking of hazards.

San Juan County has a very low tax base, resulting in a lack of resources. The Team decided that projects requiring extensive County investment are not realistic. Funding from other sources must be sought in order to complete many of the proposed projects. Many of the following projects stress participation of community personnel and residents of San Juan County in educational programs and in existing programs. The Planning Team members discussed the costs and benefits associated with capital-intensive projects and only included those that were considered high priority.

The mitigation strategies described here, including funding for mitigation actions, are part of an overall, general plan for preventing or mitigating beforehand potentially hazardous situations. However, far less mitigation funding is available than is needed, and there is intense competition for what is available. The Department of Homeland Security and Emergency Management (DHSEM) is sometimes able to offer grant applicants technical assistance in planning and executing specific projects, but federal pre-disaster mitigation funding must be authorized annually by Congress. Post-disaster mitigation funding is based on disaster costs arising from a Stafford Act disaster declaration.

Often grant funding is for specific types of projects, and potential grant recipients must use what is available to them, regardless of priority. The Federal Emergency Management Agency (FEMA) allocates grants to local governments based upon recommendations from the state. The state in turn prioritizes grant applications based upon the needs of a given applicant in a given situation. Considering these limitations, it is not possible to predict the amount of mitigation grant funding that will be available in the future, and so funding has not been considered a limiting factor in developing mitigation strategies and action items for this plan.

Other factors, such as special considerations with respect to National Environmental Policy Act (NEPA) regulations and the National Historic Properties Act (NHPA) can impose limitations on spending federal funds, making some actions so difficult as to become all but impossible. For planning purposes, the MPT has not considered these limitations either. When the time actually comes for deciding to pursue a specific project with federal funding, all of these factors will come into play.

SECTION 4 – Goals, Objectives and Mitigation Actions

FEMA defines Benefit-Cost Analysis (BCA) as the method by which the future benefits of a mitigation project are determined and compared to its cost. The end result is a Benefit-Cost Ratio (BCR), which is derived from a project's total net benefits divided by its total cost. The BCR is a numerical expression of the cost-effectiveness of a project. BCRs of 1.0 or greater have more benefits than costs and are therefore cost-effective.

Fundable projects were those that the benefit-cost analysis had determined to be cost effective. For these projects, the cost of implementing the mitigation technique is less than the cost of not providing any mitigation and continuing to pay for the consequences of not mitigating.

The Team used the STAPLE + E process, which is composed of the following evaluation categories: **S**ocial, **T**echnical, **A**dministrative, **P**olitical, **L**egal, **E**conomic, and **E**nvironmental. Each category has its own specific considerations that must be met when evaluating a mitigation method (Table 34)

Table 34: SAPLE+E Process

Evaluation Category	Considerations
Social	<ul style="list-style-type: none"> • Community Acceptance • Adversely Affects Segment of Population
Technical	<ul style="list-style-type: none"> • Technical Feasibility • Long-Term Solution • Secondary Impacts
Administrative	<ul style="list-style-type: none"> • Staffing Levels & Training • Funding Allocated • Maintenance/Operations
Political	<ul style="list-style-type: none"> • Political Support • Local Champion or Proponent • Public Support
Legal	<ul style="list-style-type: none"> • State Authority • Existing Local Authority • Action Potentially Subject to Legal Challenge by Opponents
Economic	<ul style="list-style-type: none"> • Benefit of Mitigation • Cost of Mitigation Action • Contributes to Economic Goals • Outside Funding Requirements
Environmental	<ul style="list-style-type: none"> • Affects Land/Water Bodies • Affects Endangered Species • Affects Hazardous Materials and Waste Sites • Consistent with Community's Environmental Goals • Consistent with Federal Laws

Source: Table adapted from FEMA 386-3, *Developing the Mitigation Plan: Identifying Mitigation Actions and Implementing Strategies*

SECTION 4 – Goals, Objectives and Mitigation Actions

Each criterion in the STAPLE + E process was evaluated and rated according to: 0 = Poor, 1 = Fair, 2 = Good, 3 = Excellent. These ratings were defined as:

Poor: The mitigation method does not meet basic criteria established under the evaluation category.

Fair: The mitigation method meets the basic criteria established under the evaluation category.

Good: The mitigation method exceeds the basic criteria established under the evaluation category.

Excellent: The mitigation method exceeds the basic established criteria in an innovative or new way.

The lists of projects that follow contain the list of mitigation actions, including the rationale for inclusion, responsible organizations, estimated costs, possible funding sources, and timeline for implementation. Following is the list of mitigation actions, identified by the Mitigation Planning Team, for each municipality. The actions for each jurisdiction are listed in order of priority and the overall priority ranking, per the preceding discussion, is also indicated. Table 35 provides outlines those projects by natural hazard and priority. Some projects support all jurisdictions profiled in this HMP and actions are identified accordingly.

Table 35: Prioritization of Mitigation Actions

Jurisdiction	Hazard	Project	Cost
San Juan County	Flood	Local Special Flood Hazard Areas- specific small projects to address	\$4,000 per project
San Juan County	Flood	Flood Hazard Education/Outreach Plan	\$4,000 per year
San Juan County	Flood, Drought, Wildfire, Hazmat	Land Use Management Plan Buffer Zones for HAZMAT Defensible Space	\$50,000
San Juan County	Wildfire	Private property defensible space-	\$15,000
San Juan County	HAZMAT	Public education program	\$15,000
San Juan County	HAZMAT	HAZMAT Route Study	TBD
San Juan County	Flood	Bank stabilization projects	\$150,000 per project
San Juan County	Wildfire	Public land clearing program	\$150,000
San Juan County	Flood	Waterway cleaning legislation	\$5,000
San Juan County	Drought	Drought usage restrictions	\$5,000

SECTION 4 – Goals, Objectives and Mitigation Actions

Jurisdiction	Hazard	Project	Cost
San Juan County	Drought	Public education and awareness program	\$15,000
San Juan County	Drought	San Juan County irrigation ditch inventory and lining program	\$50,000
San Juan County	Drought	Conversion Rebate Program	\$1,000,000
Aztec	HAZMAT	Aztec HAZMAT Route	\$11 Million
Aztec	Flood	Riverbank Stabilization	\$1 Million
Aztec	Drought	Water Storage Tank	\$1.3 Million
Aztec	Flood	Regulate, Inspect and Clear Waterways	\$400,000
Aztec	Wildfire	Public Land Clearing Program	\$200,000
Aztec	Flood	Public Education Campaign	\$15,000
Aztec	HAZMAT	Public Education Programs	\$15,000
Aztec	Drought	Commercial Landscape Regulations	\$50,000
Aztec	Drought	Conversion Rebate Program	\$100,000
Aztec	Flood	Inspect, Inventory and Mitigate Floodplain Fill/Obstructions	\$250,000
Aztec	Drought	Public Education Campaign	\$5,000
Bloomfield	All Hazard	Public Alert System (Siren)	tbd
Bloomfield	Wildfire	Private Property Defensible Space	\$30,000
Bloomfield	Flood	Updating floodplain maps	\$500,000
Bloomfield	HAZMAT	Bloomfield HAZMAT transport survey	\$20,000
Bloomfield	HAZMAT	Bloomfield HAZMAT response survey	\$15,000
Bloomfield	HAZMAT	Bloomfield HAZMAT route	\$10,000,000
Bloomfield	HAZMAT	Public education program	\$15,000
Bloomfield	Drought	Public education	\$15,000
Bloomfield	Drought	Required installation of gray water recovery system	\$5,000
Bloomfield	Flood	Clear waterways	\$5,000
Bloomfield	Flood	Building/zoning codes	\$5,000
Bloomfield	Flood	Bank stabilization projects	\$150,000 per project
Bloomfield	Flood	Waterway assessment	\$100,000
Bloomfield	Drought	Conversion Rebate Program	\$300,000
Farmington	Flood	Porter Arroyo Detention Pond	\$1,679,450
Farmington	HAZMAT	Farmington HAZMAT transport survey	\$20,000

SECTION 4 – Goals, Objectives and Mitigation Actions

Jurisdiction	Hazard	Project	Cost
Farmington	HAZMAT	Farmington HAZMAT Public Education	\$15,000
Farmington	HAZMAT	Farmington HAZMAT route	\$30,000,000
Farmington	Flood	Lakewood Detention Pond	\$1,050,000
Farmington	Drought	Public education	\$15,000
Farmington	Flood	Clear waterways	\$5,000
Farmington	Flood	Crestwood Drive Crossing	\$2,000,000
Farmington	Flood	Pinon Hills Crossing	\$1,000,000
Farmington	Flood	Navajo Crossing	\$2,000,000
Farmington	Flood	Comprehensive planning	\$5,000
Farmington	Drought	Required installation of gray water recovery systems	\$5,000
Farmington	Wildfire	Public Land Clearing	\$150,000
Farmington	Wildfire	Private Land Clearing	\$100,000

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Section 5 – Mitigation Plan and Implementation Strategy

Monitoring, Evaluating and Updating the Plan

The Disaster Mitigation Act of 2000 (DMA2K) signed into law on October 30, 2000, amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act by adding a new section, 322 – Mitigation Planning. Section 322 places emphasis on local mitigation planning. It requires local governments to develop and submit mitigation plans as a condition of receiving Hazard Mitigation Grant Program (HMGP) project grants. An Interim Final Rule for implementing Section 322 ((44 Code of Federal Regulations (CFR) Parts 201 and 206) was published in the Federal Register (FR), Volume 67, Number 38, pages 8844 – 8854, on February 26, 2002. The requirements for local plans, or Local Mitigation Plan Criteria, are found in part 201.6.

Planning Process

As noted earlier, the MPT followed FEMA's hazard mitigation planning process as prescribed in the How-To-Guides. This planning process ensured public involvement and the participation of interested agencies and private organizations. Documentation of the planning process is addressed in this section.

Monitoring, evaluating, and updating the Plan are critical to maintaining its relevance. Effective implementation of mitigation activities paves the way for continued momentum in the planning process and gives direction for the future. This section explains who will be responsible for monitoring, evaluating, and updating the Plan, and what those responsibilities entail. This section also lays out the method and schedule of these activities and describes how the public will be involved on a continuing basis.

Historically, the task of creating the San Juan County Multi-Jurisdictional Mitigation Plan began with the establishment of a working group by Don Cooper, San Juan County Emergency Manager. San Juan County has three jurisdictions within its borders: Aztec, Bloomfield, and Farmington, each of which is a participant in this mitigation effort. A portion of the Navajo Nation is also located in San Juan County. Although the Navajo Nation was represented at the initial organizational meeting, it has not participated past that point.

After identification of the hazards and the risks they pose to the community, action plans were formulated in order to reduce or eliminate each hazardous situation. These plans were developed as a result of the working group, public input, and research conducted from sources including state drought planners, the National Weather Service, the U.S. Army Corps of Engineers, FIRM floodplain maps, and the University of New Mexico. These action plans were prioritized based on risk factors and frequency of occurrence. Once the plan strategies and priority were established by the working group, they were presented to the San Juan County Commission; the Aztec, Bloomfield, and Farmington City Councils; and members of the public by posting at the public libraries for review and comment. The final San Juan County Multi-Jurisdictional Mitigation Plan of 2004 was then completed and approved by the San Juan

SECTION 5 – Hazard Identification / Risk Assessment

County Commission and the Aztec, Bloomfield, and Farmington City Councils. The strategies and action plans established to mitigate hazards within San Juan County and the participating jurisdictions are discussed in Part III, Implementation Strategies.

Once hazards were identified, an effort was made to determine the risk each hazard posed to county residents, and its historic frequency of occurrence. This process was accomplished by a historical review of local newspapers, county documents, public input, New Mexico state government records, and university sources. Additionally, the hazard risk was planned from the aspect of the worst-case scenario for both the present population and the planned increase in population five years later. This information is located in Part II, Risk Identification and Analysis.

