RESOLUTION 2013-882

A RESOLUTION OF THE MAYOR AND COMMON COUNCIL OF THE TOWN OF CAMP VERDE, YAVAPAI COUNTY, ARIZONA, ADOPTING THE YAVAPAI COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN 2011

WHEREAS, The Town of Camp Verde would like to adopt the 2011 update of the Yavapai County Multi-Jurisdictional Mitigation plan ("Plan) to meet the requirements of the Disaster Mitigation Act of 2000 (DMA2K"); and

WHEREAS, The Town of Camp Verde has experienced damage from natural and human caused hazards such as flooding, land/mudslides, severe wind, wildfire, and winter storms, possibly resulting in damage and/or loss of property and life, economic hardship and threats to public health and safety; and

WHEREAS, the Plan has been drafted pursuant to Federal requirements, having been developed with research and work done by the Town of Camp Verde in association with the Yavapai Multi-Jurisdictional Planning Team, for the reduction of hazard risk to the community; and

WHEREAS, the primary purpose of the Plan is to identify hazards that affect the Town of Camp Verde, assess the vulnerability and risk posed by those hazards to community-wide human and structural assets, developing strategies for mitigation of those identified hazards, present future maintenance procedures for the Plan, and document the planning process, and

WHEREAS, the Plan recommends several hazard mitigation actions or projects that will provide mitigation for specific hazards that affect the Town of Camp Verde, in order to protect people and property from loss associated with those hazards; and

WHEREAS, upon approval of the Plan and approval from the Arizona Division of Emergency Management and the Federal Emergency Management Agency, the Town of Camp Verde will be eligible to apply for federal mitigation grant funding.

NOW THEREFORE, **BE IT RESOLVED by the Mayor and Common Council of the Town of Camp Verde that the Yavapai County Multi-Jurisdictional Hazard Mitigation Plan 2011 is hereby approved.**

PASSED AND ADOPTED:

Bob Burnside, Mayor 2-6-13

Attest:

Deborah Barber, Town Clerk

Approved as to form:

William Sims, Attorney

Yavapai County Multi-Jurisdictional Hazard Mitigation Plan 2011

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EXECUTIVE SUMMARY

Across the United States, natural and human-caused disasters have led to increasing levels of death, injury, property damage, and interruption of business and government services. The toll on families and individuals can be immense and damaged businesses cannot contribute to the economy. The time, money and effort to respond to and recover from these emergencies or disasters divert public resources and attention from other important programs and problems. With 35 federal or state declarations, 370 other significant events, and a combined total of 405 disaster events recorded, the ten jurisdictions within Yavapai County, Arizona participating in this planning effort, recognize the consequences of disasters and the need to reduce the impacts of natural and human-caused hazards. The county and jurisdictions also know that with careful selection, mitigation actions in the form of projects and programs can become long-term, cost effective means for reducing the impact of natural and human-caused hazards.

The elected and appointed officials of Yavapai County, Camp Verde, Chino Valley, Clarkdale, Cottonwood, Dewey-Humboldt, Jerome, Prescott, Prescott Valley and Sedona demonstrated their commitment to hazard mitigation in 2005-2006 (2009 for Dewey-Humboldt) by preparing the first set of Single Jurisdiction Multi-Hazard Mitigation Plans (2006 Plans). The 2006 Plans were developed through a planning effort that resulted in an unincorporated county plan and nine city/town plans. The 2006 Plans were approved by FEMA during a period between March and September 2006 (April 2010 for Dewey-Humboldt), and require full, FEMA approved, updates prior to the subsequent five year expiration. The Yavapai-Prescott Indian Tribe also participated in the 2005-2006 planning effort, but never completed the necessary steps needed to receive approval of their tribal plan from FEMA.

In response, the Arizona Division of Emergency Management (ADEM) secured a federal planning grant and hired JE Fuller/ Hydrology & Geomorphology, Inc. to assist the county and participating jurisdictions with the update process. Yavapai County reconvened a multi-jurisdictional planning team comprised of veteran and first-time representatives from each participating jurisdiction, various county departments and organizations, ADEM, local fire and flood control districts, and Indian tribes. The Planning Team met three times during the period of October 2010 to January 2011 in a collaborative effort to review, evaluate, and update the 2006 Plans. In addition, the Yavapai-Prescott Indian Tribe also met to develop the tribe-specific planning elements required for a Tribal Plan approval. The resulting Yavapai County Multi-Jurisdictional Hazard Mitigation Plan (Plan) will continue to guide the county, tribe and participating jurisdictions toward greater disaster resistance in full harmony with the character and needs of the community and region.

The Plan and accompanying Tribal Annex has been prepared in compliance with Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act or the Act), 42 U.S. C. 5165, enacted under Sec. 104 the Disaster Mitigation Act of 2000, (DMA 2000) Public Law 106-390 of October 30, 2000, as implemented at CFR 201.6 and 201.7 dated October, 2007. The Plan identifies hazard mitigation measures intended to eliminate or reduce the effects of future disasters throughout the county, and was developed in a joint and cooperative venture by members of the Yavapai County Planning Team.

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Requirement §201.6(c)(5): *[The local hazard mitigation plan shall include…] Documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council). For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.*

Requirement §201.6(d)(3): *A local jurisdiction must review and revise its plan to reflect changes in development ,progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within five (5) years in order to continue to be eligible for mitigation project grant funding.*

1.1 DMA 2000 Requirements

1.1.1 General Requirements

The Yavapai County Multi-Jurisdictional Hazard Mitigation Plan (the Plan) has been prepared in compliance with Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (Stafford Act), 42 U.S.C. 5165, as amended by Section 104 of the Disaster Mitigation Act of 2000 (DMA 2000) Public Law 106-390 enacted October 30, 2000. The regulations governing the mitigation planning requirements for local mitigation plans are published under the Code of Federal Regulations (CFR) Title 44, Section 201.6 (44 CFR §201.6). Minimum requirements for tribal mitigation plans are published under CFR Title 44, Section 201.7 (44 CFR §201.7). Additionally, a DMA 2000 compliant plan that addresses flooding will also meet the minimum planning requirements for the Flood Mitigation Assistance program as provided for under 44 CFR §78.

DMA 2000 provides requirements for States, Tribes, and local governments to undertake a risk-based approach to reducing risks to natural hazards through mitigation planning[1]. The local mitigation plan is the representation of the jurisdictions' commitment to reduce risks from hazards, serving as a guide for decision makers as they commit resources to reducing the effects of hazards. Local plans will also serve as the basis for the State to provide technical assistance and to prioritize project funding.

Under 44 CFR §201.6 and §201.7, local and tribal governments must have a Federal Emergency Management Agency (FEMA)-approved local / tribal mitigation plan in order to apply for and/or receive funding under the following hazard mitigation assistance programs:

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)
- Repetitive Flood Claims (RFC), at FEMA's discretion
- Severe Repetitive Loss (SRL)
- Public Assistance Categories C – G, applies to Tribes

1.1.2 Tribal Assurance

The Yavapai-Prescott Indian Tribe will comply with all Federal Statutes and regulations during the periods for which it receives grant funding, in compliance with 44CFR 13.11(c) and the DMA 2000 requirement §201.7(c)(6), and will amend its plan whenever necessary to reflect changes in tribal or Federal laws and statutes as required in 44CFR 13.11(d).

[1] FEMA, 2008, *Local Multi-Hazard Mitigation Planning Guidance*

1.1.2 Update Requirements

DMA 2000 requires that existing plans be updated every five years, with each plan cycle requiring a complete review, revision, and re-approval of the plan at both the state and FEMA level. Yavapai County, the incorporated communities of Camp Verde, Chino Valley, Clarkdale, Cottonwood, Dewey-Humboldt, Jerome, Prescott, Prescott Valley, and Sedona all currently have FEMA approved hazard mitigation plans. The Yavapai-Prescott Indian Tribe also participated in the 2005-2006 planning work, but did not complete the tribal plan approval process. The Plan is the result of a planning process performed by the Yavapai County jurisdictions to both update and consolidate the individual community plans developed in the 2005-2006 planning period (2009-2010 for Dewey-Humboldt).

1.2 Official Record of Adoption

Adoption of the Plan is accomplished by the governing body for each participating jurisdiction in accordance with the authority and powers granted to those jurisdictions by either the State of Arizona or the federal government. The officially participating jurisdictions in the Plan include:

County	Tribes	Cities	Towns
• Yavapai	• Yavapai-Prescott Indian Tribe	• City of Cottonwood • City of Prescott • City of Sedona	• Town of Camp Verde • Town of Chino Valley • Town of Clarkdale • Town of Dewey-Humboldt • Town of Jerome • Town of Prescott Valley

Jurisdictions may keep copies of official adoption documents in Appendix A of their copy of the Plan.

1.3 FEMA Approval Letter

The Plan was submitted to the Arizona Division of Emergency Management (ADEM), the authorized state agency, and FEMA for review and approval. FEMA's approval letter may be provided on the following page.

[Insert FEMA Approval Letter Here]

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SECTION 2: INTRODUCTION

2.1 Plan History

In 2005-2006 (2009-2010 for Dewey-Humboldt), Yavapai County and the incorporated communities of Camp Verde, Chino Valley, Clarkdale, Cottonwood, Dewey-Humboldt, Jerome, Prescott, Prescott Valley, and Sedona participated in a mitigation planning process that resulted in the development of separate stand-alone plans for each participating jurisdiction. The Yavapai-Prescott Indian Tribe also participated in the 2005-2006 planning work, but did not complete the tribal plan approval process with FEMA. The following is a list of the plans that were produced for the Yavapai County jurisdictions:

- *Yavapai County Multi-Hazard Mitigation Plan*
- *Camp Verde Multi-Hazard Mitigation Plan*
- *Chino Valley Multi-Hazard Mitigation Plan*
- *Clarkdale Multi-Hazard Mitigation Plan*
- *Cottonwood Multi-Hazard Mitigation Plan*
- *Dewey-Humboldt Multi-Hazard Mitigation Plan*
- *Jerome Multi-Hazard Mitigation Plan*
- *Prescott Multi-Hazard Mitigation Plan*
- *Prescott Valley Multi-Hazard Mitigation Plan*
- *Sedona Multi-Hazard Mitigation Plan*

Collectively and individually, these plans will be referred to herein as the 2006 Plan(s). The 2006 Plans received official FEMA approval during a period that generally ranges from March to September 2006 (April 2010 for Dewey-Humboldt). The 2006 Plans have either already expired or are nearing the end of the 5-year planning cycle, with most of the single-jurisdictional plans being set to expire in September 2011.

2.2 Plan Purpose and Authority

The purpose of the Plan is to identify hazards that impact the various jurisdictions located within Yavapai County, assess the vulnerability and risk posed by those hazards to community-wide human and structural assets, develop strategies for mitigation of those identified hazards, present future maintenance procedures for the plan, and document the planning process. The Plan is prepared in compliance with DMA 2000 requirements and represents a multi-jurisdictional update of the 2006 Plans listed in Section 2.1.

Yavapai County and all of the Cities and Towns are political subdivisions of the State of Arizona and are organized under Title 9 (cities/towns) and Title 11 of the Arizona Revised Statutes (ARS).

The Yavapai-Prescott Indian Tribe is a federally recognized tribe, organized and established as a sovereign nation pursuant to the provisions of the Indian Reorganization Act of June 18, 1934. The Yavapai-Prescott Community Association adopted its Articles of Association in 1962 and thereby established a legal community and the current day government structure, which is comprised of a five member elected Board of Directors. The officers of the Tribal Board of Directors consist of a President, Vice-President and Secretary/Treasurer.

Accordingly, each of the participating jurisdictions is empowered to formally plan and adopt the Plan on behalf of their respective jurisdictions.

Funding for the development of the Plan was provided through a PDM planning grant obtained by the State of Arizona from FEMA. JE Fuller/ Hydrology & Geomorphology (JE Fuller) was retained by Arizona Division of Emergency Management (ADEM) to provide consulting services in guiding the planning process and Plan development.

2.3 General Plan Description

The Plan is generally arranged and formatted to be consistent with the 2010 State of Arizona Multi-Hazard Mitigation Plan (State Plan) and is comprised of the following major sections:

Planning Process – this section summarizes the planning process used to update the Plan, describes the assembly of the planning team, meetings conducted and summarizes the public involvement efforts.

Community Description – this section provides an overall description of the participating jurisdictions and the County as a whole.

Risk Assessment – this section summarizes the identification and profiling of hazards that impact the County and the vulnerability assessment for each hazard that considers exposure/loss estimations and development trend analyses.

Mitigation Strategy – this section presents a capability assessment for each participating jurisdiction and summarizes the Plan mitigation goals, objectives, actions/projects and strategy for implementation of those actions/projects.

Plan Maintenance Strategy – this section outlines the proposed strategy for evaluating and monitoring the Plan, updating the Plan in the next 5 years, incorporating plan elements into existing planning mechanisms, and continued public involvement.

Plan Tools – this section includes a list Plan acronyms and a glossary of definitions.

2.4 Overall Plan Update Process

The Plan is the result of a thorough update process that included a section by section review and evaluation of the 2006 Plans by the planning participants. As previously stated, the individual 2006 Plans are being consolidated into a single, multi-jurisdictional plan with this update. Accordingly, the final arrangement of the Plan is different from the 2006 Plans.

At the onset of the planning process, ADEM printed a copy of each of the 2006 Plans and provided them to each respective jurisdiction as a working document for their review and use during the planning process. This way the jurisdictions could keep their original 2006 Plan intact and unmarked. Digital versions of the Yavapai County 2006 Plan were made available to planning team members not directly associated with a specific jurisdiction. The Planning Team performed a general review of each 2006 Plan section during the first meeting, wherein the plan purpose was explained, sections were generally discussed, and the plans' relation to the DMA 2000 requirements were summarized. Use of the existing Plan(s) provided the seed material for subsequent discussions on how to update and improve the Plan. Planning participants were requested bring their working copy to every meeting as the team stepped through each stage of the update process and reviewed each 2006 Plan section in greater detail. Table 2.1 summarizes the review and analysis of each section of the 2006 Plans and generally describes what changes were or were not made and why. Additional details of that process are also discussed in the following sections of this Plan as well.

Table 2-1: Summary of 2006 Plan review and 2011 Plan correlation

2006 Plan Section	2011 Plan Section	Review and Changes Description (2006 Plan to the 2011 Plan)
1	1, 2, and 4	• Plan format changes were made to make the Plan more compatible with the 2010 State Plan format. • General plan descriptions were changed to reflect the update process, the new plan format, and authorizations • Community descriptions were compiled and updated to provide both a county-wide and jurisdiction specific depiction. Much of the original text was kept. Time sensitive data such as demographics, climate statistics, and incorporated community boundaries were updated with the latest information available. • Descriptions of development history were updated to reflect the last five years.
2	3	• The 2006 Plan contacts were updated as necessary and recompiled into Section 3 of the 2011 Plan. The review concluded that the original Section 2 data did not warrant a separate section and it could be added to Section 3.
3	3	• Section 3 was expanded to include evaluation summaries and to better describe the planning team development. • Added a column to the table listing the planning team participants to describe their roles • Decided to keep the table format summarizing the planning team meetings and agendas, but provide supplemental meeting minutes in an Appendix • Provided a new section to address agency/organization participation and changes between the 2006 Plan and 2011 Plan participation
4	5	• Risk Assessment changed from Section 4 to Section 5 • The whole structure of the risk assessment was revised to provide a hazard based approach to the subsections. The planning team felt this would make the plan easier to understand and follow. • Each hazard profile and vulnerability analysis was carefully updated to reflect either more current or totally new data. • Asset inventories were updated and refined to make them more complete and current.
5	6	• Mitigation Strategy changed from Section 5 to Section 6 • A review of the goals and objectives subsection resulted in minor changes to adjust the goals and objectives to reflect the current Plan hazard list. Reasoning for the changes are summarized in Section 6.1 • Tables 5.1 and 5.4 of the capability assessment were compiled into one table to provide an "at-a-glance" summary of these elements. The details of the old Table 5.4 were relegated to the reference lists provided at the end of each hazard subsection of the new Plan Section 5.3 and at other locations throughout the Plan where the documents are referenced. • Tables summarizing previous mitigation activities for each jurisdiction were provided to document past mitigation activities • Section addressing the NFIP program was added in compliance to requirement changes from the 2006 Plan to the 2011 Plan • Each mitigation action/project in the 2006 Plan were reviewed and assessed by the respective jurisdiction. Tables summarizing the results are provided • Planning team chose to combine the old tables 5.5 and 5.6 into one table to have all the details of the new mitigation actions/projects in one table.

Table 2-1: Summary of 2006 Plan review and 2011 Plan correlation		
2006 Plan Section	**2011 Plan Section**	**Review and Changes Description (2006 Plan to the 2011 Plan)**
6	7	• Plan Maintenance Procedures changed from Section 6 to Section 7. • In general, the review of this section highlighted the lack of plan maintenance actually performed and forced a better definition of future efforts. It is anticipated that a multi-jurisdictional plan will provide the platform for a more regular review. • Added text to discuss review past plan maintenance activities and reasons for successes/failures. • Identified the need to expand Section 7.3 to provide a better explanation of plan incorporation by each of the jurisdictions. • Identified a need to provide more definition and specificity to the approach in Section 7.4. Revised to be more specific in the types and schedules of future public involvement opportunities.

SECTION 3: PLANNING PROCESS

> ***§201.6 (b):*** *Planning process. An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:*
> *(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*
> *(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and*
> *(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*
>
> ***§201.6(c)(1)****: [The plan shall include…] (1) Documentation of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

This section includes the delineation of various DMA 2000 regulatory requirements, as well as the identification of key stakeholders and planning team members within Yavapai County. In addition, the necessary public involvement meetings and actions that were applied to this process are also detailed.

3.1 Planning Process Description

ADEM applied for and received a PDM planning grant to fund a multi-jurisdictional effort to review, update and consolidate the 2006 Plans. Once the grant was received, ADEM then selected JE Fuller to work with the participating jurisdictions and guide the planning process. An initial project kick-off meeting was convened in September 2010 to begin the planning process, outline the plan objectives, outline the anticipating meeting agendas for the planning efforts, and to discuss the new plan format and other administrative tasks. A total of three multi-jurisdictional planning team meetings were conducted over the period of October 2010 through January 2011, beginning with the first meeting on October 26, 2010. A separate tribal planning meeting was conducted with Yavapai-Prescott Indian Tribe officials on February 3, 2011. Throughout that period of time and for several months afterward, all work required to collect, process, and document updated data and make changes to the plan was performed, culminating in a draft of the Plan. Details regarding key contact information and promulgation authorities, the planning team selection, participation, and activities, and public involvement are discussed in the following sections.

3.2 Previous Planning Process Assessment

The first task of preparation for this Plan, was to evaluate the process used to develop the 2006 Plans. The previous planning approach included a blended use of multi-jurisdictional planning team meetings and individual local planning team meetings within each jurisdiction. This was mostly due to the development of individual plans for each participating jurisdiction and the difficulty in acquiring the needed data. The process worked moderately well, but required a tremendous amount of time and budget that is not available for this planning process. A conclusion of the 2006 Plans process assessment was that the new planning process and approach would result in a paradigm shift away from individual plans and planning meetings, and will require a slightly different strategy in gathering and compiling the Plan information. The result is a multi-jurisdictional plan (one document for all participating jurisdictions).

The new planning process was presented and discussed at the first multi-jurisdictional planning team meeting and was contrasted to the 2006 Plan approach. Less than half of the planning team members were returning members from the 2006 Plan process and were familiar with the prior planning process. No significant notations were made for the general process and the planning team understood the budgetary limitations.

3.3 Primary Point of Contact

Table 3-1 summarizes the primary points of contact identified for each participating jurisdiction.

Table 3-1: List of jurisdictional primary points of contact

Jurisdiction	Name	Department / Position	Address	Phone	Email
Yavapai County	Nick Angiolillo	Emergency Management / Coordinator	1100 Commerce Dr. Prescott, AZ 856305	928-771-3321	nick.angiolillo@co.yavapai.az.us
Town of Camp Verde	Ron Long	Public Works / Director	395 S. Main St. Camp Verde, AZ 86322	928-567-0534	Ron.Long@campverde.az.gov
Town of Chino Valley	Mark Garcia	Police Department / Commander	1020 W. Palomino Rd. Chino Valley, AZ 86323	928-636-4223 Ext. 128	mgarcia@chinoaz.net
Town of Clarkdale	Kathy Bainbridge	Clerk /Finance Director	PO Box 308 39 N. Ninth Street Clarkdale, AZ 86324	928-639-2445	kathy.bainbridge@clarkdale.az.gov
City of Cottonwood	Roger Biggs	Development Services / Utilities Administrative Manager	111 North Main Street Cottonwood, AZ 86326	928-639-4254	rbiggs@cottonwoodaz.gov
Town of Dewey-Humboldt	Ed Hanks (Joel Berman)	Public Works /Director	P.O. Box 69 2735 S. Highway 69, Suite 12 Humboldt, AZ 86329	928-632-7362	edhanks@dhaz.gov
Town of Jerome	Candace Gallagher	Administration / Town Manager and Clerk	P.O. Box 335 Jerome, AZ 86331	928-634-7943	manager@tojaz.us
City of Prescott	Darrell Willis	Fire / Emergency MGT / Division Chief	1700 Iron Springs Rd. Prescott, AZ 86305	928-777-1701	darrell.willis@prescott-az.gov
Town of Prescott Valley	Boyd Robertson	Public Works/Deputy Public Works Director	7501 E. Civic Circle, 2nd Floor Prescott Valley, AZ 86314	928-759-3079	brobertson@pvaz.net
City of Sedona	David Peck	Public Works / Assistant Engineer	102 Roadrunner Drive Sedona, AZ 86336	928-204-7108	dpeck@sedonaaz.gov
Yavapai-Prescott Indian Tribe	Amber Tyson	Environmental Office/ Environmental Protection Specialist	530 E. Merritt Prescott, AZ 86301	928-515-7453	atyson@ypit.com

3.4 Planning Teams

Two levels of planning teams were organized for the development of this Plan. The first was a Multi-Jurisdictional Planning Team (Planning Team) that was comprised of one or more representatives from each participating jurisdiction. The second was an optional Local Planning Team.

The role of the Planning Team was to work on the coordination, research, and planning element activities required to update the 2006 Plans. Attendance by each participating jurisdiction was required for every Planning Team meeting as the meetings were structured to progress through the planning process. Steps and procedures for updating the 2006 Plans were presented and discussed at each Planning Team meeting, and assignments were given as necessary. Each meeting built on information discussed and assignments given at the previous meeting. The Planning Team also had the responsibility of liaison to Local Planning Team(s), and was tasked with:

- Conveying information and assignments to the Local Planning Team
- Ensuring all requested assignments were completed fully and returned on a timely basis.
- Arranging for review and official adoption of the Plan.

The function and role of the Local Planning Team was to:

- Provide support and data
- Assist the Planning Team representative with assignments
- Make planning decisions regarding Plan components
- Review the Plan draft documents

3.4.1 Planning Team Assembly

At the beginning of this planning process, Yavapai County organized and identified members for the Planning Team by initiating contact with, and extending invitations to, all incorporated communities and Indian tribes within the county limits. Other entities that were subsequently invited to participate are discussed in Section 3.4.3. The participating members of the Planning Team are summarized in Table 3-2. Returning planning team members are highlighted.

Table 3-2: Summary of multi-jurisdictional planning team participants

Name	Jurisdiction / Organization	Department / Position	Planning Team Role
Nick Angiolillo	Yavapai County	EM / Coordinator	Planning Team Primary Point of Contact Jurisdictional Point of Contact Lead coordinator for LPT Planning Team participant
Kathy Bainbridge	Town of Clarkdale	Clerk /Finance Director	Jurisdictional Point of Contact Lead coordinator for LPT Planning Team participant
Fred Barton	Sedona-Oak Creek School District	Public School /Plant Foreman	Planning Team participant
Joel Berman	Town of Dewey - Humboldt	Public Works /Director	Jurisdictional Point of Contact Lead coordinator for LPT Planning Team participant
Rusty Blair	Town of Jerome	Fire Department/Fire Chief	Lead coordinator for LPT Planning Team participant
Steve Burroughs	Town of Clarkdale	Public Works/Director	Planning Team participant Local Planning Team resource
Debbie Calkins	Yavapai College	Emergency Management/Emergency Management Coordinator	Planning Team participant
Mike Casson	City of Cottonwood	Fire Department/Fire Chief/EM	Planning Team participant Local Planning Team resource
Art Castricone	Town of Dewey - Humboldt	Private Citizen	Planning Team participant
Charlie Cave	Yavapai County Flood Control	Flood/Director	Planning Team participant Local Planning Team resource
Wayne Debrosky	Town of Clarkdale	Utilities/Director	Planning Team participant Local Planning Team resource
Fernando Diaz	Yavapi-Apache Nation	Emergency Management/P.S. Manager	Jurisdictional Point of Contact Lead coordinator for LPT Planning Team participant
Mark Garcia	Town of Chino Valley	Police/Commander	Jurisdictional Point of Contact Lead coordinator for LPT Planning Team participant
Ryan Gildehaus	City of Cottonwood	Police Dept./TLO/SGT	Jurisdictional Point of Contact Lead coordinator for LPT Planning Team participant
Paul Grasso	Town of Clarkdale	Building Official CDD/Bldg Official/Inspector	Planning Team participant Local Planning Team resource
Jan Grogan	Camp Verde Sanitary District	Manager	Planning Team participant Local Planning Team resource
Valerie House	Town of Camp Verde	Public Works\Special Projects Coordinator	Planning Team participant Local Planning Team resource
Earl Huff	Town of Camp Verde	Marshal's Office/Lieutenant	Planning Team participant
Todd Hyslip	Town of Chino Valley	Police/PTO/Officer	Planning Team participant Local Planning Team resource
Michael Jenkins	Town of Camp Verde	Community Development/ Director	Planning Team participant Local Planning Team resource
Ken Krebbs	Sedona Fire District	Operations/Firefighter	Planning Team participant Local Planning Team resource
William Loesche	Sedona Fire District	Fire Marshal	Planning Team participant Local Planning Team resource

Table 3-2: Summary of multi-jurisdictional planning team participants

Name	Jurisdiction / Organization	Department / Position	Planning Team Role
Ron Long	Town of Camp Verde	Public Works/Director	Jurisdictional Point of Contact Lead coordinator for LPT Planning Team participant
Dan Lueder	City of Cottonwood	Development Services/ General Manager	Planning Team participant Local Planning Team resource
Jan Mazy	Town of Chino Valley	GIS/ Dev Services/ GIS/CAD Tech.	Planning Team participant Local Planning Team resource
Joe Moore	Clarkdale Fire District	Chief	Planning Team participant Local Planning Team resource
Scott Ogden	JE Fuller/ Hydrology & Geomorphology, Inc.	Planning Facilitator	Consultant
Bill Parry	Unisource Energy	Verde District/Supervisor	Planning Team participant
David Peck	City of Sedona	Public Works/Assistant Engineer	Jurisdictional Point of Contact Lead coordinator for LPT Planning Team participant
Larry Prentice	Town of Prescott Valley	Public Works / GIS Manager	Planning Team participant Local Planning Team resource
Boyd Robertson	Town of Prescott Valley	Public Works/Deputy Public Works Director	Jurisdictional Point of Contact Lead coordinator for LPT Planning Team participant
Keith Self	Arizona Water Company	Verde Valley Division/Manager	Planning Team participant
Troy Smith	Town of Clarkdale	Police/Sergeant	Planning Team participant Local Planning Team resource
Scott Stebbins	Prescott Valley	Police/Disaster Plans Coordinator	Planning Team participant Local Planning Team resource
Mistie Stebbins	Yavapai County EM	Emergency Mgt./Emergency Planner	Planning Team participant Secondary Jurisdictional Point of Contact Lead coordinator for LPT
John Sterling	Yavapai-Prescott Indian Tribe	Environmental/ Environmental Technician	Planning Team participant Secondary Jurisdictional Point of Contact Local Planning Team resource
Amber Tyson	Yavapai-Prescott Indian Tribe	Environmental/ Environmental Technician Specialist	Jurisdictional Point of Contact Lead coordinator for LPT Planning Team participant
Lynn Whitman	Yavapai County Flood Control	Flood/Senior Hydrologist	Planning Team participant Former Jurisdictional Point of Contact
Darrell Willis	City of Prescott	Fire / Emergency MGT /Division Chief	Jurisdictional Point of Contact Lead coordinator for LPT Planning Team participant
Susan Wood	Arizona Division of Emergency Management	Project Manager	Management level support for planning effort, Mitigation strategy development

Lists of Local Planning Team members and their respective roles, for each jurisdiction, are provided in Appendix B.

3.4.2 Planning Team Activities

The Planning Team met for the first time on October 26, 2010 to begin the planning process. Two more meetings were convened on about a monthly basis (except the last one) to step through the plan review and update process. Planning Team members used copies of the 2006 Plan for their jurisdiction for review and reference. Following each Planning Team meeting, the Point of Contact for each jurisdiction would convene meetings with the Local Planning Team as needed to work through the assignments. Table 3-3 summarizes the Planning Team meetings along with a brief list of the agenda items discussed. Detailed meeting notes for all of the Planning Team meetings are provided in Appendix B. There are no details of the Local Planning Team meetings.

Table 3-3: Summary of planning meetings convened as part of the plan update process	
Meeting Type, Date, and Location	**Meeting Agenda**
Planning Team Meeting No. 1 Initial Meeting: October 26, 2010 Yavapai County Public Safety Complex Cottonwood, AZ	• INTRODUCTIONS / GREETING • MITIGATION PLANNING OVERVIEW • CURRENT MITIGATION PLAN REVIEW • PLANNING PROCESS a. MJ Planning Team Roles b. Public Involvement Strategy • RISK ASSESSMENT a. Hazard Identification / Profiling b. Asset Inventory • PREVIOUS MITIGATION PROJECTS • OTHER DATA NEEDS • NEXT MEETING DATES • ACTION ITEM SUMMARY
Planning Team Meeting No. 2 December 14, 2010 Prescott Valley Library, Crystal Room Prescott Valley, AZ	• ACTION ITEM REVIEW/STATUS • HAZARD PROFILE MAP/INFORMATION REVIEW • CAPABILITY ASSESSMENT a. Jurisdictional Capabilities b. Prior Mitigation Activities c. NFIP Participation and Status d. Repetitive Loss Properties • PLAN MAINTENANCE STRATEGY a. Review/discuss activity for last plan cycle b. Strategize new monitoring schedule c. Documentation of activity d. Responsibility • PLAN UPDATE a. Review scope and schedule in current plan b. Revise/Update scope and schedule for new plan • PLAN INCORPORATION a. Discuss past ways of incorporation b. Discuss challenges/successes/obstacles c. Formulate future mechanisms for incorporation • CONTINUED PUBLIC INVOLVEMENT a. Discuss past public involvement b. Identify future public involvement opportunities • PLAN IMPLEMENTATION • MEETING ENDING a. Review of action items b. Next meeting reminder/verification
Planning Team Meeting No. 3 January 11, 2011 Cottonwood Parks and Recreation Building Cottonwood, AZ	• ACTION ITEM REVIEW/STATUS • VULNERABILITY ANALYSIS REVIEW • MITIGATION GOALS AND OBJECTIVES REVIEW/UPDATE • MITIGATION ACTION/PROJECT FORMULATION AND IMPLEMENTATION STRATEGY • MEETING ENDING a. Review of action items

Table 3-3: Summary of planning meetings convened as part of the plan update process	
Meeting Type, Date, and Location	**Meeting Agenda**
Tribal Planning Team Meeting No. 1 February 3, 2011 Yavapai-Prescott Indian Tribe Police Training Room, 530 West Merritt Street, Prescott, AZ	• INTRODUCTION • MITIGATION PLANNING OVERVIEW • TRIBAL ASSURANCES • AGENCY COORDINATION • PLAN INTEGRATION • PUBLIC INVOLVEMENT • CULTURAL/SACRED SITE VULNERABILITY ASSESSMENT • CAPABILITY ASSESSMENT a. Summary of legal and regulatory capabilities b. Summary of technical staff and personnel capabilities c. Summary of fiscal capabilities d. Summary of departments/entities with pre- and/or post-disaster hazard management responsibilities • MITIGATION STRATEGY PROGRESS ASSESSMENT

3.4.3 Agency/Organizational Participation

In addition to the adopting jurisdictions listed in Section 1.2, several agencies and organizations that operate within or have jurisdiction over small and large areas of Yavapai County were invited to participate in the planning process. Following the first Planning Team meeting, invitations were extended to several entities via both email and letter, to provide an opportunity for participation in the planning process. Copies of the various email and letter invitations are provided in Appendix B. The following is a partial list of the various agencies/organizations invited:

- Arizona Public Service
- Arizona Water Company
- Camp Verde Fire District
- Camp Verde Health Center
- Camp Verde Sanitary District
- Camp Verde Unified School District
- Camp Verde Water
- Central Yavapai Fire District
- Chino Valley Chamber of Commerce
- Chino Valley Unified School District
- Clarkdale Chamber of Commerce
- Clarkdale Fire District
- Clarkdale-Jerome School District
- Cottonwood Chamber of Commerce
- Oak Creek Water Company
- Phoenix Cement
- Prescott Chamber of Commerce
- Embry Riddle Aeronautical University
- Prescott National Forest
- Qwest Communications
- Sedona Fire District
- Sedona-Oak Creek School District
- Several Local Churches
- Several Local Businesses
- Unisource Energy
- Verde Canyon Railroad
- Yavapai-Apache Nation
- Yavapai College
- Yavapai County Sheriff's Office

Table 3-4 summarizes the organizations and agencies that participated in the 2006 Plan and those that participated in the 2010-2011 plan update process. An explanation of the differences between the two lists is also provided where appropriate.

Table 3-4: Comparative summary of agency/organization participation in the plan update process

Agency / Organization	Participation		Explanation
	2006 Plan	2011 Plan	
Arizona Division of Emergency Management	yes	yes	
Arizona Water Company	no	yes	Participation primarily due to a more direct invitation process
City of Cottonwood	yes	yes	
Camp Verde Sanitary District	no	yes	Participation primarily due to a more direct invitation process
City of Prescott	yes	yes	
City of Sedona	yes	yes	
Clarkdale Fire District	no	yes	Participation primarily due to a more direct invitation process
JE Fuller/ Hydrology & Geom.	yes	yes	

Table 3-4: Comparative summary of agency/organization participation in the plan update process

Agency / Organization	Participation		Explanation
	2006 Plan	2011 Plan	
Sedona Fire District	no	yes	Participation primarily due to a more direct invitation process
Sedona-Oak Creek School District	no	yes	Participation primarily due to a more direct invitation process
Town of Camp Verde	yes	yes	
Town of Chino Valley	yes	yes	
Town of Clarkdale	yes	yes	
Town of Dewey-Humboldt	no	yes	Dewey-Humboldt was not incorporated at the time of the 2006 Plan development
Town of Jerome	yes	yes	
Town of Prescott Valley	yes	yes	
Unisource Energy	no	yes	Participation primarily due to a more direct invitation process
Yavapai College	no	yes	Participation primarily due to a more direct invitation process
Yavapai County	yes	yes	
Yavapai-Apache Nation	no	yes	
Yavapai-Prescott Indian Tribe	yes	yes	

An integral part of the planning process included coordination with agencies and organizations outside of the participating jurisdiction's governance to obtain information and data for inclusion into the Plan or to provide more public exposure to the planning process. Much of the information and data that is used in the risk assessment is developed by agencies or organizations other than the participating jurisdictions. In some cases, the jurisdictions may be members of a larger organization that has jointly conducted a study or planning effort like the development of a community wildfire protection plan or participation in an area association of governments. Examples of those data sets include the FEMA floodplain mapping, the county-wide community wildfire protection plan, severe weather statistics and incidents, and the Northern Arizona Council of Governments. A summary of the resources obtained, reviewed and compiled into the risk assessment are summarized at the end of each subsection of Section 5.3 and in Section 3.6. Jurisdictions needing these data sets obtained them by requesting them directly from the host agency or organization, downloading information posted to website locations, or engaging consultants.

3.5 Public Involvement

3.5.1 Previous Plan Assessment

The pre-draft public involvement strategy for the 2006 Plan development included two public meetings that were advertised using local radio and newspaper announcements and convened in different geographic regions of the county. A general press release announcing the planning process was also made.

The post-draft strategy requested public comment and participation in the formal council and board of supervisors meetings wherein the 2006 Plans were presented and promulgated. The details of the meeting process varied from jurisdiction to jurisdiction, but typically included some form of advertisement of the meeting agenda two to four weeks in advance of the council/board meeting. In most cases, an informal, pre-adoption presentation of the 2006 Plan was made during a working session of the council/board. The final adoptions of the resolutions were almost unanimously done as part of a consent agenda at a formal council/board meeting.

Attendance at the public meetings was extremely small and there were no recorded comments of any significance related to the mitigation planning effort. Most were related to other county activities. There were also no records of any public comment on the 2006 Plan adoption process. The Planning Team discussed the prior public involvement actions and concluded that the pre-draft public meetings were not and efficient use of time and resources, especially given the extremely low turnout. The Planning Team also concluded that more web-based technology should be used for the update. Also,

since any formal council/board action has a built-in public notification and comment opportunity, the Planning Team chose to continue using this process as one of the post-draft mechanisms for getting the Plan before the public.

3.5.2 Plan Update

Pre-draft public involvement and input to the planning process was encouraged cooperatively among all of the participating jurisdictions using the following strategies:

- Yavapai County prepared a webpage with a public notice announcing the planning process and providing contact information for further inquiries.
- Each local jurisdiction with a website developed a similar posting with a link to the county's website.
- Local jurisdictions included notices of the planning effort as follows:
    - Clarkdale included an announcement in their "Small Talk" town newsletter
    - Cottonwood ran an article announcement in the Cottonwood Journal Extra.
    - Sedona distributed a news release in their Sedona.Biz outlet and was interviewed for an article appearing in the Red Rock News.