Currently the jurisdictions of San Juan County, the City of Aztec, the City of Bloomfield, and the City of Farmington are participating in the San Juan County Multi-Jurisdictional Mitigation Plan. The members of the working group are Don Cooper, San Juan County Emergency Manager; Mike Mestas, San Juan County Emergency Management Coordinator; Michele Truby-Tillen, San Juan County Floodplain Manager; George Duncan, Bloomfield Fire Chief; Ray Barns, Bloomfield Planning & Zoning Director; Roshana Moojen, Aztec Community Development Director; Duane Bair, Farmington Fire Dept.; Virginia King, City of Farmington Public Works Department; and Hubert Quintana II, City of Farmington Public Works Department. Also invited but not currently attending these meetings is Chris Wabis, US Army Corps of Engineers.

In New Mexico neighboring county/city emergency managers provide support, expertise, and resources to each other. The MPT provided copies of the draft HMP to neighboring emergency managers via email for their review (Appendix C). Additionally San Juan County will provide a copy of the final HMP to these neighboring emergency managers.

Invitations to be part of the working group were e-mailed to each of the historical planning group members as well as the agencies they were associated with. Invitations were also e-mailed to the US Army Corps of Engineers due to their involvement in issues related to the three rivers in San Juan County and to each of the community floodplain managers, Farmington Fire Wildland Fire/Urban Interface, and San Juan County Fire Wildland Fire, Bloomfield Police Department.

In addition to meetings of the working group, the public has been invited to participate in the planning process through Community Emergency Response Trainings (CERT), the San Juan County Local Emergency Planning Committee (LEPC), through public outreach at the San Juan County Fair and through use of a questionnaire available online or in paper form. (See Appendix A and B for additional details of meetings and the questionnaire.)

The public was given the opportunity to be involved in the planning process and their input was incorporated in the plan in the following manner:

- An online questionnaire was introduced to the public through presentations at CERT and LEPC meetings. The questionnaire was also mentioned during radio interviews several times during the year. The results of the questionnaire were used to provide guidance to the MPT to identify hazards of concern to the community. (see Appendix B)

- A public meeting to provide an opportunity for input in the Plan was held on March 14, 2013 at the San Juan County Museum for public comment. A meeting notice was posted on the San Juan County Office of Emergency Management's website as well as the websites of the cities of Farmington, Bloomfield and Aztec. Additionally a public notice was published in the Farmington Daily Times (See Appendix A).

The original working group findings were reviewed by the current working group and compared to updated information. The updates made to the San Juan County Multi-Jurisdictional Mitigation Plan were based on the 2010 review. Copies of Meeting Agendas, minutes and participants are located in Appendix A.

As a living document, the San Juan County Multi-Jurisdictional Mitigation Plan includes provisions for its annual review and updating. Not only is this process set forth in Part IV, Implementation and Monitoring Plan, it is established by resolution by each governing body represented in this plan.

The MPT developed an action plan that includes monitoring, evaluating, and updating the Plan. It recommends the establishment of a permanent hazard mitigation team to lead the implementation of the plan and continue the hazard mitigation planning process beyond this Plan.

Existing Planning Mechanisms

Prerequisites

The Local Mitigation Plan Criteria state that the plan must satisfy three prerequisites before the plan will be approved by FEMA. If these prerequisites have not been fulfilled, the plan will not be approved. The three prerequisites are:

- Adoption by the local governing body
- For multi-jurisdictional plans, each jurisdiction must adopt the plan
- For multi-jurisdictional plans, each jurisdiction must participate in the planning process.

San Juan County's plan is a multi-jurisdictional plan and will require adoption by the local governing body which has been addressed with county and city(s) officials. Once approved these resolutions showing adoption of this plan will appear in the introductory elements (before the Table of Contents) of this HMP. After adoption, copies of the Plan will be given to the respective zoning and planning departments. During updates and revisions of community planning documents, the Plan will be presented to the planning committee for consideration.

Implementation of the HMP Plan in the Jurisdictions

Once the HMP has been approved by each jurisdiction, those resolutions will be incorporated into the HMP and provided to the state and FEMA. Once approved, each jurisdiction will begin the process of incorporating the strategies and actions into daily jurisdiction operations. Where applicable, all mitigation actions will be incorporated into existing jurisdictions' planning documents via zoning, subdivision regulations and capital improvements program and other regulatory mechanisms. Each jurisdiction is responsible for monitoring strategies, actions and any updates to this HMP. Every six months mitigation meetings will be conducted to review the status of each jurisdictions progress. As each jurisdiction is a part of the county, the county emergency manager will monitor the plan progress and coordinate meetings.

Hazard Mitigation Planning Team

A permanent entity needs to be responsible for maintaining the Plan and for monitoring, evaluating, and updating it. This Plan recommends creating a permanent planning team, the MPT, with representation from all participating municipalities. The San Juan County Office of Emergency Management (OEM) will be the entity in charge of monitoring the plan. Jurisdictions identified in this plan will provide support in updating accordingly. The San Juan County OEM, the Executive Manager, will post notices on the County website and other appropriate sites to announce the meetings. The San Juan County OEM represents citizen, municipal, business, educational, volunteer, and county interests in supporting mitigation strategies and actions for this plan.

The MPT will oversee the progress made on the implementation of the identified action items and update the plan, as needed, to reflect changing conditions. The MPT will therefore serve as the focal point for coordinating countywide mitigation efforts. The MPT will establish quarterly meetings and will focus on the Plan as events within the community apply to the evaluation, updating, and monitoring of hazards within the Plan. The MPT will focus specifically on the evaluation, updating, and monitoring the plan once per year. The MPT will monitor the mitigation activities by reviewing reports from the agencies identified for implementation of the different mitigation actions. The MPT will request that the responsible agency or organization submit a semi-annual report, which provides adequate information to assess the status of mitigation actions. The MPT will provide their feedback to the individual agencies.

Evaluation of the Plan should include not only checking on whether or not mitigation actions are implemented, but also assessing their degree of effectiveness. The MPT will review the qualitative and quantitative benefits (or avoided losses) of the mitigation activities and compare them to the goals and objectives that the Plan sets out to achieve. The Team will also evaluate mitigation actions to see if they need to be modified or discontinued in light of new developments. The Team will document progress annually. Additionally a place holder appendix will be added to the plan for record keeping of projects completed and new disaster/incidents that may occur in San Juan County.

SECTION 5 – Hazard Identification / Risk Assessment

The Plan will be updated every five years, as required by the DMA 2000, or following a disaster. New data will be added from the existing and new technical resources, as well as from local planning entities and the MPT, to assess population, housing trends, the potential effects of natural and human caused hazards on people and structures, and to ensure necessary inclusion into local and county planning mechanisms. The updated Plan will account for any new developments in the County or special circumstances (e.g., post-disaster). Issues that come up during monitoring and evaluation, which require changes in mitigation strategies and actions, will be incorporated in the Plan and planning processes at this stage. The San Juan County OEM will be responsible to soliciting information from included jurisdictions to update specific information, and this office will be responsible for updating countywide information and incorporating it into the revised Plan.

Public Involvement

San Juan County is dedicated to involving the public directly in reshaping and updating the Plan. Although the MPT represents the public to some extent during its review of the plan, the public will be able to comment directly on and provide feedback about the plan during the review period. This meeting will provide a forum wherein the public can express concerns, opinions, or ideas about the plan. The San Juan County OEM will publicize and host the meeting. The San Juan County Emergency Manager will be responsible for keeping track of public comments about the plan.

The MPT will involve the public during the evaluation and update of the Plan through annual public education activities, public workshops, and public hearings. The MPT will also keep the public informed through the established websites, newsletters, mailings, and the different agencies implementing the plan. The San Juan County OEM, who took the initial lead on the HMP, has developed a website for the public to view the current progress of the HMP and to provide public comment during development and review period (<http://www.sjcoem.com/>) This website serves as a means of two-way communication by providing information about mitigation initiatives and supplying feedback forms and other means for the public to express their views and comments. San Juan County and the cities of Aztec, Bloomfield and Farmington were encouraged develop a website or link to the San Juan County website. The MPT will incorporate the public comments in the next update of the Plan.

Updating the Plan

Monitoring, Evaluating, and Updating the Plan

Monitoring, evaluating, and updating the Plan are critical to maintaining its relevance to ensure that the HMP remains an active and relevant document. Effective implementation of mitigation activities paves the way for continued momentum in the planning process and gives direction for the future. San Juan County has developed a method to ensure that regular review and update of the Plan occurs, a method that encompasses decision making, direction, and documentation: Each jurisdiction local officials will determine which projects / action items will be implemented

SECTION 5 – Hazard Identification / Risk Assessment

and how and when they will be completed. Review and revision of the Plan will be directed by the San Juan County Office of Emergency Management, and the MPT will be responsible for monitoring, evaluating, and documenting the plan's progress throughout the year. Although the members of the MPT may change from year to year, future MPTs will continue to execute the same job functions as the current MPT.

The San Juan County Emergency Manager is responsible for contacting MPT members and organizing meetings and will monitor progress on the mitigation action items. Monitoring is important for future eligibility for any mitigation funding that may be available. FEMA and the NMDHSEM have the authority to evaluate the progress of existing mitigation plans to determine if the plan is fulfilling program requirements.

The plan will be reviewed, revised, and updated every five years from the date of FEMA's approval. If a disaster occurs or as action items are met, the plan will be reviewed, revised, and updated sooner than the required five years.

The MPT will reconvene approximately one year before the five-year period is up and begin evaluating the plan. HMP review and update will comprise a review of each goal and action item to determine the relevance to changing situations in the county and/or changes to state or federal policy and to ensure that current and expected conditions are being addressed. Key topics and questions that will be addressed include the following:

- Identification of hazards: Are there new hazards that affect the community?
- Development of hazard profiles: Are additional maps or new hazard studies available? Have chances of future events changed? Have recent and future development in the community been assessed for their effect on hazard areas?
- Inventory of assets. Have inventories of existing structures in hazard areas been updated? Are there any new special high-risk populations? Is future land development accounted for in the inventories?
- Estimation of losses. Have losses been updated to account for recent changes?

If the response to any of the above questions is "yes," then the Plan will be updated accordingly. The HMP will be evaluated annually and will be updated at least every five years. A revised copy of the plan will be completed by October of each year and submitted for public comment. Each jurisdiction will approve the updated plan each December. More frequent updates may be submitted to each jurisdiction for approval as needed to address new or unexpected mitigation goals and objectives or funding opportunities. A revised HMP reflecting changes in development, progress in mitigation efforts and changes in priorities will be submitted in accordance with DMA2K for approval within five years in order to continue eligibility for FEMA assistance. Table 23 provides a projected meeting schedule for maintaining the HMP.

SECTION 5 – Hazard Identification / Risk Assessment

Table 36: Projected Meeting Schedule to Maintain the HMP

HMP Meeting	Date
Initial meeting following plan approval	One month after approval
HMP Project Review	Six months after initial planning meeting
HMP Plan Review	Six months following Project Review
HMP Project Review	Six months following plan review
HMP Plan Review	Six months following project review
HMP Project Review	Six months following plan review
HMP Plan Review	Six months following project review
HMP Project Review	Six months following plan review
HMP Plan Review / Start Process to renew Grant for plan update with State and FEMA	Six months following project review

The MPT also will review the risk assessment portion of the Plan and determine if this information should be updated or modified. Revisions to this plan may also be required for different situations, e.g., the identification of specific new mitigation action items, the completion of listed mitigation action items, or a change in mitigation plan requirements for funding programs. If no changes are necessary, the SHMO will be given a written justification for this determination.

The San Juan County Emergency Manager is responsible for incorporating all changes into the HMP electronically after the MPT has met and decided on the changes. The San Juan County Emergency Manager will complete all necessary revisions at least three months prior to the end of the five-year period to allow the MPT time to review the update. During the revision process, the San Juan County Emergency Manager will send status reports to each jurisdiction for review and comment. Any required revisions will be implemented within six months following the review process. This process will be repeated for each five-year review of the plan. An updated/ revised plan will be submitted to the SHMO and FEMA.

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Appendix A – Agendas, Minutes, Forms and Sign-In Sheets

San Juan County Mitigation Plan Public Meeting
 March 14, 2013 – 5pm – 7pm

Public Meeting Attendee	Agency	Title
Mike Mestas	San Juan County	Emergency Management Coordinator
Michele Truby-Tillen	San Juan County	Floodplain Manager
Chico Quintana	City of Farmington	Public Works Department/Engineer
Roshana Moojen	City of Aztec	Community Development Director
Lora Sadora	B-Sting Ventures, LLC	Facilitator
Brian Fields	B-Sting Ventures, LLC	Facilitator
Susan Carter	Citizen of Aztec	
Brian Carter	Citizen of Aztec	



San Juan County
 Office of Emergency Management
 Hazard Mitigation Public Meeting Sign-In Sheet

Date: MARCH 14, 2013

Please Print Information Legibility

NAME	ORGANIZATION	MAILING ADDRESS	MAIN PH #	EMAIL ADDRESS	INITIALS
BRIAN FIELDS	BSV	4109 WILLISTON AVE ALBUQUERQUE NM 87114	703-863-5657	bwfields@gmail.com	RF
Lora Sadora	BSV	2921 SERRANO ALBUQUERQUE NM 87110	505.263.7013	ladyssleadol.com	LS
Michele Truby-Tillen	SSC OEM	209 S OLIVER	505-334-4779	mtruby@sjcounty.net	MT
Roshana Moojen	CDA	201 W. CHAVEZ AZTEC	334-7605	rmoojen@aztecnm.gov	RM
Hubert Quintana	CITY OF FARMINGTON	805 MUNICIPAL DRIVE	579-1312	equintana@farmington.org	HQ
Susan Carter Brian Carter	CITIZEN OF AZTEC	601 RIVINGTON RD AZTEC	334-2578	blackshear50@yahoo.com	SC
MIKE MESTAS	SSC-OEM	209 S OLIVER AZTEC	505-334-1180	MestasM@ssscs.net	MM



**San Juan County Mitigation Plan Working Group Meeting
February 27, 2013 – 1pm to 3pm**

Working Group Member	Agency	Title
Mike Mestas	San Juan County	Emergency Management Coordinator
Michele Truby-Tillen	San Juan County	Floodplain Manager
Duane Bair	City of Farmington	Fire Department/Wildfire Coordinator
Chico Quintana	City of Farmington	Public Works Department/Engineer
Lora Sadora	B-Sting Ventures, LLC	Facilitator
Brian Fields	B-Sting Ventures, LLC	Facilitator
AGENDA ITEMS		
<ul style="list-style-type: none"> • Introductions • Hazard Mitigation Plan Update Overview by Brian Fields, Facilitator, B-Sting Ventures, LLC Overview of the Plan • Updates on information request • Project Prioritizations • Public Involvement Meeting • Next steps • Comments/Questions • Closing Remarks • Next Meetings • Adjournment 		

**San Juan County Office of Emergency Management
Hazard Mitigation Plan
Mitigation Planning Team Meeting Minutes**

Date/ Location

February 26, 2013

1:00 pm –3:00 pm

209 S. Oliver Dr., Aztec, NM 87410

Purpose

The purpose of the Mitigation Planning Team (MPT) meeting was to review those projects identified for each jurisdiction and prioritize accordingly for inclusion in the updated HMP to discuss the next steps in the process.

OVERVIEW OF ACTIVITIES

The meeting was facilitated by Brian Fields and Lora Sedore, contractors with B-Sting Ventures, LLC (BSV). Mr. Fields facilitated a PowerPoint presentation that provided information on what planning has been accomplished, what involvement is anticipated for the team members and what the next steps will be. A copy of the PowerPoint is provided to the San Juan County Project Manager (PM) to upload on the mitigation website. The following items were identified and discussed on the agenda:

- a) **Overview of the Plan**
- b) Mr. Fields and Ms. Sedore provided the MPT with a status of the plan update and stated that at this time no additional data is required. Should we identify any areas with gaps we will reach out the respective jurisdiction and let them know what we need to fill those gaps.

c) Updates on Information Requests

Ms. Sedore reminded everyone that in the event we reach out to please provide those requests for information as soon as possible as we are getting down to the end of finalizing the plan for review and submission to the state and FEMA.

d) Project Prioritization

The MPT was introduced to the process of prioritizing those projects identified for each hazard in the HMP. Ms. Sedore provided an overview of the STAPLEE process that will be used for conducting the prioritization. Each project went through a final review for validation and during the review additional projects were added and some deleted. After validation the MPT utilized the STAPLEE instructions and began prioritizing. BSV will finalize all documents received from this effort and include in the plan accordingly.

e) Public Involvement Meeting

The MPT was reminded of the upcoming public meeting that is scheduled for March 14, 2013 from 5pm to 7pm at the Farmington Museum, 3041 East Main Farmington, NM 87402. BSV suggested that maximum participation/attendance at this meeting by all MPT members is highly recommended.

Ideas were discussed on what to have at this public meeting. Maps will be generated for viewing, copies of the HMP will be provided, a FAQ handout, a listing of identified projects for handout and a PowerPoint presentation with before and after projects will be displayed for the attendees.

f) Next Steps

Mr. Fields stated the next steps for the HMP is to conduct the public meeting and continue to develop the updated HMP with data collected.

g) Comments/Questions

There were no additional comments or questions raised by the MPT.

Action Items

B-Sting Ventures

- Send out reminders to MPT for before and after project photos
- Print FAQ for Public Meeting
- Develop Project sheet for Public Meeting
- Continue to update the HMP

Michelle Truby

- Provide before and after photos of previous mitigation projects
- Print large size maps from the HMP for public viewing

Farmington/Aztec/Bloomfield Planning team members

- Provide before and after photos of previous mitigation projects

The meeting adjourned at 3:00pm.

Brian W. Fields

B-Sting Ventures (BSV) LLC
703-863-8857 mobile5
bwfabq@gmail.com

Lora Sedore

B-Sting Ventures (BSV) LLC
05-263-7013
abqljs1@aol.com

Appendix A – Agendas, Minutes and Sign-In Sheets



San Juan County
Office of Emergency Management
Hazard Mitigation Planning Meeting Sign-In Sheet

Date: 2/27/13

Please Print Information Legibility

NAME	ORGANIZATION	MAILING ADDRESS	MAIN PH #	EMAIL ADDRESS	INITIALS
Roshana Modjin	City of Aztec				
CHICO QUINTANA	CITY OF FMTN	805 MUNICIPAL DR aztecquintana@ fmtn.org	505-599- 1312	cquintana@ fmtn.org	CQ
Michele Teubert	SJC OEM				
DAVE BAIR	FARMINGTON	301 N ASBURN FARMINGTON NM 87401	505-793-7020	DBAIR@FIRENET.ORG	DB
MIKE McSTAS	SJC OEM	—	—	—	MM
Lara Sidorz	B-Sting Ventures LLC	297 Solano ABQ NM	505.263.7023	absq151@aol.com	
Brian Fields	B-Sting Ventures LLC	NBQ NM 87114 4109 WHISTLER AVE NW	703-863-8857	bwfabg@gmail.com	BF

**San Juan County Mitigation Plan Meeting with City of Bloomfield
February 6, 2013 – 1pm to 3pm**

Working Group Member	Agency	Title
Ayme Vigil	City of Bloomfield	Bloomfield Fire Dept.
Michele Truby-Tillen	San Juan County	Floodplain Manager
Donica Sharpe	City of Bloomfield	GIS/P&Z
Brad Ellsworth	City of Bloomfield	Finance
John Mohler	City of Bloomfield	Bloomfield Fire Dept.
George Duncan	City of Bloomfield	Bloomfield Fire Dept.
Lora Sedore	B-Sting Ventures, LLC	Facilitator
Brian Fields	B-Sting Ventures, LLC	Facilitator
AGENDA ITEMS		
<ul style="list-style-type: none"> • Introductions • Hazard Mitigation Plan Update Overview by Brian Fields, Facilitator, B-Sting Ventures, LLC • Overview of the Plan • Updates on information request • Project Prioritizations • Public Involvement Meeting • Next steps • Comments/Questions Closing Remarks/ Next Meetings Adjournment 		

**San Juan County Office of Emergency Management
Hazard Mitigation Plan Update
Planning Meeting Minutes**

Date/ Location

February 7, 2013
9:00 a.m. –11:00 a.m.
Bloomfield City Hall
915 N. 1st Street
Bloomfield, NM

Purpose

The purpose of the planning conference was to update the status of the HMP, request information updates, and to discuss the next steps in the process.

OVERVIEW OF ACTIVITIES

The meeting was facilitated Brian Fields and Lora Sedore, contractors with B-Sting Ventures, LLC (BSV). Brian Fields facilitated discussion of the San Juan County HMP updates; information updates requests and expectations of involvement of Bloomfield in the HMP process. The following items were discussed:

- The draft plan is posted on the San Juan County OEM website for review by the public and other agencies.
- The plan will be completed using the current hazards identified by the Mitigation Planning Team (MTP)
- A form requesting information updates was distributed to the group and was completed with contact information of Bloomfield MPT.
- Ms. Sedore from B-Sting will be in contact with individuals with information requests.
- The MPT will have a meeting on February 27, 2013 at the San Juan County Office of Emergency Management 209 S. Oliver Dr., Aztec, NM 87410 with time to be announced at a later date, to establish a

prioritization process for projects. In the next few weeks information will be provided on STAPLE+E to use for this process prior to the meeting.

- Members of the MPT should email any information/updates to either Mr. Fields or Ms. Sedore for inclusion in the plan.
- All the hazards identified in the State Plan must be considered by each community. A form (San Juan County Natural Hazards Analysis/Prioritization) was provided to the MPT. A summary of their answers will be included in the final HMP.
- Since buy-in by the local governments is necessary for adoption of the plan the MPT will provide information on the HMT previous to the council/commission adoption of the plan. A briefing document will be provided by to the PM for distribution to each jurisdiction.
- The public meeting will be on March 14, 2013 from 5pm to 7pm at the Farmington Museum, 3041 East Main Farmington, NM 87402.
- Each community will post a link on their web site announcing the public meeting. A flyer with the information will be provided by the PM for distribution to each jurisdiction and must be posted at least 30 days prior to the Public Meeting. The public notification will also be printed in the local paper 14 days prior to the Public Meeting.
- The B-Sting Ventures team will provide an updated draft plan before the Public Meeting for the MPT to review. Additionally sections of the HMP will be sent to individual MPT members for review prior to the Public Meeting.
- Reminder: Information can be added to the HMP after the adoption and may be included in yearly updates.