On the county website, email, phone, and fax contact information for the Yavapai County Emergency Manager are provided. Any comments would be routed to the emergency manager for address and further action. Additionally, city and town postings and announcements also include phone and/or email contact information for the Planning Team representative for their community. No questions, concerns, or responses were received from the first round of notices from the general public.

The post-draft public involvement included the following actions:

- Update of the County website to include the draft Plan.
- A press release announcing the posting of the draft Plan to the Pinal County website and requesting comment.
- Notices will be posted to each jurisdiction's website (as appropriate) notifying readers that the draft Plan is completed and available for comment via the County website, for which links will be provided.
- Kearny and Superior will publish notification articles in their local papers announcing the draft Plan availability and the website address.

All of the notices, postings, and articles encouraged review and comment of the draft Plan by the public. Interested citizens were also encouraged to participate in the local community adoption process which, depending upon the jurisdiction, may have included a public meeting and a formal public hearing. Copies of the pre- and post-draft public notices, web pages, and newspaper notices are provided in Appendix C.

3.6 Reference Documents and Technical Resources

Over the course of the update planning process, numerous other plans, studies, reports, and technical information were obtained and reviewed for incorporation or reference purposes. The majority of sources referenced and researched pertain to the risk assessment and the capabilities assessment. To a lesser extent, the community descriptions and mitigation strategy also included some document or technical information research. Table 3-5 provides a reference listing of the primary documents and technical resources reviewed and used in the Plan. Detailed bibliographic references for the risk assessment are provided at the end of each hazard risk profile in Section 5.3. Other bibliographic references are provided as footnotes.

Table 3-5: List of resource documents and references reviewed and incorporated in the plan update process

Referenced Document or Technical Source	Resource Type	Description of Reference and Its Use
AZ Department of Commerce	Website Data and Community Profiles	Reference for demographic and economic data for the county. Used for community descriptions
AZ Division of Emergency Management	Data and Planning Resource	Resource for state and federal disaster declaration information for Arizona. Also a resource for hazard mitigation planning guidance and documents.
AZ Department of Water Resources	Technical Resource	Resource for data on drought conditions and statewide drought management (AzGDTF), and dam safety data. Used in risk assessment.
AZ Geological Survey	Technical Resource	Resource for earthquake, fissure, landslide/mudslide, subsidence, and other geological hazards. Used in the risk assessment.
AZ Model Local Hazard Mitigation Plan	Hazard Mitigation Plan	Guidance document for preparing and formatting hazard mitigation plans for Arizona.
AZ State Land Department	Data Source	Source for statewide GIS coverages (ALRIS) and statewide wildfire hazard profile information (Division of Forestry). Used in the risk assessment.
AZ Wildland Urban Interface Assessment (2004)	Report	Source of wildfire hazard profile data and urban interface at risk communities. Used in the risk assessment.
AZ Workforce Informer	Website	Source for employment statistics in Arizona.
Bureau Net (2010)	Website Database	Source for NFIP statistics for Arizona.
City of Cottonwood Multi-Hazard Mitigation Plan (2006)	Hazard Mitigation Plan	FEMA approved hazard mitigation plan that together with the other Pinal County jurisdiction's MHMPs, formed the starting point for the update process. See Section 2.4 for further discussion
City of Prescott Multi-Hazard Mitigation Plan (2006)	Hazard Mitigation Plan	FEMA approved hazard mitigation plan that together with the other Pinal County jurisdiction's MHMPs, formed the starting point for the update process. See Section 2.4 for further discussion
City of Sedona Multi-Hazard Mitigation Plan (2006)	Hazard Mitigation Plan	FEMA approved hazard mitigation plan that together with the other Pinal County jurisdiction's MHMPs, formed the starting point for the update process. See Section 2.4 for further discussion
Cottonwood General Plan 2003-2013	General Plan	Source for history, demographic and development trend data for the city.
Town of Camp Verde Multi-Hazard Mitigation Plan 2006	Hazard Mitigation Plan	FEMA approved hazard mitigation plan that together with the other Pinal County jurisdiction's MHMPs, formed the starting point for the update process. See Section 2.4 for further discussion
Town of Chino Valley Multi-Hazard Mitigation Plan 2006	Hazard Mitigation Plan	FEMA approved hazard mitigation plan that together with the other Pinal County jurisdiction's MHMPs, formed the starting point for the update process. See Section 2.4 for further discussion
Town of Clarkdale General Plan	General Plan	Source for history, demographic and development trend data for the town.
Town of Clarkdale Multi-Hazard Mitigation Plan 2006	Hazard Mitigation Plan	FEMA approved hazard mitigation plan that together with the other Pinal County jurisdiction's MHMPs, formed the starting point for the update process. See Section 2.4 for further discussion
Town of Dewey-Humboldt Multi-Hazard Mitigation Plan (2006)	Hazard Mitigation Plan	FEMA approved hazard mitigation plan that together with the other Pinal County jurisdiction's MHMPs, formed the starting point for the update process. See Section 2.4 for further discussion
Town of Jerome Multi-Hazard Mitigation Plan (2006)	Hazard Mitigation Plan	FEMA approved hazard mitigation plan that together with the other Pinal County jurisdiction's MHMPs, formed the starting point for the update process. See Section 2.4 for further discussion
Town of Prescott Valley Multi-Hazard Mitigation Plan (2006)	Hazard Mitigation Plan	FEMA approved hazard mitigation plan that together with the other Pinal County jurisdiction's MHMPs, formed the starting point for the update process. See Section 2.4 for further discussion

Table 3-5: List of resource documents and references reviewed and incorporated in the plan update process

Referenced Document or Technical Source	Resource Type	Description of Reference and Its Use
Town of Prescott Valley General Plan 2020	General Plan	Source for history, demographic and development trend data for the town.
Federal Emergency Management Agency	Technical and Planning Resource	Resource for HMP guidance (How-To series), floodplain and flooding related NFIP data (mapping, repetitive loss, NFIP statistics), and historic hazard incidents. Used in the risk assessment and mitigation strategy.
HAZUS-MH	Technical Resource	Based data sets within the program were used in the vulnerability analysis.
National Climatic Data Center	Technical Resource	Online resource for weather related data and historic hazard event data. Used in the risk assessment.
National Weather Service	Technical Resource	Source for hazard information, data sets, and historic event records. Used in the risk assessment.
National Wildfire Coordination Group (2010)	Technical Resource	Source for historic wildfire hazard information. Used in the risk assessment.
Office of the State Climatologist for AZ	Website Reference	Reference for weather characteristics for the county. Used for community description.
Standard on Disaster/Emergency Management and Business Continuity Programs (2000)	Standards Document	Used to establish the classification and definitions for the asset inventory. Used in the risk assessment.
State of Arizona Hazard Mitigation Plan (2007)	Hazard Mitigation Plan	The state plan was used a source of hazard information and the state identified hazards were used as a starting point in the development of the risk assessment.
USACE Flood Damage Report (1978)	Technical Data	Source of historic flood damages for 1978 flood. Used in the risk assessment.
USACE Flood Damage Report (1994)	Technical Data	Source of historic flood damages for 1993 flood. Used in the risk assessment.
US Forest Service	Technical Data	Source for local wildfire data. Used in the risk assessment.
US Geological Survey	Technical Data	Source for geological hazard data and incident data. Used in the risk assessment.
Yavapai-Prescott Indian Tribe's Land Use Master Plan	Master Land Use Plan	Source of land planning information on tribal lands.
Yavapai-Prescott Indian Tribe Water Management Plan (1999)	Technical Resource	Information and data are shared between the Water Management Plan and the drought hazard profile where it pertains to the Tribe.
Wildland Fire Management Plan Yavapai-Prescott Indian Reservation (2003)	Technical Resource	Information and data are shared between the Wildland Fire Management Plan and the wildfire hazard profile where it pertains to the Tribe.
Western Regional Climate Center	Website Data	Online resource for climate data used in climate discussion of Section 4
World Wildlife Fund (2010)	GIS Data	Terrestrial ecoregions database used in the general county description.

SECTION 4: COMMUNITY DESCRIPTIONS

4.1 General

The purpose of this section is to provide updated basic background information on Yavapai County as a whole and includes information on geography, climate, population and economy. Abbreviated details and descriptions are also provided for each participating jurisdiction.

4.2 County Overview

4.2.1 Geography

According to the AZ Department of Commerce[2], Yavapai County was formed along with the original four counties created when Arizona was still a territory. Known as the "Mother of Counties", Yavapai County was initially more than 65,000 square miles from which five other counties were later formed. Today, Yavapai County covers 8,125 square miles, with Prescott as its County seat. Yavapai County is located in the central portion of the State of Arizona, as depicted in Figure 4-1.

The County limits generally extend from longitude 111.5 to 113.3° west and latitude 33.9 to 35.5° north. Major roadway transportation routes through the County include Interstates 17 and 40, U.S. Highway 93, State Routes 69, 71, 89, 89A, 96, 97, 169, 179, and 260. Railways include the Burlington Northern Santa Fe Railway and Arizona Central Railway. Figure 4-2 shows all the major roadway and railway transportation routes and the airports within Yavapai County.

Yavapai County is home to portions of five rivers and four mountain ranges. The Verde River is the longest stretch of riparian area which has year-long flows and is located along the eastern portion of the County. All the other rivers have intermittent flows and include the Santa Maria River, Aqua Fria River, Hassayampa River, and a small segment of New River. Except to the north, Prescott is nearly surrounded by the four mountain ranges, which are the Bradshaws, Black Hills, Weaver Mountains, and Sierra Prieta. This sort of geographical characteristics can be used to identify terrestrial ecoregions.

The geographical characteristics of Yavapai County have been mapped into three terrestrial ecoregions[3], which are depicted in Figure 4-3 and described below:

- **Arizona Mountain Forests** – this ecoregion contains a mountainous landscape, with moderate to steep slopes. Elevations in this zone range from approximately 4,000 to 13,000 feet, resulting in comparatively cool summers and cold winters. Vegetation in these areas is largely high altitude grasses, shrubs, brush, and conifer forests.
- **Sonoran Desert** – this ecoregion is an arid environment that covers much of southwestern Arizona. The elevation varies in this zone from approximately sea level to 3,000 feet. Vegetation in this zone is comprised mainly of Sonoran Desert Scrub and is one of the few locations in the world where saguaro cactus can be found. The climate is typically hot and dry during the summer and mild during the winter.
- **Colorado Plateau Shrublands** – this ecoregion covers a small portion of the North-West corner of the County with elevations that average around 4,000-5,000 feet. Vegetation in this ecoregion is comprised mainly of Plains Grassland and Great Basin Desert scrub. Temperatures can vary widely in this zone, with comparatively warm summers and cool winters.

[2] Arizona Department of Commerce, 2003, *Community Profile for Yavapai County*

[3] URS, 2004, *State of Arizona All Hazard Mitigation Plan*

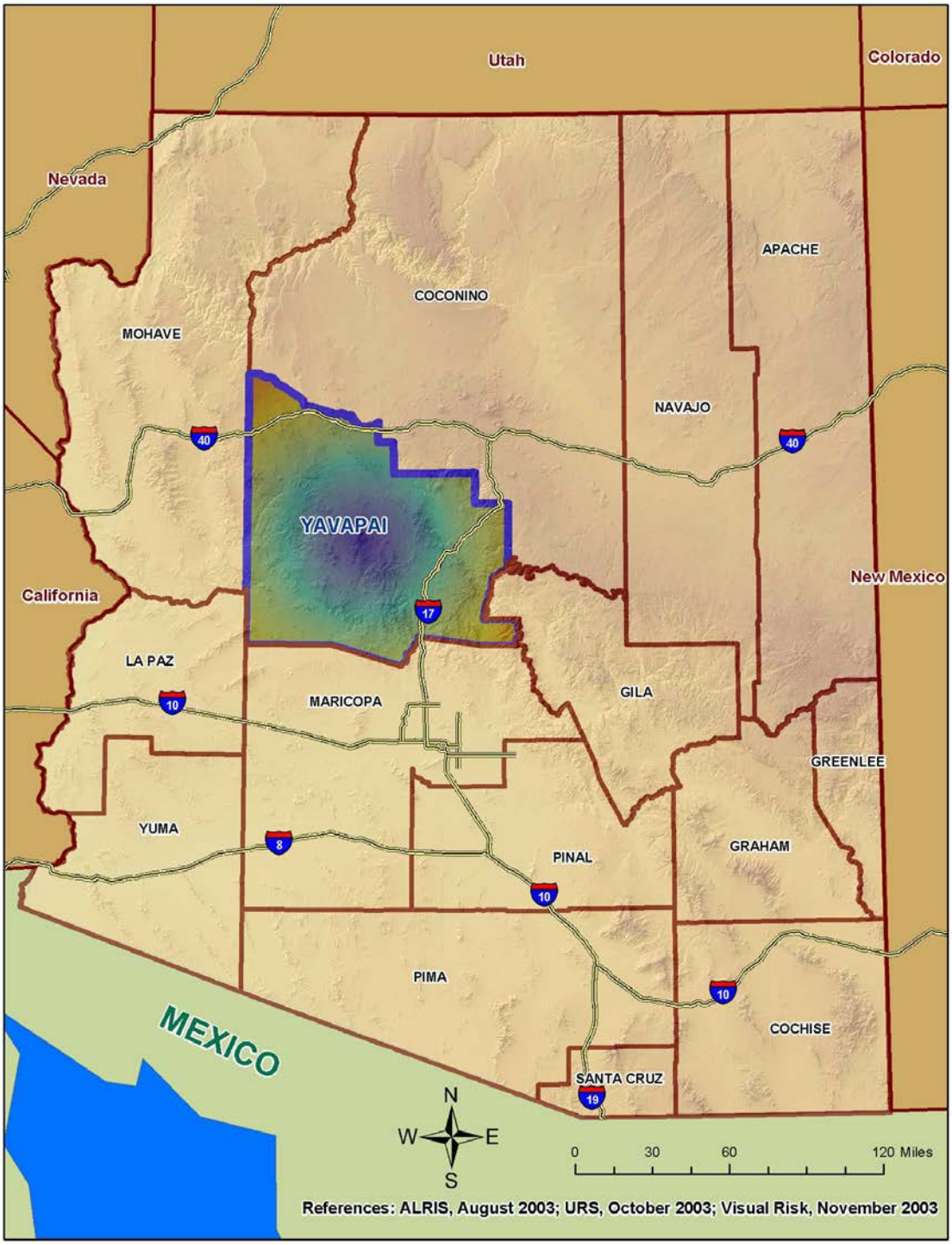

Figure 4-1
Vicinity Map

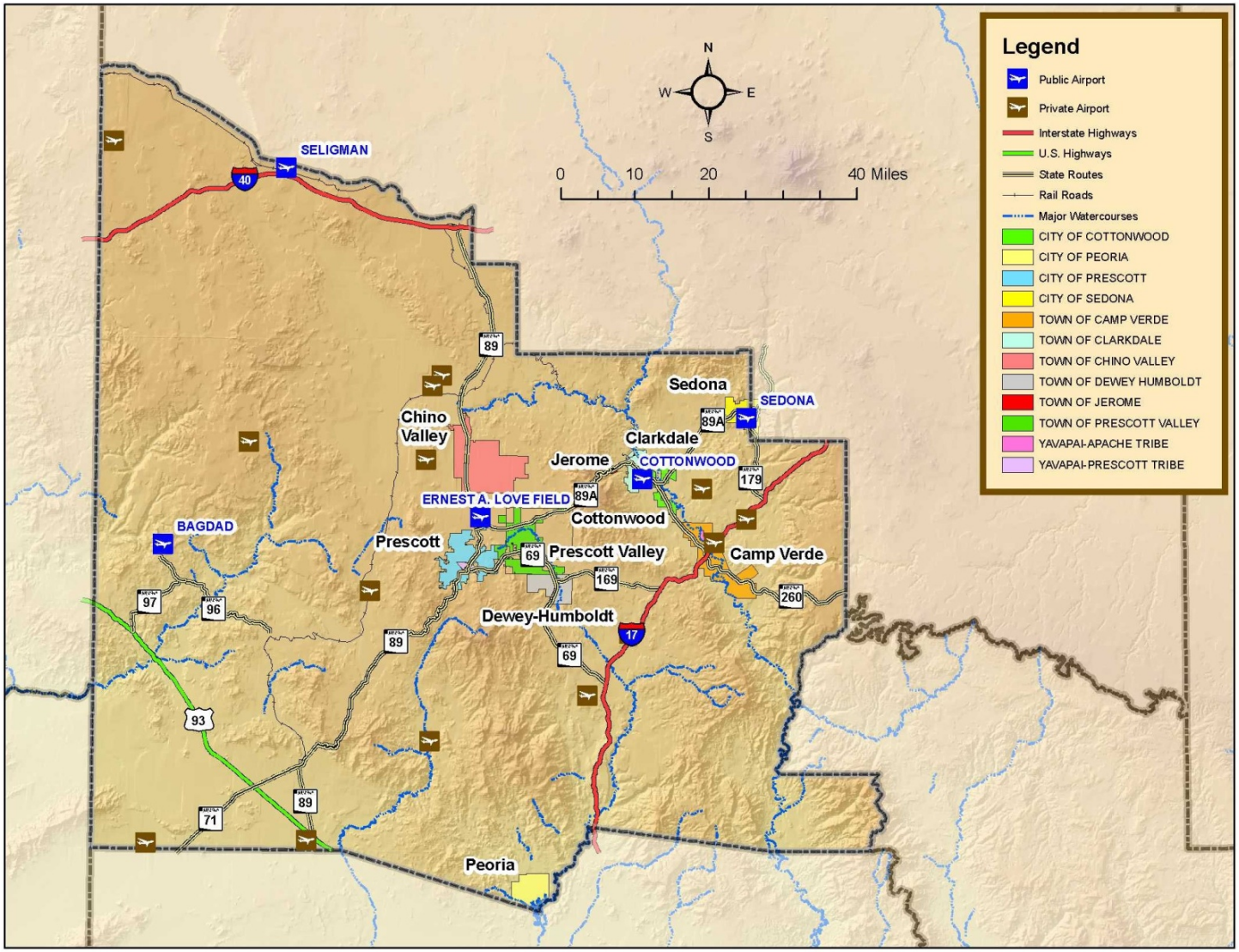

Figure 4-2
Transportation Routes Map

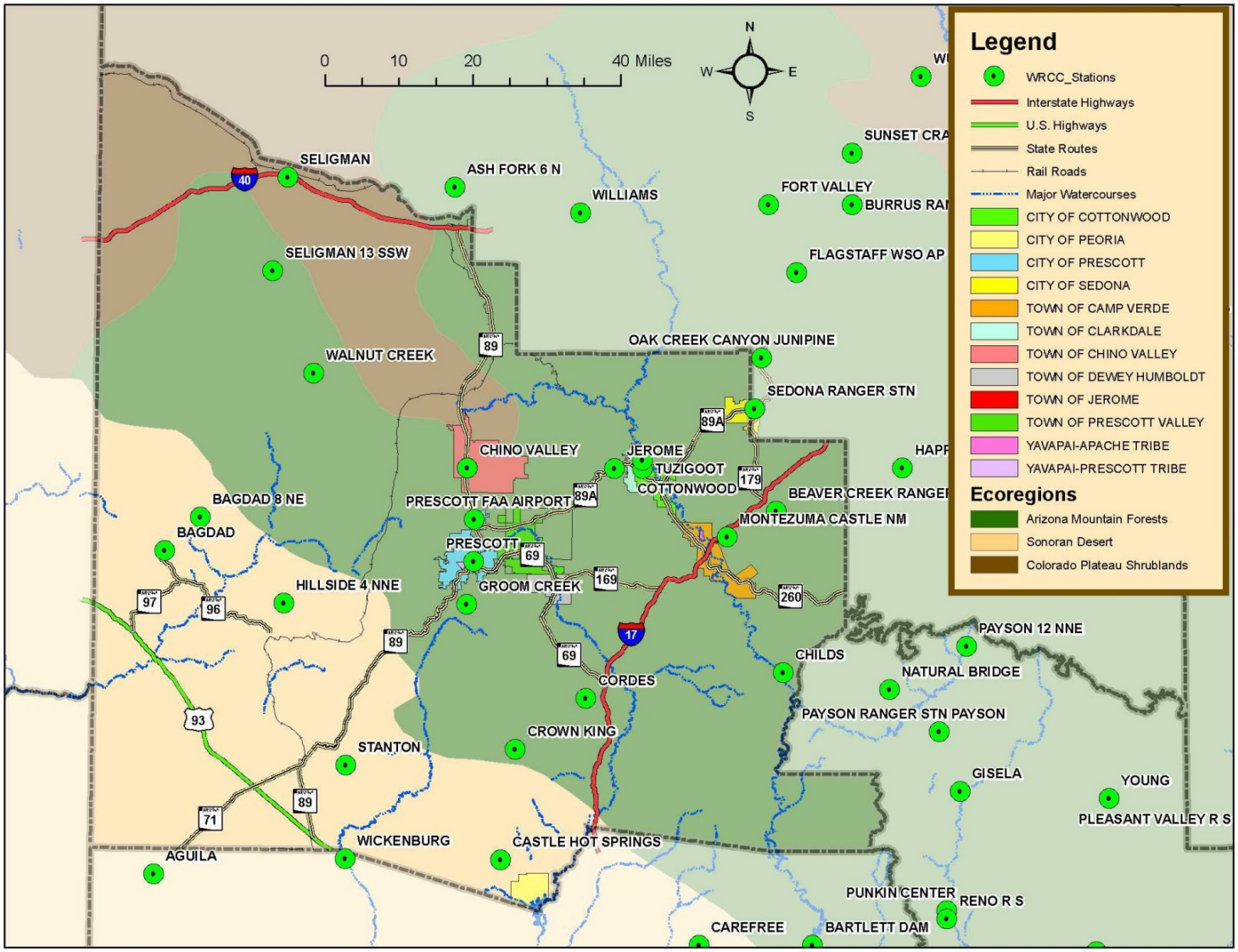

Figure 4-3
Terrestrial Ecoregions Map

4.2.2 Climate

The majority of Yavapai County can be classified as Sonoran Desert and Arizona Mountain Forest. The elevation range for these two ecoregions in the County is from approximately 2,000-8,000 feet. Such a range in elevation results in differences in climate. Climatic statistics for weather stations within the County are produced by the Western Region Climate Center[4] and span records dating back to the early 1900's. Locations of reporting stations within or near the County are shown on Figure 4-3.

Average temperatures within Yavapai County range from below freezing during the winter months to over 100°F during the hot summer months. The severity of temperatures in either extreme is highly dependent upon the location, and more importantly the altitude, within the County. Below are figures taken from three climate stations found in the three ecoregions (See Section 4.2.1) found in the County. Figure 4-4 presents a graphical depiction of temperature variability and extremes throughout the year for the Prescott station, and it shows values typical to the Arizona Mountain Forest ecoregion. A similar graph is presented in Figure 4-5 for the Bagdad station, which is typical of the Sonoran Desert ecoregion. Figure 4-6 shows the temperature variability for the Seligman station and is typical of the Colorado Plateau Shrublands ecoregion. In general, there is an approximate ten degree reduction in temperatures between the lower Sonoran Desert and upper Arizona Mountain Forest elevation stations.

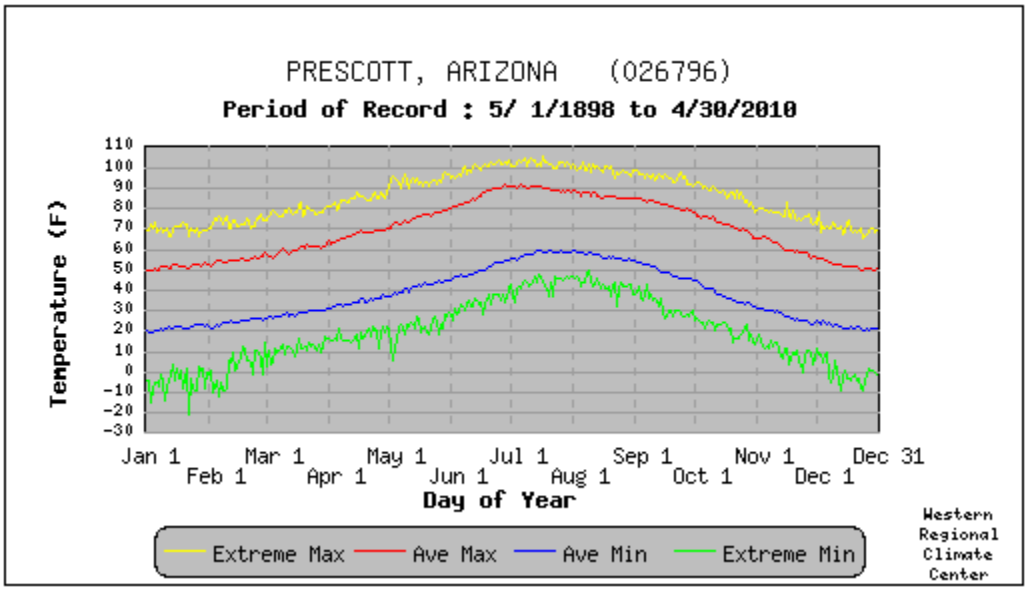

Figure 4-4
Daily Temperatures and Extremes for Prescott, Arizona

[4] Most of the data provided and summarized in this plan are taken from the WRCC website beginning at the following URL: http://www.wrcc.dri.edu/CLIMATEDATA.html

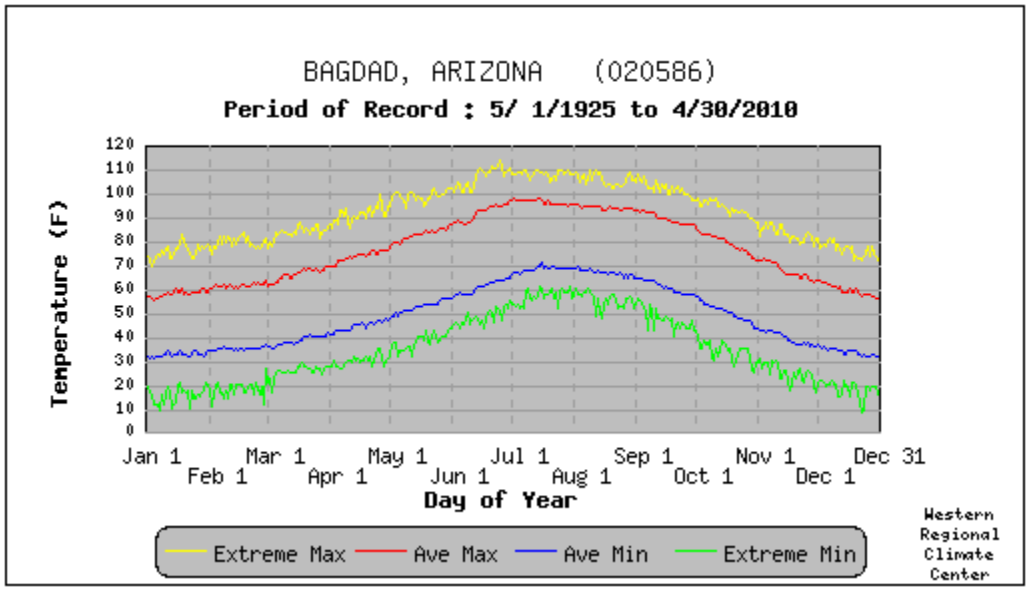

Figure 4-5
Daily Temperatures and Extremes for Bagdad, Arizona

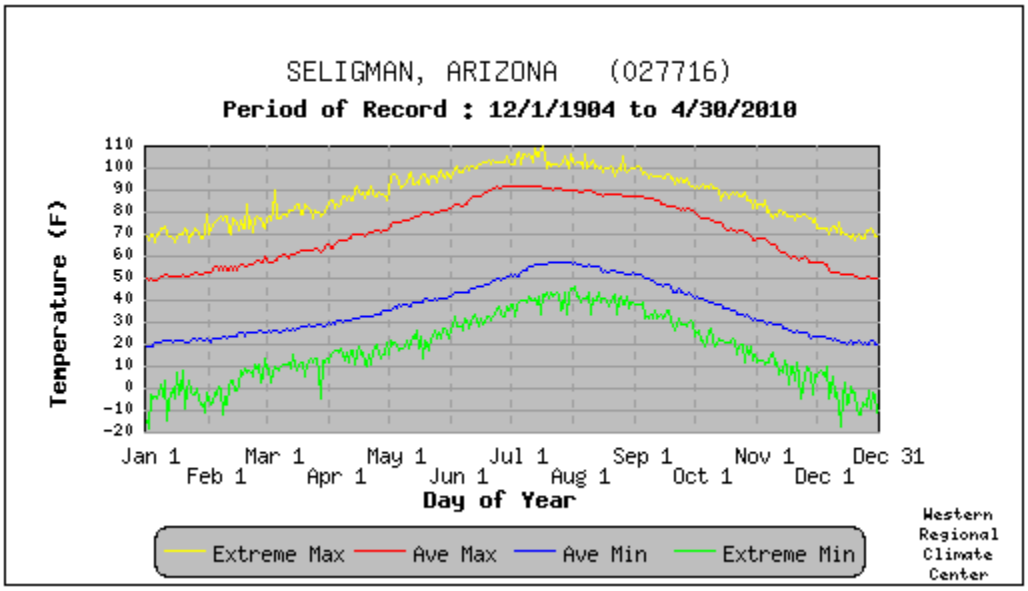

Figure 4-6
Daily Temperatures and Extremes for Seligman, Arizona

Precipitation throughout Yavapai County is governed to a great extent by elevation and season of the year. From November through March, storm systems from the Pacific Ocean cross the state as broad winter storms producing mild precipitation events and snowstorms at the higher elevations. Summer rainfall begins early in July and usually lasts until mid-September. Moisture-bearing winds move into Arizona at the surface from the southwest (Gulf of California) and aloft from the southeast (Gulf of Mexico). The shift in wind direction, termed the North American Monsoon, produces summer rains in the form of thunderstorms that result largely from excessive heating of the land surface and the subsequent lifting of moisture-laden air, especially along the primary mountain ranges. Thus, the strongest thunderstorms are usually found in the mountainous regions of the central southeastern portions of Arizona. These thunderstorms are often accompanied by strong winds, blowing dust, and

infrequent hail storms[5].

Figures 4-7, 4-8, and 4-9 show tabular temperature and precipitation statistics for the Prescott, Bagdad, and Seligman stations. Statistics for other stations shown on Figure 1-3 will be somewhat similar to those of the Prescott, Bagdad, and Seligman stations, and hence are not included herein.

PRESCOTT, ARIZONA (026796)

Period of Record Monthly Climate Summary

Period of Record : 5/ 1/1898 to 4/30/2010

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	50.7	54.0	59.2	66.8	75.5	85.8	89.0	86.1	81.8	72.0	60.6	51.7	69.4
Average Min. Temperature (F)	21.3	24.2	28.4	34.2	40.9	49.2	57.6	56.2	48.6	37.3	27.5	22.0	37.3
Average Total Precipitation (in.)	1.77	1.85	1.71	0.93	0.48	0.39	2.89	3.22	1.70	1.09	1.23	1.67	18.92
Average Total SnowFall (in.)	5.9	4.7	4.9	1.2	0.2	0.0	0.0	0.0	0.0	0.2	2.1	4.6	23.8
Average Snow Depth (in.)	1	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 97.1% Min. Temp.: 96.7% Precipitation: 98.1% Snowfall: 97.5% Snow Depth: 94.5%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Western Regional Climate Center, wrcc@dri.edu

Figure 4-7
Monthly Climate Summary for Prescott, Arizona

BAGDAD, ARIZONA (020586)

Period of Record Monthly Climate Summary

Period of Record : 5/ 1/1925 to 4/30/2010

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	58.3	61.3	66.3	73.7	82.9	92.0	96.6	94.3	89.6	79.4	67.9	59.8	76.8
Average Min. Temperature (F)	32.7	34.9	38.6	44.4	52.6	61.0	68.6	67.2	61.2	50.5	39.8	33.8	48.8
Average Total Precipitation (in.)	1.68	1.99	1.42	0.73	0.29	0.27	1.29	2.16	1.27	1.01	0.91	1.43	14.45
Average Total SnowFall (in.)	0.7	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	2.7
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 82.1% Min. Temp.: 82.2% Precipitation: 87.9% Snowfall: 87.2% Snow Depth: 86.3%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Western Regional Climate Center, wrcc@dri.edu

Figure 4-8
Monthly Climate Summary for Bagdad, Arizona

[5] Office of the State Climatologist for Arizona, 2004. Partially taken from the following weblink: http://geography.asu.edu/azclimate/narrative.htm

SELIGMAN, ARIZONA (027716)

Period of Record Monthly Climate Summary

Period of Record : 12/1/1904 to 4/30/2010

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	51.3	55.2	61.4	69.1	78.0	87.6	91.4	88.5	83.9	73.7	62.1	52.5	71.2
Average Min. Temperature (F)	21.5	24.1	27.1	32.1	38.9	46.4	55.3	54.2	46.9	36.6	27.2	21.7	36.0
Average Total Precipitation (in.)	0.98	0.98	0.97	0.52	0.34	0.35	1.82	2.07	1.10	0.78	0.70	0.94	11.56
Average Total SnowFall (in.)	3.4	2.7	1.7	0.4	0.2	0.0	0.0	0.0	0.0	0.1	1.1	2.8	12.5
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 90.4% Min. Temp.: 90.6% Precipitation: 92.8% Snowfall: 92.3% Snow Depth: 90%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Western Regional Climate Center, wrcc@dri.edu

Figure 4-9
Monthly Climate Summary for Seligman, Arizona

4.2.3 Population

Yavapai County is home to 211,033 residents, with a large portion of the population living in Prescott and Prescott Valley. Table 4-1 summarizes jurisdictional population statistics for Yavapai County communities and the County as a whole.

Table 4-1: Summary of jurisdictional population estimates for Yavapai County

Jurisdiction	1990	2000	2010	2015	2020
Yavapai County (total)	108,500	160,075	211,033	275,056	305,343
City, Towns and Reservations					
Camp Verde	6,375	8,955	10,873	14,990	16,550
Chino Valley	4,835	7,860	10,817	20,681	24,299
Clarkdale	2,170	3,135	4,097	4,160	4,368
Cottonwood	5,930	9,405	11,265	13,988	15,343
Dewey-Humboldt	n/a	3,421	3,894	4,967	5,377
Jerome	405	580	444	331	332
Prescott	26,625	36,975	39,843	53,484	58,989
Prescott Valley	9,040	23,285	38,822	50,372	58,044
Sedona(Yavapai part only)	n/a	7,229	8,424	8,963	9,451
Yavapai-Apache Indian Tribe	n/a	743	899	969	1,032
Yavapai-Prescott Indian Tribe	n/a	182	189	193	196

Note:

- *Figures for 1990 and 2000 (1980 – 2008 Historical Estimates: http://www.azcommerce.com/econinfo/demographics/Population+Estimates.html*
- *Figures for 2010 from AZ Dept of Commerce's Arizona Workforce Informer, as accessed at: http://www.workforce.az.gov/?PAGEID=67&SUBID=255*
- *Figures for 2015 and 2020 AZ Dept of Commerce's Arizona Workforce Informer, as accessed at: http://www.workforce.az.gov/?PAGEID=67&SUBID=257*

4.2.4 Economy

As with most of the state and nation, the Yavapai County economy has slowed over the last few years. According to the AZ Department of Commerce, the major industries within the county include retail trade, public and private services, and public administration.[6] Tourism also continues to serve a significant role in the economic health of the county and communities. As of June 2011, the civilian workforce was estimated at 97,600 with an unemployment rate of 10.4%.

4.2.5 Development History

Yavapai County was established by the Arizona Territorial Government in 1864, with the first Territorial Capital established in Prescott. Miners migrated to south and western Yavapai County with the building of Fort Whipple and Fort Verde. In the 1870s, large deposits of copper were discovered in Jerome spawning smelters in Clarkdale and Cottonwood (formerly Clemenceau). The railroad through northern Arizona was constructed in the 1880s and attracted farmers and ranchers in combination with the vast grasslands of the Verde, Chino and Peeples Valleys. Mining operations continued well into the 20th century and businesses diversified maintaining growth even after the mines started shutting down in the 1940s and 50s.

In addition to the nine incorporated cities and towns, there are a total of 41 unincorporated communities scattered across the County, with many being comprised of only one structure or a prominent landmark. Within Yavapai County, the US Forest Service, US Bureau of Land Management, and State Land combined, constitute nearly 75% of land ownership. The majority of which is owned by the US Forest Service at 38%. Twenty-five (25%) is individually or corporately owned, and less than a half of a percent belongs to Yavapai-Prescott Indian Community and the Yavapai Apache Nation combined.[7] The City of Peoria has annexed land surrounding Lake Pleasant in Yavapai County. The City of Peoria participated in the Maricopa County Multi-Jurisdictional Hazard Mitigation Plan and will be treated as unincorporated Yavapai County for the purposes of this plan. Figure 4-9 provides a visual depiction of the land ownership and incorporated community locations within the County.

[6] Az Dept of Commerce, 2009, *Community Profile for Yavapai County*

[7] Arizona Department of Commerce, 2003, *Community Profile for Yavapai County*

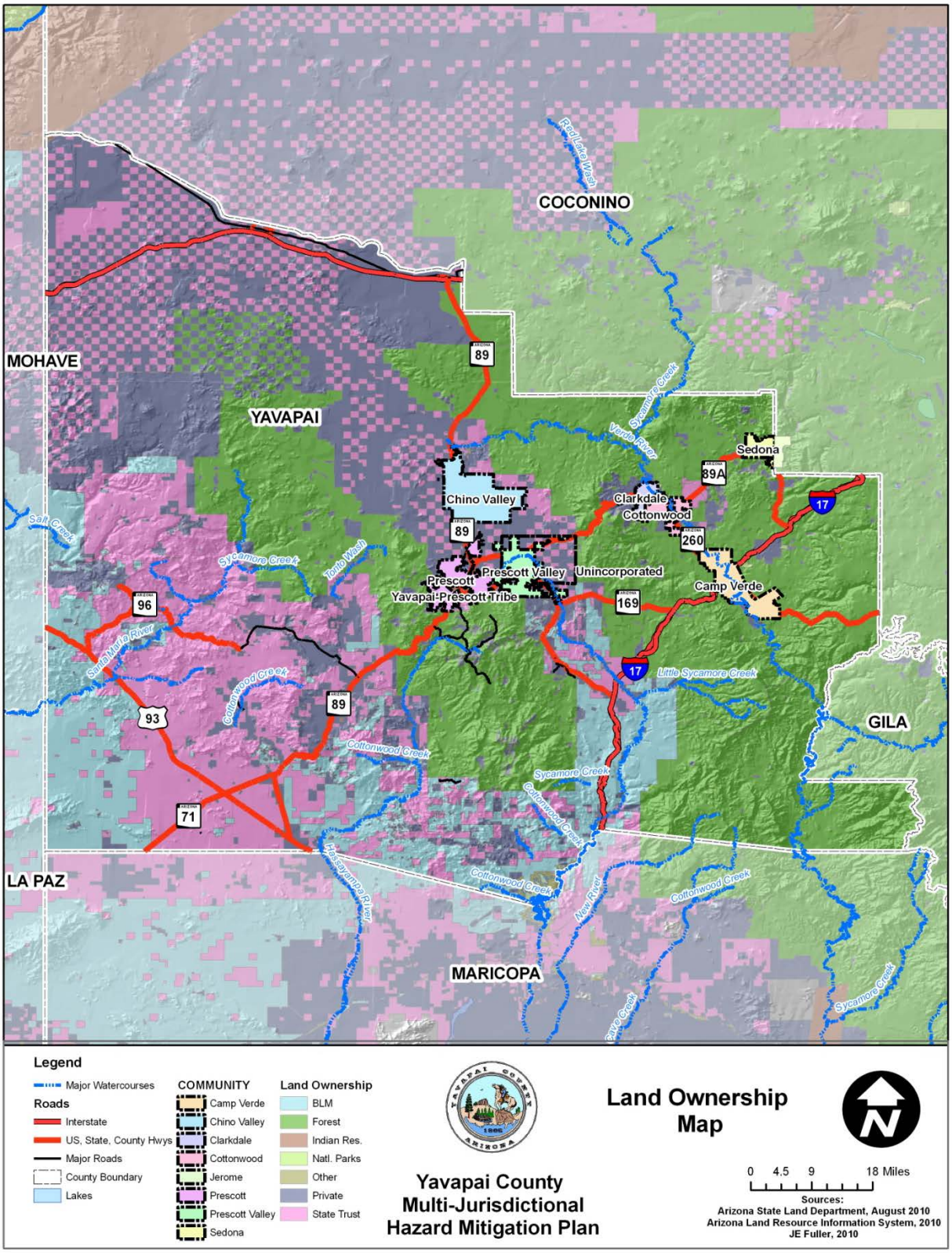

Figure 4-9: 2010 Land Ownership and Location for Yavapai County

4.3 Jurisdictional Overviews

The following are brief overviews for each of the participating jurisdictions in the Plan.

4.3.1 Camp Verde

Historic Fort Verde State Park and Montezuma Castle National Monument provide a historic back drop for the Verde Valley's oldest community. It was established as a military fort on the banks of the Verde River in 1865, to protect settlers. The Town now covers 46 square miles, and was incorporated in 1986. The mostly sunny weather and moderate year-round temperatures attract retirees, tourists and part-time residents. According to the AZ Department of Commerce[8], Camp Verde was founded in 1865 and later incorporated in 1986.

Located near the geographical center of Arizona, the Town of Camp Verde is located in the eastern portion of Yavapai County, as depicted in Figure 4-2, and is situated at an elevation of 3,160 feet. The Town is geographically located at longitude 111.88° west and latitude 34.58° north, and is 92 miles north of Phoenix and 205 miles northwest of Tucson. State Route 260 and Interstate-17 pass through Camp Verde and serve as the major roadways servicing the community. The land ownership and major transportation routes around Camp Verde are shown on Figure 4-10.

The AZ Department of Commerce prepares annual community profiles for individual counties and communities within the state. The total 2010 population for Camp Verde is estimated at 10,873. Table 4-1 summarizes population estimates for Camp Verde and other Yavapai County communities in 10-year cycles beginning in 1990 and projecting through 2020.

Employment in Camp Verde is provided by a wide variety of services. Major public employers include: Camp Verde Unified School District, US Postal Service, Town of Camp Verde, and Yavapai County Justice Facility. Major private employers include Alco, Basha's, McDonald's, Bank One, and Cliff Castle Casino. The civilian labor force in June 2011 was 5,584 with an unemployment rate of 13.9%.

Camp Verde is the oldest community in the Verde Valley. Anglo Americans settled in the Verde River Valley in the early 1860s and shortly after came into conflict with Tonto-Apache and Yavapai Indians in the area. In 1865, voluntary military units established a tent camp to protect settlers from Indian attacks. The voluntary military was relieved in 1866 by the U.S. Army. Camp Lincoln was established in 1865 one mile north of the current site and re-named Camp Verde in 1868. The Army moved the camp in 1870 to the current location to avoid Malaria that plagued the area. Camp Verde was renamed to Fort Verde in 1879 and was eventually abandoned after the Indian Wars ceased and was eventually sold at a public auction in 1899. The Fort Verde Historic State Park offers remnants of this early history of Camp Verde.

Camp Verde has remained a strong community as a result of its desirable climate, geographic location and proximity to tourist attractions including Montezuma Castle National Monument, Tuzigoot National Monument and the Historic Fort Verde. New building permits declined from an estimated 252 in 2000 to 164 in 2008. Taxable sales from 2000 are estimated at $79.9 million and have increased to $122.9 million in 2008.

[8] Arizona Department of Commerce, 2009, *Community Profile for Camp Verde, Arizona*

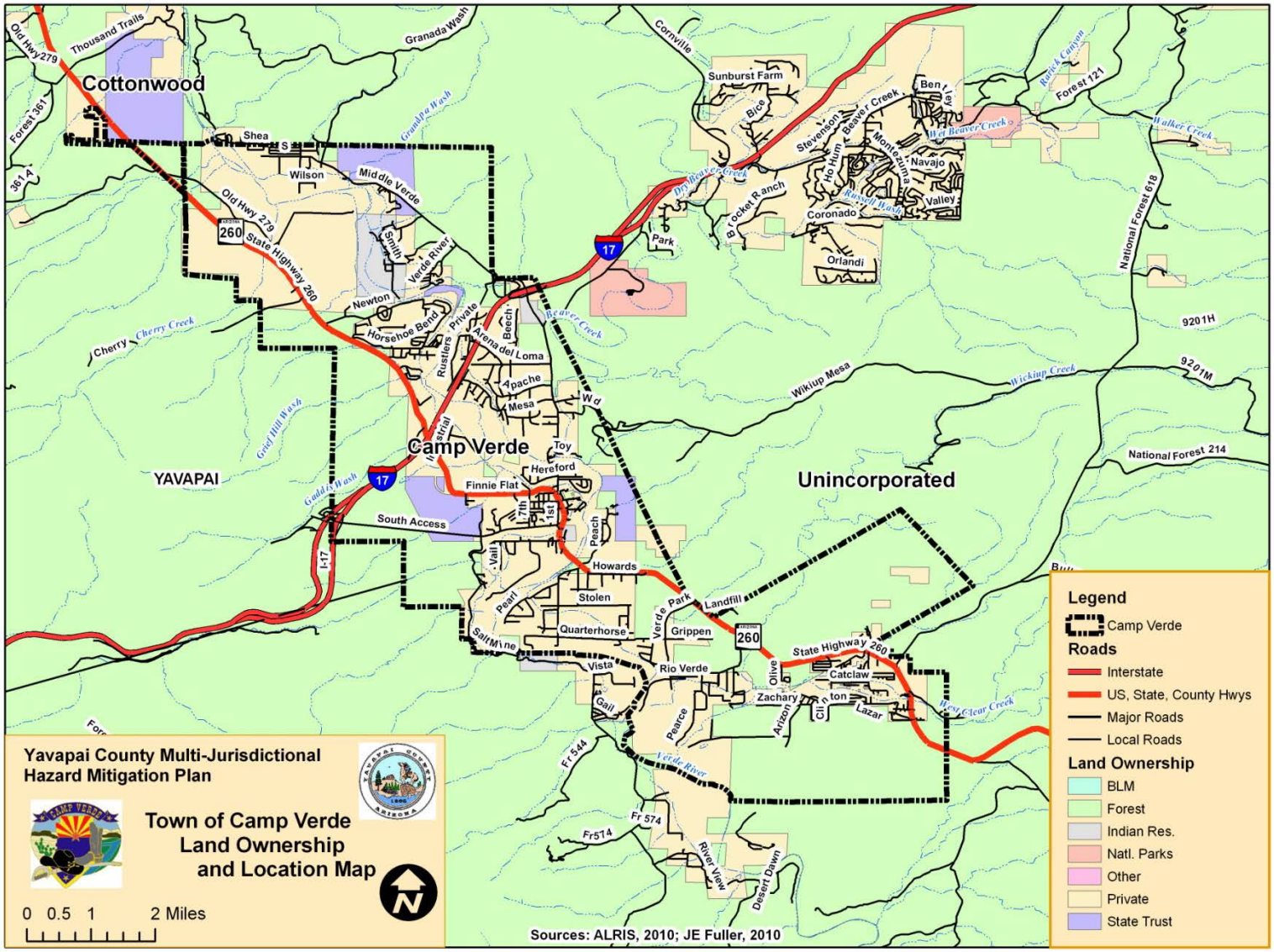

Figure 4-10: Town of Camp Verde Land Ownership and Location Map

4.3.2 Chino Valley

Chino Valley is one of the Tri-Cities including Prescott and Prescott Valley and was the first Territorial Capital in Arizona, originally known as Camp Clark. Chino Valley was founded in 1871[9] and eventually incorporated in 1970. The land in Chino Valley is known for its rich soil and abundant ground water supply which requires little or no treatment and serves Chino Valley and Prescott.

Chino Valley is located in central Yavapai County, as depicted in Figure 4-2, and is situated at an elevation of 4,750 feet. The Town is geographically located at longitude 112.45° west and latitude 34.76° north, and is 115 miles northwest of Phoenix and 228 miles northwest of Tucson. State Route 89 passes through Chino Valley and serves as the only major roadway servicing the community. The land ownership and major transportation routes around Chino Valley are shown on Figure 4-11.

The total 2010 population for Chino Valley is estimated at 10,817. Table 4-1 summarizes population estimates for Chino Valley and other Yavapai County communities in 10-year cycles beginning in 1990 and projected through 2020.

Chino Valley has some retail, commercial, and government employment. Major public employers include: Chino Valley Unified School District #5 and the U.S. Post Office. Major private employers include: American Sandstone and Safeway, Inc. The civilian labor force in June 2011 was 4,734 with an unemployment rate of 10.7%.

U.S. Army Cavalry Lt. Amiel W. Whipple temporarily set up a Territorial Capital at Chino Valley and named the community after the Mexican name for the grasses in the area. Soon the capital was moved to Prescott, located 15 miles south of Chino Valley. In 1895, a railway was completed to Jerome, and from 1900 to 1925, Chino Valley thrived from the activity that resulted from the railway.

New building permits declined from an estimated 220 in 2000 to 76 in 2008. Taxable sales from 2000 are estimated at $78.9 million and have increased to $164.5 million in 2008.

[9] Arizona Department of Commerce, 2009, *Community Profile for Chino Valley, Arizona.*

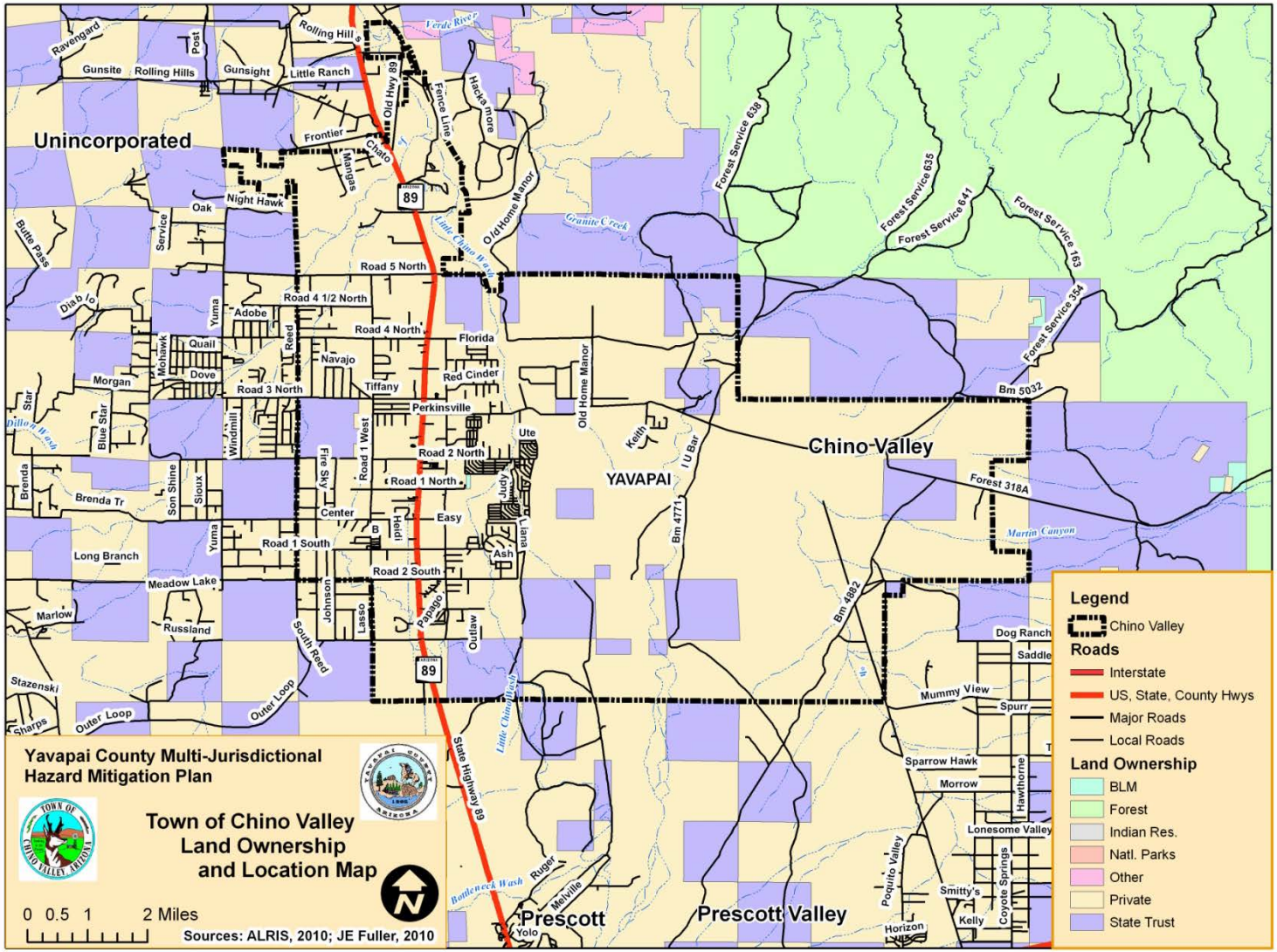

Figure 4-11: Town of Chino Valley Land Ownership and Location Map

4.3.3 Clarkdale

The Town of Clarkdale was founded in 1912 and was originally owned by the United Verde Copper Company whose residents worked in the nearby smelter[10] Clarkdale was built from a unified master plan intended to include all typical parts of a comprehensive planned small town. As a result of the Clarkdale Smelter, Clarkdale was ahead of other western towns with modern amenities. Mining operations shut down in 1953 however today, many of the old mining and smelter facilities still stand. According to the Arizona Department of Commerce[11], Clarkdale was incorporated in 1957.

The Town of Clarkdale occupies approximately10.1 square miles in the Verde Valley of North Central Arizona in Yavapai County, as depicted in Figure 4-2abd us situated at an elevation of 3,550 feet. The Verde River bisects the north portion of the town at a low elevation of around 3,300'. The west side of the town boundary is located along the foothills of Mingus Mountain in the Black Hills Range at a high elevation of approximately 4,600' above sea level. The Town is geographically located at longitude 112.06° west and latitude 34.76° north, and is 110 miles north of Phoenix, 50 miles southwest of Flagstaff, and 42 miles northeast of Prescott, Lands of the Prescott National Forest to the west, lands of the Coconino National Forest to the east, portions of the City of Cottonwood to the south and various unincorporated private lands in Yavapai County surround the Town. In addition, trust lands of the Yavapai Apache Nation are located within the thon boundary. State Route Highway 89A passes through Clarkdale and serves as the major roadway servicing the community. The land ownership and major transportation routes around Clarkdale are shown on Figure 4-12.

The Town of Clarkdale is located in the Arizona Mountain Forest terrestrial ecoregion as described in Section 4.2.1. The description of climate and elevation ranges may not be appropriate descriptors for Clarkdale.

The total 2010 population for Clarkdale is estimated at 4,267, which includes 243 from the Yavapai Apache Nation. Table 4-1 summarizes population estimates for Clarkdale and other Yavapai County communities in 10-year cycles beginning in 1990 and projecting through 2020.

Clarkdale's economy developed as a service center for mining. Today, Major public employers include: Clarkdale-Jerome School District, Yavapai College, the US Post Office, Clarkdale Fire District, and the Town of Clarkdale. Major private employers include: Bent River Machine, Phoenix Cement, Wolf Insulation, Mold in Graphic Systems, Olsen's Grain, Clarkdale Metals Corporation, and Verde Canyon Railroad. The civilian labor force in June 2011 was 2,057 with an unemployment rate of 10.1%.

New building permits declined from an estimated 93 in 2000 to 8 in 2008. Taxable sales from 2000 are estimated at $14.7 million and have increased to $39.6 million in 2008.

Clarkdale seeks to maintain and enhance the livability, health and vitality of the Verde Valley and the natural systems to which it is a part preserving choices for future generations and anticipating and adapting changing community needs and external influences.

[10] Clarkdale's 2002 General Plan, April 2002

[11] Arizona Department of Commerce, 2009, *Community Profile for Clarkdale, Arizona*

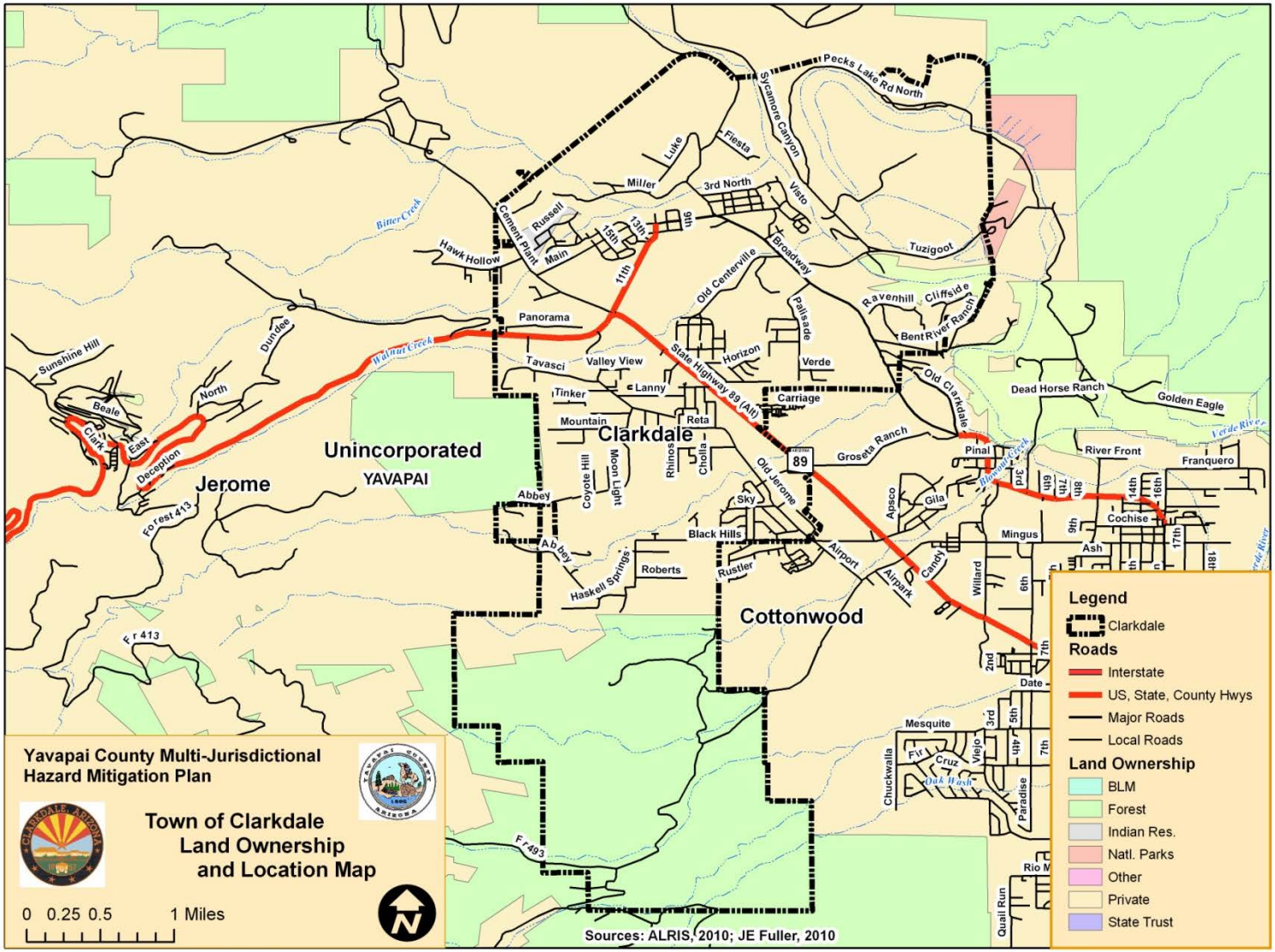

Figure 4-12: Town of Clarkdale Land Ownership and Location Map

4.3.4 Cottonwood

Cottonwood is in the upper watershed of the Verde River located adjacent to and east of the Town of Clarkdale. Terrain in the Cottonwood area is generally level or of a shallow slope, although steep terrain exists close to the existing City limits. The Verde River, one of Arizona's most important perennial water bodies, traverses north to south along the East side of the City. Several intermittent streams drain through the City into the Verde River and include Del Monte wash, Railroad Wash, Silver Springs Wash and Oak Wash. According to the Arizona Department of Commerce[12], Cottonwood was founded in 1879 and later incorporated in 1960.

Cottonwood is located in the Northeastern portion of Yavapai County, as depicted in Figure 4-2, and is situated at an elevation of 3,320 feet. The City is geographically located at longitude 112.01° west and latitude 34.72° north, and is 106 miles north of Phoenix and 217 miles northwest of Tucson. State Route 89A and 260 pass through Cottonwood and serve as the major roadways servicing the community. The major transportation routes and land ownership around Cottonwood are shown on Figure 4-13.

The City of Cottonwood is located within the Arizona Mountain Forest terrestrial ecoregion, which is described as Section 4.3.1.

The total 2010 population for Cottonwood is estimated at 11,265. Table 4-1 summarizes population estimates for Cottonwood and other Yavapai County communities in 10-year cycles beginning in 1990 and projecting through 2020.

Cottonwood's economy is a trading center of the Verde Valley, providing retail, professional services and manufacturing. Major public employers include: Arizona Public Service, Cottonwood/Oak Creek School District, City of Cottonwood, and Mingus Union High School. Major private employers include: Verde Valley Medical Center, Phelps & Sons, Inc., Home Depot, and Wal-Mart. The civilian labor force in June 2011 was 5,288 with an unemployment rate of 11.3%.

Settlers in the Cottonwood area began farming in the area and providing goods to the army in Camp Verde and miners in Jerome. More settlers began moving in and named the development after a ring of 16 cottonwood trees growing along the Verde River. Cottonwood attracted residents trying to escape prejudice and regulations from nearby company towns including Clarkdale and Clemenceau.[13] Cottonwood was a booming small town with a high density of merchants and tradesmen.

The City serves as the business and retail center of the Verde Valley and is also the educational and medical hub for the valley. New building permits declined from an estimated 501 in 2000 to 20 in 2008. Taxable sales from 2000 are estimated at $263.9 million and have increased to $450.5 million in 2008.

[12] Arizona Department of Commerce, 2009, *Community Profile for Cottonwood, Arizona*

[13] City of Cottonwood, 2003, *Cottonwood General Plan 2003-2013*

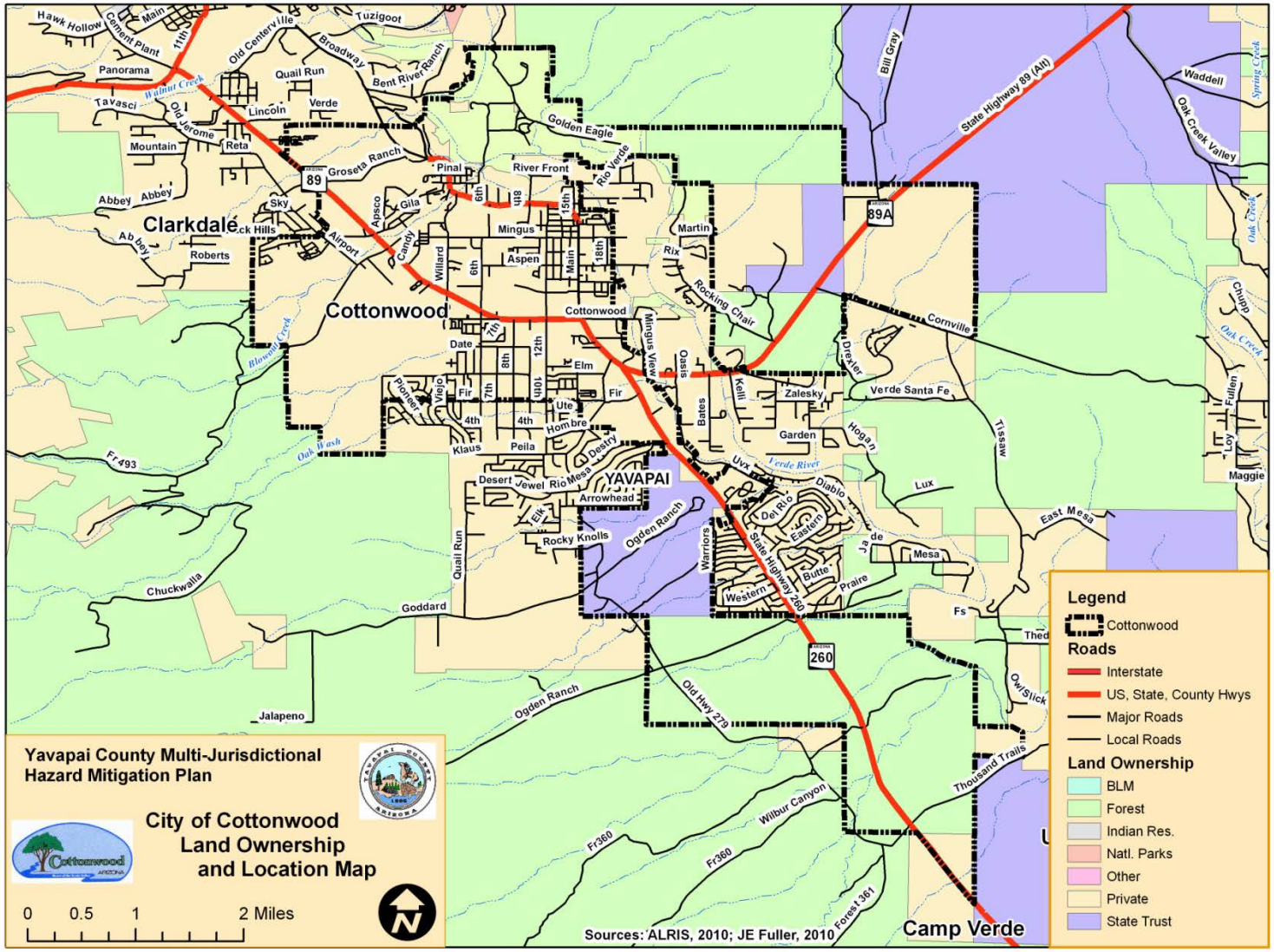

Figure 4-13: Town of Clarkdale Land Ownership and Location Map

4.3.5 Dewey-Humboldt

The Town is adjacent to and south of the Town of Prescott Valley located in central Yavapai County, as depicted in Figure 4-2, and is situated at an elevation of 4,556 feet. The Town is geographically located at longitude 112.249374° west and latitude 34.517168° north, and is 85 miles north of Phoenix and 199 miles North of Tucson. Dewey-Humboldt is part of the "Quad-Cities" that includes Dewey-Humboldt, Prescott, Chino Valley, and Prescott Valley. On December 20, 2004, the Town of Dewey-Humboldt was incorporated with a population estimate of 4,005. State Routes 69 and 169 pass through Dewey-Humboldt and are the main roadways servicing the community. The major transportation routes and land features around Dewey-Humboldt are shown on Figure 4-14.

Dewey-Humboldt's economic base is fairly small and dependant on a more regional economic base. Construction related fields provide the largest proportion of employment for residents of the Town. One of the Town's largest employers is the Humboldt Unified School District. Residents of Dewey-Humboldt cherish the very low density, rural lifestyle within the Town, one of the main drivers of incorporation in 2004.

Dewey-Humboldt began as two separate towns in the late 1800s. One of the towns, later named Humboldt, was established to support mining activity in the area. The first smelter, the Agua Fria Smelter (Bashford Mill), was built in 1876 in Humboldt. The other town, later named Dewey, was established for agriculture and ranching. The area was originally known as Agua Fria with the first post office named the Agua Fria Post Office that was eventually discontinued in 1895. The post office was re-established in 1898 as the Dewey Post Office.

The mining operation in Humboldt suffered closures common to other communities in the state with a short closure in 1907 and again in 1930, at which point the population in Humboldt declined to 300. The nearby Iron King Mine re-opened in 1934 and did not close again until 1968. Presently, the mine tailings are being reprocessed into Ironite fertilizer.

The total 2010 population for Dewey-Humboldt is estimated at 3,894. Table 4-1 summarizes population estimates for Dewey-Humboldt and other Yavapai County communities in 10-year cycles beginning in 1990 and projecting through 2020. The civilian labor force in June 2011 was 3,264 with an unemployment rate of 7.3%. Taxable sales from 2008 are estimated at $21 million.

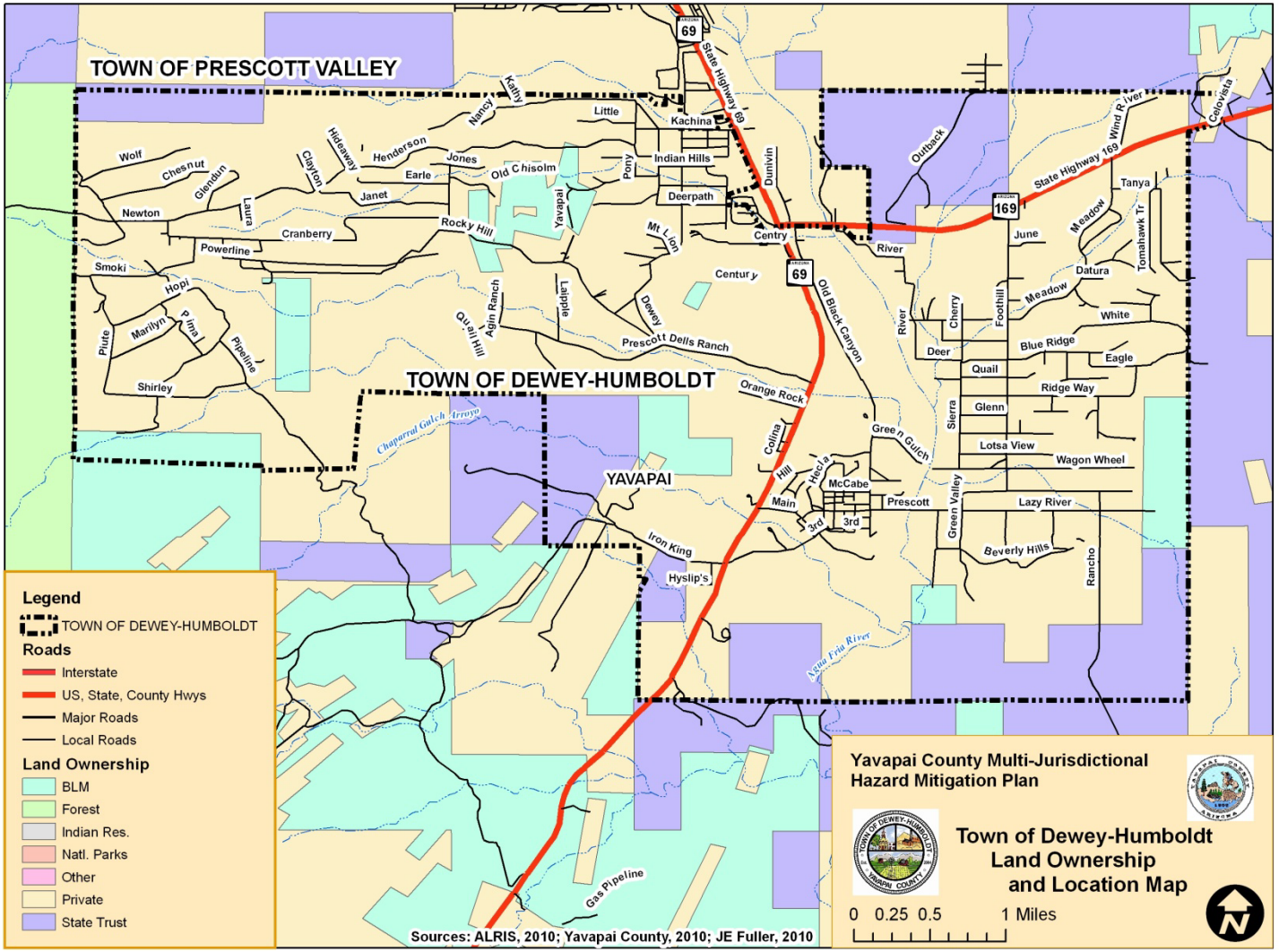

Figure 4-14: Town of Dewey-Humboldt Land Ownership and Location Map

4.3.6 Jerome

Jerome is located in the mid-northeastern portion of Yavapai County, as depicted in Figure 4-2, and is situated on Cleopatra Hill at an elevation of 5,435 feet. The Town is geographically located at longitude 112.11° west and latitude 34.75° north, and is 110 miles north of Phoenix and 224 miles northwest of Tucson. State Route 89A passes through Jerome and serves as the major roadway servicing the community. The major transportation routes and land ownership around Jerome are shown on Figure 4-15.

Founded in 1876, Jerome started as a mining town and became Arizona's largest copper mine. According to the Arizona Department of Commerce[14], Jerome was incorporated in 1899. Building collapse and landslides were common and during the 1930s, dynamite blasts were the catalyst for a landslide that caused the Town jail to slide a whole block from its original location. During the great depression of the 1930s, production of the Jerome mines decreased and by 1953, all production stopped. As a result, Jerome became the world's largest ghost town. The remaining residents promoted the Town as a ghost town tourist attraction, which it is known for today.

The Town of Jerome is located in the Arizona Mountain Forest terrestrial ecoregions as described in Section 4.3.1.

The AZ Department of Commerce prepares annual community profiles for individual counties and communities within the state, however, Town staff noticed some outdated economic information such as a Safeway store cited as a major employer that no longer exists in the Town. The total 2010 population for Jerome is estimated at 444. Table 1-1 summarizes population estimates for Jerome and other Yavapai County communities in 10-year cycles beginning in 1990 and projecting through 2020.

Jerome's economy is dependent upon tourism and recreation. Major public employers include: Jerome Post Office, Town of Jerome, and Jerome Public Library. Major private employers include: The English Kitchen, Skyfire, Western Heritage Furniture, Mile Hi Restaurant, and the Jerome Place. The civilian labor force in June 2011 was 276 with an unemployment rate of 10.9%.

The Town of Jerome once had a population of 15,000. However, with the drop of copper prices, the Phelps Dodge Mine closed in 1953. Since then, Jerome has become a well known stop for tourists and has attracted an artistic community including craft people, writers, musicians, bed and breakfast owners, museum caretakers and gift shop proprietors[15].

There were no new building permits reported for either 2000 or 2008. Taxable sales from 2000 are estimated at $11.0 million and have increased to $16.9 million in 2008. One major development proposal in the Town included a large restaurant and brewery with a capacity for over 100 people; however, water supply limitations and public opposition may prove to defeat the project.

[14] Arizona Department of Commerce, 2009, *Community Profile for Jerome, Arizona.*

[15] Partially taken from the following weblink: http://www.azjerome.com/.