Action Items

B-Sting Ventures

- Provide a briefing document/ FAQ for distribution to local government officials before HMP adoption
- Provide a flyer for the Public Meeting to Michelle for distribution
- Provide STAPLE+E guidance to MPT

Michelle Truby-Tiller

- Disburse briefing document to MPT
- Disburse Public Meeting Notice to MPT

Bloomfield Planning Team Members

Additional questions or comments can be directed to the following:

Brian W. Fields

B-Sting Ventures (BSV) LLC
703-863-8857 mobile
bwfabq@gmail.com

Lora Sedore

B-Sting Ventures (BSV) LLC
505-263-7013
abqljs1@aol.com

Appendix A – Agendas, Minutes and Sign-In Sheets



San Juan County
Office of Emergency Management
Hazard Mitigation Planning Meeting Sign-In Sheet

Bloomfield
2/6/13

NAME	ORGANIZATION	MAILING ADDRESS	MAIN PH #	EMAIL ADDRESS	INITIALS
Lora S. dore	B-Sting	2921 Solano Alb NM 87110	505-263-7013	ldgl151@aol.com	LS
Alyne Vigil	COB Fire Dept	911 N. 1st Bloomfield, NM	632-6363	firr@bloomfieldnm.com	AV
Domica Sharpe	GIS/P4Z	915 N. 1st	632-6319	dsharp@bloomfieldnm.com	DS
Brad Elsworth	COB/Finance	915 N. 1st Bloomfield	632-6308	bellsworth@bloomfieldnm.com	BE
Michelle Treby-Tiller	SJC OEM				MT
Brian Fields	B-Sting	4109 Wheeler Ave ABQ, NM 87114	703-863-8857	bwfields@equinix.com	
John Mahler	Bloomfield Fire	911 N. 1st Bloomfield, NM	632-6363	j.mahler@bloomfieldnm.com	JM
George Swain	Bloomfield Fire	911 N. 1st Bloomfield, NM	632-6363	gswain@bloomfieldnm.com george.swain@bloomfieldnm.com	GS



Appendix A – Agendas, Minutes and Sign-In Sheets

**San Juan County Mitigation Plan Working Group “Kick-Off” Meeting
January 3, 2013 – 1pm to 3pm**

Working Group Member	Agency	Title
Don Cooper	San Juan County	Emergency Manager
Mike Mestas	San Juan County	Emergency Management Coordinator
Michele Truby-Tillen	San Juan County	Floodplain Manager
Roshana Moojen	City of Aztec	Community Development Director
Virginia King	City of Farmington	Public Works Department/Engineer
Duane Bair	City of Farmington	Fire Department/Wildfire Coordinator
Wendy Blackwell	DHSEM	Mitigation Specialist
Nica Westerling	City of Farmington	Public Works Department/Engineer
Hubert Quintana II	City of Farmington	Public Works Department/Engineer
George Duncan	City of Bloomfield	Fire Chief
Deputy Fire Chief Craig Dougherty	San Juan County	San Juan County Fire Department
Lora Sadora	B-Sting Ventures, LLC	Facilitator
Brian Fields	B-Sting Ventures, LLC	Facilitator
AGENDA ITEMS		
<ul style="list-style-type: none"> • Introductions • Hazard Mitigation Plan Update Overview by Brian Fields, Facilitator, B-Sting Ventures, LLC • Introduction of Hazard Mitigation Plan Update • What has been accomplished to date and what remains to be finished • Next steps • Comments/Questions • Closing Remarks/ Next Meetings • Adjournment 		

**San Juan County Office of Emergency Management
Hazard Mitigation Plan Update
Kickoff Planning Meeting Minutes**

Date/ Location

January 3, 2013

1:00 pm – 3:00 pm

San Juan County Office of Emergency Management

209 S Oliver Drive

Aztec, NM 87401

Purpose

The purpose of the planning conference was to introduce the contractors, B-Sting Ventures, LLC, review the current status of the San Juan County Hazard Mitigation Plan (HMP) and discuss the next steps towards completing the Plan.

OVERVIEW OF ACTIVITIES

The meeting was facilitated Brian Fields and Lora Sedore, contractors with B-Sting Ventures, LLC (BSV).

Ms. Truby-Tillen facilitated introductions for the group and assured the team that the planning already completed will be used in the plan. The State Hazard Mitigation Officer (SHMO) had completed a preliminary review of the San Juan County Draft HMP (April 2012) and had additional comments for including additional data in areas of the plan. After receiving the comments from the SHMO, the San Juan County OEM decided to hire a contractor, B-Sting, to complete the plan.

Mr. Fields facilitated a PowerPoint presentation that provided information on what planning has been accomplished, what involvement is anticipated for the team members and what the next steps will be. A copy of the PowerPoint has been provided to Ms. Truby-Tillen.

The following items were discussed:

- The City of Farmington is currently in the middle of a FEMA funded project and in order to be able to complete the project and apply for more FEMA funds the San Juan County HMP must be completed and approved. All members of the Mitigation Planning Team (MPT) are asked to provide information for plan completion, if required, and attend meetings so the process can move quickly
- The draft HMP will be posted on the San Juan County OEM website no later than COB January 4, 2013 for review by the public and other agencies. Information considered sensitive by the community can be included in appendix that has limited access. A comment will be placed in those sensitive sections to contact Ms. Truby-Tillen who will discuss those sections accordingly
- MPT members were asked to share this information with other agencies to ensure all have an opportunity to review and provide any comments
- Ms. Truby-Tillen is the project director-liaison; however, MPT members may provide information directly to Mr. Fields or Ms. Sedore to expedite the HMP update process. MPT members are asked to courtesy copy Ms. Truby-Tillen on all correspondence and BSV will ensure anything received is provided to the project manager accordingly
- San Juan County OEM has a mitigation webpage. Each community (Aztec, Bloomfield and Farmington) will post a link on their website directing the public/agencies to the San Juan OEM site to review the draft plan
- Other regional organizations (i.e. regional firefighting organizations and higher education partners) should be given the opportunity to review the draft plan
- The public must be given the opportunity to review and have input in the plan
- Each incorporated municipality must participate in HMP development and included in the HMP – The community must be able to track their contributions - i.e. information provided – reviews, attendance in planning meetings
- The updated plan must include the following changes if applicable
 - Changes in demographics
 - Commercial and other large development projects (subdivisions)
 - Newly completed plans such as CWPP, Comprehensive Plans
 - Changes to zoning, building or environmental regulations
 - Additional critical facilities
 - Mitigation type projects completed – i.e. flood plan mapping, flood infrastructure, vegetation management projects
 - Disaster events – 4901 Fire, flooding event, etc. since March 2012
- All the hazards identified in the State Plan must be considered by each community. If a hazard is considered low priority it must be addressed with mitigation actions however there is a way to address the hazards that have little or no impact on the community. Ms. Blackwell, New Mexico SHMO, will provide the appropriate wording, acceptable by FEMA, for those hazards that will not be addressed
- FEMA now requires only two mitigation actions per identified hazard – previously 3 actions were required
- Once the HMP has been approved by FEMA, communities have 90 days from FEMA approval to adoption

- When reviewing the draft plan do not use track changes; mark changes with yellow highlighting or section off the area where changes are being made and write in and place in parentheses ()
- If you are unable to attend meetings – send a representative or arrange for conference calling
- The BSV team will review the draft plan and identify areas in that will require additional information

Action Items

Farmington/Aztec/Bloomfield Mitigation Planning Team members

- Provide the following changes (if applicable) for your community
 - Changes in demographics
 - Commercial and other large development projects (subdivisions)
 - Newly completed plans such as CWPP, Comprehensive Plans
 - Changes to zoning, building or environmental regulations
 - Additional critical facilities
 - Mitigation type projects completed- i.e. flood plan mapping, flood infrastructure, vegetation management projects
 - Disaster events – 4901 Fire, flooding event etc. since March 2012
- Obtain council/county commission buy in early. Consider submitting the draft plan at a working session
- Identify other organizations or individuals who may want to have the opportunity to review or participate in the plan update
- Post a link on your municipality website linking the draft plan on the San Juan County OEM website for review by the public and other agencies. Capture the website page with date stamp and print each time new information is added

Review the list of state identified natural hazards, located in the New Mexico Hazard Mitigation Plan, and consider for inclusion in the plan. Inclusion of the state identified hazards are not required however, consideration and review is required.

Michelle Truby-Tillen

- Post the draft plan on the San Juan County OEM website no later than COB January 4, 2013 for review by the public and other agencies.
 - Remove critical facilities list
 - Watermark draft and lock PDF file
 - Make sure you capture the website page with date stamp and each time new information is added
- Review the list of state identified hazards. These hazards must be reviewed and considered for inclusion in the plan. Inclusion of the state identified hazards are not required however, consideration and review is required
- Attend LEPC meeting and provide plan update information. Invite public to the next LEPC meeting to provide the update and obtain public comment on contents of the HMP
- Consider press release to local newspapers on the HMP update and offer the public the opportunity of comment by way of the website
- Provide update information, planning notes and meetings information to the State Hazard Mitigation Officer

B-Sting Ventures

- The B-Sting Ventures team will review the draft plan and identify areas in the HMP that will require additional information
- Provide meeting notes to MPT

Appendix A – Agendas, Minutes and Sign-In Sheets

- Develop agenda and briefing topics for the next meeting scheduled for February 5, 2013 at 11:30 am. Location to be finalized in the next few weeks and advertised accordingly. BSV will identify additional meeting with communities individuals that will be scheduled on late afternoon of February 5, 2013 and all day on February 6, 2013

Mike Mestas/San Juan County OEM

- Look into providing lunch for the next meeting (February 5, 2013) at the Best Western in Farmington

Wendy Blackwell- NM Hazard Mitigation Officer

- Provide a list of state identified hazards
- Provide the approved language to dismiss a hazard

Next meeting

February 5, 2013 – 11:30 tentatively scheduled for the Best Western in Farmington
 February 6, 2013 TBD additional meetings with communities, individuals and B-Sting

The Meeting was adjured at 3:00 pm. Additional questions or comments can be directed to the following:

Brian W. Fields	Lora Sedore
B-Sting Ventures (BSV) LLC	B-Sting Ventures (BSV) LLC
703-863-8857 mobile	505-263-7013
bwfabq@gmail.com	abqljs1@aol.com

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Mitigation Planning - 1/3/2013					
NAME	ORGANIZATION	MAILING ADDRESS	PHONE	EMAIL ADDRESS	INITIALS
1. <i>Joe J...</i>	<i>...</i>	<i>...</i>	<i>715 7224</i>	<i>...</i>	<i>...</i>
2. <i>Proshana Mayan</i>	<i>City of Aztec</i>	<i>24 W. 2nd St Aztec, NM 87410</i>	<i>(505) 554-7005</i>	<i>Proshana@aztec.nm.gov</i>	<i>...</i>
3. <i>Michelle Taylor</i>	<i>...</i>	<i>307 S. ... Aztec, NM 87410</i>	<i>505-477-...</i>	<i>...</i>	<i>...</i>
4. <i>Wendy Blackwell</i>	<i>DHS/EM</i>	<i>State St Santa Fe, NM 87502</i>	<i>505-477-7076</i>	<i>wendy.blackwell@state.nm.us</i>	<i>WB</i>
5. <i>Virginia King</i>	<i>City of Farmington</i>	<i>800 Municipal Dr Farmington, NM 87401</i>	<i>505 571 1306</i>	<i>vking@farm.org</i>	<i>...</i>
6. <i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>
7. <i>HERBERT QUINTANA</i>	<i>City of Farmington</i>	<i>800 MUNICIPAL DRIVE FARMINGTON, NM 87401</i>	<i>(505) 571-1512</i>	<i>quintana@farm.org</i>	<i>HQ</i>
8. <i>George J. ...</i>	<i>City of ...</i>	<i>711 N. ... Farmington, NM 87401</i>	<i>505-571-6363</i>	<i>georgej@farmington.com</i>	<i>...</i>
9. <i>...</i>	<i>...</i>	<i>219 S.</i>	<i>505 571 1111</i>	<i>...</i>	<i>...</i>
10. <i>Mike Mestas</i>	<i>OSM</i>	<i>209 S. ...</i>	<i>505-477-...</i>	<i>Mestas@state.nm.gov</i>	<i>...</i>
11. <i>Lora Sedore</i>	<i>B-Sting</i>	<i>414 ... Albuquerque, NM 87111</i>	<i>505-263-7013</i>	<i>abqljs1@aol.com</i>	<i>LS</i>
11. <i>Brian Fields</i>	<i>B-Sting</i>	<i>414 ... Albuquerque, NM 87111</i>	<i>505-852-...</i>	<i>bwfabq@gmail.com</i>	<i>BF</i>
12.					
13.					

Appendix A – Agendas, Minutes and Sign-In Sheets

**San Juan County Mitigation Plan Working Group Meeting
February 5, 2013 – 11:30am to 1pm**

Working Group Member	Agency	Title
Don Cooper	San Juan County	Emergency Manager
Mike Mestas	San Juan County	Emergency Management Coordinator
Michele Truby-Tillen	San Juan County	Floodplain Manager
Roshana Moojen	City of Aztec	Community Development Director
Virginia King	City of Farmington	Public Works Department/Engineer
Duane Bair	City of Farmington	Fire Department/Wildfire Coordinator
David Vega	San Juan County	San Juan County Fire Department
Nica Westerling	City of Farmington	Public Works Department/Engineer
Larry Hathaway	San Juan County	Community Development
Deputy Fire Chief Craig Dougherty	San Juan County	San Juan County Fire Department
Lora Sadora	B-Sting Ventures, LLC	Facilitator
Brian Fields	B-Sting Ventures, LLC	Facilitator
AGENDA ITEMS		
<ul style="list-style-type: none"> • Introductions • Hazard Mitigation Plan Update Overview by Brian Fields, Facilitator, B-Sting Ventures, LLC • Overview of the Plan • Updates on information request • Plan discussion/ hazards/goals/action / priorities/other • Next steps • Closing Remarks/ Next Meetings • Adjournment 		

**San Juan County Office of Emergency Management
Hazard Mitigation Plan Update
Planning Meeting Minutes
Date/ Location**

February 5, 2013 11:30 am –1:00 pm Red Lion Inn 700 Scott Ave., Farmington, NM

Purpose

The purpose of the planning conference was to update the status of the HMP, request information updates, and to discuss the next steps in the process.

OVERVIEW OF ACTIVITIES

The meeting was facilitated by Brian Fields and Lora Sedore, contractors with B-Sting Ventures, LLC (BSV). Brian Fields facilitated a PowerPoint presentation that provided information on what planning has been accomplished, what involvement is anticipated for the team members and what the next steps will be. A copy of the PowerPoint is provided to the San Juan County Project Manager (PM) to upload on the mitigation website. The following items were discussed:

Appendix A – Agendas, Minutes and Sign-In Sheets

- The draft plan is posted on the San Juan County OEM website for review by the public and other agencies.
- A form requesting information updates was given to the planning team members; additionally this form will be emailed to any member requesting it.
- The plan will be completed using the current hazards identified by the Mitigation Planning Team (MPT)
- The MPT needs to establish a prioritization process for projects, and will be provided with information on STAPLE+E to use for this process.
- Members of the MPT should email any information/updates to either Mr. Fields or Ms. Sedore for inclusion in the plan.
- All the hazards identified in the State Plan must be considered by each community. A form (San Juan County Natural Hazards Analysis/Prioritization) was provided to the MPT a summary of their answers will be included in the final HMP.
- Since buy-in by the local governments is necessary for adoption of the plan the MPT will provide information on the HMT previous to the council/commission adoption of the plan. A briefing document will be provided to the PM for distribution to each jurisdiction.
- The public meeting will be on March 14, 2013 from 5pm to 7pm at the Farmington Museum, 3041 East Main Farmington, NM 87402.
- Each community will post a link on their web site announcing the public meeting. A flyer with the information will be provided by the PM for distribution to each jurisdiction and must be posted at least 30 days prior to the Public Meeting. The public notification will also be printed in the local paper 14 days prior to the Public Meeting.
- The BSV team will provide an updated draft plan before the Public Meeting for the MPT to review. Additionally sections of the HMP will be sent to individual MPT members for review prior to the Public Meeting.
- Reminder – information can be added to the HMP after the adoption and may be included in yearly updates.

Action Items

B-Sting Ventures

- Provide a briefing document / FAQ for distribution to local government officials before HMP adoption
- Provide a flyer for the Public Meeting to Michelle Truby for distribution
- Provide STAPLE+E guidance to MPT

Michelle Truby

- Disburse briefing document to MPT
- Disburse Public Meeting Notice to MPT
- Farmington/Aztec/Bloomfield Planning team members

Additional questions or comments can be directed to the following:

Brian W. Fields
B-Sting Ventures (BSV) LLC
703-863-8857 mobile

Lora Sedore
B-Sting Ventures (BSV) LLC
505-263-7013

Appendix A – Agendas, Minutes and Sign-In Sheets

San Juan County
Office of Emergency Management
Hazard Mitigation Planning Meeting Sign-In Sheet

Date: February 6, 2013

Please Print Information Legibly.

NAME	ORGANIZATION	MAILING ADDRESS	MAIN PHONE	EMAIL ADDRESS	INITIALS
Brian Fieress	B-Sting Ventures	1111 1st St PO Box 97114	505-334-7827	bfierr@sjcounty.net	BDF
LARA SORAN	B-Sting Ventures	1111 1st St PO Box 97114	505-334-7827	lsoran@sjcounty.net	LS
Jane Blue	Reserve Fire	209 South Oliver Do. Delac. N.M. 87310	505-334-4100	janblue@sjcounty.net	JB
TIAVE VEGA	San Juan County Fire Department	209 South Oliver Do. Delac. N.M. 87310	505-334-4100	vega@sjcounty.net	DV
Craig Daugherty	"	"	"	daugherty@sjcounty.net	CD
Alice Winkler	City of Farmington	800 Municipal Dr Farmington, NM 87401	505-779-1306	winkler@farmingtonnm.org	AW
Virginia King	City of Farmington	800 Municipal Dr Farmington, NM 87401	505-779-1306	vking@farmingtonnm.org	VK
LARRY HATHAWAY	SAN JUAN COUNTY	213 SOUTH OLIVER ARIZONA 87401	505-334-4550	lhathaway@sjcounty.net	LH
M.M. Alonso S	SJC				MS
Wendy Lopez	SJC				WL

San Juan County
Office of Emergency Management
Hazard Mitigation Planning Meeting Sign-In Sheet

Date: February 6, 2013

Please Print Information Legibly.

NAME	ORGANIZATION	MAILING ADDRESS	MAIN PHONE	EMAIL ADDRESS	INITIALS
CHLOE QUINTANA	CITY OF FARMINGTON	800 MUNICIPAL DR FARMINGTON, NM 87401	505-779-1306	quintana@farmingtonnm.org	CQ
Kristina Morgan	City of Aztec	121 W. CHACO AZTEC, NM 87410	505-334-7465	kmorgan@aztecnm.gov	KM
Michelle Tully-Tuller	SJC (CEM)			mtully@sjcounty.net	MT

**Description of Working Group and Public Meetings
2012 Review**

The San Juan County Mitigation Working Group had not met on a regular basis for some time. Most of the original membership was replaced with current staff. Most of the plan review was done outside of SJCM Working Group meetings. Meetings were held on an as needed basis to address questions and concerns.

Working Group Member	Agency	Title
Don Cooper	San Juan County	Emergency Manager
Mike Mestas	San Juan County	Emergency Management Coordinator
Michele Truby-Tillen	San Juan County	Floodplain Manager
Roshana Moojen	City of Aztec	Community Development Director
George Duncan	City of Bloomfield	Fire Chief
Ray Barns	City of Bloomfield	Planning & Zoning Director
Hubert Quintana II	City of Farmington	Public Works Department/Engineer
Virginia King	City of Farmington	Public Works Department/Engineer
Duane Bair	City of Farmington	Fire Department/Wildfire Coordinator

**Community Emergency Response Training
10/30/2011**

Participants were given a short presentation on the Mitigation Plan and asked to fill out questionnaires.

**San Juan County LEPC Meeting
8/18/2011**

San Juan County Local Emergency Planning Committee members were given a short presentation on the Mitigation Plan and asked to fill out questionnaires.

**San Juan County Fair – Public Outreach Booth
8/8/2011 – 8/13/2011**

San Juan County Office of Emergency Management maintains an outreach booth during the fair. Citizens were asked to fill out a questionnaire to receive a free “fun pal” pen.

**San Juan County Mitigation Working Group Meeting
3/18/2011**

Working Group Member	Agency	Title
Don Cooper	San Juan County	Emergency Manager
Mike Mestas	San Juan County	Emergency Management Coordinator
Michele Truby-Tillen	San Juan County	Floodplain Manager
Roshana Moojen	City of Aztec	Community Development Director
Virginia King	City of Farmington	Public Works Department/Engineer
Duane Bair	City of Farmington	Fire Department/Wildfire Coordinator

AGENDA ITEMS

Appendix A – Agendas, Minutes and Sign-In Sheets

Submission Deadlines	The current Mitigation Plan will Expire in April 2012. A revised plan must be submitted to NMDHSEM and to FEMA for review prior to the expiration date	
Working Group Deadlines	First Draft of Document Changes	Nov. 1, 2011
	Review of Draft and Final Changes	Jan. 15, 2012
	Submit Final Draft	Feb. 1, 2012
FEMA Guidance Documents	The group was given copies of all guidance documents provided by FEMA and NMDHSEM	

Appendix A – Agendas, Minutes and Sign-In Sheets

**San Juan County Mitigation Working Group Meeting
5/5/2011**

Working Group Member	Agency	Title
Don Cooper	San Juan County	Emergency Manager
Mike Mestas	San Juan County	Emergency Management Coordinator
Michele Truby-Tillen	San Juan County	Floodplain Manager
Roshana Moojen	City of Aztec	Community Development Director
Virginia King	City of Farmington	Public Works Department/Engineer
Duane Bair	City of Farmington	Fire Department/Wildfire Coordinator
AGENDA ITEMS		
Submission Deadlines	The current Mitigation Plan will Expire in April 2012. A revised plan must be submitted to NMDHSEM and to FEMA for review prior to the expiration date	
Working Group Deadlines	First Draft of Document Changes	Nov. 1, 2011
	Review of Draft and Final Changes	Jan. 15, 2012
	Submit Final Draft	Feb. 1, 2012
Updated FEMA Guidance Documents	Updated FEMA guidance documents were given to the group.	

Appendix A – Agendas, Minutes and Sign-In Sheets

**San Juan County Mitigation Working Group Meeting
1/11/2012**

Working Group Member	Agency	Title
Don Cooper	San Juan County	Emergency Manager
Mike Mestas	San Juan County	Emergency Management Coordinator
Michele Truby-Tillen	San Juan County	Floodplain Manager
Roshana Moojen	City of Aztec	Community Development Director
Virginia King	City of Farmington	Public Works Department/Engineer
Duane Bair	City of Farmington	Fire Department/Wildfire Coordinator
Hubert Quintana II	City of Farmington	Public Works Department
Sgt. Carroll Scott	City of Bloomfield	Bloomfield Police Department
Deputy Fire Chief Craig Dougherty	San Juan County	San Juan County Fire Department
AGENDA ITEMS		
Submission Deadlines	Due to conflicts with other projects by most of the working group, the deadlines below were changed.	
Working Group Deadlines	First Draft of Document Changes	Mid-January, 2012
	Review of Draft and Final Changes	Mid-February, 2012
	Submit Final Draft	End of March, 2012

Historical Information

In order to create the San Juan County Mitigation Project it was necessary to form a working group. This group met on a regular basis and provided needed input into the mitigation planning process. The following are the minutes that resulted from these meeting. In addition to the meeting a questionnaire was also developed and distributed. The results of the questionnaire are found in Attachment B.

The San Juan County Mitigation working group members are:

- Don Cooper, San Juan County Emergency Manager
- George Duncan, Bloomfield Fire Chief
- Michael Heal, Aztec Police Chief
- Rob Hunt City of Farmington
- Robert Martin, Farmington Fire Chief

Pre-Disaster Mitigation Meeting February 7, 2003

Evonne Gantz reviewed the funding that is available from FEMA. There are two types of funding available:

- Pre-disaster mitigation funding
 - Available annually
 - Match is 75/25 – cash or in kind
- Hazard mitigation grant program (Post-disaster)

Match is 75/25 – cash or in kind

Only available when there is a presidential declaration

In order to receive funding from these programs, you must participate in the Pre-disaster Mitigation Program. An approved Pre-disaster Mitigation Plan must be in place in order to receive funding after 11-01-2003.

The amount of funding available is uncertain. There are no criteria as to who gets how much money.

Jack Dietz reviewed some of the tasks that need to be completed while developing the mitigation plan:

- Develop a “Planning Team”
- Review Future City Codes
- Review Historical events
- Include natural hazards only or technical hazards also
- Specific Plans for the community.
- Cost analysis
- Funding schedule
- Team Leader will be Don Cooper
- Facilitator will be Jack Dietz
- Recorder will be Traci Hearn
- Meeting location Manager will be Traci Hearn

Future meeting dates:

- March 6th Public Meeting in Bloomfield

- March 7th at 9:00 AM
- April 3rd Public Meeting in Farmington 7:00 PM @ Civic Center
- April 4th at 9:00 AM
- May 2nd at 9:00 AM
- June 5th Public Meeting in Aztec 7:00 PM
- June 6th at 9:00 AM
- July 11th at 9:00 AM
- August 1st at 9:00 AM
- September 5th at 9:00 AM

Pre-Disaster Mitigation Meeting

March 7, 2003

Jack Diets explained that the following information was needed to continue with the planning:
Where are the cities building?