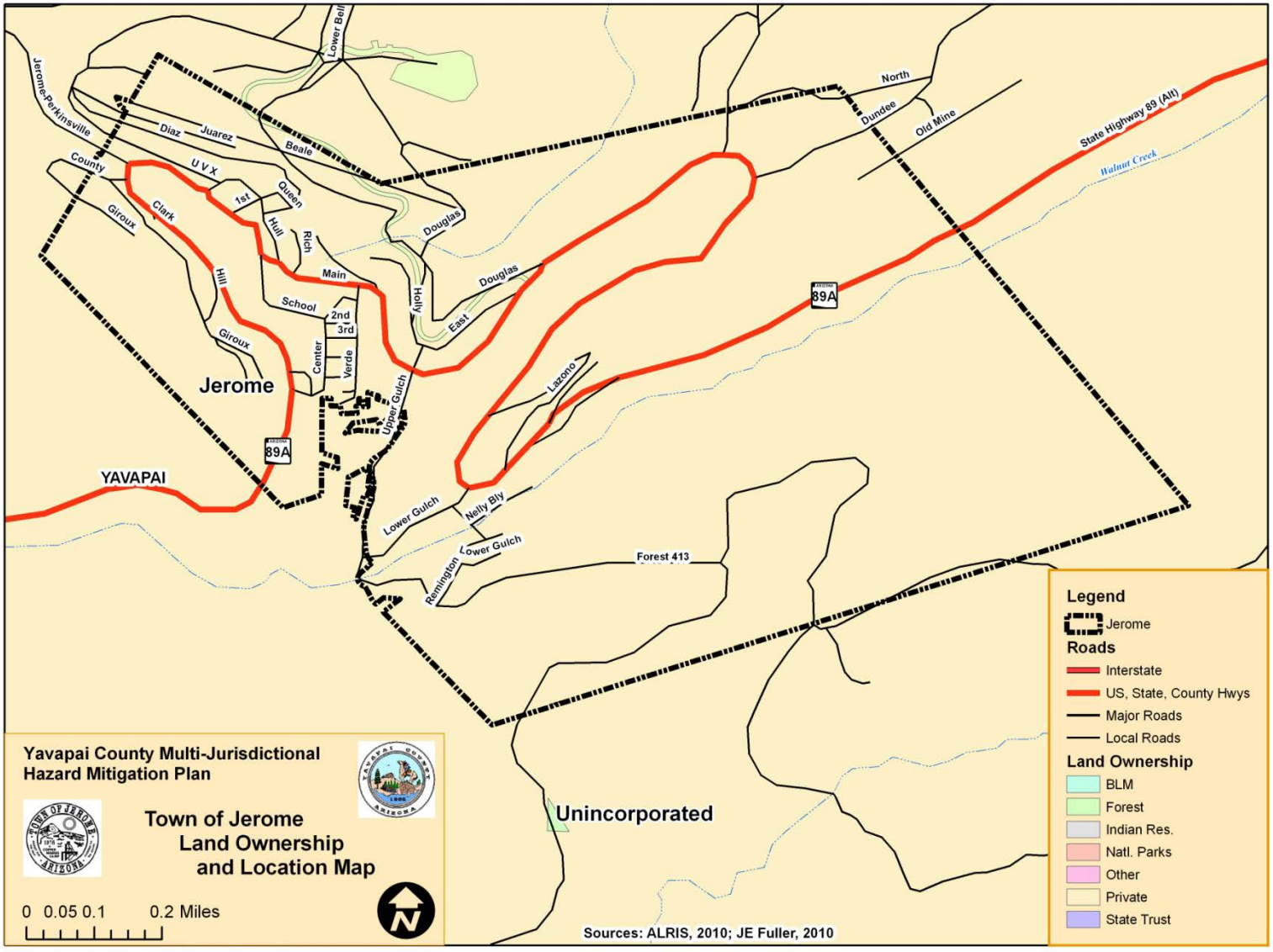

Figure 4-15: Town of Jerome Land Ownership and Location Map

4.3.6 Prescott

According to the AZ Department of Commerce[16], Prescott was founded in 1864 as the first Territorial Capital of Arizona. The community was named for William Hickling Prescott, a historian. Prescott is now known as one of the Tri-Cities including Prescott Valley and Chino Valley. Prescott was incorporated in 1883.

Prescott is located in central Yavapai County, as depicted in Figure 4-2, and is situated at an elevation of 5,400 feet. The City is geographically located at longitude 112.48° west and latitude 34.55° north, and is 102 miles north-northwest of Phoenix and 213 miles northwest of Tucson. State Route 69 and 89 pass through Prescott and serve as two major roadways servicing the community. The major transportation routes and land ownership around Prescott are shown on Figure 4-16.

The City of Prescott is located within the Arizona Mountain Forest terrestrial ecoregion, which is described in Section 4.3.1.

The AZ Department of Commerce prepares annual community profiles for individual counties and communities within the state. The total 2010 population for Prescott is estimated at 39,843. Table 4-1 summarizes population estimates for Prescott and other Yavapai County communities in 10-year cycles beginning in 1990 and projecting through 2020.

There are many outdoor activities and a rich history available in the Prescott area. As a result tourism, culture, and governmental agencies are important to Prescott's economy. Prescott is also central to trade in the region. Major public employers include: the City of Prescott, State of Arizona, Yavapai County, Prescott Unified School District, and Veterans Administration Medical Center. Major private employers include: Embry-Riddle University, Sturm Ruger & Company, Yavapai Regional Medical Center, Phelp-Dodge Bagdad Copper, and Wal-Mart. The civilian labor force in June 2011 was 18,665 with an unemployment rate of 9.3%.

The City of Prescott has a long history as an incorporated City, dating as far back as 1883. The City was initially founded as the first Territorial Capital of Arizona in 1864, and government has been dominant in Prescott's history and development since that time. The early economic makeup consisted of cattle ranching, mining and government. Part of Prescott has been designated as a historic preservation district. A fire destroyed many commercial buildings in July of 1900. When the buildings were rebuilt, they were reconstructed of brick and masonry, many of which are still standing today.

During the 20th Century, Prescott developed health care facilities which service all of Yavapai County. Arts, cultural and educational facilities have been established, adding to the City's economic growth.

New building permits declined from an estimated 1,145 in 2000 to 390 in 2008. Taxable sales from 2000 are estimated at $789.5 million and have decreased to $530.1 million in 2008.

[16] Arizona Department of Commerce, 2009, *Community Profile for Prescott, Arizona*

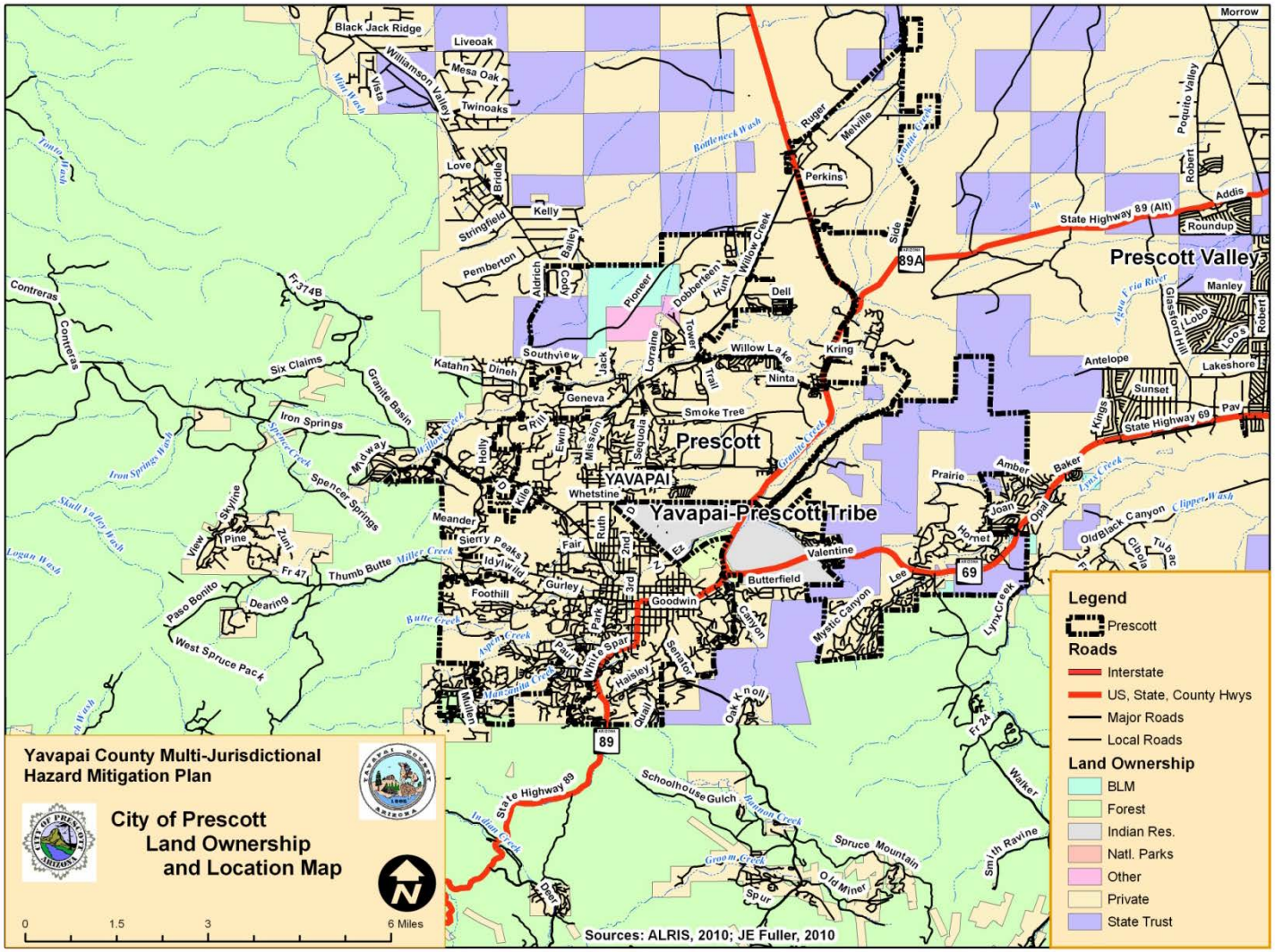

Figure 4-16: City of Prescott Land Ownership and Location Map

4.3.7 Prescott Valley

Prescott Valley is one of the Tri-Cities including Prescott and Chino Valley and is known for its beautiful rolling hills and lush grass lands. According to the AZ Department of Commerce[17], Prescott Valley was founded in 1966 on the outskirts of the City of Prescott. Prescott Valley incorporated in 1978.

Prescott Valley is located in central Yavapai County, as depicted in Figure 4-2, and is situated at an elevation of 5,100 feet. The Town is geographically located at longitude 112.32° west and latitude 34.60° north, and is 87 miles north-northwest of Phoenix and 186 miles northwest of Tucson. State Route 69 and 89A pass through Prescott Valley and serve as two major roadways servicing the community. The major transportation routes and land ownership around Prescott Valley are shown on Figure 4-17.

The Town of Prescott Valley is located within the Arizona Mountain Forest terrestrial ecoregion, which is described in Section 4.3.1. However, the description for the Colorado Plateau Shrublands may be a much better representation of Prescott Valley with its grasslands:

The AZ Department of Commerce prepares annual community profiles for individual counties and communities within the state. The total 2010 population for Prescott Valley is estimated at 38,822. Table 4-1 summarizes population estimates for Prescott Valley and other Yavapai County communities in 10-year cycles beginning in 1990 and projecting through 2020.

Prescott Valley's economy is defined by growth. Its industry, manufacturing, retail and services businesses are all growing. Major public employers include: the AZ Department of Transportation, Town of Prescott Valley, and Humboldt School District. Major private employers include: AAE, Arizona Public Service, Prescott Newspapers, Ace retail Support Center, and BetterBilt-Div.MI Home Products. The civilian labor force in June 2011 was 13,846 with an unemployment rate of 10.5%.

Prescott Valley was formerly known as Lonesome Valley, when cattlemen arrived in the 1860s attracted by lush grass and water. Tom Sanders and Dan Fain were the heads of two pioneering families who established ranching in the area.[18] The Town of Prescott Valley was founded when a Phoenix based real-estate company bought a large piece of land from the Fain family. The company sold home lots in the mid 1960s to people from Arizona and extending out to the Midwest marketing the mild weather and beautiful scenery.

The Town of Prescott Valley has only been incorporated since 1978 but it has become one of Arizona's fastest growing communities. The population of Prescott Valley has more than quadrupled over the last 20 years growing from a population of 8,904 in 1990 to 38,822 in 2010.

New building permits declined from an estimated 2,658 in 2000 to 461 in 2008. Taxable sales from 2000 are estimated at $229.2 million and have increased to $625.9 million in 2008.

[17] Arizona Department of Commerce, 2009, *Community Profile for Prescott Valley, Arizona*

[18] Town of Prescott Valley General Plan 2020 Final, Adopted January 17, 2002

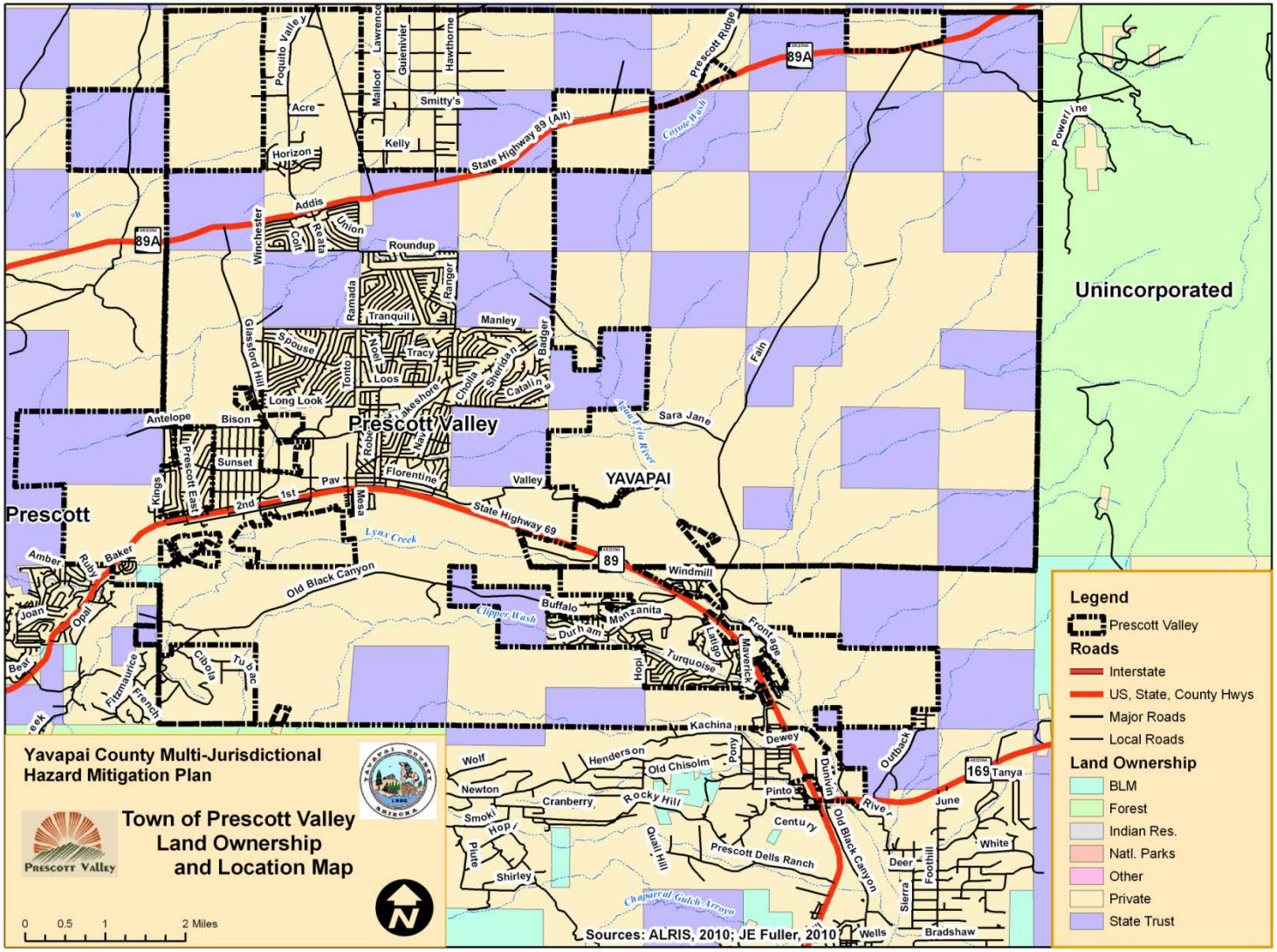

Figure 4-17: Town of Prescott Valley Land Ownership and Location Map

4.3.8 Sedona

Sedona is located at the base of the red sandstone cliffs with numerous red buttes and monoliths around the City. The City is bisected by the beautiful Oak Creek Canyon that runs southwest. According to the AZ Department of Commerce[19], Sedona was founded in 1902 and later incorporated in 1988.

Sedona is located in the northeastern portion of Yavapai County, as depicted in Figure 4-2, and is situated at an elevation of 4,500 feet. The City is geographically located at longitude 111.78° west and latitude 34.86° north, and is 119 miles north of Phoenix and 230 miles northwest of Tucson. State Route 89A and 179 pass through Sedona and serve as the major roadways servicing the community. The major transportation routes and land ownership around Sedona are shown on Figure 4-18.

The City of Sedona is located in the Arizona Mountain Forest terrestrial ecoregion and is described in Section 4.3.1.

The AZ Department of Commerce prepares annual community profiles for individual counties and communities within the state. The total 2010 population for Sedona is estimated at 11,373(includes Coconino part). Table 4-1 summarizes population estimates for Sedona and other Yavapai County communities in 10-year cycles beginning in 1990 and projecting through 2020.

Sedona's economy is centered around tourism. Major public employers include: the City of Sedona, Sedona-Oak Creek School District, Yavapai College (Sedona campus), and the Sedona Fire District. Major private employers include: Hyatt Resort, Radisson Resort, Best Western, L'Auberge de Sedona Resort, Los Abrigados Resort and Spa, Bashas' Grocery Store, Safeway Grocery Store, and New Frontiers Health Food Store. The civilian labor force in 2011 was 13,846 with an unemployment rate of 10.5%.

The City of Sedona is named after an early settler by the name of Sedona Schnebly. Sedona was first settled in 1876 with agricultural development and became known for the abundant apple orchards.[20] Famous artists including Max Ernst moved to Sedona starting in 1950, establishing a thriving artist community. Sedona has evolved into a large attraction, drawing tourists to the beautiful red rock formations, the unique small-town atmosphere, recreation, resorts and the arts centers. The number of tourists that visit Sedona are second only to the Grand Canyon in the State of Arizona.

New building permits declined from an estimated 539 in 2000 to 166 in 2008. Taxable sales from 2000 are estimated at $330.8 million and have increased to $475.1 million in 2008.

[19] Arizona Department of Commerce, 2009, *Community Profile for Sedona, Arizona*

[20] Partially taken from the following weblink: http://www.azjerome.com/

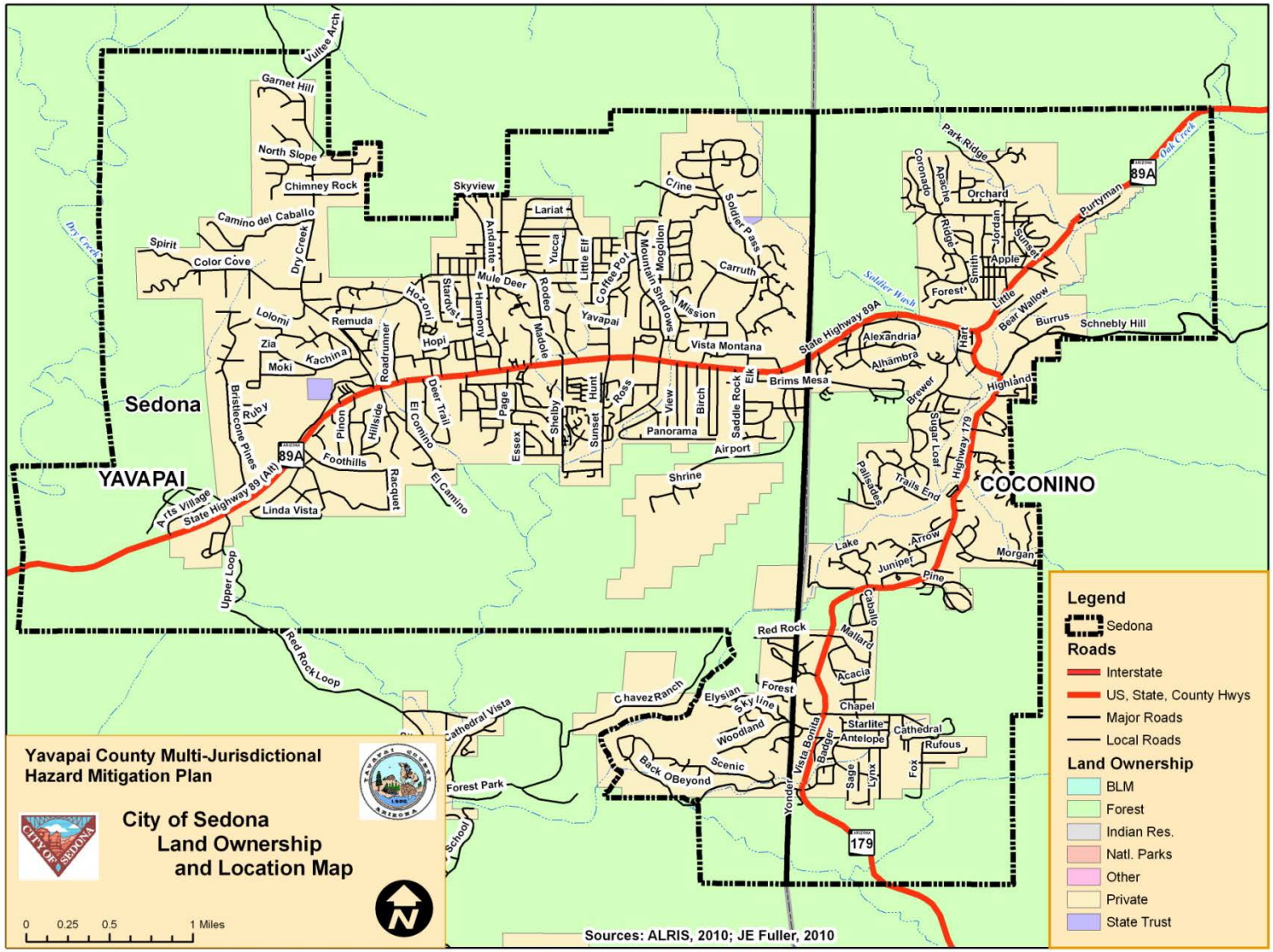

Figure 4-18: City of Sedona Land Ownership and Location Map

4.3.8 Yavapai-Prescott Indian Tribe

The Yavapai-Prescott Indian Tribe is a federally recognized Tribe that is organized and established as a sovereign nation pursuant to the provisions of the Indian Reorganization Act of June 18, 1934. The Tribe adheres to its Tribal constitution and sovereign government status.

The Yavapai-Prescott Indian Tribe land is held in trust by the federal government through the Secretary of the Interior and, therefore, requires compliance with federal laws as it pertains to the environment and community land within the reservation boundaries. According to the Yavapai-Prescott Indian Tribe Land Use Master Plan[21], the reservation was officially established on 75 acres that were transferred from the Old Fort Whipple Military Reserve to the Interior Department on June 7, 1935. This land transfer created the only reservation just for Yavapai Indians. When the Reservation was established, the government also issued two cows to each family as a potential source of income. Over time, as the cattle herd grew, the government finally agreed to increase the Reservation by an additional 1,320 acres from the Old Fort Whipple Military Reserve. These acres were officially included as part of the Reservation on May 18, 1956.

The Yavapai-Prescott Community Association adopted its Articles of Association in 1962 and thereby established a legal community and the current day government structure. The Tribe governs itself through a five member elected Board of Directors. The officers of the Tribal Board of Directors consist of a President, Vice-President and Secretary/Treasurer. The Tribal government administers programs in housing, community development, health, social services, history/culture and education.

The Yavapai-Prescott Indian Reservation (Reservation) is located in central Arizona, as illustrated by Figure 4-2. The Reservation boundaries are within the central portion of Yavapai County, and are situated north of and adjacent to the City of Prescott. The Reservation contains 1,395 trust acres and approximately 29 acres of permanent easement. The centroid of the Reservation is approximately located at longitude 112.44° west and latitude 34.56° north. Elevations vary from a low of approximately 5,210 feet above sea level where Granite Creek exits the Reservation to a high of 5,900 feet at the Reservation boundary near the summit of Badger Mountain.

Major transportation routes through the reservation are shown on Figure 1-2 and include State Routes 69 and 89.

Terrestrial characteristics of the Reservation include terrain that varies from the nearly flat floodplain along Granite Creek to mountainous, forested land at the southeast end of the Reservation. Most of the Reservation is composed of hilly terrain that is a part of the watershed of Granite Creek, an ephemeral stream which bisects the Reservation from the southwest to the northeast. The vegetation on the Reservation ranges from open grassland to wooded mountains. Some of the wildlife that exists in the area include: coyote, brush mouse, roadrunner, pronghorn, Red-tailed hawk, Gambel's quail, common raven, rock squirrel, and mule deer. The geographical characteristics of the Reservation have been mapped entirely within AZ Mountain Forests terrestrial ecoregion as described in Section 4.3.1.

The history of the Yavapai Tribe has its origins in the prehistory of the North American southwest. For thousands of years, the Yavapai lived within a territory encompassing over nine million acres in what is now known as central and western Arizona. Although there were three divisions of Yavapai, they considered themselves one people who spoke the same language and shared common beliefs and customs. Except for minor skirmishes with neighboring tribes, the Yavapai lived in peace.

Prior to the 1860s, it is estimated that the Yavapai homelands supported several thousand members of the Tribe. Relatively untouched by non-Indian visitors, rapid changes to their lifestyle began to occur as settlers and miners invaded their homelands as early as the 1840s. At first, the Yavapai sought to live alongside the newcomers in peace. The Anglos, however, mistakenly identified them as Apaches and attacked Yavapai at every opportunity. By the mid-1860's, the Yavapai could no longer move about freely in search of game and shelter and began to fight back in a desperate attempt to hold their

[21] Yavapai-Prescott Indian Tribe, 1999, *Land Use Master Plan.*

land and its resources.

During the 1870's, several attempts to relocate the Yavapai onto the Reservations failed primarily due to inadequate food and supplies. Yavapai were first driven to the Rio Verde Reservation. In 1875, they were force marched to the San Carlos Apache Indian Reservation on what became known as the Trail of Tears. This difficult 180-mile journey resulted in the deaths of more than 115 Yavapai men, women and children. At the San Carlos Apache Indian Reservation, scarce supplies of food and water, illness and disease further reduced the Yavapai population.

By the early 1900s, eight families from the San Carlos returned to the Prescott area and joined a few Yavapai that managed to escape during the earlier relocations. Some Yavapai moved to reservations at Middle Verde and Fort McDowell, while some remained at San Carlos. Historians estimate that by this time the entire Yavapai Tribe had been reduced to fewer than 600 Indians whose numbers and lifestyles were unalterably changed.

In 1935, the Yavapai-Prescott Indian Reservation was established by an Act of Congress on 75 acres of land transferred from the Old Fort Whipple Military Reserve. In 1956, the U.S. government added 1,320 acres, also from the Military Reserve, to the Reservation.

During the last 20 years, the Tribe has successfully implemented strategies for economic development on the Reservation. The benefits of this development include the creation of a wealth of jobs not only for Tribal members, but also the surrounding labor force available from Prescott, Prescott Valley and surrounding communities. Table 4–2 identifies the various development and On-Reservation business ventures that have generated approximately 1,200 jobs during that period.

Table 4-2
On-Reservation development and business ventures

Business Venture	Number of Employees
Frontier Village (28 Tenants)	600
Sundog Business Park (7 Tenants)	12
Prescott Resort	198
Tribal Gaming Agency (includes Bucky's & Yavapai Casinos)	297
Total	1,107
Note: Figures from Yavapai-Prescott Indian Tribe as of January 4, 2011.	

Future development of Reservation lands will be guided by the Yavapai-Prescott Indian Tribe Land Use Master Plan. Provisions for potential future development of residential, commercial, and light industrial land uses are identified and mapped[22] in the Master Plan and presented herein as Figure 4-19. There are also areas that have been specifically identified as Resort Hotel, Cultural/Museum, Open Space, Riparian and Mountain Reserves.

The residential area in the northwest portion of the Reservation is planned to meet the housing needs of the Tribal membership. This land use category is comprised of approximately 168 acres that encompass the existing housing area. In 1999, the Tribe began working with the Bureau of Indian Affairs and Indian Health Service to evaluate development alternatives to expand the existing residential infrastructure to accommodate approximately twenty-five (25) new homes.

Other areas planned for future development include commercial opportunities along State Route 69 and the extreme northwest corner of the Reservation, and light industrial areas east of State Route 89 along the northern reservation boundary.

[22] 1999, *Yavapai-Prescott Indian Tribe Land Use Master Plan*, Figure 4-1, p 4-2.

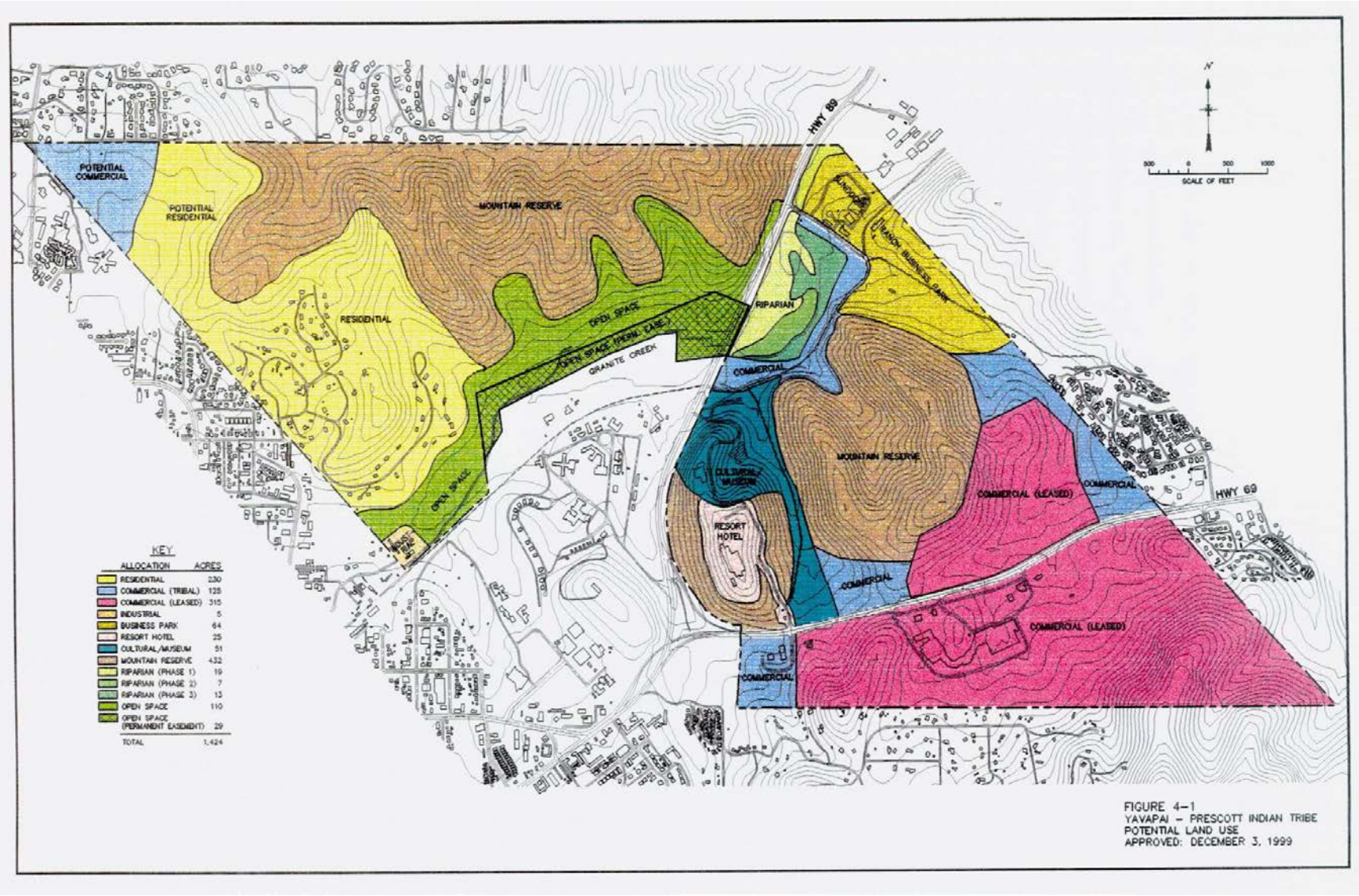

Figure 4-19: Yavapai-Prescott Indian Tribe Land Use Master Plan

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SECTION 5: RISK ASSESSMENT

> ***§201.6(c)(2):*** *[The plan shall include…] (2) A **risk assessment** that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. The risk assessment shall include:*
> *(i) A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.*
> *(ii) A description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. The plan should describe vulnerability in terms of:*
> *(A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;*
> *(B) An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate;*
> *(C) Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.*
> *(iii) For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.*

One of the key elements to the hazard mitigation planning process is the risk assessment. In performing a risk assessment, a community determines "what" can occur, "when" (how often) it is likely to occur, and "how bad" the effects could be[23]. According to DMA 2000, the primary components of a risk assessment that answer these questions are generally categorized into the following measures:

Hazard Identification and Screening

Hazard Profiling

Assessing Vulnerability to Hazards

The risk assessment for Yavapai County and participating jurisdictions was performed using a county-wide, multi-jurisdictional perspective, with much of the information gathering and development being accomplished by the Planning Team. This integrated approach was employed because many hazard events are likely to affect numerous jurisdictions within the County, and are not often relegated to a single jurisdictional boundary. The vulnerability analysis was performed in a way such that the results reflect vulnerability at an individual jurisdictional level, and at a countywide level.

5.1 Hazard Identification and Screening

Hazard identification is the process of answering the question; *"What hazards can and do occur in my community or jurisdiction?"* For this Plan, the list of hazards identified in the 2006 Plan were reviewed by the Planning Team with the goal of refining the list to reflect the hazards that pose the greatest risk to the jurisdictions represented by this Plan. The Planning Team also compared and contrasted the 2006 Plan list to the comprehensive hazard list summarized in the 2010 State Plan[24] to ensure compatibility with the State Plan. Table 5-1 summarizes the 2006 Plan and 2010 State Plan hazard lists.

[23] National Fire Protection Association, 2000, *Standard on Disaster/Emergency Management and Business Continuity Programs*, NFPA 1600.

[24] ADEM, 2010, *State of Arizona Multi-Hazard Mitigation Plan*

Table 5-1: Summary of initial hazard identification lists	
2006 Yavapai County Plan Hazard List	**2010 State Plan Hazard List**
• Flooding/Flash Flooding • Thunderstorm/High Winds • Hazardous Material Incidents • Transportation Accidents • Wildfire	• Dam Failure • Drought • Earthquake • Extreme Heat • Fissure • Flooding/Flash Flooding • Landslides/Mudslides • Levee Failure • Severe Wind • Subsidence • Wildfires • Winter Storms

The review included an initial screening process to evaluate each of the listed hazards based on the following considerations:

- Experiential knowledge on behalf of the Planning Team with regard to the relative risk associated with the hazard
- Documented historic context for damages and losses associated with past events (especially events that have occurred during the last plan cycle)
- The ability/desire of Planning Team to develop effective mitigation for the hazard under current DMA 2000 criteria
- Compatibility with the state hazard mitigation plan hazards
- Duplication of effects attributed to each hazard

One tool used in the initial screening process was the historic hazard database referenced in 2006 Plan. With this update, the 2006 Plan database was reviewed and revised to separately summarize declared disaster events versus non-declared events. Declared event sources included Yavapai County Department of Emergency Management (YCDEM), Arizona Division of Emergency Management (ADEM), Federal Emergency Management Agency (FEMA), and United States Department of Agriculture (USDA). Non-declared sources included Arizona State Land Department (ASLD), National Weather Service (NWS), National Oceanic and Atmospheric Administration (NOAA), National Climatic Data Center (NCDC), United States Geological Survey (USGS), and United States Forest Service (USFS). Both data sets were updated with additional hazard events that have occurred over the last plan cycle. The declared events represent the period of February 1966 to August 2010. The undeclared events represent a period of approximately 40 years. Three tables are used in this update to summarize the historic hazard events. Table 5-2 summarizes the federal and state disaster declarations that included Greenlee County with data provided solely from ADEM, Recovery Section. Table 5-3 summarizes federal and state declarations with data provided by many sources that included fatalities, injuries, and property damages. Table 5-4 summarizes all non-declared hazard events that were considered to be a significant event to the jurisdiction(s). These events may have included:

- 1 or more fatalities
- 1 or more injuries
- Any dollar amount in property or crop damages
- Significant event, as expressed in historical records or according to defined criteria above

Detailed historic hazard records are provided in Appendix D.

Table 5-2: State and Federally Declared Natural Hazard Events That Included Yavapai County – February 1966 to August 2010

2010 State Plan Hazard Categories	Arizona Declared Events That Included Yavapai County February 1966 to August 2010		
	No. of Events	Total Expenditures	
		State	Federal
Drought	2	$211,499	$0
Flooding / Flash Flooding	13	$48,161,355	$379,987,625
Wildfire	20	$5,874,995	$0
Winter Storm	2	$2,647,918	$5,109,724

Notes: Damage Costs are reported as is and no attempt has been made to adjust costs to current dollar values. Only a portion of the reported expenditures were spent in the subject county.
Source: ADEM - Recovery Section, October 2010

Table 5-3: State and Federally Declared Events That Included Yavapai County February 1966 to August 2010

Hazard	No. of Declarations	Recorded Losses		
		Fatalities	Injuries	Damage Costs ($)
Drought	5	0	0	$300,000,000
Flooding / Flash Flooding	14	42	1090	$1,339,250,000
Wildfire	20	0	0	$0
Winter Storm	2	8	0	$750,000

Damage Costs are reported as is and no attempt has been made to adjust costs to current dollar values.
Sources: ADEM, FEMA, USDA

Table 5-4: Yavapai County Historic Hazard Events – September 1960 to July 2010

Hazard	No. of Records	Recorded Losses		
		Fatalities	Injuries	Damage Costs ($)
Dam Failure	1	0	0	$0
Earthquake	1	0	0	$0
Flooding / Flash Flooding	58	0	2	$4,668,000
Severe Wind	123	1	14	$18,713,280
Wildfire	183	0	7	$4,818,647
Winter Storm	4	6	10	$0

Notes: Damage Costs include property and crop/livestock losses and are reported as is with no attempt to adjust costs to current dollar values. Furthermore, wildfire damage cost does not include the cost of suppression which can be quite substantial. Sources: ADEM, NCDC, NWCG, NWS, USFS

The culmination of the review and screening process by the Planning Team resulted in a revised list of hazards that will be carried forward with this Plan. Several of the hazards in the 2006 Plan list may be better described as storm events wherein the effects of the storm may pose exposure to multiple hazards. For instance, hazards associated with ***Tropical Storms/Hurricane*** may include flooding and severe winds in a single event. With the direction of ADEM, the Planning Team chose to eliminate this hazard and account for its impacts in other categories. Similarly, the predominant perceived hazard associated with ***Thunderstorms/High Winds*** and ***Tornadoes/Dust Devils*** is the associated damaging high winds. Therefore, ADEM has decided to account for the wind related hazards associated with these events into a new category named ***Severe Wind***. Flooding

aspects of these events are addressed in the ***Flooding/Flash Flooding*** category. ***Hazardous Materials Incidents*** was dropped from the list in order to focus the plan on natural hazards and recognizing that FEMA mitigation funds cannot be used for typical HAZMAT mitigation efforts. ***Transportation Accidents*** are still a major concern and especially when they occur on I-17 and the freeway closes during the hot summer months. The team realized this is more of a response and preparedness issue and not really mitigation. The team chose to drop transportation accidents. Town of Jerome would be interested in looking at ***Landslide/Mudslide*** due to the town's location on a hillside and the potential for those kinds of events. ***Earthquake*** was discussed at length during the first couple of meetings, especially given that a moderate event occurred near Chino Valley in the recent past. The perceived risk was not sufficient, however, to lead to any meaningful mitigation measures and the hazard was dropped. ***Winter Storm*** will also be added as a new hazard.