- How much have the costs been in the past for hazards?
- What hazards are we looking at within the County and the incorporated areas?
- Locations, determine flood plains as well as their historical frequency & predictions
- Past cost and predicted cost of future disasters
- What can we do to prevent or mitigate the circumstances (building codes, zoning codes, sub-division ordinances)?
- Do the cities have comprehensive plans in place?
- Are there hazard mitigations plans in place?
- FIPS Codes – San Juan County, Farmington, Aztec and Bloomfield

The following problem areas were identified:

- Fire hazard along the river – what kind of damage, what has happened, what can happen?
- Flooding needs to be looked at closer
- Fire interfaces in Farmington

We need to prioritize the hazards and begin to identify solutions.

Questions to Ask:

- What are the hazards?
- Where are they going to be located?
- Frequency of the hazards?
- What type of risk are we in now?
- What kind of costs are we looking at?
- What Priorities can we set?

Things that remain to be done:

- Determine what can be done to mitigate the hazards
- Come up with a name for this group

Future meeting dates:

- April 3rd Public Meeting in Farmington 7:00 PM @ Civic Center
- April 4th at 9:00 AM
- May 2nd at 9:00 AM
- June 5th Public Meeting in Aztec 7:00 PM
- June 6th at 9:00 AM
- July 11th at 9:00 AM
- August 1st at 9:00 AM
- September 5th at 9:00 AM

Pre-Disaster Mitigation Meeting

April 3, 2003

Public Meeting at the Farmington Civic Center

Those in attendance:

Eileen Ferraro, STIC Jack Dietz STIC
Traci Hearn, SJC Edward Reece, Navajo Prep
Robert Martin, FFD Mike Arnold City of Aztec
George Colombowski, Citizen Rod Hunt, City of Farmington
Cleve Noble, West Hammond Water Users Association
Thomas Peoples, SJ Center for Independence

Mr. Jack Dietz informed the group of the need to have a Mitigation Plan that is approved by FEMA. The deadline for this plan to be presented to FEMA is November 1, 2003. San Juan County has received a grant to develop a Mitigation Plan. Some of the hazard areas that were presented by the group include:

- Fire related issues along the river bottoms around outer edges of town
- Flooding issues on the river – potentially
- The Blanco Hub
- The Power Plants
- Pipelines that run through this area
- Warehouses that house toxic chemicals
- Coded lightening protection devices for fuel storage locations
- Public Education
- Bank stabilization for ditches
- Domestic terrorism
- West Nile Virus
- Disabled persons
- Dam Failure

Once the mitigation plan is completed, it has to be signed-off by the City Councilors as well as the County Manager. After that, the plan will go to the State for approval and then will be submitted to FEMA Region IV for their approval. Without an approved Mitigation Plan in place by November, the County will not be eligible for future mitigation funding.

Future meeting dates:

- May 2nd at 9:00 AM
- June 5th Public Meeting in Aztec 7:00 PM
- June 6th at 9:00 AM
- July 11th at 9:00 AM
- August 1st at 9:00 AM
- September 5th at 9:00 AM

Pre-Disaster Mitigation Meeting April 4, 2003

Those in attendance:

Eileen Ferraro STIC Jack Dietz STIC
Robert Martin FFD Traci Hearn SJC
Erick Aune, City of Aztec Rod Hunt, City of Farmington

Mr. Jack Dietz reviewed a “County/Participating Jurisdiction Capability Matrix”.

Areas of Concern: Possible Solutions

- **Pipeline safety** Public education
- Zoning Requirements
- **Fire** County zoning codes
- **Winter storms** Plowable roads
- Determine snow routes
- Identify the special needs
- **West Nile Virus** Identify mosquito prone areas
- **HazMat Transportation** Get records from the State Police or NM State Transportation Department to see what types of certificates have been issued. The intersection in Bloomfield is a concern.
- **Waste Water Treatment Plant** Accidental discharge of pollutants into the river. Any discharge charge would go into a holding area before going into the river.
- **Septic Tanks in the County** Several mobile treatment plants with a moratorium on new septic systems.
- **Air Quality due to the power plants**
- **Birth defects related to environmental problems**

This month projects include:

- Fire
- West Nile
- Floods

Next month:

- Water Treatment Plant

Next meeting:

May 2nd at 9:00 AM

Pre-Disaster Mitigation Meeting May 2, 2003

Those in attendance:

Eileen Ferraro STIC Jack Dietz STIC
Robert Martin FFD Traci Hearn SJC
Don Cooper SJC
Rod Hunt City of Farmington
Peggy Jordan Cibola Cty
Pedro Flores McKinley Sty
Carmen Diaz McKinley
Gary Whittington Cibola Cty

The group discussed exploring their options for hiring another contractor. Some of the people in the group are not happy with the way the meetings are being handled.

Jack Dietz explained to the group that he was aware of some problems, and if the group wanted to start again with another contractor, that was fine with him. He did express concern regarding the tight timelines and the fact that another contractor would have to come in and start all over.

The group decided to explore other contracting options. Jack agreed to come back and pick up where he left off should the group decide to keep working with him.

Pre-Disaster Mitigation Meeting June 6, 2003

Those in attendance:

Eileen Ferraro STIC Jack Dietz STIC
Robert Martin FFD Traci Hearn SJC
Don Cooper SJC Rod Hunt City of Farmington

Jack reviewed the survey provided by Aztec:

1. Power Failure: seemed to be a big concern to the citizens of Aztec.
2. Wildfire: Robert Martin explained that there is really not a big wildfire danger around the area. There are firebreaks already in place; a fire could not spread very far.
3. Terrorism: Domestic terrorism is more of a threat in this area.
4. Dam Failure: Navajo Dam, Farmington Lake and Morgan Dam
5. The Blanco Hub: Probably the single most significant potential incident in the area.
6. Flash Flooding: We can identify the flood prone areas. Building along the arroyos is the biggest problem.
7. Drought: The biggest problem is that the ditch organizations do not monitor and control the amount of water being distributed. The area is in need of more water storage capacity.
8. Haz-Mat: The haz-mat accidents are not really centralized in one location. The biggest problem is probably in Shiprock at the Point of Entry. A true Haz-Mat Truck Route would be a big help in San Juan County.

The three main issues we will look at for this plan will be Flash Flooding, Drought and Haz-Mat.

Things we need:

1. Identify flood prone areas within the County as a whole.
2. Specific intersections where Haz-Mat becomes a real problem.
3. Identify alternative solutions for the problems that have been identified.
4. Pin point Tier II locations on a map.

Pre-Disaster Mitigation Meeting July 11, 2003

Those in attendance:

Danny Gonzales STIC Frank Schober STIC
Robert Martin FFD Traci Hearn SJC
Don Cooper SJC

Danny Gonzales had some questions regarding the contract. To date, the City of Farmington has the contracts and is in the process of getting them through their legal and purchasing departments.

Danny and Frank reviewed the survey results that were received from the City of Aztec

The maps of the county were reviewed. Danny requested that we put the major pipeline routes on the maps.

THINGS TO DO:

Get copies of the Cities Comprehensive Plan
Put pipeline routes on the maps
Get a copy of the San Juan County EOP

The next Mitigation Meeting is scheduled for Friday, August 1, 2003 at 9:00 AM here at the Fire Operations Center.

Pre-Disaster Mitigation Meeting July 11, 2003

Those in attendance:

Jack Dietz STIC John Mohler BFD
Robert Martin FFD Traci Hearn SJC
Ray Barnes City of Bloomfield

During this meeting, Jack questioned Ray Barnes, Floodplain Manager for Bloomfield, about the flooding problems in Bloomfield. Mr. Barnes indicated that one of the biggest problems they are facing in Bloomfield is the lack of updated floodplain maps. As the city has grown and continues to annex more property, more people are building in the floodplain area. Mr. Barnes stated that he could not stop people from moving into the floodplain area simply because the maps he has to work off of are from 1978. This is going to be a major problem once the maps are updated.

Jack requested the names and phone numbers of the Farmington Floodplain Manager and the Aztec Floodplain Manager. He is going to speak with these people by phone to get their input.

Jack provided a draft copy of the San Juan County Mitigation Project.

All of the above minutes were prepared and provided by Traci Hearn, of San Juan County Office of Emergency Management.

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Appendix B – Hazard Analysis/Prioritization Form

San Juan County Natural Hazards Analysis/Prioritization		Agency/Organization	Photo/Email																																																												
Name																																																															
<p>1. Hazard Risk Analysis: Rate the Known Hazards that affect the San Juan County, New Mexico. Use the following steps:</p> <p>a. Identify Probability/Frequency using the chart below:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No</th> <th>0</th> <th>Has not occurred</th> </tr> </thead> <tbody> <tr> <td style="background-color: #90EE90;">Nuissance</td> <td>1</td> <td>Occurs less than once every 10 years or more</td> </tr> <tr> <td style="background-color: #FFFF00;">Medium</td> <td>2</td> <td>Occurs less than once every 5 to 10 years</td> </tr> <tr> <td style="background-color: #FF0000;">High</td> <td>3</td> <td>Occurs once every year or up to once every five years</td> </tr> </tbody> </table> <p>b. Identify the Magnitude/Severity using the chart below:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No</th> <th>0</th> <th>Has not Occurred</th> </tr> </thead> <tbody> <tr> <td style="background-color: #90EE90;">Nuissance</td> <td>1</td> <td> <ul style="list-style-type: none"> Negligible property damages (less than 5% of all buildings and infrastructure) Negligible loss of quality of life Local emergency response capability is sufficient to manage the hazard </td> </tr> <tr> <td style="background-color: #FFFF00;">Medium</td> <td>2</td> <td> <ul style="list-style-type: none"> Moderate property damages (15% to 50% of all buildings and infrastructure) Some loss of quality of life Emergency response capability, economic and geographic effects of the hazard are of sufficient magnitude to involve one or more counties </td> </tr> <tr> <td style="background-color: #FF0000;">High</td> <td>3</td> <td> <ul style="list-style-type: none"> Property damages to greater than 50% of all buildings and infrastructure Significant loss of quality of life Emergency response capability, economic and geographic effects of the hazard are of sufficient magnitude to require federal assistance </td> </tr> </tbody> </table> <p>c. Identify the Risk [Duration of loss of critical facilities and services] using the chart below:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No</th> <th>0</th> <th>Has not occurred</th> </tr> </thead> <tbody> <tr> <td style="background-color: #90EE90;">Nuissance</td> <td>1</td> <td>Loss of critical facilities and services for up to one week</td> </tr> <tr> <td style="background-color: #FFFF00;">Medium</td> <td>2</td> <td>Loss of critical facilities and services from one week to three weeks</td> </tr> <tr> <td style="background-color: #FF0000;">High</td> <td>3</td> <td>Loss of critical facilities and services for more than three weeks</td> </tr> </tbody> </table>				No	0	Has not occurred	Nuissance	1	Occurs less than once every 10 years or more	Medium	2	Occurs less than once every 5 to 10 years	High	3	Occurs once every year or up to once every five years	No	0	Has not Occurred	Nuissance	1	<ul style="list-style-type: none"> Negligible property damages (less than 5% of all buildings and infrastructure) Negligible loss of quality of life Local emergency response capability is sufficient to manage the hazard 	Medium	2	<ul style="list-style-type: none"> Moderate property damages (15% to 50% of all buildings and infrastructure) Some loss of quality of life Emergency response capability, economic and geographic effects of the hazard are of sufficient magnitude to involve one or more counties 	High	3	<ul style="list-style-type: none"> Property damages to greater than 50% of all buildings and infrastructure Significant loss of quality of life Emergency response capability, economic and geographic effects of the hazard are of sufficient magnitude to require federal assistance 	No	0	Has not occurred	Nuissance	1	Loss of critical facilities and services for up to one week	Medium	2	Loss of critical facilities and services from one week to three weeks	High	3	Loss of critical facilities and services for more than three weeks																								
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Appendix C – Multi-Jurisdiction Hazard Identification Questionnaires

San Juan County Office of Emergency Management Mitigation Plan Web Site

The cities of Aztec, Bloomfield, and Farmington have all established links to the San Juan County Office of Emergency Management web site, Mitigation Plan Page.