The Planning Team has selected the following list of hazards for profiling and updating based on the above explanations and screening process. Revised and updated definitions for each hazard are provided in Section 5.3 and in Section 8.2:

- **Flooding/Flash Flooding**
- **Landslide / Mudslide**
- **Severe Wind**
- **Wildfire**
- **Winter Storm**

5.2 Vulnerability Analysis Methodology

5.2.1 General

The following sections summarize the methodologies used to perform the vulnerability analysis portion of the risk assessment. For this Plan, the entire vulnerability analysis was either revised or updated to reflect the new hazard categories, the availability of new data, or differing loss estimation methodology. Specific changes are noted below and/or in Section 5.3. A comparison was made between the new vulnerability analysis and the 2006 Plan for Flooding/Flash Flooding and Wildfire and is noted in Section 5.3.

For the purposes of this vulnerability analysis, hazard profile maps were developed for Flooding/Flash Flooding, Wildfire and Winter Storm to map the geographic variability of the probability and magnitude risk of the hazards as estimated by the Planning Team. Hazard profile categories of HIGH, MEDIUM, and/or LOW were used for Flooding/Flash Flooding and Wildfire, and were subjectively assigned based on the factors discussed in the Probability and Magnitude sections below. Within the context of the county limits, the other hazards do not exhibit significant geographic variability and will not be categorized as such.

Unless otherwise specified in this Plan, the general cutoff date for new hazard profile data and jurisdictional corporate limits is the end of February 2011.

5.2.2 Calculated Priority Risk Index (CPRI) Evaluation

The first step in the vulnerability analysis (VA) is to assess the perceived overall risk for each of the plan hazards using a tool developed by the State of Arizona called the Calculated Priority Risk Index[25] (CPRI). The CPRI value is obtained by assigning varying degrees of risk to four (4) categories for each hazard, and then calculating an index value based on a weighting scheme. Table 5-4 summarizes the CPRI risk categories and provides guidance regarding the assignment of values and weighting factors for each category.

[25] ADEM, 2003, *Arizona Model Local Hazard Mitigation Plan*, prepared by JE Fuller/ Hydrology & Geomorphology, Inc.

Table 5-5: Summary of Calculated Priority Risk Index (CPRI) categories and risk levels

CPRI Category	Degree of Risk			Assigned Weighting Factor
	Level ID	Description	Index Value	
Probability	Unlikely	▪ Extremely rare with no documented history of occurrences or events. ▪ Annual probability of less than 0.001.	1	45%
	Possible	▪ Rare occurrences with at least one documented or anecdotal historic event. ▪ Annual probability that is between 0.01 and 0.001.	2	
	Likely	▪ Occasional occurrences with at least two or more documented historic events. ▪ Annual probability that is between 0.1 and 0.01.	3	
	Highly Likely	▪ Frequent events with a well documented history of occurrence. ▪ Annual probability that is greater than 0.1.	4	
Magnitude/ Severity	Negligible	▪ Negligible property damages (less than 5% of critical and non-critical facilities and infrastructure). ▪ Injuries or illnesses are treatable with first aid and there are no deaths. ▪ Negligible quality of life lost. ▪ Shut down of critical facilities for less than 24 hours.	1	30%
	Limited	▪ Slight property damages (greater than 5% and less than 25% of critical and non-critical facilities and infrastructure). ▪ Injuries or illnesses do not result in permanent disability and there are no deaths. ▪ Moderate quality of life lost. ▪ Shut down of critical facilities for more than 1 day and less than 1 week.	2	
	Critical	▪ Moderate property damages (greater than 25% and less than 50% of critical and non-critical facilities and infrastructure). ▪ Injuries or illnesses result in permanent disability and at least one death. ▪ Shut down of critical facilities for more than 1 week and less than 1 month.	3	
	Catastrophic	▪ Severe property damages (greater than 50% of critical and non-critical facilities and infrastructure). ▪ Injuries or illnesses result in permanent disability and multiple deaths. ▪ Shut down of critical facilities for more than 1 month.	4	
Warning Time	Less than 6 hours	Self explanatory.	4	15%
	6 to 12 hours	Self explanatory.	3	
	12 to 24 hours	Self explanatory.	2	
	More than 24 hours	Self explanatory.	1	
Duration	Less than 6 hours	Self explanatory.	1	10%
	Less than 24 hours	Self explanatory.	2	
	Less than 1 week	Self explanatory.	3	
	More than 1 week	Self explanatory.	4	

As an example, assume that the project team is assessing the hazard of flooding, and has decided that the following assignments best describe the flooding hazard for their community:

- Probability = Likely
- Magnitude/Severity = Critical
- Warning Time = 12 to 24 hours
- Duration = Less than 6 hours

The CPRI for the flooding hazard would then be:

CPRI = [(3*0.45) + (3*0.30) + (2*0.15) + (1*0.10)]

CPRI = 2.65

5.2.3 Asset Inventory

A detailed asset inventory was performed for the 2006 Plan to establish a fairly accurate baseline data-set for assessing the vulnerability of each jurisdiction's critical infrastructure and assets to the hazards previously identified. The asset inventory from the 2006 Plan was reviewed and updated by the Planning Team to reflect the facilities and infrastructure most important to the participating jurisdictions.

The 2010 State Plan defines assets as:

> *Any natural or human-caused feature that has value, including, but not limited to people; buildings; infrastructure like bridges, roads, and sewer and water systems; lifelines like electricity and communication resources; or environmental, cultural, or recreational features like parks, dunes, wetlands, or landmarks.*

The 2006 Plan asset inventory database was generally categorized into critical and non-critical categories. The working definition for ***Critical facilities and infrastructure,*** adopted for the 2006 Plan and continuing with this Plan is as follows:

Systems, structures and infrastructure within a community whose incapacity or destruction would:

- *Have a debilitating impact on the defense or economic security of that community.*
- *Significantly hinder a community's ability to recover following a disaster.*

Following the criteria set forth by the Critical Infrastructure Assurance Office (CIAO), the State of Arizona has adopted eight general categories[26] that define critical facilities and infrastructure:

1. **Communications Infrastructure:** Telephone, cell phone, data services, radio towers, and internet communications, which have become essential to continuity of business, industry, government, and military operations.
2. **Electrical Power Systems:** Generation stations and transmission and distribution networks that create and supply electricity to end-users.
3. **Gas and Oil Facilities:** Production and holding facilities for natural gas, crude and refined petroleum, and petroleum-derived fuels, as well as the refining and processing facilities for these fuels.
4. **Banking and Finance Institutions:** Banks, financial service companies, payment systems, investment companies, and securities/commodities exchanges.
5. **Transportation Networks:** Highways, railroads, ports and inland waterways, pipelines, and airports and airways that facilitate the efficient movement of goods and people.
6. **Water Supply Systems:** Sources of water; reservoirs and holding facilities; aqueducts and

[26] Instituted via Executive Order 13010, which was signed by President Clinton in 1996.

other transport systems; filtration, cleaning, and treatment systems; pipelines; cooling systems; and other delivery mechanisms that provide for domestic and industrial applications, including systems for dealing with water runoff, wastewater, and firefighting.

7. **Government Services:** Capabilities at the federal, state, and local levels of government required to meet the needs for essential services to the public.
8. **Emergency Services:** Medical, police, fire, and rescue systems.

Other assets such as public libraries, schools, businesses, museums, parks, recreational facilities, historic buildings or sites, churches, residential and/or commercial subdivisions, apartment complexes, and so forth, are typically not classified as critical facilities and infrastructure unless they serve a secondary function to the community during a disaster emergency (e.g. - emergency housing or evacuation centers). As a part of the update process, each community was tasked with determining which of the previously identified "non-critical" assets, if any, were deemed critical by the community. The remaining "non-critical" assets were deleted from the database. New facilities were also added as appropriate and available. Each community was also tasked with making any needed changes to the geographic position, revision of asset names, updating replacement costs, etc. to bring the dataset into a current condition. The updated asset inventory is attributed with a descriptive name, physical address, geospatial position, and an estimated building/structure and contents replacement cost for each entry to the greatest extent possible and entered into a GIS geodatabase.

The 2006 Plan used a combination of the Asset Inventory and HAZUS®-MH[27] (HAZUS) data to represent the critical facilities and general building stock and population for Yavapai County jurisdictions. Tools used for this Plan included GIS data sets, on-line mapping utilities, insurance pool information, county assessors data, and manual data acquisition. Table 5-6 summarizes the facility counts provided by each of the participating jurisdictions in this Plan.

It should be noted that the facility counts summarized in Table 5-6 do not represent a comprehensive inventory of all the category facilities that exist within the county. They do represent the facilities inventoried to-date by each jurisdiction and are considered to be a work-in-progress that is to be expanded and augmented with each Plan cycle.

5.2.4 Loss Estimations

In the original 2006 Plan, losses were estimated by either quantitative or qualitative methods. Quantitative methods consisted of intersecting hazard map layers with the asset inventory map layer and the HAZUS map layer. Other quantitative methods included statistical methods based on historic data. The loss estimates for this Plan represent the current hazard map layers and asset databases using the procedures discussed below.

Economic loss and human exposure estimates for each of the final hazards identified in Section 5.1 begins with an assessment of the potential exposure of critical and non-critical assets and human populations to those hazards. Exposure estimates of critical and non-critical assets identified by each jurisdiction are accomplished by intersecting the asset inventory with the hazard profiles in Section 5.3. Human or population exposures are estimated by intersecting the same hazards with the 2000 Census Data population statistics that have been re-organized into GIS compatible databases and distributed with HAZUS.

Additional exposure estimates for general residential, commercial and industrial building stock not specifically identified with the asset inventory, are also accomplished using the HAZUS database, wherein the developers of the HAZUS database have made attempts to correlate building/structure counts to census block data. *It is duly noted that the HAZUS data population statistics may not exactly equate to the current population statistics provided in Section 4.2 due to actual changes in population counts associated with a particular census block, GIS positioning anomalies and the way HAZUS*

[27] U.S. Department of Homeland Security, Federal Emergency Management Agency, HAZUS®-MH.

Table 5-6: Asset inventory structure counts by category and jurisdiction as of March 2011

	Communications Infrastructure	Electrical Power Systems	Gas/Oil Facilities	Banking/Finance Institutions	Transportation Networks	Water Supply Systems	Government Services	Emergency Services	Educational [a]	Cultural [a]	Business [a]	Flood Control [a]	Residential [a]	Recreational [a]
County-Wide Totals	134	40	27	29	96	231	70	78	19	14	29	12	1	0
Camp Verde	7	4	8	3	12	5	5	9	1	14	8	0	0	0
Chino Valley	3	3	2	3	0	5	3	5	0	0	2	1	0	0
Clarkdale	1	0	2	0	5	14	6	6	1	0	6	0	0	0
Cottonwood	4	3	0	6	7	30	0	11	0	0	7	0	0	0
Dewey-Humboldt	6	0	0	0	0	3	1	2	0	0	0	0	0	0
Jerome	4	0	0	0	0	12	2	4	0	0	0	0	0	0
Prescott	6	9	1	8	13	28	10	15	8	0	0	0	0	0
Prescott Valley	5	2	10	0	2	49	3	10	7	0	2	0	0	0
Sedona	6	1	0	6	1	24	4	6	2	0	3	0	0	0
Unincorporated Yavapai	92	18	3	3	55	61	29	10	0	0	0	11	0	0
Yavapai-Apache Nation	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Yavapai-Prescott Indian Tribe	0	0	1	0	1	0	6	0	0	0	6	0	0	0

NOTES: Assets listed under these categories have been determined to be critical per the definition of this Plan by the corresponding jurisdiction.

depicts certain census block data. It is also noted that the residential, commercial and industrial building stock estimates for each census block may severely under-predict the actual buildings present due to the substantial growth in the last decade, the general lack of commercial and industrial data for some of the more rural communities and counties and the disparity of the HAZUS replacement cost estimates for these categories when compared to current market rates. However, without a detailed, site specific structure inventory of these types of buildings, the HAZUS database is still the best available and the results are representative of a general magnitude of population and residential, commercial and industrial facility exposures to the various hazards discussed. Combining the exposure results from the asset inventory and the HAZUS database provides a fairly comprehensive depiction of the overall exposure of building stock and the two datasets are considered complimentary and not redundant.

Economic losses to structures and facilities are estimated by multiplying the exposed facility replacement cost estimates by an assumed loss to exposure ratio for the hazard. The loss to exposure ratios used in this plan update is summarized by hazard in Section 5.3. It is important to note that the loss to exposure ratios are subjective and the estimates are solely intended to provide an understanding of relative risk from the hazards and potential losses. The reality is that uncertainties are inherent in any loss estimation methodology due to:

- Incomplete scientific knowledge concerning hazards and our ability to predict their effects on the built environment;
- Approximations and simplifications that are necessary for a comprehensive analysis; and,
- Lack of detailed data necessary to implement a viable statistical approach to loss estimations.

Several of the hazards profiled in this Plan will not include quantitative exposure and loss estimates. The vulnerability of people and assets associated with some hazards are nearly impossible to evaluate given the uncertainty associated with where these hazards will occur as well as the relatively limited focus and extent of damage. Instead, a qualitative review of vulnerability will be discussed to provide

insight to the nature of losses that are associated with the hazard. For subsequent updates of this Plan, the data needed to evaluate these unpredictable hazards may become refined such that comprehensive vulnerability statements and thorough loss estimates can be made.

5.2.5 Yavapai-Prescott Indian Tribe Cultural/Sacred Sites

Like the assets listed above, cultural and sacred sites are of high priority for the Tribe and special consideration is needed when considering hazard mitigation activities. The locations are not a necessary component of this Plan, and therefore are not included. A summary, however, is provided below.

Currently, 67 archaeological sites are known to be present on the Yavapai-Prescott Indian Reservation: 17 prehistoric, 47 historic and 3 multi-component prehistoric/historic. Of these, 8 prehistoric sites, 18 historic sites, and 2 multi-component sites are considered eligible to the National Register of Historic Places (NRHP). Additionally, 6 prehistoric sites and 14 historic sites are considered potentially eligible to the NRHP (i.e., they require further research to determine their NRHP eligibility status). Maps, descriptions, and locations of each of these sites are recorded in Tribal files.

Eight potential traditional cultural places have been identified on Yavapai-Prescott Indian Reservation. These places include properties such as named rock formations and resource gathering locations. Like the archaeological sites, their descriptions and locations are recorded in Tribal files.

5.2.6 Development Trend Analysis

The 2006 Plan development trend analysis will require updating to reflect growth and changes in Yavapai County and jurisdiction boundaries over the last planning cycle. The updated analysis will focus on the potential risk associated with projected growth patterns and their intersection with the Plan identified hazards.

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5.3 Hazard Risk Profiles

The following sections summarize the risk profiles for each of the Plan hazards identified in Section 5.1. For each hazard, the following elements are addressed to present the overall risk profile:

- **Description**
- **History**
- **Probability and Magnitude**
- **Vulnerability**
- **Sources**
- **Profile Maps (if applicable)**

Much of the 2006 Plan data has been updated, incorporated and/or revised to reflect current conditions and Planning Team changes, as well as an overall plan format change. County-wide and jurisdiction specific profile maps are provided at the end of the section (if applicable). Also, the maps are not included in the page count.

5.3.1 Flood / Flash Flood

Description

The hazard of flooding addressed in this section will pertain to floods that result from precipitation/runoff related events. Other flooding due to dam or levee failures is addressed separately. The three seasonal atmospheric events that tend to trigger floods in Yavapai County are:

- *Tropical Storm Remnants*: Some of the worst flooding tends to occur when the remnants of a hurricane that has been downgraded to a tropical storm or tropical depression enter the State. These events occur infrequently and mostly in the early autumn, and usually bring heavy and intense precipitation over large regions causing severe flooding.
- *Winter Rains*: Winter brings the threat of low intensity; but long duration rains covering large areas that cause extensive flooding and erosion, particularly when combined with snowmelt.
- *Summer Monsoons*: A third atmospheric condition that brings flooding to Arizona is the annual summer monsoon. In mid to late summer the monsoon winds bring humid subtropical air into the State. Solar heating triggers afternoon and evening thunderstorms that can produce extremely intense, short duration bursts of rainfall. The thunderstorm rains are mostly translated into runoff and in some instances, the accumulation of runoff occurs very quickly resulting in a rapidly moving flood wave referred to as a flash flood. Flash floods tend to be very localized and cause significant flooding of local watercourses.

Damaging floods in the County include riverine, sheet, alluvial fan, and local area flooding. Riverine flooding occurs along established watercourses when the bankfull capacity of a watercourse is exceeded by storm runoff or snowmelt and the overbank areas become inundated. Sheet flooding occurs in regionally low areas with little topographic relief that generate floodplains over a mile wide, Alluvial fan flooding is generally located on piedmont areas near the base of the local mountains and are characterized by multiple, highly unstable flowpaths that can rapidly change during flooding events. Local area flooding is often the result of poorly designed or planned development wherein natural flowpaths are altered, blocked or obliterated, and localized ponding and conveyance problems result. Erosion is also often associated with damages due to flooding.

Another major flood hazard comes as a secondary impact of wildfires in the form of dramatically increased runoff from ordinary rainfall events that occur on newly burned watersheds. Denuding of the vegetative canopy and forest floor vegetation, and development of hydrophobic soils are the primary factors that contribute to the increased runoff. Canopy and floor level brushes and grasses intercept and store a significant volume of rainfall during a storm event. They also add to the overall watershed roughness which generally attenuates the ultimate peak discharges. Soils in a wildfire burn area can be rendered hydrophobic, which according the NRCS is the development of a thin layer of nearly impervious soil at or below the mineral soil surface that is the result of a waxy substance derived from plant material burned during a hot fire. The waxy substance penetrates into the soil as a gas and solidifies after it cools, forming a waxy coating around soil particles. Hydrophobic soils, in

combination with a denuded watershed, will significantly increase the runoff potential, turning a routine annual rainfall event into a raging flood with drastically increased potential for soil erosion and mud and debris flows.

History

Flooding is clearly a major hazard in Yavapai County as shown in Tables 5-2 and 5-3. The County has been part of 14 disaster declarations for flooding, with one of those declarations occurring in the past five years. There have been at least 58 other non-declared events of reported flooding incidents that met the thresholds outlined in Section 5.1, five of which occurred in the last five years. The following incidents represent examples of major flooding that has impacted the County:

- In February 1980, severe flooding in central Arizona occurred, resulting in record discharges gauged in Metro Phoenix on the Verde, Agua Fria and Gila Rivers, as well as on Oak Creek in north central Arizona. Precipitation during this period measured at Crown King in the Bradshaw Mountains was 16.63 inches. Heavy to light rainfall from fell between February 13th and the 22nd. Extensive damage to roads and bridges occurred. Flooding occurred on rivers including the Upper and Lower Verde, Upper Agua Fria, New River, Upper Centennial, and the Upper Hassayampa. Source: National Climatic Data Center, January 2003, Storm Event Database.
- In January-February 1993, heavy rain fell over most of north, central and southeastern Arizona, resulting in significant flooding along most major watercourses. Yavapai County experienced considerable damages and resulted in loss of power, phone and roadway access. The County had in excess of $10 million in public and private losses due to flooding damages. The flooding prompted a federal disaster declaration for almost the entire state. Source: USACE Flood Damages Report [28].
- In December 2004-January 2005, flooding occurred in multiple northern Arizona Counties. Flooding along the Verde River peaked at over two feet above flood stage in Clarkdale. Bridgeport and Cottonwood were similarly affected. Precipitation and snow melt in the Oak Creek watershed caused flooding more than a foot above floodstage in Sedona. Yavapai County had extensive flooding that overtopped roads and left many residents stranded in their homes. Property damage was estimated at $2,000,000. A federal disaster was declared, releasing approximately $3.2 million in federal funds for Yavapai County. (ADEM, 2010; NCDC, 2008)
- In February 2005, flooding occurred in multiple northern Arizona Counties. The Verde River and Williamson Valley Wash were heavily impacted by heavy rainfall on snowpack that resulted in evacuations, rescues, isolated communities, and extraordinary damage. Yavapai Co received extensive flooding and road damages. The Wineglass subdivision in Paulden was completely cut-off for over 10 days by floodwaters overtopping the three access roads. A County Detention Facility was isolated for five days, denying parolees' access for mandatory check in. Property damage was estimated at $1.5 million. A federal disaster was declared, releasing federal funds of approximately $2.0 million for Yavapai Co. (ADEM, 2010: NCDC, 2008)
- In August 2006, Heavy rains occurred along SR169 just east of SR69 resulting in shallow flooding across 6 properties in the Sierra Dells subdivision which resulted in $100,000 in damages. The flooding caused water damage to 6 structures and other accessory buildings, as well as loss of land due to erosion of the river bank. (Town of Dewey-Humboldt, 2010)
- In September 2009, heavy rain, with rates up to 4 inches in an hour, fell on the Red Rocks on the northwest side of Sedona. With virtually no infiltration, the water quickly flowed into normally dry channels and washes. There were reports of numerous flooded homes, widespread street flooding, over flowing stream beds, large boulders washed into streets,

[28] US Army Corps of Engineers, Los Angeles District, 1994, *Flood Damage Report – State of Arizona – Floods of 1993*

eroded paved roads, and cars moved and stacked by flood water. A 4 foot wall of water swept through the Los Abrigados Resort parking lot and moved parked cars. One normally dry gully filled with 6 feet of rushing water. Several people were rescued after their cars started floating in the rapidly raising water in parking lots. City officials estimated that clean on public roads and drainage would cost over $600,000. A thunderstorm produced very heavy rain that caused flash flooding and damage to the Tlaquepaque area of Sedona. (NCDC, April 2010)

- In September 2009, a thunderstorm in the Cottonwood area produced two to three feet of flowing water in a low water crossing. A car attempting to cross the watercourse became trapped, forcing a dangerous swift water rescue of the driver. Other damages in the area were estimated to exceed $2,000 (City of Cottonwood, 2011).

Numerous other flood related incidents are summarized in the historic hazard database provided in Appendix D and on the enclosed CD.

Probability and Magnitude

For the purposes of this Plan, the probability and magnitude of flood hazards in Yavapai County jurisdictions are primarily based on the 1% (100-year) and 0.2% (500-year) probability floodplains delineated on FEMA Flood Insurance Rate Maps (FIRMs), plus any provisional floodplain delineations used for in-house purposes by participating jurisdictions or Planning Team delineated areas. FEMA has recently completed a map modification program to update the FIRMs for the County into a digital FIRM (DFIRM) format. The effective date for the new DFIRM maps is September 3, 2010. DFIRM floodplain GIS base files were obtained from FEMA and are the basis for the flood hazard depictions in this Plan.

Two designations of flood hazard are used. Any "A" zone is designated as a high hazard area. Medium flood hazard areas are all "Shaded X" zones. All "A" zones (e.g. – A, A1-99, AE, AH, AO, etc.) represent areas with a 1% probability of being flooded at a depth of one-foot or greater in any given year. All "Shaded X" zones represent areas with a 0.2% probability of being flooded at a depth of one-foot or greater in any given year. These two storms are often referred to as the 100-year and 500-year storm, respectively. Additional 100-year "in-house" floodplains were provided by Sedona for the Sedona city limits.

Maps 1A through 1D show the flood hazard areas for the entire county. Maps 1E through 1O show the flood hazard areas for each of the communities.

Vulnerability – CPRI Results

Flooding CPRI results for each community are summarized in Table 5-7 below.

Table 5-7: CPRI results by jurisdiction for flooding

Participating Jurisdiction	Probability	Magnitude / Severity	Warning Time	Duration	CPRI Score
Camp Verde	Likely	Catastrophic	<6 hours	< 1 week	3.45
Chino Valley	Highly Likely	Limited	< 6 hours	< 6 hours	3.10
Clarkdale	Highly Likely	Critical	< 6 hours	< 1 week	3.60
Cottonwood	Highly Likely	Critical	< 6 hours	< 1 week	3.60
Dewey-Humboldt	Likely	Critical	< 6 hours	< 1 week	3.15
Jerome	Highly Likely	Critical	< 6 hours	< 1 week	3.60
Prescott	Highly Likely	Critical	< 6 hours	< 1 week	3.60
Prescott Valley	Highly Likely	Critical	< 6 hours	< 1 week	3.60
Sedona	Likely	Catastrophic	< 6 hours	< 1 week	3.45
Unincorporated Yavapai Co	Highly Likely	Critical	< 6 hours	< 1 week	3.60
Yavapai-Prescott Indian Tribe	Likely	Limited	6 - 12 hours	< 24 hours	2.60
				County-wide average CPRI =	**3.40**

Vulnerability – Loss Estimations

The estimation of potential exposure to high and medium flood hazards was accomplished by intersecting the human and critical facility assets with the flood hazard limits depicted on Maps 1A, 1B, 1C and 1D. Loss estimates to all facilities located within the high and medium flood hazard areas were made based on loss estimation tables published by FEMA (FEMA, 2001). Most of the assets located within high hazard flood areas will be subject to three feet or less of flooding. Using the FEMA tables, it is assumed that all structural assets located within the high hazard areas will have a loss-to-exposure ratio of 0.20 (or 20%). A loss to exposure ratio of 0.05 (5%) is assumed for assets located in the medium hazard areas. Table 5-8 summarizes the Planning Team identified critical facilities potentially exposed to high and medium flood hazards, and the corresponding estimates of losses. Table 5-10 summarizes population sectors exposed to the high and medium flood hazards. HAZUS residential, commercial and industrial exposures and loss estimates to high and medium flood hazards are summarized in Tables 5-10 through 5-23.

In summary, $29 million and $0.4 million in asset related losses are estimated for high and medium flood hazards, for all the participating jurisdictions in Yavapai County. An additional $206 and $13 million in high and medium flood losses to HAZUS defined residential, commercial, and industrial facilities is estimated for all participating Yavapai County jurisdictions. Regarding human vulnerability, a total population of 11,276 people, or 6.74% of the total population, is potentially exposed to a high hazard flood event. A total population of 2,672 people, or 1.6% of the total population, is potentially exposed to a medium hazard flood event. Based on the historic record, multiple deaths and injuries are plausible and a substantial portion of the exposed population is subject to displacement depending on the event magnitude.

It is duly noted that the loss and exposure numbers presented above represent a comprehensive evaluation of the County as a whole. It is unlikely that a storm event would occur that would flood all of the delineated high and medium flood hazard areas at the same time. Accordingly, actual event based losses and exposure are likely to be only a fraction of those summarized above. Furthermore, it should be noted that any flood event that exposes assets or population to a medium hazard will also expose assets and populations to the high hazard flood zone. That is, the 100-year floodplain would be entirely inundated during a 500-year flood.

Table 5-8: Asset inventory exposure to high and medium hazard flooding and corresponding loss estimates					
Community	**Total Facilities Reported by Community**	**Impacted Facilities**	**Percentage of Total Community Facilities Impacted**	**Estimated Replacement Cost (x $1000)**	**Estimated Structure Loss (x $1000)**
HIGH					
County-Wide Totals	**786**	**82**	**10.43%**	**$145,469**	**$29,094**
Camp Verde	76	9	11.84%	$34,680	$6,936
Chino Valley	27	0	0.00%	$0	$0
Clarkdale	44	6	13.64%	$31,125	$6,225
Cottonwood	68	7	10.29%	$17,548	$3,510
Dewey-Humboldt	12	0	0.00%	$0	$0
Jerome	22	0	0.00%	$0	$0
Prescott	99	10	10.10%	$9,785	$1,957
Prescott Valley	91	6	6.59%	$3,190	$638
Sedona	49	6	12.24%	$9,018	$1,804
Unincorporated	282	37	13.12%	$38,723	$7,745
YAN	2	0	0.00%	$0	$0
Yavapai-Prescott Indian Tribe	14	1	7.14%	$1,400	$280
Sedona (Coconino Co. only)	22	3	13.64%	$725	$145
MEDIUM					
County-Wide Totals	**786**	**10**	**1.27%**	**$8,406**	**$420**
Camp Verde	76	2	2.63%	$2,625	$131
Chino Valley	27	0	0.00%	$0	$0
Clarkdale	44	2	4.55%	$625	$31
Cottonwood	68	0	0.00%	$0	$0
Dewey-Humboldt	12	1	8.33%	$600	$30
Jerome	22	0	0.00%	$0	$0
Prescott	99	3	3.03%	$2,760	$138
Prescott Valley	91	1	1.10%	$796	$40
Sedona	49	1	2.04%	$1,000	$50
Unincorporated	282	0	0.00%	$0	$0
YAN	2	0	0.00%	$0	$0
Yavapai-Prescott Indian Tribe	14	0	0.00%	$0	$0
Sedona (Coconino Co. only)	22	2	9.09%	$2,300	$115

Table 5-9: Population sectors exposed to high and medium hazard flooding

Community	Total Population	Population Exposed	Percent of Population Exposed	Total Population Over 65	Population Over 65 Exposed	Percent of Population Over 65 Exposed
HIGH						
County-Wide Totals	**167,304**	**11,276**	**6.74%**	**36,586**	**2,307**	**6.30%**
Camp Verde	8,915	1,906	21.38%	1,788	380	21.23%
Chino Valley	8,244	208	2.53%	1,202	32	2.69%
Clarkdale	3,240	226	6.97%	799	44	5.56%
Cottonwood	9,665	655	6.78%	1,913	81	4.25%
Dewey-Humboldt	3,312	139	4.19%	517	21	3.99%
Jerome	333	0	0.00%	86	0	0.00%
Peoria	1	0	0.00%	0	0	0.00%
Prescott	34,085	1,694	4.97%	8,862	384	4.33%
Prescott Valley	24,387	680	2.79%	4,397	141	3.20%
Sedona	7,140	605	8.47%	1,816	157	8.62%
Unincorporated	67,272	5,126	7.62%	15,045	1,058	7.03%
Wickenburg	1	0	9.97%	0	0	10.04%
Yavapai-Apache Nation	710	37	5.19%	161	9	5.60%
Yavapai-Prescott Indian Tribe	190	9	4.73%	16	0	0.00%
Sedona (Coconino Co. only)	2,967	285	9.61%	922	88	9.60%
MEDIUM						
County-Wide Totals	**167,304**	**2,672**	**1.60%**	**36,586**	**536**	**1.46%**
Camp Verde	8,915	212	2.38%	1,788	41	2.27%
Chino Valley	8,244	16	0.19%	1,202	2	0.20%
Clarkdale	3,240	38	1.16%	799	7	0.93%
Cottonwood	9,665	509	5.27%	1,913	63	3.31%
Dewey-Humboldt	3,312	54	1.62%	517	7	1.44%
Jerome	333	0	0.02%	86	0	0.01%
Peoria	1	0	0.00%	0	0	0.00%
Prescott	34,085	777	2.28%	8,862	186	2.09%
Prescott Valley	24,387	94	0.39%	4,397	21	0.49%
Sedona	7,140	55	0.77%	1,816	14	0.76%
Unincorporated	67,272	913	1.36%	15,045	192	1.28%
Wickenburg	1	0	0.00%	0	0	0.00%
Yavapai-Apache Nation	710	5	0.69%	161	1	0.91%
Yavapai-Prescott Indian Tribe	190	0	0.00%	16	0	0.00%
Sedona (Coconino Co. only)	2,967	30	1.00%	922	8	0.82%

Table 5-10: Yavapai County HAZUS building exposure to flooding									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Yavapai County HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
County-Wide Totals	**82,854**	**$12,145,236**	**3,722**	**$3,297,715**	**1,319**	**$706,634**	**$16,149,585**		
High Hazard Exposure	5,449	$719,165	269	$253,547	94	$57,446	$1,030,158	20%	$206,032
Medium Hazard Exposure	1,304	$168,197	78	$80,452	25	$14,356	$263,006	5%	$13,150
Yavapai County HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact			
High Hazard Exposure	06.58%	05.92%	07.22%	07.69%	07.16%	08.13%			
Medium Hazard Exposure	01.57%	01.38%	02.11%	02.44%	01.88%	02.03%			

Table 5-11: Camp Verde HAZUS building exposure to flooding									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Camp Verde HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**3,851**	**$512,459**	**160**	**$124,045**	**65**	**$35,167**	**$671,671**		
High Hazard Exposure	825	$110,794	18	$9,112	12	$5,159	$125,065	20%	$25,013
Medium Hazard Exposure	88	$12,923	3	$1,008	1	$257	$14,187	5%	$709
Camp Verde HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact			
High Hazard Exposure	21.42%	21.62%	11.57%	07.35%	18.08%	14.67%			
Medium Hazard Exposure	02.28%	02.52%	02.04%	0.81%	01.05%	0.73%			

Table 5-12: Chino Valley HAZUS building exposure to flooding									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Chino Valley HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**3,610**	**$394,930**	**128**	**$79,379**	**64**	**$29,717**	**$504,025**		
High Hazard Exposure	86	$9,171	3	$2,546	2	$1,805	$13,521	20%	$2,704
Medium Hazard Exposure	6	$803	1	$466	0	$716	$1,985	5%	$99
Chino Valley HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact			
High Hazard Exposure	02.37%	02.32%	02.69%	03.21%	03.12%	06.07%			
Medium Hazard Exposure	0.17%	0.20%	0.50%	0.59%	0.64%	02.41%			

Table 5-13: Clarkdale HAZUS building exposure to flooding									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Clarkdale HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**1,639**	**$193,639**	**58**	**$38,407**	**23**	**$17,771**	**$249,817**		
High Hazard Exposure	99	$13,181	4	$2,968	2	$2,452	$18,601	20%	$3,720
Medium Hazard Exposure	16	$2,055	1	$489	0	$892	$3,436	5%	$172
Clarkdale HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact			
High Hazard Exposure	06.03%	06.81%	06.81%	07.73%	09.71%	13.80%			
Medium Hazard Exposure	01.0%	01.06%	01.20%	01.27%	01.61%	05.02%			

Table 5-14: Cottonwood HAZUS building exposure to flooding									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Cottonwood HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**4,265**	**$595,814**	**285**	**$440,562**	**70**	**$48,877**	**$1,085,252**		
High Hazard Exposure	287	$37,112	21	$17,475	4	$1,820	$56,406	20%	$11,281
Medium Hazard Exposure	244	$29,569	18	$14,820	7	$2,923	$47,312	5%	$2,366
Cottonwood HAZUS Summary	**% Building Count**	**% Potential Economic Impact**	**% Building Count**	**% Potential Economic Impact**	**% Building Count**	**% Potential Economic Impact**			
High Hazard Exposure	06.73%	06.23%	07.46%	03.97%	05.30%	03.72%			
Medium Hazard Exposure	05.71%	04.96%	06.20%	03.36%	09.60%	05.98%			

Table 5-15: Dewey-Humboldt HAZUS building exposure to flooding									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Dewey-Humboldt HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**1,459**	**$177,128**	**47**	**$18,751**	**30**	**$9,805**	**$205,684**		
High Hazard Exposure	57	$7,836	2	$758	1	$314	$8,908	20%	$1,782
Medium Hazard Exposure	21	$3,251	1	$322	0	$8	$3,581	5%	$179
Dewey-Humboldt HAZUS Summary	**% Building Count**	**% Potential Economic Impact**	**% Building Count**	**% Potential Economic Impact**	**% Building Count**	**% Potential Economic Impact**			
High Hazard Exposure	03.88%	04.42%	03.60%	04.04%	02.52%	03.21%			
Medium Hazard Exposure	01.44%	01.84%	01.50%	01.72%	0.09%	0.08%			

Table 5-16: Jerome HAZUS building exposure to flooding									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Jerome HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**310**	**$32,286**	**23**	**$21,064**	**7**	**$4,135**	**$57,485**		
High Hazard Exposure	0	$0	0	$0	0	$0	$0	20%	$0
Medium Hazard Exposure	0	$5	0	$0	0	$0	$5	5%	$0

Jerome HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact
High Hazard Exposure	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Medium Hazard Exposure	0.01%	0.01%	0.0%	0.0%	0.0%	0.0%

Table 5-17: Prescott HAZUS building exposure to flooding									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Prescott HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**15,995**	**$2,878,128**	**989**	**$1,214,850**	**277**	**$158,198**	**$4,251,176**		
High Hazard Exposure	781	$124,647	93	$135,892	23	$17,136	$277,676	20%	$55,535
Medium Hazard Exposure	376	$55,978	37	$49,268	8	$4,944	$110,189	5%	$5,509

Prescott HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact
High Hazard Exposure	04.88%	04.33%	09.39%	11.19%	08.39%	10.83%
Medium Hazard Exposure	02.35%	01.94%	03.75%	04.06%	03.03%	03.13%

Table 5-18: Prescott Valley HAZUS building exposure to flooding									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Prescott Valley HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**9,734**	**$1,507,726**	**524**	**$395,664**	**203**	**$129,065**	**$2,032,455**		
High Hazard Exposure	284	$42,415	15	$10,604	6	$4,029	$57,048	20%	$11,410
Medium Hazard Exposure	46	$6,099	4	$4,119	1	$864	$11,082	5%	$554

Prescott Valley HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact
High Hazard Exposure	02.92%	02.81%	02.82%	02.68%	03.15%	03.12%
Medium Hazard Exposure	0.47%	0.40%	0.76%	01.04%	0.60%	0.67%

Table 5-19: Sedona (Yavapai County) HAZUS building exposure to flooding									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Sedona (Yavapai County) HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**4,154**	**$596,398**	**231**	**$178,462**	**75**	**$38,817**	**$813,676**		
High Hazard Exposure	362	$49,924	25	$19,167	8	$5,031	$74,122	20%	$14,824
Medium Hazard Exposure	30	$5,021	3	$3,360	1	$1,118	$9,498	5%	$475

Sedona (Yavapai County) HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact
High Hazard Exposure	08.72%	08.37%	10.99%	10.74%	10.10%	12.96%
Medium Hazard Exposure	0.73%	0.84%	01.33%	01.88%	01.44%	02.88%

Table 5-20: Unincorporated Yavapai County HAZUS building exposure to flooding									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Unincorporated (Yavapai County) HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**37,551**	**$5,217,729**	**1,273**	**$783,936**	**503**	**$233,930**	**$6,235,594**		
High Hazard Exposure	2,651	$321,842	86	$54,656	37	$19,382	$395,879	20%	$79,176
Medium Hazard Exposure	475	$52,360	11	$6,555	6	$2,448	$61,362	5%	$3,068
Unincorporated (Yavapai County) HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact			
High Hazard Exposure	07.06%	06.17%	06.78%	06.97%	07.28%	08.29%			
Medium Hazard Exposure	01.26%	01.0%	0.89%	0.84%	01.17%	01.05%			

Table 5-21: Yavapai-Apache Nation HAZUS building exposure to flooding									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Yavapai-Apache Nation HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**217**	**$23,885**	**3**	**$1,770**	**1**	**$1,143**	**$26,798**		
High Hazard Exposure	14	$1,365	1	$365	0	$318	$2,047	20%	$409
Medium Hazard Exposure	1	$136	0	$45	0	$188	$368	5%	$18
Yavapai-Apache Nation HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact			
High Hazard Exposure	06.33%	05.71%	18.20%	20.59%	07.47%	27.81%			
Medium Hazard Exposure	0.65%	0.57%	01.92%	02.52%	02.31%	16.41%			

Table 5-22: Yavapai-Prescott Indian Tribe HAZUS building exposure to flooding									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Yavapai-Prescott Indian Tribe HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**62**	**$14,794**	**2**	**$825**	**0**	**$10**	**$15,630**		
High Hazard Exposure	4	$870	0	$6	0	$0	$876	20%	$175
Medium Hazard Exposure	0	$0	0	$0	0	$0	$0	5%	$0
Yavapai-Prescott Indian Tribe HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact			
High Hazard Exposure	05.98%	05.88%	02.61%	0.77%	0.0%	0.0%			
Medium Hazard Exposure	0.0%	0.0%	0.01%	0.01%	0.0%	0.0%			

Table 5-23: Sedona (Coconino County) HAZUS building exposure to flooding									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Sedona (Coconino County) HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**1,883**	**$361,645**	**145**	**$143,823**	**28**	**$12,477**	**$517,945**		
High Hazard Exposure	192	$42,801	16	$21,105	4	$1,619	$65,525	20%	$13,105
Medium Hazard Exposure	25	$6,013	2	$3,331	0	$134	$9,478	5%	$474
Sedona (Coconino County) HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact			
High Hazard Exposure	10.19%	11.84%	10.88%	14.67%	15.20%	12.97%			
Medium Hazard Exposure	01.32%	01.66%	01.49%	02.32%	01.36%	01.08%			

A summary comparison of the 2006 Plan county-wide flooding vulnerability analysis results to the current plan is shown in Table 5-24. Changes shown in Table 5-24 are a result of revisions to the Planning Team asset inventory (several of the 2006 Plan assets did not have estimated replacement costs), a different flood hazard layer (DFIRM), a refinement of the GIS algorithms used to determine the HAZUS exposure, and a different loss to exposure ratio applied to the HAZUS exposure numbers.