Mitigation Plan Page - <http://www.sjcoem.com/mitigationplan.html>

San Juan County
OFFICE OF EMERGENCY MANAGEMENT
DEPARTMENT OF HOMELAND SECURITY

[Home](#)
[Emergency Management](#)
[Mitigation Plan](#)
[Manufactured Home Permit](#)
[Floodplain Management](#)
[Training](#)
[Community Programs](#)
[Document Library](#)

[Mitigation Survey](#)
[Mitigation Plan Process](#)
[MPT Meetings](#)
[Mitigation Plan Archive](#)

What is Mitigation?
[Mitigation FAQ sheet](#)

San Juan County Mitigation Plan - Draft Review
A draft document has been submitted to the Department of Homeland Security and Emergency Management for review.
On approval by NMDHSEM the document will be sent to FEMA for final approval.

[Document Library](#)

Appendix C – Multi-Jurisdiction Hazard Identification Questionnaires

San Juan County Office of Emergency Management web site – Mitigation Plan page Cont.
Mitigation Plan Page - <http://www.sjcoem.com/mitigationplan.html>

Name	Description
 Final Draft SJC Mitigation Plan	Final Draft to be submitted to NMDHSEM and FEMA
 San Juan County HMP Draft for State & Fed	word version of draft Hazard Mitigation Plan
 SJC HMP part 2	word version of draft Hazard Mitigation Plan
 SJC HMP part 3	word version of draft Hazard Mitigation Plan
 SJC HMP part 4	word version of draft Hazard Mitigation Plan
 SJC HMP part 5	word version of draft Hazard Mitigation Plan

SAN JUAN COUNTY OFFICE OF EMERGENCY MANAGEMENT
209 S OLIVER, AZTEC NM 87410 - 505-334-1180office - 505-334-0915fax

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Appendix C – Multi-Jurisdiction Hazard Identification Questionnaires

Hazard Ranking and Scoring: San Juan County developed a mitigation survey that was available to the Hazard Mitigation Planning Team and to the public. Results for those who submitted their response for the survey were used to identify those hazards and assist in profiling for this mitigation plan. The survey was available at <http://www.sjcoem.com/mitigationplan/mitigationsurvey.html>.

The image shows a screenshot of a web-based questionnaire titled "SAN JUAN COUNTY MITIGATION SURVEY". On the left is a vertical navigation menu with the following items: Home, Emergency Management, Mitigation Plan, Manufactured Home Permit, Floodplain Management, Training, Community Programs, a blue "NTAS NO ACTIVE ALERTS" banner with the URL "www.DHS.gov/alerts", and Document Library. The main content area has a green header with the survey title. Below the header, the text reads: "SJC MITIGATION QUESTIONNAIRE" and "San Juan County is conducting an ongoing risk analysis project to determine the types of disaster hazards that exist in our area. As part of the analysis, we are interested in learning what hazards you think we should prepare for. Please take a moment and complete the following survey." The survey consists of 14 dropdown menus, each with a label and a downward arrow icon. The labels are: Dam Failure, Drought, Floods/Flash Flood, Hazardous Material Transport, Terrorism, Wild Fire/Urban Interface Fires, Severe Weather (including High Wind, Winter Storm, and Thunderstorm), Tornado, Extreme Heat, Earthquake, Landslide, Land Subsidence, and Expansive Soil. At the bottom of the page, the contact information for the San Juan County Office of Emergency Management is provided: "SAN JUAN COUNTY OFFICE OF EMERGENCY MANAGEMENT, 209 S OLIVER, AZTEC NM 87410 - 505-334-1180office - 505-334-0915fax".

Appendix C – Multi-Jurisdiction Hazard Identification Questionnaires

San Juan County Office of Emergency Management web site – Mitigation Survey page cont.

SAN JUAN COUNTY MITIGATION SURVEY

Volcanoes

If there is something not mentioned above that you are concerned about, please explain below.

Other:

What do you feel can be done to reduce or eliminate the danger of these hazards?

Do you have any other recommendations for preparedness in San Juan County?

Does your family have a Disaster Preparedness Plan?

Is there a Disaster Preparedness Plan for your workplace?

Does your family store food and water in case of an emergency?

Have you or your family taken First Aid/CPR training?

Have you or your family taken Emergency Preparedness Training?

SAN JUAN COUNTY OFFICE OF EMERGENCY MANAGEMENT
209 S OLIVER, AZTEC NM 87410 - 505-334-1180office - 505-334-0915fax

Plan Update & Process Timeline

Listing of activities associated with the update process and dates if applicable.

<http://www.sjcoem.com/mitigationplan/mitigationplanprocess.html>

PLAN UPDATE & PROCESS TIMELINE <i>(Agenda and Minutes - click here)</i>	
Kickoff Meeting January 3, 2013	<ul style="list-style-type: none"> • Meet with community representatives. • Set deadline for review of draft documents and additions/deletions. • Assign tasks.
Research and Assessment January 4 - February 5, 2013	<ul style="list-style-type: none"> • Review and update Risk & Vulnerability Assessments • Work with individual communities to update community information
MPT Meeting February 5, 2013	<ul style="list-style-type: none"> • Provide updated DRAFT for review • Discuss any open items or issues
MPT Meeting End of February	<ul style="list-style-type: none"> • Mitigation Action Priority • Review Strategies
Public Meetings March	<ul style="list-style-type: none"> • Public meetings for public input
Plan DRAFT Submission	<ul style="list-style-type: none"> • DRAFT provided to communities • Submission to NM Department of Homeland Security and Emergency Management • FEMA

Mitigation Plan Team Meetings

List of the meetings held and associated documents in pdf. For public review

<http://www.sjcoem.com/mitigationplan/mptmeetings.html>



Mitigation Plan Archived

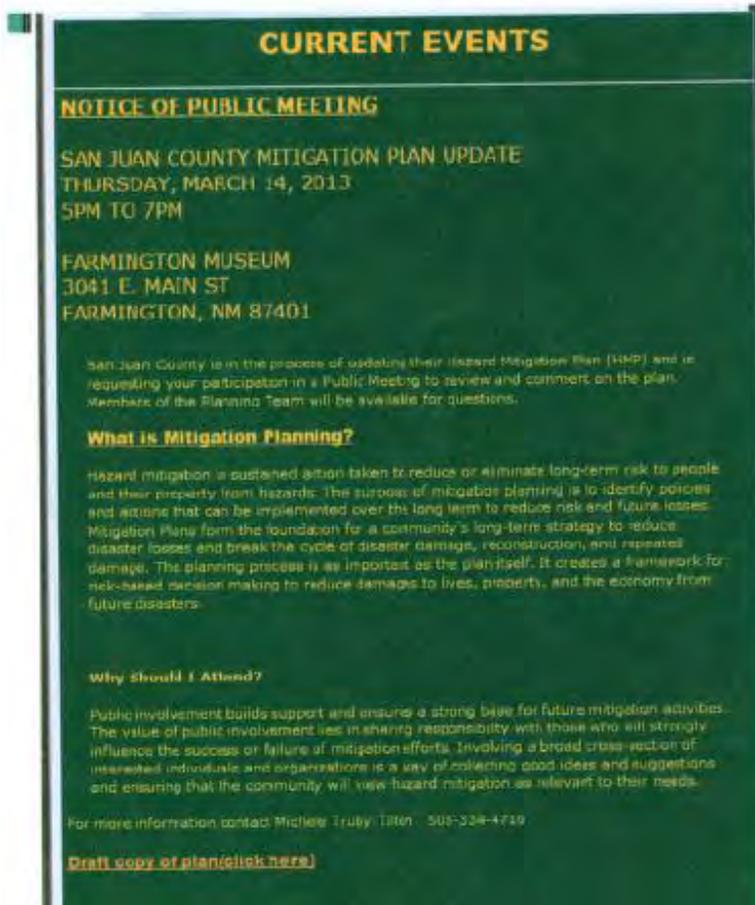
Past San Juan County Mitigation Plan documents.

<http://www.sjcoem.com/mitigationplan/mitigationplanarchive.html>

Document Library	
Name	Description
 SJC Mit Plan Attachements	Maps and other attachments to plan
 SJC Mit Plan Part I	Introduction
 SJC Mit Plan Part II	Risk Identification and Analysis
 SJC Mit Plan Part III	Implementation Strategies
 SJC Mit Plan Part IV	Implementation Plan and Monitoring

Notice of Public Meeting

The notice of public meeting was listed on the Home Page of the San Juan County Office of Emergency Management web site and the web sites for the cities of Aztec, Bloomfield, and Farmington



CURRENT EVENTS

NOTICE OF PUBLIC MEETING

SAN JUAN COUNTY MITIGATION PLAN UPDATE
THURSDAY, MARCH 14, 2013
5PM TO 7PM

FARMINGTON MUSEUM
3041 E. MAIN ST
FARMINGTON, NM 87401

San Juan County is in the process of updating their Hazard Mitigation Plan (HMP) and is requesting your participation in a Public Meeting to review and comment on the plan. Members of the Planning Team will be available for questions.

What is Mitigation Planning?

Hazard mitigation is sustained action taken to reduce or eliminate long-term risk to people and their property from hazards. The purpose of mitigation planning is to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation Plans form the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. The planning process is as important as the plan itself. It creates a framework for risk-based decision making to reduce damages to lives, property, and the economy from future disasters.

Why should I Attend?

Public involvement builds support and ensures a strong base for future mitigation activities. The value of public involvement lies in sharing responsibility with those who will strongly influence the success or failure of mitigation efforts. Involving a broad cross-section of interested individuals and organizations is a way of collecting good ideas and suggestions and ensuring that the community will view hazard mitigation as relevant to their needs.

For more information contact Michelle Truby-Tiller 505-338-4719

[Draft copy of plan \(click here\)](#)

Appendix C – Multi-Jurisdiction Hazard Identification Questionnaires

Notice of Public Meeting Flyer

This flyer was distributed at public meetings and hung in public access areas at the San Juan County Commission meeting room lobby, City of Aztec, Bloomfield and Farmington Utility offices, Aztec, Bloomfield, and Farmington City Halls, and in the lobby of San Juan County Community Development.

LOCATION OF MEETING NOTICE POSTING

AGENCY	LOCATION OF NOTICE
City of Aztec	<u>City Hall</u> – 201 W Chaco
	<u>Utility Customer Service</u> – 201 W Chaco
City of Bloomfield	<u>City Hall</u> – 915 N 1 st Street – on the Fire Dept. LED Sign in front of building
City of Farmington	<u>City Hall Information Board</u> – 800 Municipal Dr.
	<u>Community Development</u> – 805 Municipal Dr
	<u>Utility Bill Payments</u> – 850 Municipal Dr
San Juan County	<u>Commission Information Board</u> – 100 S Oliver
	<u>Community Development</u> – 209 S Oliver



Notice of Public Meeting

For: ALL residents of Aztec, Bloomfield, Farmington, and San Juan County

By: San Juan County Office of Emergency Management

Re: San Juan County Mitigation Plan Update

Date: Thursday, March 14, 2013

Time: 5pm to 7pm

Place: Farmington Museum, 3041 East Main, Farmington

San Juan County is in the process of updating their Hazard Mitigation Plan (HMP) and is requesting your participation in a Public Meeting to review and comment on the plan. Members of the Planning Team will be available for questions.

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Hazard mitigation is sustained action taken to reduce or eliminate long-term risk to people and their property from hazards. The purpose of mitigation planning is to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation Plans form the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. The planning process is as important as the plan itself. It creates a framework for risk-based decision making to reduce damages to lives, property, and the economy from future disasters.

Why Should I Attend?