Table 5-24: 2006 Plan county-wide flooding vulnerability analysis comparison to the 2011 Plan estimates

Exposure	2006 Plan	2011 Plan
Assets: High Hazard	$47.6 Million	$29 Million
Assets: Medium Hazard	$1.8 Million	$0.4 Million
HAZUS Facilities: High Hazard	$55 Million	$206 Million
HAZUS Facilities: Medium Hazard	$2.6 Million	$13.1 Million
Human: High Hazard	12,175	11,276
Human: Medium Hazard	2,677	2,672

Vulnerability – Repetitive Loss Properties

Repetitive Loss (RL) properties are those NFIP-insured properties that since 1978 have experienced multiple flood losses. FEMA tracks RL property statistics, and in particular to identify Severe RL (SRL) properties. RL properties demonstrate a track record of repeated flooding for a certain location and are one element of the vulnerability analysis. RL properties are also important to the NFIP, since structures that flood frequently put a strain on the National Flood Insurance Fund. FEMA records dated January 2010 (provided by ADEM) and current Yavapai County Flood Control District records indicate that there are 21 identified RL properties in Yavapai County, with a total of over $1 million in associated building and contents value payments. Only one loss payment has occurred within the 2006-2011 period. Table 5-25 summarizes the RL property characteristics by jurisdiction.

Table 5-25: Repetitive Loss property statistics for Yavapai County jurisdictions

Jurisdiction	No. of Properties	No. of Properties Mitigated	Total Payments
Camp Verde	5	1	$220,753
Chino Valley	1	1	$19,166
Cottonwood	1	0	$2,144
Unincorporated Yavapai County	14	6	$768,158

Sources: FEMA Region IX, 2010 (data as of January 31, 2010); YCFCD, 2011

Vulnerability – Development Trends

Most floodprone properties in Yavapai County pre-date the planning jurisdictions' entry into the NFIP and were constructed prior to current floodplain management practices. Rapid growth during the first half of the 2006 Plan cycle provided a challenge to jurisdictions in the effective regulation and identification of floodplains and drainage. The development of new properties or substantial re-development of existing structures is now subject to regulatory review procedures implemented by each jurisdiction. New development, adequate planning and regulatory tools are in place to regulate future development. For many areas within the county, challenges for the management of new growth include the need for master drainage planning and additional floodplain delineations to identify and map the flood hazards within the growth areas where no mapping currently exists.

Sources

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JE Fuller/ Hydrology & Geomorphology, 2006, Camp Verde Multi-Hazard Mitigation Plan

JE Fuller/ Hydrology & Geomorphology, 2006, Chino Valley Multi-Hazard Mitigation Plan

JE Fuller/ Hydrology & Geomorphology, 2006, Clarkdale Multi-Hazard Mitigation Plan

JE Fuller/ Hydrology & Geomorphology, 2006, Cottonwood Multi-Hazard Mitigation Plan

JE Fuller/ Hydrology & Geomorphology, 2006, Dewey-Humboldt Multi-Hazard Mitigation Plan

JE Fuller/ Hydrology & Geomorphology, 2006, Jerome Multi-Hazard Mitigation Plan

JE Fuller/ Hydrology & Geomorphology, 2006, Prescott Multi-Hazard Mitigation Plan

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Profile Maps

Maps 1A through 1D – County-Wide Flood Hazard Maps

Maps 1E through 1O – Community Flood Hazard Maps

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5.3.2 Landslide / Mudslide

Description

Landslide is the generic term used to describe the downslope movement of earth materials due to gravity. Landslides may be triggered by earthquakes, extreme precipitation, flooding, or otherwise removing support from the slope. There are several different types of landslides that are categorized by the depth of failure, the type of material moved, the water content, and rate of movement (see below). Landslides may also cause flooding, either by displacing great volumes of water with surficial materials, or by damming a stream until it breaches and floods. Typical types of landslides are illustrated in Figure 5-1.[29] Diagrams A, B, C, D, E, F, and I are typical of the Transition Zone in which Yavapai County is mostly situated.

Many areas of Yavapai County are susceptible to various types of rock falls, landslides, and debris flows that can occur along steep mountain slopes, canyons, and along road cuts. Extreme precipitation, freeze/thaw, and snowmelt are the primary triggers post wildfire conditions also significantly increase the risk of debris flows and slope failures.

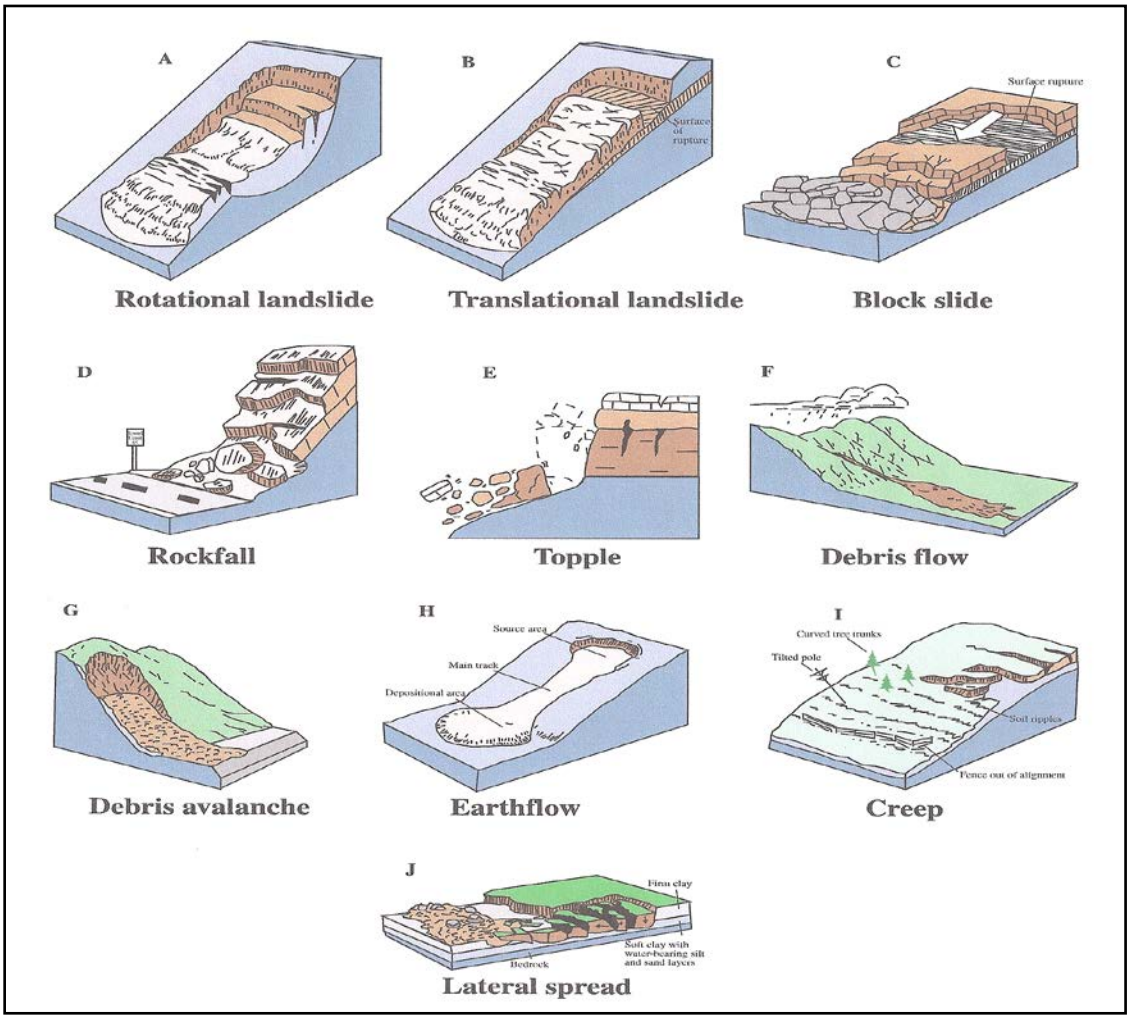

Figure 5-1
Illustration of Landslide Types

[29] Diagram from USGS Fact Sheet 2004-3072.

History

The Town of Jerome, which is constructed on the steep slopes of Cleopatra Hill, presents the most prominent history of landslide activity and damages for Yavapai County. The following is an excerpt from a summary of the Jerome landslide history that was provided by the Town (author unknown):

In the first half of this century Jerome was a town on the move, literally. Perched precariously on the side of Cleopatra Hill with mining occurring directly underneath, Jerome was asking for trouble. Maybe the ground movement was Mother Nature's way of reminding people who were in charge.

Jerome reached a peak population of about 15,000 people in the late 1920's. Two major mines, the United Verde and the United Verde Extension (UVX) kept the economy booming. Main and Hull Streets were lined with businesses. However, the Great Depression reversed this prosperity. Most of the miners lost their jobs and businesses closed. It was during this era of economic hardship when the town's buildings began to show the most damage from earth movement.

Slides have been a persistent problem throughout Jerome's history. Harry Dicus testified: "I built seven or eight houses, business and residences on the hill slopes, several of which were constructed before UVX started operations [in 1914]. They wouldn't stand up. I had to jack up the building because they would get out of level, especially if they were not on bed rock." (Small vs. UVX)

The first significant slide happened in 1926 when the Episcopal Church, located uphill from the Catholic Church, became unstable. The oldest church in town, built in 1896 by the Baptists and later sold to the Episcopalians, moved three feet off its base. The church was demolished and replaced with the new Episcopal Church, now the History Center. The next noticeable ground movement occurred in 1927 when the south wing of the United Verde Clubhouse had to be destroyed. This structure, originally built as the third United Verde Hospital was found to sit directly on the Verde Fault.

The first noticeable ground movement on Main and Hull Streets began in 1924. The buildings in a three acre zone from Main Street near the Boyd Hotel down through Hull Street to just below Rich Street became unstable and had to be razed. The destruction from this slide is still very noticeable today. The parking lot on Main Street between First Street and what is now Made in Jerome Pottery was once crowded with buildings. The parking lot and park directly below this on Hull Street was also filled with structures including the Sliding Jail. All of these buildings suffered damage in 1936-37 when the land abruptly moved. Although this disaster may have increased the parking in Jerome, it was severe blow to a town already reeling from the Great Depression.

During the early 1920's and 1930's the area had been slipping steadily at a rate of about three-eighths of an inch a month in an eastward and downward direction. As long as this movement remained gradual and uniform in all directions it did not pose a significant danger. In late September 1936 the rate of movement accelerated. A sidewalk suddenly parted company with the building it paralleled, and in a trice it was six feet away, and more than four feet lower. A theater and several other buildings showed huge cracks as the irresistible force of gravity exerted itself on the 45 degree diagonal, and it was necessary for authorities to condemn them and tear them down. (AZ Republic, December 29, 1936) Buildings began cracking and became unstable. The Kovacovich Building's back fell out and then collapsed without warning one week later. The Post Office, Miller Building, Kelly's Garage, and the J.C. Penny Building all sank forcing them to be abandoned and eventually demolished. The Boyd Hotel and a nearby drugstore were spared through extensive repair work. The water, sewer, and fire lines underneath the town were also severely damaged and needed repairs costing the town an estimated $134,871 (approximately $2.1 million in 2010 dollars).

The sliding jail was the only building severely damaged by the earth movement which still stands. The concrete structure pulled apart from the wooden structure to which it was

attached and slowly began creeping across the road. The jail eventually came to rest 225 feet from its original location. After the sliding stopped the jail was preserved a lasting monument to this era in Jerome's history.

Other historic landslides in Yavapai County are mostly related to incidents reported along highways.

Probability and Magnitude

Probability and magnitude statistics have not been developed for landslide hazards in Arizona. Landslide potential for Yavapai County vary in size and frequency and can range from small, nuisance events (minor shallow landslides, rockfalls) along roads or uninhabited areas, to large, fast-moving, destructive debris flows (commonly referred to as mudslides), with varying effects depending on location. Areas with the highest probability of landslides are highway corridors with deep cuts through hillsides, developments on steep hillsides, and areas downstream of wildfire burn areas.

Vulnerability – CPRI Results

Landslide / Mudslide CPRI results for each community are summarized in Table 5-26 below.

Table 5-26: CPRI results by jurisdiction for landslide / mudslide

Participating Jurisdiction	Probability	Magnitude/ Severity	Warning Time	Duration	CPRI Score
Camp Verde	Unlikely	Limited	< 6 hours	< 24 hours	1.85
Chino Valley	Unlikely	Negligible	< 6 hours	< 6 hours	1.45
Clarkdale	Likely	Negligible	< 6 hours	< 24 hours	2.45
Cottonwood	Unlikely	Limited	> 24 hours	< 24 hours	1.40
Dewey-Humboldt	Unlikely	Limited	< 6 hours	< 24 hours	1.85
Jerome	Likely	Critical	< 6 hours	< 6 hours	2.95
Prescott	Highly Likely	Critical	< 6 hours	< 6 hours	3.40
Prescott Valley	Possible	Limited	< 6 hours	< 6 hours	2.20
Sedona	Possible	Limited	< 6 hours	< 24 hours	2.30
Unincorporated Yavapai County	Possible	Negligible	< 6 hours	< 1 week	2.10
Yavapai-Prescott Indian Tribe	Possible	Negligible	< 6 hours	< 1 week	2.10
				County-wide average CPRI =	**2.19**

Vulnerability – Loss Estimations

Critical facilities most vulnerable to landslides/mudslides are the roadways, bridges, and culverts along known debris flow areas and hillside cuts. Facilities located downhill of intensely burned wildfire areas are also at an elevated risk to debris flows and mudslides. Underground utility lines are also vulnerable to landslides.

Losses are difficult to estimate given a lack of accepted standards, however, the county and some communities have spent significant time and money removing and repairing landslide/mudslide related damages along the state highways, and especially following heavy precipitation events and post-wildfire debris flows. For the period of 1978 to 1985, a total of 16 landslide incidents have been cataloged by the Arizona Department of Transportation with repair costs ranging from $1,000 to $150,000. Thirteen (13) of the events are considered to be minor with repair costs of less than $1,500 each. Comparatively, the damages experienced in Jerome in the 1920's and 1930's were equivalent to approximately $2.1 million in 2010 dollars. Accordingly, losses associated with landslides/mudslides are highly variable and difficult to predict.

Vulnerability – Development Trends

In many of the communities within Yavapai County, development of hillside areas is both popular and sometimes necessary, as are hillside cuts that are required as a part of roadway improvements. Areas of greater slope will also be areas of greatest risk to landslides. Adequate geologic investigations should be made for any improvements involving construction on hillsides and/or creation of large hillside cuts.

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Profile Maps

No profile maps provided

5.3.3 Severe Wind

Description

The hazard of severe wind encompasses all climatic events that produce damaging winds. For Yavapai County, severe winds typically result from either extreme pressure gradients that normally occur in the spring and early summer months, or from thunderstorms. Thunderstorms can occur year-round and are usually associated with cold fronts in the winter, monsoon activity in the summer, and tropical storm remnants in the late summer or early fall.

Three types of damaging wind related features typically accompany a thunderstorm; 1) downbursts, 2) straight line winds, and infrequently, 3) tornadoes.

Downbursts are columns of air moving rapidly downward through a thunderstorm. When the air reaches the ground, it spreads out in all directions, creating horizontal wind gusts of 80 mph or higher. Downburst winds have been measured as high as 140 mph. Some of the air curls back upward with the potential to generate a new thunderstorm cell. Downbursts are called macrobursts when the diameter is greater than 2.5 miles, and microbursts when the diameter is 2.5 miles or less. They can be either dry or wet downbursts, where the wet downburst contains precipitation that continues all the way down to the ground, while the precipitation in a dry downburst evaporates on the way to the ground, decreasing the air temperature and increasing the air speed. In a microburst the wind speeds are highest near the location where the downdraft reached the surface, and are reduced as they move outward due to the friction of objects at the surface. Typical damage from downbursts includes uprooted trees, downed power lines, mobile homes knocked off their foundations, block walls and fences blown down, and porches and awnings blown off homes.

Straight line winds are developed similar to downbursts, but are usually sustained for greater periods as thunderstorms reach the mature stage, traveling parallel to the ground surface at speeds of 75 mph or higher. These winds are frequently responsible for generating dust storms and sand storms, reducing visibility and creating hazardous driving conditions.

A tornado is a rapidly rotating funnel (or vortex) of air that extends toward the ground from a cumulonimbus cloud. Most funnel clouds do not touch the ground, but when the lower tip of the funnel cloud touches the earth, it becomes a tornado and can cause extensive damage. For Yavapai County, tornadoes are the least common type of severe wind to accompany a thunderstorm.

History

According to Table 5-4, Yavapai County has been subject to over 123 severe wind events meeting the criteria listed in Section 5.1, with a combined economic loss of over $18.7 million to structures and agriculture in the last 50 years. In that same period, there were at least 1 death and 14 injuries, with most of the injuries being related to an F1 tornado that touched down in 1977. In reality, severe wind events occur on a significantly more frequent basis throughout the county, but do not always have reported damages associated with every event. For example, a total of 122 severe wind events were noted in the NCDC database for period of January 1960 through July 2010, but not all of those events had reports of damages associate with them. The following are examples of documented past events that have occurred in the last five years:

- In December 2004, a winter storm brought strong wind to many locations across northern Arizona with gusts over 50 MPH. There were numerous reports of broken tree limbs and other minor wind damage. Part of the roof on Camp Verde's Town Hall was ripped off. The Black Canyon fire station also suffered roof damage. Approximately $40,000 in damage estimates was reported. The strong wind caused power outages in the Flagstaff area. Some wind gust reports include: Bright Angel 65 MPH, Grand Canyon 44 MPH, Crown King 49 MPH, Winslow 59 MPH, Flagstaff 53 MPH, and Sunset Point 54 MPH. (NCDC, 2010)
- In March 2009, up to 50 MPH wind caused blowing dust that reduced the visibility down to 20 feet between Chino Valley and Paulden just after 200 PM. There was a 15 car pileup near mile post 333. At least three people were taken to the hospital. A strong cold front brought very strong and gusty winds to northern Arizona on March 22, 2009. The winds locally caused damage to

buildings, power outages, and near zero visibility in blowing dust and costing approximately $150,000 in damages. (NCDC, 2010).

- In April 2009, a spotter in Chino Valley reported strong wind (52 MPH) that blew down fences and caused shingle damage on multiple homes resulting in $12,000 in property damages. A 15 foot tower similar to a hunting blind was knocked over even though the posts were set in concrete. A strong low pressure system approaching Arizona brought damaging winds, blowing dust, blowing sand to northern portions of the state. (NCDC, 2010).
- In October 2009, high winds knocked down tree limbs and power lines in Prescott, Groom Creek, and Walker. As many as 6,300 customers lost power 5 to 6 times. The downed power lines also caused a several small grass fires and damages were estimated at $12,000. Cable and phone lines were also knocked out. A strong cold front brought strong winds to the Little Colorado River Valley. (NCDC, 2010).
- In December 2009, very strong winds knocked over a 70' tall-two fool thick ponderosa pine tree about 20 miles east of Camp Verde. The tree fell on a man sleeping in a tent; the man was struck in the head and died instantly. Measured wind speeds include Prescott Love Field: 74 MPH; Crown King 69 MPH, and Mingus Mountain 70 MPH. (NCDC, 2010).

Probability and Magnitude

Most severe wind events in Yavapai County are associated with thunderstorms. The probability of a severe thunderstorm occurring with high velocity winds increases as the average duration and number of thunderstorm events increases. The average annual duration of thunderstorms in Yavapai County ranges from 90 to 110 minutes and is among the longest in the nation (ADEM, 2004).

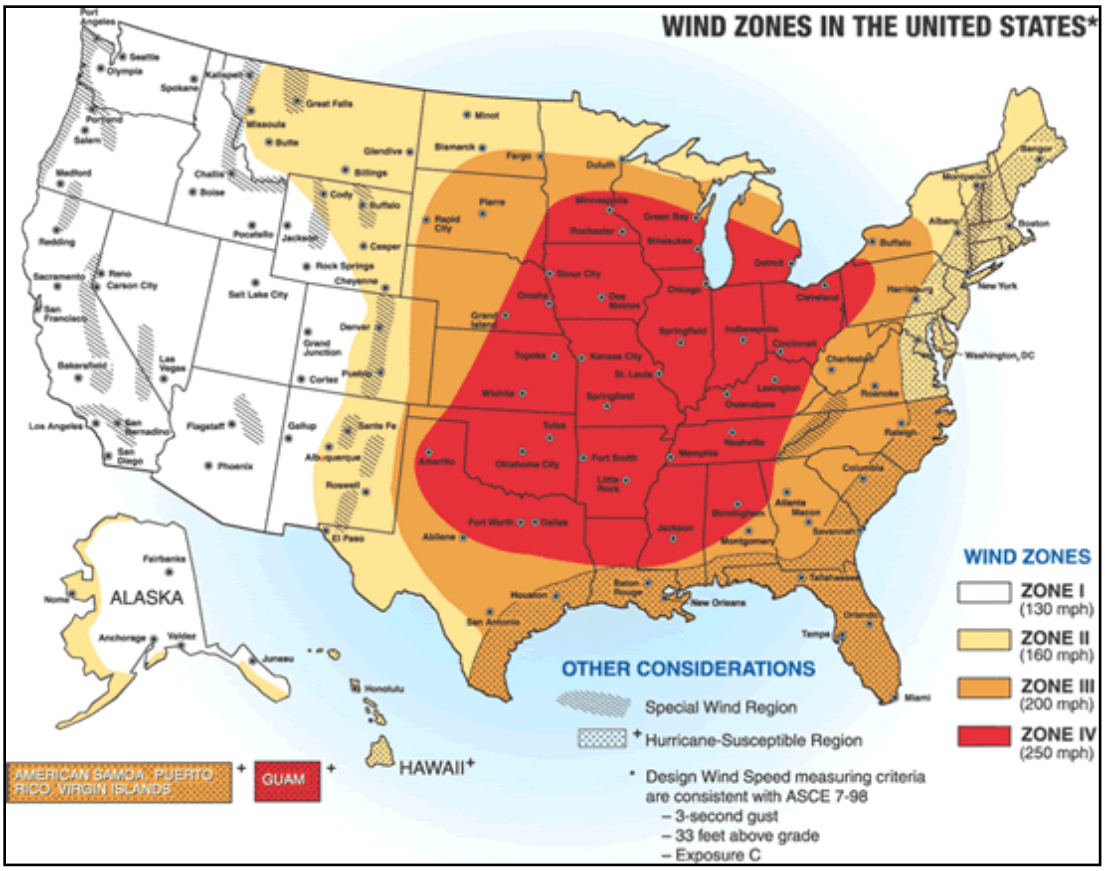
Despite the long duration time, the actual number of thunderstorms on average varies from 40 to 80 per year across the county. The highest number of storms occur in the northeastern part of the county and the lowest along the western border.

Lightning strikes are another indicator of thunderstorm hazard. Strike densities across Yavapai County vary from 2 to 8 lightning strikes per square kilometer annually, with the higher density of lightning strikes in the northern areas of the county.

The American Society of Civil Engineers (ASCE) has identified a 3-second wind gust speed as the most accurate measure for identifying the potential for damage to structures, and is recommended as a design standard for wind loading. Most of Arizona and all of Yavapai County is designated with a design 3-second gust wind speed of 90 mph, indicating relatively low levels of risk from severe winds (ASCE, 1999).

Likewise, FEMA identifies most of the county to be in design wind speed Zone I, as illustrated in Figure 5-2. In this zone, a design wind speed of 130 mph is recommended for the design and construction of community shelters.

The National Weather Service (NWS) issues a severe thunderstorm watch when conditions are favorable for the development of severe thunderstorms. The local NWS office considers a thunderstorm severe if it produces hail at least 3/4-inch in diameter, wind of 58 mph or higher, or tornadoes. When a watch is issued for a region, residents are encouraged to continue normal activities but should remain alert for signs of approaching storms, and continue to listen for weather forecasts and statements from the local NWS office. When a severe thunderstorm has been detected by weather radar or one has been reported by trained storm spotters, the local NWS office will issue a severe thunderstorm warning; an urgent message to the affected counties that a severe thunderstorm is imminent. The warning time provided by a severe thunderstorm watch may be on the order of hours, while a severe thunderstorm warning typically provides an hour or less warning time.



Source: FEMA Website at the following URL: http://www.fema.gov/plan/prevent/saferoom/tsfs02_wind_zones.shtm

Figure 5-2
Illustration of FEMA Wind Zones

Based on the historic record, the probability of tornados occurring in Yavapai County is limited. Tornado damage severity is measured by the Fujita Tornado Scale, which assigns a numerical value of 0 to 5 based on wind speeds, as shown in Table 5-27, with the letter F preceding the number (e.g., FO, F1, F2). Most tornadoes in Arizona last less than 30 minutes and the paths can range from a few hundred feet to a few miles. The width of a tornado may range from tens of yards to more than a quarter of a mile.

Table 5-27: Fujita Tornado Scale

Category	Wind Speed MPH	Description of Damage
F0	40-72	Light damage. Some damage to chimneys; break branches off trees; push over shallow-rooted trees; damage to sign boards.
F1	73-112	Moderate damage. The lower limit is the beginning of hurricane speed. Roof surfaces peeled off; mobile homes pushed off foundations or overturned; moving autos pushed off roads.
F2	113-157	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.
F3	158-206	Severe damage. Roofs and some walls torn off well constructed houses; trains overturned; most trees in forest uprooted; cars lifted off ground and thrown.
F4	207-260	Devastating damage. Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.
F5	261-318	Incredible damage. Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 100-yards; trees debarked.

Source: FEMA, 1997.

Map 2 presents a depiction of historic severe wind incident locations as reported by the NCDC for the period of record up to January 2010. It is noted that this map is only intended to provide a visual view of areas impacted most and is not intended to represent a predictive tool.

Vulnerability – CPRI Results

Severe Wind CPRI results for each community are summarized in Table 5-28 below.

Table 5-28: CPRI results by jurisdiction for severe wind

Participating Jurisdiction	Probability	Magnitude/ Severity	Warning Time	Duration	CPRI Score
Camp Verde	Likely	Limited	12 to 24 hours	> 6 hours	2.80
Chino Valley	Highly Likely	Limited	12 to 24 hours	< 24 hours	2.60
Clarkdale	Likely	Limited	6 to 12 hours	< 24 hours	2.60
Cottonwood	Likely	Critical	>24 hours	< 6 hours	2.50
Dewey-Humboldt	Highly Likely	Critical	< 6 hours	< 6 hours	3.40
Jerome	Highly Likely	Limited	6 to 12 hours	< 6 hours	2.95
Prescott	Highly Likely	Critical	6 to 12 hours	< 24 hours	3.15
Prescott Valley	Likely	Critical	6 to 12 hours	< 24 hours	2.90
Sedona	Highly Likely	Limited	12 to 24 hours	< 6 hours	2.80
Unincorporated Yavapai County	Highly Likely	Limited	6 to 12 hours	< 1 week	3.15
Yavapai-Prescott Indian Tribe	Highly Likely	Limited	> 24 hours	< 6 hours	2.65
				County-wide average CPRI =	**2.86**

Vulnerability – Loss Estimations

The entire County is assumed to be equally exposed to the damage risks associated with severe winds. Typically, incidents are fairly localized and damages associated with individual events are relatively small. Based on the historic records over the last five years, it is feasible to expect average annual losses of $1.0 to $1.5 million (county-wide). It is difficult to estimate losses for individual jurisdictions within the County due to the lack of discrete data.

Vulnerability – Development Trend Analysis

Future development will expand the exposure of life and property to the damaging effects of severe wind events. Enforcement and/or implementation of modern building codes to regulate new developments in conjunction with public education on how to respond to severe wind conditions is arguably the best way to mitigate against losses.

Sources

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Profile Maps

Maps 2 – Severe Wind Hazard Map (County-wide)

5.3.4 Wildfires

Description

A wildfire is an uncontrolled fire spreading through wildland vegetative fuels and/or urban interface areas where fuels may include structures. They often begin unnoticed, spread quickly, and are usually signaled by dense smoke that may fill the area for miles around. Wildfires can be human-caused through acts such as arson or campfires, or can be caused by natural events such as lightning. If not promptly controlled, wildfires may grow into an emergency or disaster. Even small fires can threaten lives, resources, and destroy improved properties.

The indirect effects of wildfires can also be catastrophic. In addition to stripping the land of vegetation and destroying forest resources and personal property, large, intense fires can harm the soil, waterways and the land itself. Soil exposed to intense heat may temporarily lose its capability to absorb moisture and support life. Exposed soils in denuded watersheds erode quickly and are easily transported to rivers and streams thereby enhancing flood potential, harming aquatic life and degrading water quality. Lands stripped of vegetation are also subject to increased landslide hazards.

History

For the period of 1980 to 2008, data compiled by the Arizona State Forestry Division for the 2010 State Plan update indicates that at least 124 wildfires greater than 100 acres in size have occurred in all of Yavapai County. According to the National Wildfire Coordination Group (NWCG, 2010), there have been 13 fires larger than 100 acres, that have burned within Yavapai County during the period of 2004 to 2009. The more significant fires are listed below in chronological order:

- In June 2004, the Willow Fire was ignited by lightning and burned an area 6 miles southwest of Payson. The fire started June 24, 2004 and was controlled July 17, 2004, and burned a total of 119,500 acres with over $11.5 million in fire suppression costs. Two out buildings were destroyed and three people were injured.
- In July of 2005, the J. Canyon Fire was ignited by lightning and burned an area 15 miles northeast of Wickenburg. The fire started July 17, 2005 and was controlled July 23, 2005. It burned a total of 10,500 acres with over $1.5 million in fire suppression costs. No injuries or structural losses were reported.
- In July of 2005, the SH Ranch Complex Fire was started by fifteen lightning strike locations and burned an area 10 miles east of Bagdad. The fire started July 17, 2005 and was controlled July 24, 2005, burning a total of 23,696 acres with one reported injury and a final fire suppression cost of $676,333. There were no reported injuries or structural losses.
- In June of 2008, the Lane 2 Fire was started by humans and burned an area 1 mile south of the community of Crown King. The fire started June 28, 2008 and was controlled July 14, 2008, and burned a total of 9,629 acres with over $5.6 million in fire suppression costs. The fire destroyed 5 homes, 1 commercial property, and 12 other buildings. Two injuries were reported.

Maps 3A through 3D provide a graphical depiction of the 100 acre plus wildfires.

The Planning Team recognized that the declared disaster and historic hazard data collected and summarized in Section 5.1 does not adequately reflect the true cost of a wildfire. Particularly, the cost of wildfire suppression efforts to prevent structure and human loss. For example, the Willow Fire did not result in any structure losses except for two out buildings, however, the suppression costs exceeded $11.5 million. Furthermore, the County, State, Forest Service, and other agencies spend millions of dollars every year in wildfire mitigation in fuel treatment projects.

Probability and Magnitude

The probability and magnitude of wildfire incidents for Yavapai County are influenced by numerous factors including vegetation densities, previous burn history, hydrologic conditions, climatic conditions such as temperature, humidity, and wind, ignition source (human or natural), topographic aspect and

slope, and remoteness of area.

In 2004, the State of Arizona prepared the AWUIA to analyze wildfire risk at a statewide basis, using a common spatial model. The model results were used for validation of those communities listed in the federal register as WUI, and for further identification other communities possibly at risk. The AWUIA approach used four main data layers:

- TOPO – aspect and slope derived from 30 meter Digital Elevation Model data from USGS.
- RISK – historical fire density using point data from fire record years 1986–1996 from all wildland agencies.
- HAZARD – fuels, natural fire regimes and condition class.
- HOUSE – houses and/or structures

A value rating in the range of 1-15 was assigned for all layers to represent the level of risk.

Two separate results were developed. The first coverage used an applied weighting scheme that combined each of the four data layers to develop a ranking model for identifying WUI communities at greatest risk. The second coverage, referred to as the "Land Hazard", also applied a weighting scheme that combined only the TOPO, RISK, and HAZARD layers, as follows:

LAND HAZARD = (HAZARD*70%)+(RISK*20%)+(TOPO*10%)

Weighing percentages were determined through discussion with the Arizona Interagency Coordinating Group. The "Land Hazard" layer produced from this model is based on a 250-meter raster grid (some data originated at 1,000-meter). The resultant raster values range from 1-15 and were classified into three groups to depict wildfire hazard without the influence of structures: HIGH (values of 10-15), MEDIUM (values of 7-9), and LOW (values of 1-6).

Maps 3A through 3O indicate the various wildfire hazard areas for Yavapai County and the incorporated boundaries of all the communities.

Vulnerability – CPRI Results

Wildfire CPRI results for each community are summarized in Table 5-29 below.

Table 5-29: CPRI results by jurisdiction for wildfire

Participating Jurisdiction	Probability	Magnitude/ Severity	Warning Time	Duration	CPRI Score
Camp Verde	Highly Likely	Catastrophic	< 6 hours	< 1 week	3.90
Chino Valley	Unlikely	Negligible	> 24 hours	< 6 hours	1.45
Clarkdale	Possibly	Limited	< 6 hours	< 24 hours	2.30
Cottonwood	Possibly	Critical	12 - 24 hours	< 1 week	2.40
Dewey-Humboldt	Likely	Limited	< 6 hours	< 1 week	2.85
Jerome	Highly Likely	Catastrophic	< 6 hours	> 1 week	4.00
Prescott	Highly Likely	Catastrophic	< 6 hours	< 1 week	3.90
Prescott Valley	Possibly	Limited	< 6 hours	< 24 hours	2.30
Sedona	Highly Likely	Catastrophic	< 6 hours	< 1 week	3.90
Unincorporated Yavapai County	Highly Likely	Catastrophic	< 6 hours	> 1 week	4.00
Yavapai-Prescott Indian Tribe	Likely	Critical	6 -12 hours	> 1 week	3.10
				County-wide average CPRI =	**3.10**

Vulnerability – Loss Estimations

The estimation of potential exposure to high and medium wildfire hazards was accomplished by intersecting the human and facility assets with the wildfire hazard limits depicted on Maps 3A – 3O. Loss to exposure ratios of 0.20 (20%) and 0.05 (5%) were assumed to estimate losses for all facilities located within the high and medium wildfire hazard areas, respectively. Table 5-30 summarizes the Planning Team identified critical and non-critical facilities potentially exposed to high and medium wildfire hazards, and the corresponding estimates of losses. Table 5-31 summarizes population sectors

exposed to the high and medium wildfire hazards. HAZUS residential, commercial and industrial exposures and loss estimates to high and medium wildfire hazards are summarized in Tables 5-32 through 5-45.