Public involvement builds support and ensures a strong base for future mitigation activities. The value of public involvement lies in sharing responsibility with those who will strongly influence the success or failure of mitigation efforts. Involving a broad cross-section of interested individuals and organizations is a way of collecting good ideas and suggestions and ensuring that the community will view hazard mitigation as relevant to their needs.

For more information and/or a copy of the draft plan go to www.sjcoem.com

Or Contact Michelle Truby-Tillen – phone: 505-334-4719

Invitation to review Draft to Neighboring Emergency Managers

From: Mike Mestas <MestasM@sjces.net>

To: Anthony Dimas <adimas@co.mckinley.nm.us>; Tony M. Boyd <chieftboyd@yahoo.com>; mdevargas <mdevargas@rio-arriba.org>; Dbervin <Dbervin@sandovalcountynm.gov>

Cc: abqljs1 <abqljs1@aol.com>; Truby, Michele <mtruby@sjcounty.net>; Don Cooper <CooperD@sjces.net>; Paula Thomassen <ThomassenP@sjces.net>; Brian Fields (bfields@bstingventures.com) <bfields@bstingventures.com>

Sent: Thu, Sep 26, 2013 4:30 pm

Subject: SAN JUAN COUNTY MULTI-JURISDICTIONAL MITIGATION PLAN

NOTICE

SUBJECT: SAN JUAN COUNTY MULTI-JURISDICTIONAL MITIGATION PLAN

The San Juan County DRAFT Multi-Jurisdictional Mitigation Plan is available for review and comment at:

<http://www.sjcoem.com/mitigationplan.html>

Thank You,

San Juan County Emergency Management

Michele Truby-Tillen, CFM

209 S. Oliver – Aztec, NM 87410

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Appendix D – STAPLE+E Forms

San Juan County HMP Planning Team Evaluation

Hazard Mitigation Projects											
Project Data				STAPLE+E							
Hazard	Project	Cost	Jurisdiction	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Total
Flood	Local Special Flood Hazard Areas	\$4,000 per project	County								
Flood	Flood Hazard Education/Outreach Plan	\$4,000 per year	County								
Flood, Drought, Wildfire, Hazmat	Land Use Management Plan	\$50,000	County								
Wildfire	Private property defensible space	\$15,000	County								
HAZMAT	Public education program	\$15,000	County								
Flood	Bank stabilization projects	\$150,000 per project	County								
Wildfire	Public land clearing program	\$100,000	County								
Flood	Waterway cleaning legislation	\$5,000	County								
Drought	Drought usage restrictions	\$5,000	County								
Drought	Public education and awareness program	\$15,000	County								
Drought	San Juan County irrigation ditch inventory and lining program	\$50,000	County								
Drought	Conversion Rebate Program	\$1,000,000	County								
Drought	Drought usage restrictions	\$5,000	County								
Flood	Waterway legislation	\$10,000	County								
HAZMAT	Aztec HAZMAT Route	\$8 Million	Aztec								
Flood	Riverbank Stabilization	\$750,000	Aztec								
Drought	Water Storage Tank	\$1.3 Million	Aztec								
Flood	Regulate, Inspect and Clear Waterways	\$400,000	Aztec								
Wildfire	Public Land Clearing Program	\$200,000	Aztec								
Flood	Public Education Campaign	\$15,000	Aztec								
HAZMAT	Public Education Programs	\$15,000	Aztec								
Drought	Commercial Landscape Regulations	\$50,000	Aztec								
Drought	Conversion Rebate Program	\$100,000	Aztec								
Flood	Inspect, Inventory and Mitigate Floodplain Fill/Obstructions	\$50,000	Aztec								



San Juan County HMP Planning Team Evaluation

Hazard Mitigation Projects											
Project Data				STAPLE-E							
Hazard	Project	Cost	Jurisdiction	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Total
Drought	Public Education Campaign	\$5,000	Aztec								
Wildfire	Private Property Defensible Space	\$30,000	Aztec								
Flood	Updating floodplain maps	\$500,000	Bloomfield								
HAZMAT	Bloomfield HAZMAT transport survey	\$20,000	Bloomfield								
HAZMAT	Bloomfield HAZMAT response survey	\$15,000	Bloomfield								
HAZMAT	Bloomfield HAZMAT route	\$10,000,000	Bloomfield								
HAZMAT	Public education program	\$15,000	Bloomfield								
Drought	Public education	\$15,000	Bloomfield								
Drought	Required installation of gray water recovery system	\$5,000	Bloomfield								
Flood	Clear waterways	\$5,000	Bloomfield								
Flood	Building/zoning codes	\$5,000	Bloomfield								
Flood	Bank stabilization projects	\$150,000 per project	Bloomfield								
Flood	Waterway assessment	\$100,000	Bloomfield								
Drought	Conversion Rebate Program	\$300,000	Bloomfield								
Flood	Porter Arroyo Detention Pond	\$1,679,450	Farmington								
HAZMAT	Farmington HAZMAT transport survey	\$20,000	Farmington								
HAZMAT	Farmington HAZMAT response survey	\$15,000	Farmington								
HAZMAT	Farmington HAZMAT route	\$30,000,000	Farmington								
Flood	Lakewood Detention Pond	\$1,050,000	Farmington								
Drought	Public education	\$15,000	Farmington								
Flood	Clear waterways	\$5,000	Farmington								
Flood	Crestwood Drive Crossing	\$2,000,000	Farmington								
Flood	Pinon Hills Crossing	\$1,000,000	Farmington								
Flood	Navajo Crossing	\$2,000,000	Farmington								
Flood	Comprehensive planning	\$5,000	Farmington								
Drought	Required installation of gray water recovery systems	\$5,000	Farmington								

San Juan County Project Prioritization				
Hazard	Project	Cost	Jurisdiction	Total
Flood	Local Special Flood Hazard Areas	\$4,000 per project	County	42
Flood	Flood Hazard Education/Outreach Plan	\$4,000 per year	County	42
Flood, Drought, Wildfire, Hazmat	Land Use Management Plan	\$50,000	County	106
Wildfire	Private property defensible space	\$15,000	County	42
HAZMAT	Public education program	\$15,000	County	80
Flood	Bank stabilization projects	\$150,000 per project	County	28
Wildfire	Public land clearing program	\$100,000	County	112
Flood	Waterway cleaning legislation	\$5,000	County	14
Drought	Drought usage restrictions	\$5,000	County	14
Drought	Public education and awareness program	\$15,000	County	28
Drought	San Juan County irrigation ditch inventory and lining program	\$50,000	County	14
Drought	Conversion Rebate Program	\$1,000,000	County	14
Drought	Drought usage restrictions	\$5,000	County	Not scored
Flood	Waterway legislation	\$10,000	County	Not scored
HAZMAT	Aztec HAZMAT Route	\$8 Million	Aztec	84
Flood	Riverbank Stabilization	\$750,000	Aztec	68
Drought	Water Storage Tank	\$1.3 Million	Aztec	67
Flood	Regulate, Inspect and Clear Waterways	\$400,000	Aztec	16
Wildfire	Public Land Clearing Program	\$200,000	Aztec	14
Flood	Public Education Campaign	\$15,000	Aztec	11
HAZMAT	Public Education Programs	\$15,000	Aztec	11
Drought	Commercial Landscape Regulations	\$50,000	Aztec	9
Drought	Conversion Rebate Program	\$100,000	Aztec	16
Flood	Inspect, Inventory and Mitigate Floodplain Fill/Obstructions	\$50,000	Aztec	16
Drought	Public Education Campaign	\$5,000	Aztec	11
Wildfire	Private Property Defensible Space	\$30,000	Aztec	10
Flood	Updating floodplain maps	\$500,000	Bloomfield	Not scored

San Juan County Project Prioritization				
Hazard	Project	Cost	Jurisdiction	Total
HAZMAT	Bloomfield HAZMAT transport survey	\$20,000	Bloomfield	51
HAZMAT	Bloomfield HAZMAT response survey	\$15,000	Bloomfield	17
HAZMAT	Bloomfield HAZMAT route	\$10,000,000	Bloomfield	Not scored
HAZMAT	Public education program	\$15,000	Bloomfield	Not scored
Drought	Public education	\$15,000	Bloomfield	Not scored
Drought	Required installation of gray water recovery system	\$5,000	Bloomfield	Not scored
Flood	Clear waterways	\$5,000	Bloomfield	Not scored
Flood	Building/zoning codes	\$5,000	Bloomfield	Not scored
Flood	Bank stabilization projects	\$150,000 per project	Bloomfield	Not scored
Flood	Waterway assessment	\$100,000	Bloomfield	56
Drought	Conversion Rebate Program	\$300,000	Bloomfield	84
Flood	Porter Arroyo Detention Pond	\$1,679,450	Farmington	84
HAZMAT	Farmington HAZMAT transport survey	\$20,000	Farmington	Not scored
HAZMAT	Farmington HAZMAT response survey	\$15,000	Farmington	Not scored
HAZMAT	Farmington HAZMAT route	\$30,000,000	Farmington	Not scored
Flood	Lakewood Detention Pond	\$1,050,000	Farmington	Not scored
Drought	Public education	\$15,000	Farmington	Not scored
Flood	Clear waterways	\$5,000	Farmington	Not scored
Flood	Crestwood Drive Crossing	\$2,000,000	Farmington	Not scored
Flood	Pinon Hills Crossing	\$1,000,000	Farmington	Not scored
Flood	Navajo Crossing	\$2,000,000	Farmington	Not scored
Flood	Comprehensive planning	\$5,000	Farmington	Not scored
Drought	Required installation of gray water recovery systems	\$5,000	Farmington	Not scored
Wildfire	Public Land Clearing	\$150,000	Farmington	80
Wildfire	Private Land Clearing	\$100,000	Farmington	39

Appendix E – Frequently Asked Questions

The document, Frequently Asked Questions (FAQ), was used as a handout for the public meeting. Additionally, the document was handed out to the jurisdictions to place on public boards and handout through work locations for employees and their families.

**San Juan County Emergency Management
Mitigation Plan FAQs**

What is Mitigation?
Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters. Mitigation is taking action *now*—before the next disaster—to reduce human and financial consequences later (analyzing risk, reducing risk, insuring against risk).

What is Mitigation Planning?
Mitigation planning is a process that communities use to assess risks and identify actions to reduce vulnerability to threats through hazard mitigation.
The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288), as amended by the Disaster Mitigation Act of 2000, provides the legal basis for State, local, and Indian Tribal governments to undertake a risk-based approach to reducing risks from natural hazards through mitigation planning.

What is a Mitigation Plan?
A Mitigation Plan is a community-driven, living document that communities use to reduce their vulnerability to natural and/or man-made hazards.

Why assess and plan for risk?
The plan and its development process show the link between land-use decisions and vulnerability. It serves as a tool to be used by planners or other officials to advise and inform decision makers.

Why have a Mitigation Plan?
Communities must have a plan in order to apply for or receive a Mitigation Grant. These grants can augment local mitigation activities already being done. Ultimately, these actions reduce vulnerability, and communities are able to recover more quickly from disasters.

Who has been doing this Planning?
The San Juan County Mitigation Planning Team (MPT) consists of representatives from the three cities and the County. The team has been meeting since 2010. Meeting notes and sign in sheets are included in the Hazard Mitigation Plan (HMP). In 2012 a FEMA funded contractor was hired to facilitate the completion of the HMP process.

Does the Adoption of the HMP require any further action?
The HMP is a “living” document and can be revised as needed by the community and is required to be updated every five (5) years.
Although the HMP discusses prioritizations and projects they are only recommendations. San Juan County and the Cities are not required to complete any of the projects in order to be in eligible for mitigation funding.

What FEMA mitigation project is currently funded because you have a current HMP?
The Porter Arroyo Detention Facility involves constructing a stormwater management structure north of Pinon Hills Boulevard at College Avenue to manage stormwater flows in the Porter Arroyo and reduce the likelihood of future flood damage in the downstream reaches of the arroyo (similar to the August 2010 storm event). The proposed structure has a design volume of 25.9 ac-ft, will drain in approximately 26.6 hrs, and has an estimated total project cost of \$1,679,451.16.



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Appendix F – References

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