In summary, $31 and $23 million in asset related losses are estimated for high and medium wildfire hazards, for all the participating jurisdictions in Yavapai County. An additional $392 and $111 million in high and medium hazard wildfire losses to HAZUS defined residential, commercial, and industrial facilities, is estimated for all participating Yavapai County jurisdictions. It should be noted that these exposure dollar amounts do not include the cost of wildfire suppression which can be substantial. For example, a Type 1 wildfire fighter crew costs about $1 million per day.

Regarding human vulnerability, a county-wide population of 15,695 and 23,979 people, or 9.38% and 14.33% of the total, is potentially exposed to a high and medium hazard wildfire event, respectively. Typically, deaths and injuries not related to firefighting activities are rare. However, it is feasible to assume that at least one death and/or injury may be plausible. There is also a high probability of population displacement during a wildfire event, and especially in the urban wildland interface areas.

It is duly noted that the loss and exposure numbers presented above represent a comprehensive evaluation of the County as a whole. It is unlikely that a wildfire would occur that would impact all of the high and medium wildfire hazard areas at the same time. Accordingly, actual event based losses and exposure are likely to be only a fraction of those summarized above.

Vulnerability – Development Trend Analysis

By its very definition, the WUI represents the fringe of urban development as it intersects with the natural environment. As previously discussed, wildfire risks are significant for a sizeable portion of the county. Any future development will only increase the WUI areas and expand the potential exposure of structures to wildfire hazards. The YCWPP addresses mitigation opportunities for expanding WUI areas and provides recommended guidelines for safe building and land-use practices in wildfire hazard areas.

Sources

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Profile Maps

Maps 3A and 3D – County-Wide Wildfire Hazard Maps

Maps 3E and 3O – Community's Wildfire Hazard Maps

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Table 5-30: Asset inventory exposure to high and medium hazard wildfire and corresponding loss estimates					
Community	**Total Facilities Reported by Community**	**Impacted Facilities**	**Percentage of Total Community Facilities Impacted**	**Estimated Replacement Cost (x $1000)**	**Estimated Structure Loss (x $1000)**
HIGH					
County-Wide Totals	**786**	**109**	**13.87%**	**$159,870**	**$31,974**
Camp Verde	76	9	11.84%	$5,900	$1,180
Chino Valley	27	0	0.00%	$0	$0
Clarkdale	44	0	0.00%	$0	$0
Cottonwood	68	1	1.47%	$1,500	$300
Dewey-Humboldt	12	0	0.00%	$0	$0
Jerome	22	1	4.55%	$40	$8
Prescott	99	13	13.13%	$16,965	$3,393
Prescott Valley	91	4	4.40%	$1,000	$200
Sedona	49	3	6.12%	$58,300	$11,660
Unincorporated	282	78	27.66%	$76,165	$15,233
YAN	2	0	0.00%	$0	$0
Yavapai-Prescott Indian Tribe	14	0	0.00%	$0	$0
Sedona (Coconino Co. only)	22	0	0.00%	$0	$0
MEDIUM					
County-Wide Totals	**786**	**155**	**19.72%**	**$469,036**	**$23,452**
Camp Verde	76	32	42.11%	$63,155	$3,158
Chino Valley	27	3	11.11%	$5,405	$270
Clarkdale	44	0	0.00%	$0	$0
Cottonwood	68	1	1.47%	$125	$6
Dewey-Humboldt	12	1	8.33%	$600	$30
Jerome	22	3	13.64%	$1,749	$87
Prescott	99	12	12.12%	$133,799	$6,690
Prescott Valley	91	31	34.07%	$10,584	$529
Sedona	49	7	14.29%	$2,205	$110
Unincorporated	282	61	21.63%	$107,419	$5,371
YAN	2	2	100.00%	$16,500	$825
Yavapai-Prescott Indian Tribe	14	2	14.29%	$127,494	$6,375
Sedona (Coconino Co. only)	22	1	4.55%	$175	$9

Table 5-31: Population sectors exposed to high and medium hazard wildfire

Community	Total Population	Population Exposed	Percent of Population Exposed	Total Population Over 65	Population Over 65 Exposed	Percent of Population Over 65 Exposed
HIGH						
County-Wide Totals	**167,304**	**15,695**	**9.38%**	**36,586**	**3,935**	**10.75%**
Camp Verde	8,915	764	8.57%	1,788	130	7.27%
Chino Valley	8,244	0	0.00%	1,202	0	0.00%
Clarkdale	3,240	0	0.00%	799	0	0.00%
Cottonwood	9,665	25	0.26%	1,913	7	0.38%
Dewey-Humboldt	3,312	572	17.28%	517	92	17.86%
Jerome	333	6	1.91%	86	1	1.49%
Peoria	1	0	0.00%	0	0	0.00%
Prescott	34,085	4,501	13.21%	8,862	1,367	15.43%
Prescott Valley	24,387	121	0.49%	4,397	50	1.13%
Sedona	7,140	334	4.68%	1,816	69	3.83%
Unincorporated	67,272	9,358	13.91%	15,045	2,215	14.72%
Wickenburg	1	0	0.00%	0	0	0.00%
Yavapai-Apache Nation	710	13	1.82%	161	3	1.60%
Yavapai-Prescott Indian Tribe	190	0	0.00%	16	0	0.00%
Sedona (Coconino Co. only)	2,967	157	5.28%	922	49	5.30%
MEDIUM						
County-Wide Totals	**167,304**	**23,979**	**14.33%**	**36,586**	**5,324**	**14.55%**
Camp Verde	8,915	2,415	27.09%	1,788	548	30.66%
Chino Valley	8,244	508	6.17%	1,202	73	6.11%
Clarkdale	3,240	4	0.12%	799	1	0.15%
Cottonwood	9,665	22	0.22%	1,913	6	0.33%
Dewey-Humboldt	3,312	950	28.69%	517	154	29.78%
Jerome	333	63	18.77%	86	16	19.22%
Peoria	1	0	0.00%	0	0	0.00%
Prescott	34,085	5,945	17.44%	8,862	1,619	18.27%
Prescott Valley	24,387	1,598	6.55%	4,397	435	9.89%
Sedona	7,140	735	10.30%	1,816	184	10.12%
Unincorporated	67,272	11,443	17.01%	15,045	2,227	14.80%
Wickenburg	1	0	0.06%	0	0	0.04%
Yavapai-Apache Nation	710	296	41.72%	161	60	37.03%
Yavapai-Prescott Indian Tribe	190	52	27.36%	16	3	18.75%
Sedona (Coconino Co. only)	2,967	648	21.86%	922	228	24.78%

Table 5-32: Yavapai County HAZUS building exposure to wildfire									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Yavapai County HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
County-Wide Totals	**82,854**	**$12,145,236**	**3,722**	**$3,297,715**	**1,319**	**$706,634**	**$16,149,585**		
High Hazard Exposure	10,261	$1,600,358	367	$285,371	140	$77,809	$1,963,538	20%	$392,708
Medium Hazard Exposure	12,641	$1,729,454	501	$386,513	194	$113,917	$2,229,884	5%	$111,494
Yavapai County HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact			
High Hazard Exposure	12.38%	13.18%	09.86%	08.65%	10.63%	11.01%			
Medium Hazard Exposure	15.26%	14.24%	13.46%	11.72%	14.68%	16.12%			

Table 5-33: Camp Verde HAZUS building exposure to wildfire									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Camp Verde HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**3,851**	**$512,459**	**160**	**$124,045**	**65**	**$35,167**	**$671,671**		
High Hazard Exposure	264	$31,374	9	$6,911	4	$2,872	$41,158	20%	$8,232
Medium Hazard Exposure	1,044	$140,583	45	$50,511	20	$13,878	$204,972	5%	$10,249
Camp Verde HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact			
High Hazard Exposure	06.85%	06.12%	05.34%	05.57%	06.70%	08.17%			
Medium Hazard Exposure	27.12%	27.43%	28.0%	40.72%	30.78%	39.46%			

Table 5-34: Chino Valley HAZUS building exposure to wildfire									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Chino Valley HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**3,610**	**$394,930**	**128**	**$79,379**	**64**	**$29,717**	**$504,025**		
High Hazard Exposure	0	$4	0	$0	0	$0	$4	20%	$1
Medium Hazard Exposure	224	$23,226	12	$7,106	5	$2,098	$32,430	5%	$1,621
Chino Valley HAZUS Summary	**% Building Count**	**% Potential Economic Impact**	**% Building Count**	**% Potential Economic Impact**	**% Building Count**	**% Potential Economic Impact**			
High Hazard Exposure	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Medium Hazard Exposure	06.21%	05.88%	09.46%	08.95%	07.61%	07.06%			

Table 5-35: Clarkdale HAZUS building exposure to wildfire									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Clarkdale HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**1,639**	**$193,639**	**58**	**$38,407**	**23**	**$17,771**	**$249,817**		
High Hazard Exposure	0	$3	0	$4	0	$9	$16	20%	$3
Medium Hazard Exposure	2	$365	1	$311	0	$649	$1,325	5%	$66
Clarkdale HAZUS Summary	**% Building Count**	**% Potential Economic Impact**	**% Building Count**	**% Potential Economic Impact**	**% Building Count**	**% Potential Economic Impact**			
High Hazard Exposure	0.0%	0.0%	0.01%	0.01%	0.02%	0.05%			
Medium Hazard Exposure	0.11%	0.19%	01.17%	0.81%	01.37%	03.65%			

Table 5-36: Cottonwood HAZUS building exposure to wildfire									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Cottonwood HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**4,265**	**$595,814**	**285**	**$440,562**	**70**	**$48,877**	**$1,085,252**		
High Hazard Exposure	14	$2,940	1	$146	0	$0	$3,087	20%	$617
Medium Hazard Exposure	11	$2,412	0	$31	0	$15	$2,458	5%	$123
Cottonwood HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact			
High Hazard Exposure	0.33%	0.49%	0.24%	0.03%	0.0%	0.0%			
Medium Hazard Exposure	0.26%	0.40%	0.03%	0.01%	0.04%	0.03%			

Table 5-37: Dewey-Humboldt HAZUS building exposure to wildfire									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Dewey-Humboldt HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**1,459**	**$177,128**	**47**	**$18,751**	**30**	**$9,805**	**$205,684**		
High Hazard Exposure	257	$30,323	7	$2,787	7	$2,007	$35,118	20%	$7,024
Medium Hazard Exposure	430	$48,869	18	$7,594	11	$3,778	$60,242	5%	$3,012
Dewey-Humboldt HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact			
High Hazard Exposure	17.62%	17.12%	15.34%	14.87%	23.68%	20.46%			
Medium Hazard Exposure	29.46%	27.59%	38.77%	40.50%	36.87%	38.53%			

Table 5-38: Jerome HAZUS building exposure to wildfire									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Jerome HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**310**	**$32,286**	**23**	**$21,064**	**7**	**$4,135**	**$57,485**		
High Hazard Exposure	10	$405	0	$50	1	$748	$1,203	20%	$241
Medium Hazard Exposure	54	$4,712	1	$187	1	$1,563	$6,462	5%	$323
Jerome HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact			
High Hazard Exposure	03.30%	01.26%	01.46%	0.24%	08.27%	18.09%			
Medium Hazard Exposure	17.50%	14.59%	04.30%	0.89%	20.44%	37.80%			

Table 5-39: Prescott HAZUS building exposure to wildfire									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Prescott HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**15,995**	**$2,878,128**	**989**	**$1,214,850**	**277**	**$158,198**	**$4,251,176**		
High Hazard Exposure	2,475	$431,030	98	$85,137	31	$14,671	$530,838	20%	$106,168
Medium Hazard Exposure	2,605	$454,205	96	$70,075	32	$15,115	$539,395	5%	$26,970
Prescott HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact			
High Hazard Exposure	15.47%	14.98%	09.95%	07.01%	11.05%	09.27%			
Medium Hazard Exposure	16.28%	15.78%	09.67%	05.77%	11.48%	09.55%			

Table 5-40: Prescott Valley HAZUS building exposure to wildfire									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Prescott Valley HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**9,734**	**$1,507,726**	**524**	**$395,664**	**203**	**$129,065**	**$2,032,455**		
High Hazard Exposure	69	$9,915	4	$924	2	$1,108	$11,947	20%	$2,389
Medium Hazard Exposure	775	$107,808	68	$81,381	24	$32,354	$221,542	5%	$11,077
Prescott Valley HAZUS Summary	**% Building Count**	**% Potential Economic Impact**	**% Building Count**	**% Potential Economic Impact**	**% Building Count**	**% Potential Economic Impact**			
High Hazard Exposure	0.71%	0.66%	0.67%	0.23%	01.10%	0.86%			
Medium Hazard Exposure	07.96%	07.15%	13.04%	20.57%	11.90%	25.07%			

Table 5-41: Sedona (Yavapai County) HAZUS building exposure to wildfire									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Sedona (Yavapai County) HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**4,154**	**$596,398**	**231**	**$178,462**	**75**	**$38,817**	**$813,676**		
High Hazard Exposure	162	$23,493	7	$10,516	3	$2,099	$36,108	20%	$7,222
Medium Hazard Exposure	394	$62,264	17	$17,115	6	$3,769	$83,148	5%	$4,157
Sedona (Yavapai County) HAZUS Summary	**% Building Count**	**% Potential Economic Impact**	**% Building Count**	**% Potential Economic Impact**	**% Building Count**	**% Potential Economic Impact**			
High Hazard Exposure	03.91%	03.94%	02.99%	05.89%	03.49%	05.41%			
Medium Hazard Exposure	09.49%	10.44%	07.22%	09.59%	08.04%	09.71%			

Table 5-42: Unincorporated (Yavapai County) HAZUS building exposure to wildfire									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Unincorporated (Yavapai County) HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**37,551**	**$5,217,729**	**1,273**	**$783,936**	**503**	**$233,930**	**$6,235,594**		
High Hazard Exposure	7,005	$1,070,299	241	$178,881	93	$54,289	$1,303,469	20%	$260,694
Medium Hazard Exposure	6,999	$870,684	242	$151,389	93	$40,213	$1,062,287	5%	$53,114
Unincorporated (Yavapai County) HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact			
High Hazard Exposure	18.66%	20.51%	18.98%	22.82%	18.38%	23.21%			
Medium Hazard Exposure	18.64%	16.69%	19.05%	19.31%	18.48%	17.19%			

Table 5-43: Yavapai-Apache Nation HAZUS building exposure to wildfire									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Yavapai-Apache Nation HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**217**	**$23,885**	**3**	**$1,770**	**1**	**$1,143**	**$26,798**		
High Hazard Exposure	4	$569	0	$15	0	$5	$589	20%	$118
Medium Hazard Exposure	85	$10,337	1	$806	1	$483	$11,626	5%	$581
Yavapai-Apache Nation HAZUS Summary	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact	% Building Count	% Potential Economic Impact			
High Hazard Exposure	01.94%	02.38%	0.26%	0.82%	0.46%	0.47%			
Medium Hazard Exposure	39.34%	43.28%	34.19%	45.54%	76.99%	42.24%			

Table 5-44: Yavapai-Prescott Indian Tribe HAZUS building exposure to wildfire									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Yavapai-Prescott Indian Tribe HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
Community-Wide Totals	**62**	**$14,794**	**2**	**$825**	**0**	**$10**	**$15,630**		
High Hazard Exposure	0	$2	0	$1	0	$0	$3	20%	$1
Medium Hazard Exposure	17	$3,989	0	$7	0	$2	$3,998	5%	$200
Yavapai-Prescott Indian Tribe HAZUS Summary	**% Building Count**	**% Potential Economic Impact**	**% Building Count**	**% Potential Economic Impact**	**% Building Count**	**% Potential Economic Impact**			
High Hazard Exposure	0.02%	0.01%	0.04%	0.07%	0.75%	0.50%			
Medium Hazard Exposure	27.38%	26.96%	01.88%	0.88%	15.21%	17.94%			

Table 5-45: Sedona (Coconino County) HAZUS building exposure to wildfire									
	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SUMMARY		
Sedona (Coconino County) HAZUS Summary	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Building Count	Potential Economic Impact (x$1000)	Total of All Economic Impact (x$1000)	Loss-to-Exposure Ratio	Total Estimated Loss (x$1000)
County-Wide Totals	**1,883**	**$361,645**	**145**	**$143,823**	**28**	**$12,477**	**$517,945**		
High Hazard Exposure	87	$15,715	3	$2,145	1	$667	$18,528	20%	$3,706
Medium Hazard Exposure	400	$68,019	28	$26,853	4	$1,961	$96,833	5%	$4,842
Sedona (Coconino County) HAZUS Summary	**% Building Count**	**% Potential Economic Impact**	**% Building Count**	**% Potential Economic Impact**	**% Building Count**	**% Potential Economic Impact**			
High Hazard Exposure	04.62%	04.35%	02.21%	01.49%	03.52%	05.34%			
Medium Hazard Exposure	21.26%	18.81%	19.29%	18.67%	12.88%	15.72%			

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5.3.5 Winter Storm

Description

Severe snow storms affect many aspects of life in the County, including; transportation, emergency services, utilities, agriculture and the supply of basic subsistence to isolated communities. Interstates 40 and 17 have produced numerous fatal multi-car accidents due to heavy winter snowfall and icy road conditions. Heavy snowfalls can also leave motorists stranded in their vehicles with potentially disastrous results like hypothermia and carbon-monoxide poisoning. Significant snow storms can also hinder both ground and air emergency services vehicles from responding to accidents or other emergencies. Remote areas and communities can be easily cut-off from basic resources such as food, water, electricity, and fuel for extended periods during a heavy storm. Extremely heavy snow storms can produce excessive snow loads that can cause structural damage to under-designed buildings. Agricultural livestock can also be vulnerable to exposure and starvation during heavy snow storms.

Freezing rain is formed as snow falls through a warm zone in the atmosphere completely melting the snow. The melted snow then passes through another zone of cool air "super cooling" the rain below freezing temperature while still in a liquid state. The rain then instantly freezes when it comes in contact with the ground or other solid object. Because freezing rain hits the ground as a rain droplet, it conforms to the shape of the ground, making one thick layer of ice. Sleet is similar to hail in appearance but is formed through atmospheric conditions more like freezing rain. The difference is the snowflakes don't completely thaw through the warm zone and then freeze through the cool air zone closer to the ground. Sleet typically bounces as it hits a surface similar to hail. Sleet is also informally used to describe a mixture of rain and snow and is sometimes used to describe the icy coating on trees and powerlines.

Sleet and freezing rain can cause slippery roadway surfaces and poor visibility leading to traffic accidents, and can leave motorists stranded in their vehicles with potentially disastrous results like hypothermia and carbon monoxide poisoning. Heavy sleet or freezing rain can produce excessive ice-loads on powerlines, telecommunication lines and other communication towers, tree limbs, and buildings causing power outages, communication disruptions, and other structural damage to under-designed facilities.

History

Winter snows are the lifeblood of water supplies for most of Yavapai County. However, according to the database summarized in Tables 5-3 and 5-4, winter storms are also one of the most deadly natural hazards to impact the County. According to both Tables 5-3 and 5-4, the County has endured at least 14 fatalities and 10 injuries as a result of snow storms in the last 50 years. The following are highlights of the more prominent snow storm events impacting Yavapai County:

- On October 23, 2005, AZ Department of Public Safety reported 5 wrecks due to hail covered road on I-17 near Highway 69. There was one fatality in a wreck on Highway 69 between I-17 and Mayer. (NCDC, 2010)
- In March of 2006, a major winter storm affected all of Northern Arizona from Friday (03/10) though most of the day on Sunday (3/12). Heavy snowfall and rare low elevation snowfall occurred over almost all of Northern Arizona. This made for difficult driving conditions on snow packed and icy roads with some areas having very poor visibility. Some storm totals from across northern Arizona (in inches) include: Ash Fork 7, Bagdad 5, Black Canyon City and Camp Verde T, Chinle 3, Clarkdale 0.5, Concho 23, Cordes Junction 6, Crown King 16, Forest Lakes 40-48, Jerome 6, Prescott 7-12, and Sedona 2. Two Embry Riddle University students and their friend died when their car hit a truck on a snow covered road in Prescott Valley. (NCDC, 2010)
- In December of 2008, snow began falling over the area during the afternoon of December 15th. By the morning of December 18th, there was about two feet of new snow on the ground at the 7000 foot level. The snow caused many traffic accidents, power outages, and business/school closures and/or delayed openings. A spotter at near 9000 feet had a storm total of 38 inches. Munds Park had 14 inches of snow by 8 AM on the 16th with snow still falling. A large scale trough of low pressure brought two back to back storms to northern Arizona over much of a four day period.

During this event the Department of Public Safety for northern Arizona responded to 188 slideoffs on highways in the northern region. Officers also responded to 65 collisions, 12 of which involved injury. Two people were transported to Flagstaff Medical Center to be treated for their injuries. (NCDC, 2010)

- In January of 2010, a winter storm emergency was declared for Yavapai and eight other counties in Arizona. A strong Pacific winter storm produced moderate valley rain and mountain snow to much of southeast Arizona. Heavy snow combined with strong winds to produce significant blowing and drifting at the higher elevations. Strong gusty winds also affected many valley locations during the evening hours of the 19th and the early morning hours of the 20th. Six inches of snow fell at 6700 feet 6 miles south of Prescott. A strong winter storm hit northern Arizona with widespread snow and rain. Heavy snow fell along the Eastern Mogollon Rim. Snowfall totals for this one storm include: Clints Well 16 inches, Heber 13 inches, Clay Springs 14-15 inches, and Forest Lakes 16 inches. The second in a series of strong Pacific storms moved across northern Arizona with widespread heavy precipitation. The snow level dropped down to 5000-5500 feet elevation by the storm moved east. The Governor signed a Declaration of Emergency and released $200,000 for emergency response and recovery expenses from the weather events. An additional $1 million was approved by the Governor to cover state-share costs. Damages from the winter storm were estimated at $14.9 million (ADEM, 2010; FEMA, 2010)

Probability and Magnitude

Snow level measurements are recorded daily across the United States and can be used to estimate the probability and frequency of severe winter storms. In Arizona, there is a 5% annual chance that snow depths between zero and 25 centimeters will be exceeded, a snowfall probability that is among the lowest in the nation (FEMA, 1997). However, snowfall extremes can occur in Yavapai County and can have serious effects to the population and critical infrastructure.

The NCDC maintains a snow climatology data set that contains maximum 1-day, 2-day, and 3-day duration snow depths at various weather stations across the nation (except Hawaii). The data reflects the maximum depth of snowfall recorded as of 2006. Maps 4 and 5 represent a graphical depiction of zones of historically maximum snow depths for the 1- and 3-day durations for the county. Bordering gage stations in California, Nevada, Utah, Colorado, and New Mexico were also used to ensure that no boundary effects were created.

Vulnerability – CPRI Results

Winter Storm CPRI results for each community are summarized in Table 5-46 below.

Table 5-46: CPRI results by jurisdiction for winter storms

Participating Jurisdiction	Probability	Magnitude/ Severity	Warning Time	Duration	CPRI Score
Camp Verde	Likely	Critical	12 - 24 hours	< 1 week	2.85
Chino Valley	Likely	Limited	12 - 24 hours	< 24 hours	2.15
Clarkdale	Possible	Limited	12 - 24 hours	< 24 hours	2.00
Cottonwood	Highly Likely	Critical	> 24 hours	< 1 week	3.15
Dewey-Humboldt	Possible	Limited	< 6 hours	< 1 week	2.40
Jerome	Highly Likely	Critical	6 - 12 hours	< 1 week	3.45
Prescott	Highly Likely	Critical	6 - 12 hours	< 1 week	3.45
Prescott Valley	Likely	Limited	12 - 24 hours	< 1 week	2.55
Sedona	Possible	Critical	12 – 24 hours	< 1 week	2.40
Unincorporated Yavapai County	Likely	Critical	12 - 24 hours	> 1 week	2.95
Yavapai-Prescott Indian Tribe	Possible	Negligible	> 24 hours	< 1 week	1.65
				County-wide average CPRI =	**2.64**

Vulnerability – Loss Estimations

The National Weather Service in Flagstaff[30], uses the following criteria for issuing warnings about winter storm weather:

1. **Blizzard Warning:** Sustained winds or frequent gusts of 35 mph or more, AND visibility frequently below 1/4 mile in considerable snow and/or blowing snow, AND above conditions are expected to prevail for 3 hours or longer.
2. **Winter Storm Warning:** Issued when more than one winter hazard is involved producing life threatening conditions, such as a combination of heavy snow, strong winds producing widespread blowing and drifting snow, freezing rain, or wind chill.
3. **Heavy Snow Warning Criteria:**

Above 8500 ft	12 inches/12 hrs	18 inches/24 hrs
7000 to 8500 ft	8 inches/12 hrs	12 inches/24 hrs
5000 to 7000 ft	6 inches/12 hrs*	10 inches/24 hrs*
Below 5000 ft	2 inches/12 hrs	4 inches/24 hrs

*(Prescott is in this range)

4. **Snow Advisory Criteria:**

Above 8500 ft	6 to 12 inches/12hrs	12 to 18 inches/24 hrs
7000 to 8500 ft	4 to 8 inches/12 hrs	8 to 12 inches/24 hrs
5000-7000 ft	3 to 6 inches/12 hrs*	6 to 10 inches/24 hrs*
Below 5000 ft	1 to 2 inches/12 hrs	2 inches/24 hrs**

*(Prescott is in this range)
**or snow accumulation in any location where it is a rare event.

5. **Blowing Snow Advisory Criteria:** Visibility frequently at or below 1/4 mile.
6. **High Wind Warning Criteria:** Issued for strong winds not associated with severe local storms, including gradient, mesoscale, and channeled winds; Foehn/Chinook/downslope winds; and winds associated with tropical cyclones. The criteria:

Sustained winds	40 mph or greater	last 1 hr or longer
Wind gusts	58 mph or greater	for any duration

7. **Wind Advisory:** Issued for the same types of wind events as a High Wind Warning, but at lower speed thresholds. The criteria:

Sustained winds	30-39 mph	last 1 hr or longer
Wind gusts	40-57 mph	for any duration

8. **Visibility Hazards:** Visibility reduced to 1/4 mile or less by fog, blowing dust/sand, and smoke.
9. **Wind Chill:** Issued for a wind chill factor of minus 20 ° Fahrenheit or colder.
10. **Freezing Rain/Drizzle, or Sleet:** widespread, dangerous, and damaging accumulations of ice or sleet.
11. **Frost or Freeze Warning:** Issued when temperatures are critical for crops and sensitive plants. Criteria are season dependent, but usually a freeze warning is appropriate when temperatures are expected to fall below freezing for at least 2 hours.

[30] Based on information posted at the following NWS URL: http://www.wrh.noaa.gov/fgz/safety/criteria.php?wfo=fgz

All of the county population and assets are exposed to winter storm conditions to a varying degree, depending on the location within the county and the elevation. Estimation of losses due to winter storm is difficult, but given the historic record, losses of both life and property are probable.

Vulnerability – Development Trend Analysis

Future development will expand the exposure of life and property to the hazard of snow storm events. Enforcement and/or implementation of modern building codes to regulate new developments in conjunction with public education on how to respond to hazardous winter conditions is probably the best way to mitigate against such losses.

Sources

Arizona Division of Emergency Management, State of Arizona Multi-Hazard Mitigation Plan, 2010 Update

U.S. Dept of Commerce, National Climatic Data Center, 2006, Snow Climatology and Extremes, accessed online at: http://www.ncdc.noaa.gov/ussc/USSCAppController?action=map

U.S. Dept of Commerce, National Climatic Data Center, 2010, Storm Events Database, accessed via the following URL: http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms

Profile Maps

Maps 4 and 5

5.4 Risk Assessment Summary

The jurisdictional variability of risk associated with each hazard assessed in Section 5.3 is demonstrated by the various CPRI and loss estimation results. Accordingly, each jurisdiction has varying levels of need regarding the hazards to be mitigated, and may not consider all of the hazards as posing a great risk to their individual communities. Table 5-47 summarizes the hazards selected for mitigation by each jurisdiction and will be the basis for each jurisdictions mitigation strategy.

Table 5-47: Summary of hazards to be mitigated by each participating jurisdiction

Jurisdiction	Flooding	Landslide/ Mudslide	Severe Wind	Wildfire	Winter Storm
Camp Verde	x		x	x	x
Chino Valley	x		x		x
Clarkdale	x		x	x	x
Cottonwood	x			x	
Dewey-Humboldt	x		x	x	x
Jerome	x	x		x	
Prescott	x		x	x	x
Prescott Valley	x		x	x	
Sedona	x			x	
Unincorporated Yavapai County	x			x	
Yavapai-Prescott Indian Tribe	x		x	x	x

SECTION 6: MITIGATION STRATEGY

> ***§201.6(c)(3):*** *[The plan shall include…] (3) A **mitigation strategy** that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools. This section shall include:*
> *(i) A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.*
> *(ii) A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.*
> *(iii) An action plan describing how the actions identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.*
> *(iv) For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.*

The mitigation strategy provides the "what, when, and how" of actions that will reduce or possibly remove the community's exposure to hazard risks. According to DMA 2000, the primary components of the mitigation strategy are generally categorized into the following:

Goals and Objectives

Capability Assessment

Mitigation Actions/Projects and Implementation Strategy

The entire 2006 Plan mitigation strategy was reviewed and updated by the Planning Team, including a major re-organization of the mitigation strategy elements into this multi-jurisdictional plan format. Specifics of the changes and updates are discussed in the subsections below.

6.1 Hazard Mitigation Goals and Objectives

The 2006 Plan goals and objectives were developed using the 2004 State Plan[31] goals and objectives as a starting point. Each jurisdiction then edited and modified those goals and objectives to fit the mitigation planning vision for their community. An assessment of the goals and objectives by the Planning Team and the Local Planning Team for each jurisdiction was made with consideration of the following[32]:

- Do the goals and objectives identified in the 2006 Plan reflect the updated risk assessment?
- Did the goals and objectives identified in the 2006 Plan lead to mitigation projects and/or changes to policy that helped the jurisdiction(s) to reduce vulnerability?
- Do the goals and objectives identified in the 2006 Plan support any changes in mitigation priorities?
- Are the goals and objectives identified in the 2006 Plan reflective of current State goals?

A copy of the 2010 State Plan goals and objectives was provided for use during the review and assessment. The following comments were noted:

- All goals pertaining to human-caused hazards will need to be dropped.
- The planning team generally liked the 2006 Plan's goals and objectives, and for the most part, felt they still represented the mitigation goals of the planning team, with a few needed edits.
- The planning team appreciated the simplicity of the 2010 State of Arizona HMP goals and objectives and determined that the 2006 Plan goals and objectives were generally in agreement.
- Some Planning Team members felt the 2006 Plan goals and objectives were too cumbersome and even confusing, and that they preferred the simplicity of the 2010 State Plan goals.
- Other enjoyed the detail and thoughtfulness of the 2006 goals and wanted to keep them, with selective modifications to reflect the current list of hazards.

[31] State of Arizona, 2004, *State of Arizona All Hazard Mitigation Plan*, prepared by URS.
[32] FEMA, 2008, *Local Multi-Hazard Mitigation Planning Guidance*

After much discussion and comparison of the 2006 Plan goals and objectives to the 2010 State Plan, the Planning Team chose to mostly retain the 2006 Plan goals and objectives and make necessary edits to reflect the current hazards. The following are the resulting list of updated goals and objectives for this Plan.

Goal 1. Promote disaster-resistant future development.

Objective 1.A Update, develop, and support general plans, ordinances, and codes in accordance with state and federal regulations, to limit development in hazard areas or build to standards that will prevent or reduce damage.

Objective 1.B Adopt and support local, state, tribal and federal codes that protect assets and new development in hazard areas.

Goal 2. Promote public understanding, support, and demand for hazard mitigation.

Objective 2.A Educate the public to increase awareness of hazards and opportunities for mitigation actions.

Objective 2.B Promote partnerships among the federal, state, counties, local and tribal governments to identify, prioritize, and implement mitigation actions.

Objective 2.C Promote hazard mitigation in the business, residential, and agricultural community.

Objective 2.D Monitor and publicize the effectiveness of mitigation actions implemented community wide.

Goal 3. Build and support local capacity and commitment to become less vulnerable to hazards.

Objective 3.A Improve existing capabilities to warn the public of emergency situations.

Objective 3.B Develop mitigation programs to enhance the safety of the residents of each community during an emergency.

Objective 3.C Enhance capabilities and readiness of first responders through advanced training techniques and equipment.

Goal 4. Improve hazard mitigation coordination and communication with federal, state, local, and tribal governments.

Objective 4.A Establish and maintain a close working relationship with federal, state agencies and local and tribal governments.

Objective 4.B Establish and maintain intergovernmental agreements with local and tribal governments.

Goal 5. Reduce the potential level of damage and losses to people, existing and future critical facilities/infrastructure, and other community assets due to floods.

Objective 5.A Implement policies, procedures and regulations which reduce the potential exposure to flood hazards.

Objective 5.B Decrease vulnerability of community assets, especially critical facilities located in the 100-year floodplain.

Objective 5.C Maintain coordination with state and federal flood-related agencies.

Objective 5.D Maintain compliance with the National Flood Insurance Program (NFIP) requirements.

Objective 5.E Promote changes in current regulations to facilitate hazard mitigation.

Objective 5.F Educate the public about flood hazard dangers and mitigation measures.

Objective 5.G Identify and map additional flood hazard areas and refine existing mapping.

Goal 6. Reduce the level of human loss and damage and losses to existing and future critical

facilities/infrastructure, and other community assets due to wildland fires.

Objective 6.A Develop a comprehensive approach to reducing the level of damage and losses due to wildland fires.

Objective 6.B Protect life, improved property, and natural resources with vulnerability to the effects of wildland fires.

Objective 6.C Maintain coordination and support existing efforts to mitigate wildland fire hazards.

Objective 6.D Educate the public about wildland fire dangers and mitigation measures.

Objective 6.E Promote changes in current regulations to facilitate hazard mitigation.

Objective 6.F Promote commercial development of forest products to motivate wildfire fuel reduction.

Goal 7. Reduce the level of damage and losses to people, existing and future critical facilities/infrastructure, and other community assets due to severe wind.

Objective 7.A Educate the public to the threat of losses due to severe wind.

Objective 7.B Educate/warn the public of actions and precautions to take during severe wind events.

Objective 7.C Protect life, improved property, and natural resources with vulnerability to the effects of severe wind through improved warning systems.

Goal 8. Reduce the potential level of damage and losses to people, existing and future critical facilities/infrastructure, and other community assets due to other natural and human-caused hazards.

Objective 8.A Develop a comprehensive approach to reducing the level of damage and losses due to other hazards.

Objective 8.B Protect life, improve property, and natural resources with vulnerability to the effects of other hazards.

6.2 Capability Assessment

While not required by DMA 2000, an important component of the Mitigation Strategy is a review of each participating jurisdiction's resources in order to identify, evaluate, and enhance the capacity of local resources to mitigate the effects of hazards. The capability assessment is comprised of several components:

- ✓ Legal and Regulatory Review – a review of the legal and regulatory capabilities, including ordinances, codes, plans, manuals, guidelines, and technical reports that address hazard mitigation activities.
- ✓ Technical Staff and Personnel – this assessment evaluated and describes the administrative and technical capacity of the jurisdiction's staff and personnel resources.
- ✓ Fiscal Capability – this element summarizes each jurisdiction's fiscal capability to provide the financial resources to implement the mitigation strategy.
- ✓ National Flood Insurance Program (NFIP) Participation – the NFIP contains specific regulatory measures that enable government officials to determine where and how growth occurs relative to flood hazards. Participation in the NFIP is voluntary for local governments, but the program is promoted by FEMA as a basic first step for implementing and sustaining an effective flood hazard mitigation program, and is a key indicator for measuring local capability as part of this assessment.
- ✓ Prior Mitigation Actions – the final part of the capability assessment is a summary review of prior mitigation actions and/or projects that have been completed over the last five or so years.

The Planning Team reviewed the information provided in Section 5 of the 2006 Plan, and specifically Tables 5-1 through 5-4. The Planning Team chose to keep the format of Tables 5-2 and 5-3 for reporting the staff/personnel and fiscal resources. Table 5-1 and 5-4 were combined into a new table to not only report on the regulatory capabilities, but also to summarize the codes, plans, and studies/reports used by a jurisdiction. Therefore, Table 5-4 was dropped from the Plan.

6.2.1 Jurisdictional Capabilities

Tables 6-1-1 through 6-1-11 summarize the legal and regulatory mitigation capability for each participating jurisdiction. Information provided includes a brief listing of current codes, mitigation relevant ordinances, plans, and studies/reports. Tables 6-2-1 through 6-2-11 summarize the staff and personnel resources employed by each jurisdiction that serve as a resource for hazard mitigation. Tables 6-3-1 through 6-3-11 summarize the fiscal capability and budgetary tools available to each participating jurisdiction. Each of these three tables are listed below by jurisdiction.

Table 6-1-1: Summary of legal and regulatory capabilities for Unincorporated Yavapai County		
Regulatory Tools for Hazard Mitigation	**Description**	**Responsible Department/Agency**
CODES	• 2006 International Building Code and related codes adopted August 2007, Ordinance 2007-1.	• Development Services
ORDINANCES	• Planning and Zoning Ordinance for the Unincorporated areas of Yavapai County, AZ, adopted Feb.5, 1968 updates through Nov. 2010. • Yavapai Subdivision Regulations adopted Sept. 8, 2009. • Yavapai County Flood Control District Ordinance 2010-1 Flood Damage Prevention Ordinance, adopted October, 2010.	• Development Services, Flood Control District
PLANS, MANUALS, and/or GUIDELINES	• Disaster Response Plan (1/2005) - Disaster response protocols and pre-disaster mitigation. • Terrorism Response Plan (6/2005) - Preparation, data and response protocols for terrorists events. • General Plan (4/2003) - Includes related to Land use, Transportation, Water Resources, Open Space • Community Plans - Community Plans are part of the County general Plan: o Bagdad Townsite (1993) o Ash Fork (1981) o Chino Valley-Paulden (1985) o Seligman (1985) o Black Canyon City (1991) o Cornville (1986) o Dewey Humboldt (1998) o Big Park (1998) o Granite Dells (1991) o Beaver Creek (1996) o Red Rock Dry Creek Area (1992) o Cordes Lake-Spring Valley, Hwy 69 Corridor (1995)	• Public Works, Development Services, Flood Control District
STUDIES	• Transportation Study (1998) - Central Yavapai County. • Transportation Study (1999) - Verde Valley Regional. • Special Study (1998) - Yavapai County Master Trails for Non-Motorized Multi-Use • Special Study (2000) - Yavapai County Wireless Communication. • Various Area Drainage Master Studies for various unincorporated communities	• Development Services, Flood Control District

Table 6-2-1: Summary of technical staff and personnel capabilities for Unincorporated Yavapai County		
Staff/Personnel Resources	☑	**Department/Agency - Position**
Planner(s) or engineer(s) with knowledge of land development and land management practices	☑	Development Services: Planners Flood Control District: Engineers Public Works: Engineers
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	☑	Public Works: Engineers, Inspectors Development Services: Professionals Flood Control District: Engineers
Planner(s) or engineer(s) with an understanding of natural and/or human-caused hazards	☑	Public Works: Engineers, Emergency Managers, Professionals Development Services: Planners & Professionals Flood Control District: Engineers and Professionals
Floodplain Manager	☑	Flood Control District
Surveyors	☑	Public Works
Staff with education or expertise to assess the community's vulnerability to hazards	☑	Public Works Emergency Management Development Services Flood Control District
Personnel skilled in GIS and/or HAZUS	☑	MIS Department Public works
Scientists familiar with the hazards of the community	☑	Flood Control District
Emergency manager	☑	Public Works: Emergency Manager
Grant writer(s)	☑	Emergency Management Coordinator
Others	☑	Certified Floodplain Managers

Table 6-3-1: Summary of fiscal capabilities for Unincorporated Yavapai County		
Financial Resources	**Accessible or Eligible to Use (Yes, No, Don't Know)**	**Comments**
Community Development Block Grants	Yes	Yes
Capital Improvements Project funding	Yes	Yes
Authority to levee taxes for specific purposes	Yes	Generally requires voter approval.
Fees for water, sewer, gas, or electric service	No	No
Impact fees for homebuyers or new developments/homes	Yes	Yes
Incur debt through general obligation bonds	Yes	Generally requires voter approval.
Incur debt through special tax bonds	Yes	Generally requires voter approval.
Other		

Table 6-1-2: Summary of legal and regulatory capabilities for Camp Verde		
Regulatory Tools for Hazard Mitigation	**Description**	**Responsible Department/Agency**
CODES	• 2006 International Building Code, including Appendix J – Grading • 2006 International Residential Code • 2005 National Electric Code • 2006 International Plumbing Code • 2006 International Mechanical Code • 2006 International Fuel Gas Code • 2006 International Energy Conservation Code • 2003 International Fire Code • 2006 International Existing Building Code • Technical Code Amendments – Town Code Chapter 7, Article 7-1, Section 7-1-100 • Administrative Building Code – Town Code Chapter 7, Article 7-2, Section 7-2-101-111	• Community Development • Building Safety • Camp Verde Fire Department • Planning & Zoning • Public Works
ORDINANCES	• Ordinance 2009-A359 – Building Codes • Ordinance 2009-A361 – Fees/Administrative • Ordinance 2005-A310 - Stormwater • Ordinance 2006A-335 – NFIP • IGA – Town/Camp Verde Fire Dept. (5/19/2010) • IGA – Town/Yavapai County Unified Emergency Management (6/17/2009) • Ordinance 2006-A337 Development Impact Fees • IGA Emergency Management with Yavapai Co (5/5/2010)	• Community Development • Building Safety • Public Works • Camp Verde Fire Department • Planning and Zoning • Yavapai County
PLANS, MANUALS, and/or GUIDELINES	• General Plan (2004) - Growing Smarter Mandated. • Disaster Mitigation Plan (2003) - Disaster Preparedness Plan. • Focus Future (2005) - Economic Development Plan. • Capital Improvement Plan (2010) • Town of Camp Verde Multi-Hazard Mitigation Plan (2006) • 2007 Stormwater Management Plan • Cliffs Parkway/Finnie Flat Road Drainage Improvement Plans 2006-2010 • Yavapai Drainage Criteria Manual • Town of Camp Verde Engineering Standards	• Community Development • Building Safety • Planning and Zoning • Public Works • Camp Verde Fire Department • Camp Verde Sanitary District • Yavapai County • Camp Verde Marshal's Office
STUDIES	• Small Area Transportation Plan 2010 • Town of Camp Verde Area Master Drainage Study 1992 • Middle Verde Area Drainage Evaluation 2002	• Public Works • Yavapai County

Table 6-2-2: Summary of technical staff and personnel capabilities for Camp Verde		
Staff/Personnel Resources	☑	**Department/Agency - Position**
Planner(s) or engineer(s) with knowledge of land development and land management practices	☑	Senior Planner, Acting Director of Community Development Department and Public Works Director/Engineer
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	☑	Building Official Building Permit Technician Town of Camp Verde Public Works Director/Town Engineer
Planner(s) or engineer(s) with understanding of natural and/or human-caused hazards	☑	Camp Verde Fire Department Public Works Director/Town Engineer Community Development Director Camp Verde Marshal's Office
Floodplain Manager	☑	Public Works Director/Engineer Yavapai County Flood Control District
Surveyors	☑	Heritage Survey, Hammes Surveying and Geometrics (on-call Consultants)
Staff with education or expertise to assess the community's vulnerability to hazards	☑	Camp Verde Fire Department Public Works Director/Town Engineer Camp Verde Streets Department Camp Verde Marshal's Office
Personnel skilled in GIS and/or HAZUS	☑	GIS Senior Planner and Administrative staff
Scientists familiar with the hazards of the community		
Emergency Manager	☑	Town Public Works Director/Engineer
Grant writer(s)	☑	Town of Camp Verde Public Works Director/Engineer
Others		

Table 6-3-2: Summary of fiscal capabilities for Camp Verde		
Financial Resources	**Accessible or Eligible to Use (Yes, No, Don't Know)**	**Comments**
Community Development Block Grants	Yes	
Capital Improvements Project funding	Yes	
Authority to levee taxes for specific purposes	Yes	
Fees for water, sewer, gas, or electric service	No	
Impact fees for homebuyers or new developments/homes	Yes	Adopted 2006
Incur debt through general obligation bonds	Yes	
Incur debt through special tax bonds	Yes	
Other		

Table 6-1-3: Summary of legal and regulatory capabilities for Chino Valley		
Regulatory Tools for Hazard Mitigation	**Description**	**Responsible Department/Agency**
CODES	• 2003 Fire Dept. • 2006, IBC, IRC, IFGC, IMC, IPC • 2005 NEC	• Development Services • Building Department • Fire • Engineering
ORDINANCES	• Town of Chino Valley Zoning Ordinance • Town of Chino Valley Subdivision Code • Town of Chino Valley Council Ordinance • Adopt Town of Chino Valley Engineer Studies	• Development Services • Planning
PLANS, MANUALS, and/or GUIDELINES	• General Plan (2015) - This plan is to ensure the Town's future and maintain the vision of its citizens. • Master Community Center Park Project	• Development Services • Planning • Parks and Recreation • Engineering
STUDIES	• Chino Valley Extension Corridor Def. Study • Central Yavapai Metropolitan Planning Organization Small Area Transportation Plan. • State Route 89 Widening Between Road 4 South to Pioneer Parkway	• Public Works • Engineering • Development Services

Table 6-2-3: Summary of technical staff and personnel capabilities for Chino Valley		
Staff/Personnel Resources	☑	**Department/Agency - Position**
Planner(s) or engineer(s) with knowledge of land development and land management practices	☑	David Nicolella – Planner Ron Grittman, P.E. - Engineer
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	☑	Ron Grittman, P.E. – Engineer Kurt Morrill – Public Works Technician Pat Clingman – Building Official
Planner(s) or engineer(s) with and understanding of natural and/or human-caused hazards		
Floodplain Manager	☑	Pat Clingman – Building Official Ron Grittman, P.E.
Surveyors		
Staff with education or expertise to assess the community's vulnerability to hazards		
Personnel skilled in GIS and/or HAZUS	☑	Jan Mazy, GIS/CAD Technician
Scientists familiar with the hazards of the community		
Emergency Manager	☑	Ron Grittman, Public Works Director
Grant writer(s)		
Others		

Table 6-3-3: Summary of fiscal capabilities for Chino Valley		
Financial Resources	**Accessible or Eligible to Use (Yes, No, Don't Know)**	**Comments**
Community Development Block Grants	Yes	
Capital Improvements Project funding	Yes	
Authority to levee taxes for specific purposes	No	
Fees for water, sewer, gas, or electric service	Yes	
Impact fees for homebuyers or new developments/homes	Yes	
Incur debt through general obligation bonds	Yes	
Incur debt through special tax bonds	Yes	
Other		

Table 6-1-4: Summary of legal and regulatory capabilities for Clarkdale		
Regulatory Tools for Hazard Mitigation	**Description**	**Responsible Department/Agency**
CODES	• 2006 International Building Code • 2006 International Residential Code • 2006 International Plumbing Code • 2006 International Mechanical Code • 2006 International Fire Code • 2002 National Electric Code • 2003 International Property Maintenance Code • Town Code of Clarkdale	• Community Development • Clarkdale Fire District • Town Clerk
ORDINANCES	• Minor Land Division Ordinance • Flood Damage Prevention Ordinance (2010)	• Community Development • Town Clerk
PLANS, MANUALS, and/or GUIDELINES	• Town of Clarkdale Disaster Plan & Recovery Guide (9/2004) - Comprehensive, step-by-step plan that provides protocol for dealing with specific disasters.(Being Updated in 2011) • General Plan (2002) - Statement of Clarkdale's vision for growth and development.(Update Complete in 2011) • Wastewater Master Plan (2002) - Establishes expansion areas, identifies units and population served. Outlines objections with action steps.(Ongoing Updates • Municipal Water System Emergency Operation Plan – 2010 • IGA for Establishment of Unified Emergency Management with County – 2010 • IGA with ADOT for Bridge/Culvert Inspection - 2010	• Water & Sewer Utility • Community Development • Public Works • Town Clerk
STUDIES	• Flood Insurance Study – 2007&2010 • Town Area Master drainage Study – 1994 • Town Area Master Drainage Study – 1996 • Lampliter Village & Blackhills Estates Drainage Design Report – 2004 • PARA Transportation Study - 2010	• Community Development • Utilities • Public Works

Table 6-2-4: Summary of technical staff and personnel capabilities for Clarkdale		
Staff/Personnel Resources	☑	**Department/Agency - Position**
Planner(s) or engineer(s) with knowledge of land development and land management practices	☑	Community Development Director GIS Technician Public Works Director Town Manager
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	☑	Community Development Director Building Inspector Public Works Director
Planner(s) or engineer(s) with and understanding of natural and/or human-caused hazards	☑	Community Development Director Building Inspector Public Works Director Town Manager
Floodplain Manager	☑	Yavapai County: Jim Young
Surveyors		
Staff with education or expertise to assess the community's vulnerability to hazards	☑	Community Development Dep. Staff generally Town Manager Public Works Director Utility Director
Personnel skilled in GIS and/or HAZUS	☑	Community Development Director GIS Technician
Scientists familiar with the hazards of the community		None
Emergency Manager		None
Grant writer(s)	☑	Town Staff
Others		

Table 6-3-4: Summary of fiscal capabilities for Clarkdale		
Financial Resources	**Accessible or Eligible to Use (Yes, No, Don't Know)**	**Comments**
Community Development Block Grants	Yes	Apply for CDBG on rotation
Capital Improvements Project funding	Yes	
Authority to levee taxes for specific purposes	Yes	
Fees for water, sewer, gas, or electric service	Yes	Sewer & Water
Impact fees for homebuyers or new developments/homes	Yes	Wastewater, Civic, Park, Library, and Police Impact Fees
Incur debt through general obligation bonds	Yes	
Incur debt through special tax bonds	Yes	
Other	Yes	IGAs with County, State, ADOT

Table 6-1-5: Summary of legal and regulatory capabilities for Cottonwood		
Regulatory Tools for Hazard Mitigation	**Description**	**Responsible Department/Agency**
CODES	• 2009 International Building Code • 2009 International Residential Code • 2009 International Plumbing Code • 2009 International Mechanical Code • 2008 National Electric Code • Cottonwood Municipal Code	• Community Development • Code/Zoning Enforcement • Fire Department
ORDINANCES	• Storm Water Management • Fire Code • Zoning Ordinance • Building Code • Cottonwood Subdivision Regulations	• Engineering • Fire Department • Community Development • Public Works
PLANS, MANUALS, and/or GUIDELINES	• General Plan (2003) - Land Use Plan for the City • Disaster Response & Recover Plan (2000) - Emergency Response & Recovery Plan for the City. • Wildland Interface Pre-Fire Plan (2002) - Response Plan For Urban Interface/Wildland Fire Target Hazard areas in the City. • Hazardous Materials Response Plan (2002) - Haz Mat Response Plan for Yavapai County. • Emergency Response Plan (2003) - Cottonwood-Oak Creek Response Plan to Disasters/Terrorism.	• Community Development • Fire Department • Police Department
STUDIES	• 2008 Verde Village Study • 2009/2010 Deception Gulch • 2009/2010 Mescal Gulch • 2011 Verde River Study • 1985 City of Cottonwood Drainage report • 2009 LOMR Silver Springs Gulch • 2010 FEMA FIRM Map	• Engineering

Table 6-2-5: Summary of technical staff and personnel capabilities for Cottonwood		
Staff/Personnel Resources	☑	**Department/Agency - Position**
Planner(s) or engineer(s) with knowledge of land development and land management practices	☑	Community Development. – Director Public Works Dept. – City Engineer City Administration – City Manager
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	☑	Community Development. – Building Official Public Works Dept. – City Engineer & Asst.
Planner(s) or engineer(s) with and understanding of natural and/or human-caused hazards	☑	Community Development. - Director Fire Dept. – Fire Chief Public Works Dept. – City Engineer Police Dept. – Police Chief
Floodplain Manager	☑	Engineering. - Director
Surveyors	☑	Engineering. - Staff
Staff with education or expertise to assess the community's vulnerability to hazards	☑	Fire Dept. – Fire Chief Public Works Dept. – City Engineer Police Dept. – Police Chief
Personnel skilled in GIS and/or HAZUS	☑	Community Development. - Director Fire Department.- Chief
Scientists familiar with the hazards of the community	☑	Wastewater. – Supervisors Engineering. – City Engineer
Emergency Manager	☑	Fire Dept. – Fire Chief
Grant writer(s)	☑	Engineering- Staff Engineer
Others		

Table 6-3-5: Summary of fiscal capabilities for Cottonwood		
Financial Resources	**Accessible or Eligible to Use (Yes, No, Don't Know)**	**Comments**
Community Development Block Grants	Yes	
Capital Improvements Project funding	Yes	Five Year CIP Plan
Authority to levee taxes for specific purposes	Yes	Sales Tax
Fees for water and sewer	Yes	Fees
Impact fees for homebuyers or new developments/homes	Yes	
Incur debt through general obligation bonds	Yes	
Incur debt through special tax bonds	Yes	
Other		

Table 6-1-6: Summary of legal and regulatory capabilities for Dewey-Humboldt		
Regulatory Tools for Hazard Mitigation	**Description**	**Responsible Department/Agency**
CODES	• 2006 ICC Codes • 2005 National Electric Code	• Development Services
ORDINANCES	• Dewey-Humboldt Zoning Ordinance 2005, revised 2008 • Subdivision and Division of Land Ordinance 2009 • Light Pollution Control Ordinance 2008 • PAD Ordinance 2008 • FEMA Flood Insurance Ordinance 2006	• Development Services • Engineering
PLANS, MANUALS, and/or GUIDELINES	• Town of Dewey-Humboldt 2009 General Plan (May 2009) • Town of Dewey-Humboldt Multi-Hazard Mitigation Plan (2010) • Town of Dewey-Humboldt Capital Improvement Plan (10-year plan updated biennial) • Yavapai Communities Wildfire Protection Plan 2004	• Development Services • Engineering • Central Yavapai Fire District
STUDIES	• Whistle Wash Floodplain Analysis 2003 • Kachina Place Flood Hazard Study 2002 • An Analysis of Stormwater Flows at Hwy 169 Discharging from the Antelope Meadows Commercial Center 2010 and Evaluation of Potential Drainage Modifications to Reduce Downstream Flooding in the Sierra Dells Subdivision • FEMA DFIRM Maps, September 3, 2010	• Development Services • Engineering • FEMA

Table 6-2-6: Summary of technical staff and personnel capabilities for Dewey-Humboldt		
Staff/Personnel Resources	☑	**Department/Agency - Position**
Planner(s) or engineer(s) with knowledge of land development and land management practices	☑	Certified Planner; Town Engineer
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	☑	Certified Planner
Planner(s) or engineer(s) with and understanding of natural and/or human-caused hazards	☑	Certified Planner; Town Engineer
Floodplain Manager	☑	Yavapai County
Surveyors	☑	Town Engineer
Staff with education or expertise to assess the community's vulnerability to hazards	☑	Certified Planner; Town Engineer
Personnel skilled in GIS and/or HAZUS	☑	Town Engineer
Scientists familiar with the hazards of the community		
Emergency Manager		
Grant writer(s)	☑	Certified Planner; Town Engineer; Finance Director
Others		

Table 6-3-6: Summary of fiscal capabilities for Dewey-Humboldt		
Financial Resources	**Accessible or Eligible to Use (Yes, No, Don't Know)**	**Comments**
Community Development Block Grants	Yes	Apply for CDBG on an annual basis
Capital Improvements Project funding	Yes	10-year plan updated biennial
Authority to levee taxes for specific purposes	Yes	
Fees for water, sewer, gas, or electric service	No	No Town water or sewer facilities, no franchise for power or gas
Impact fees for homebuyers or new developments/homes	Yes	
Incur debt through general obligation bonds	Yes	
Incur debt through special tax bonds	Yes	
Other		

Table 6-1-7: Summary of legal and regulatory capabilities for Jerome		
Regulatory Tools for Hazard Mitigation	**Description**	**Responsible Department/Agency**
CODES	JEROME TOWN CODE, which includes by reference: • 2003 International Building Code (w. amendments) • 1988 Uniform Code for the Abatement of Dangerous Buildings • 2003 International Residential Code • 2003 International Plumbing Code • 2003 International Mechanical Code • 2003 International Fire Code (w. amendments) • 2003 International One- and Two-Family International Dwelling Code • 2002 National Electrical Code • 2003 International Fuel Gas Code • 2003 International Property Maintenance Code (w. amendments) • 2003 Town of Jerome Grading Ordinance • 2009 Town of Jerome Administrative Code	• Fire Chief • Chief Building Official • Zoning Administrator
ORDINANCES	All ordinances have been codified into the Jerome Town Code.	
PLANS, MANUALS, and/or GUIDELINES	• Town of Jerome Multi-Hazard Mitigation Plan (2006)	• Planning and Zoning • Public Works • Emergency Management
STUDIES	n/a	n/a

Table 6-2-7: Summary of technical staff and personnel capabilities for Jerome		
Staff/Personnel Resources	☑	**Department/Agency - Position**
Planner(s) or engineer(s) with knowledge of land development and land management practices	☑	Town Planner Town Engineer
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	☑	Building Inspector
Planner(s) or engineer(s) with and understanding of natural and/or human-caused hazards	☑	Town Engineer Yavapai County
Floodplain Manager		Yavapai County
Surveyors	☑	Town Engineer
Staff with education or expertise to assess the community's vulnerability to hazards	☑	Town Planner Police Chief Fire Chief
Personnel skilled in GIS and/or HAZUS	☑	Jerome Fire Department Town Engineer
Scientists familiar with the hazards of the community		Yavapai County
Emergency Manager	☑	Jerome Police Department Jerome Fire Department Yavapai County
Grant writer(s)	☑	Jerome Fire Department Jerome Police Department Town Manager
Others	☑	Mayor Public Works Crew Chief Town Planner

Table 6-3-7: Summary of fiscal capabilities for Jerome		
Financial Resources	**Accessible or Eligible to Use (Yes, No, Don't Know)**	**Comments**
Community Development Block Grants	Yes	By application
Capital Improvements Project funding	Yes	
Authority to levee taxes for specific purposes	Yes	
Fees for water, sewer, gas, or electric service	Yes	Water/Sewer – Town of Jerome
Impact fees for homebuyers or new developments/homes	No	No
Incur debt through general obligation bonds	Yes	
Incur debt through special tax bonds	Yes	
Other		

Table 6-1-8: Summary of legal and regulatory capabilities for Prescott		
Regulatory Tools for Hazard Mitigation	**Description**	**Responsible Department/Agency**
CODES	• 2006 International Building Code, Plumbing code, Electrical Code • 2006 International Fire Code • 2006 ICC Wildland Urban Interface Code	• Community Development • Fire Department
ORDINANCES	• Zoning Ordinance 2005 General Plan • Subdivision Regulations • Site Plan reviews • General Plan 2005	• Community Development
PLANS, MANUALS, and/or GUIDELINES	• Conceptual Community Vegetation Management Plan (4/2001) - Wildfire Risk Assessment. • 2003 Prescott General Plan (2004) - Growing Smarter/Growing Smarter Plus – Mandated • Capital Improvement Plan • CWPP • Economic Development Plan • Emergency Operations Plan • Post Disaster Recovery Plan	• Fire Department • Community Development
STUDIES	•	•

Table 6-2-8: Summary of technical staff and personnel capabilities for Prescott		
Staff/Personnel Resources	☑	**Department/Agency - Position**
Planner(s) or engineer(s) with knowledge of land development and land management practices	☑	Community Development
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	☑	Public Works
Planner(s) or engineer(s) with and understanding of natural and/or human-caused hazards	☑	Public Works
Floodplain Manager	☑	Public Works
Surveyors	☑	Engineering/Public Works
Staff with education or expertise to assess the community's vulnerability to hazards	☑	Fire Department
Personnel skilled in GIS and/or HAZUS	☑	Information Technology
Scientists familiar with the hazards of the community		
Emergency Manager	☑	Fire Chief
Grant writer(s)		
Others		

Table 6-3-8: Summary of fiscal capabilities for Prescott		
Financial Resources	**Accessible or Eligible to Use (Yes, No, Don't Know)**	**Comments**
Community Development Block Grants	Yes	
Capital Improvements Project funding	Yes	
Authority to levee taxes for specific purposes	Yes	
Fees for water, sewer, gas, or electric service	Yes	
Impact fees for homebuyers or new developments/homes	Yes	
Incur debt through general obligation bonds	Yes	
Incur debt through special tax bonds	Yes	
Other		

Table 6-1-9: Summary of legal and regulatory capabilities for Town of Prescott Valley		
Regulatory Tools for Hazard Mitigation	**Description**	**Responsible Department/Agency**
BUILDING CODES	• 2006 Series of International Codes (some limited aspects of building codes are established and controlled by state agencies. For example, the state sets and enforces standards for mobile/manufactured homes per ARS §41-2144, and for factory-built buildings per ARS §41-2155. Also, state buildings are exempt from local building codes per ARS §34-461. The state has insisted that local communities adopt a uniform plumbing code established by a state plumbing code commission (ARS §§9-805 and 41-619). And, Central Yavapai Fire District (which includes all of Prescott Valley) adopts and enforces applicable fire code regulations).	• Community Development Dept
ORDINANCES	• Zoning Ordinance – Use Same description from 2006 plan • Subdivision Ordinance – Use same description from 2006 plan • Special Purpose Ordinance – Use same description from 2006 plan • Growth Management Ordinance – Use same description from 2006 plan • Post-Disaster Recovery Ordinance-Use same description from 2006 plan	• Community Development Dept • Community Development Dept • Community Development Dept • Community Development Dept • Police Dept
PLANS, MANUALS, and/or GUIDELINES	• Strategic (3/2001 by Resolution, since updated annually) - Includes a mission statement, vision statement, goals, and implementing management action plans for Town staff. • Disaster Plan and Guide (12/2001) - Provides direction and guidance to Town departments and supporting agencies in the event of natural, technological, or national security disaster. • General Plan 2020 (1/2002 by Resolution) - Comprehensive plan adopted in accordance with the "Growing Smarter Act" (1998 AZ Sess Laws, Chap. 204, §21, amended by 1999 AZ Sess Laws, Chap. 222, §2) and "Growing Smarter Plus" (2000 AZ. Sess. Laws Chap. 1). • Master Drainage Plan (1/2003) - Storm water drainage facilities and management plan. • Capital Improvements Plan- The Town has established capital Improvement plans from time to time as part of the adopting developmental impact fees. The most recent adoption of development fees was through Resolution No. 1461 dated May 25, 2006. Capital Improvement plans are also established and updated as part of the annual budget process. • Economic Development Plan - In addition to Chapter 09 "Economic Development" in the General Plan 2020, the Town has participated in the Focused Future Process approving "Focus on success in 2007". • Emergency Response Plan - Use same description from 2006 plan • Post-Disaster Recovery Plan- Use same description from 2006 plan	• Management Dept • Police Dept • Community Development Dept • Public Works Dept • Management Dept • Management Dept • Police Dept • Police Dept
STUDIES	•	•

Table 6-2-9: Summary of technical staff and personnel capabilities for Town of Prescott Valley

Staff/Personnel Resources	☑	Department/Agency - Position
Planner(s) or engineer(s) with knowledge of land development and land management practices	☑	Richard Parker – Community Development Director Dava & Associates, Town Engineer
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	☑	Woodrow Lewis, Building Official Dava & Associates, Town Engineer
Planner(s) or engineer(s) with and understanding of natural and/or human-caused hazards	☑	Neil Wadsworth, Utilities Division Manager Ray Smith, Civil Engineer Dava & Associates, Town Engineer Richard Parker, Community Development Director
Floodplain Manager	☑	Ray Smith, Civil Engineer
Surveyors	☑	Dava & Associates, Town Engineer
Staff with education or expertise to assess the community's vulnerability to hazards	☑	Larry Tarkowski, Town Manager Norm Davis, Public Works Director Ken Stanton, Operations Manager Jim Maxson, Police Chief
Personnel skilled in GIS and/or HAZUS	☑	Larry Prentice, GIS Manager
Emergency Manager	☑	Larry Tarkowski, Town Manager
Grant writer(s)	☑	Ruth Mayday - Planner Ryan Judy, Deputy Town Manager
Others	☑	Diane Russell, Town Clerk (Risk Manager) Ivan Legler, Town Attorney

Table 6-3-9: Summary of fiscal capabilities for Town of Prescott Valley

Financial Resources	Accessible or Eligible to Use (Yes, No, Don't Know)	Comments
Community Development Block Grants	Yes	
Capital Improvements Project funding	Yes	
Authority to levee taxes for specific purposes	No	Although permitted by law, the Town has not sought voter authorization to assess an ad valorem tax throughout the Town. An exception is ad valorem taxes charged by community facilities districts within the Town for purposes of funding bonds sold to finance specified public improvements within those districts. The transaction privilege/use taxes which are imposed Town-wide provide general revenues and are not limited to specific purposes (although the Town has publicly committed to apply .33% of the total 2.33% TPTax towards road construction and its municipal property corporation has sold bonds on that basis). Improvement district assessments under ARS §48-571 et seq. have been applied against property for specific improvements that benefit

Table 6-3-9: Summary of fiscal capabilities for Town of Prescott Valley		
Financial Resources	**Accessible or Eligible to Use (Yes, No, Don't Know)**	**Comments**
		such property.
Fees for water, sewer, gas, or electric service	Yes	Water and sewer.
Impact fees for homebuyers or new developments/homes	Yes	A Circulation System Fee, a Public Safety Fee, a Recreation, Parks & Open Space Fee, a Civic Fee and a Cultural Fee. Related are one-time utility charges against new development namely the: Water System Capacity Charge, Wastewater System Capacity Charge, and Water Resource Charge.
Incur debt through general obligation bonds	No	The StoneRidge, Pronghorn Ranch, and Quailwood Meadows CFDs have issued GO bonds based on ad valorem taxes levied within their geographical boundaries. However, at present, there is no Town-wide ad valorem tax and the Town has no GO bonds and no current authority to issue any.
Incur debt through special tax bonds	Yes	The Town may issue debt backed by its transaction privilege tax collections or by specific utility rates, fees and charges. Voter approval is generally required. However, the Town may issue TPTax debt through its municipal property corporation without voter approval.
Incur debt through private activity bonds	Yes	The Town's financial advisors have discussed various financing options, including bonds which may be taxable.
Withheld spending in hazard-prone areas	Yes	For example, Town Code Article 9-05 currently prohibits connection of structures located within the FEMA floodplain to the Town's wastewater collection and treatment system
Other		

Table 6-1-10: Summary of legal and regulatory capabilities for Sedona		
Regulatory Tools for Hazard Mitigation	**Description**	**Responsible Department/Agency**
CODES	• 2006 International Building Code • 2006 International Residential Code • 2006 International Mechanical Code • 2006 International Plumbing Code • 2006 International Fuel Gas Code • 2005 National Electric Code • 2003 International Fire Code • 2003 Urban Wild-land Interface Code • Sedona City Code • Sedona Land Development Code	• City Community Development • City Building Safety • City Planning • City Public Works Dept. • Sedona Fire District
ORDINANCES	• Zoning Ordinance, Land Development Code with updates from Community Development. • 2010 City of Sedona Floodplain Ordinance • 2006 Yavapai County Flood Control District Ordinance (with amendments) • 1981 Floodplain Management Regulations for Coconino County (amended in 2000)	• City Community Development • City Public Works Dept. • City Planning • Yavapai County • Coconino County
PLANS, MANUALS, and/or GUIDELINES	• 1988 Wastewater Master Plan (with updates) - Plan for the identifying, prioritizing, and phasing for the construction of a City sewer system. • 1991 Sedona Community Plan (with updates) - Long range planning document for the City. • 2005 Storm Water Master Plan - Provides a procedure for identifying and prioritizing stormwater improvements for the City; provides a watershed hydrology model for the City. • 2005 Sedona Multi-Hazard Mitigation Plan (with 5-year updates) • 2005 Yavapai Co Drainage Manual (with updates) • ADOT Transportation Manual • November 2003 Storm Water Management Program - A plan that meets the requirements of the EPA for Phase II of the National Pollutant Discharge Elimination System regulations for storm water. • 1996 Urban Trails and Pathways Plan - Plan for a system of trails for pedestrian, equestrian, and non-motorized biking.	• City Community Development • City Planning • City Public Works Dept. • City Parks and Recreation • ADEM • ADOT
STUDIES	• Floodplain Management Study (1994) - Study which identified flood hazard areas within the City, profiles and Base Flood Elevations provided, for the purpose of Floodplain Management. • FEMA FIS & DFIRMs for Yavapai and Coconino Counties (Effective date is September 3, 2010)	• City Public Works Dept. • Yavapai County Flood Control • Coconino County Flood Control • ADWR • FEMA

Table 6-2-10: Summary of technical staff and personnel capabilities for Sedona		
Staff/Personnel Resources	☑	**Department/Agency - Position**
Planner(s) or engineer(s) with knowledge of land development and land management practices	☑	Public Works, Community Development, City Engineer and staff, Community Development director and staff
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	☑	Public Works, Community Development, City Engineer and staff, Building Official, Plans Reviewer, Building Inspector, Fire Marshal
Planner(s) or engineer(s) with and understanding of natural and/or human-caused hazards	☑	Public Works, City Engineer and staff
Floodplain Manager	☑	Public Works, City Engineer and staff
Surveyors		
Staff with education or expertise to assess the community's vulnerability to hazards	☑	Public Works Dept., Police Dept., Sedona Fire District, City Manager
Personnel skilled in GIS and/or HAZUS	☑	IS Division, GIS Analyst, Public Works – Civil Engineers
Scientists familiar with the hazards of the community		
Emergency Manager	☑	Police Chief
Grant writer(s)		
Others		

Table 6-3-10: Summary of fiscal capabilities for Sedona		
Financial Resources	**Accessible or Eligible to Use (Yes, No, Don't Know)**	**Comments**
Community Development Block Grants	Yes	Apply for CDBG every three years
Capital Improvements Project funding	Yes	Five year CIP Program
Authority to levee taxes for specific purposes	Yes	
Fees for water, sewer, gas, or electric service	Yes	Sewer fees only; no other utilities are owned by the City.
Impact fees for homebuyers or new developments/homes	Yes	Storm Drainage, Transportation, Parks and Recreation, Police, and General Government
Incur debt through general obligation bonds	Yes	
Incur debt through special tax bonds	Yes	
Other		

Table 6-1-11: Summary of legal and regulatory capabilities for the Yavapai-Prescott Indian Tribe		
Regulatory Tools for Hazard Mitigation	**Description**	**Responsible Department/Agency**
CODES	• Adopted August, 1999	• Board of Directors • Planning
ORDINANCES	• Ordinance No. 15, Land Use Zoning Ordinance for Economic Development (2000) • Traffic regulation, adopted 1979 with amendments at later dates	• Board of Directors • Planning
PLANS, MANUALS, and/or GUIDELINES	• Yavapai-Prescott Indian Tribe Land Use Master Plan (1999) • Multi-year Capital Improvement budget (annual) • Emergency Response Plan (first competed in 2000 and updated annually) • Emergency Operations Plan for Yavapai-Prescott Indian Tribe (2002) • Yavapai-Prescott Indian Tribe Water Management Plan (1999) • Wildland Fire Management Plan Yavapai-Prescott Indian Reservation (2003)	• Board of Directors • Planning • Environmental Protection Program, Environmental Protection Specialist
STUDIES	• Yavapai-Prescott Indian Tribe Evacuation Route (2002) • Hazardous Materials Sources on the Yavapai-Prescott Indian Tribe Reservation (1998)	• Board of Directors • Environmental Protection Program • Tribal Police Department

Table 6-2-11: Summary of technical staff and personnel capabilities for the Yavapai-Prescott Indian Tribe		
Staff/Personnel Resources	☑	**Department/Agency - Position**
Planner(s) or engineer(s) with knowledge of land development and land management practices	☑	Planning Department – Planner, Environmental Protection Specialist, Housing Manager Real Estate Department Manager
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	☑	Planning Department – Planner, Assistant Planner, Construction Project Manager Facilities – Facilities, Construction and Maintenance Mgrs
Planner(s) or engineer(s) with and understanding of natural and/or human-caused hazards	☑	Planning Dept – Planner, Environmental Protection Specialist Police Chief Environmental Health Department Specialist
Floodplain Manager	☑	Environmental Health Department Specialist
Staff with education or expertise to assess the community's vulnerability to hazards		Planning Dept – Planner, Environmental Protection Specialist Police Chief Environmental Health Department Specialist Cultural Department Director
Personnel skilled in GIS and/or HAZUS	☑	Planning Department – Planner Environmental Protection Program – Environmental Protection Specialist/ Technician
Scientists familiar with the hazards of the community	☑	Planning Dept – Planner, Environmental Protection Specialist Environmental Health Department Specialist Cultural Department Director
Emergency Manager	☑	TERC – Tribal President Police Chief
Grant writer(s)	☑	Grant Writer

Table 6-3-11: Summary of fiscal capabilities for the Yavapai-Prescott Indian Tribe		
Financial Resources	**Accessible or Eligible to Use (Yes, No, Don't Know)**	**Comments**
Community Development Block Grants	Yes	
Capital Improvements Project funding	Yes	
Authority to levee taxes for specific purposes	Yes	
Fees for water, sewer, gas, or electric service	No	
Impact fees for homebuyers or new developments/homes	No	
Incur debt through general obligation bonds	Yes	
Incur debt through special tax bonds	Yes	

The Yavapai-Prescott Indian Tribe's financial resources for implementing previously identified mitigation actions have primarily come from their general revenue funds, bond funds, Indian Health Services funding and cooperative funding with Yavapai County Department of Transportation and AZ Department of Transportation dollars. Current financial sources available to the Tribe for hazard mitigation planning and projects include potential disaster and mitigation funds through FEMA (Public Assistance, HMGP and PDM funds), programs, casino and tribal enterprise revenues, and various departmental operation budgets. Other potential sources of funds may include the US Department of Interior (Bureau of Reclamation, Bureau of Indian Affairs, US Geological Survey, Bureau of Land Management), US Army Corps of Engineers, US Housing and Urban Development, US Department of Health and Human Services (Indian Health Service), and the US Department of Agriculture (US Forest Service, Natural Resources Conservation Service).

Table 6-4 summarizes tribal pre- and post-disaster hazard management that is currently accomplished through several Yavapai-Prescott Indian Tribe departments and programs.

Table 6-4: Yavapai-Prescott Indian Tribe departments/entities with hazard mitigation responsibilities	
Department/Agency	**Hazard Mitigation Activities**
Tribal President	Member of the TERC. Point of contact to Board of Directors and tribal community.
Environmental Protection	Member of the Tribal Emergency Response Committee. Maintain and update Emergency Operations Plan. Perform fire and flood mitigation and prevention throughout the Reservation.
Police Department	Member of the TERC. Maintain public safety and emergency response capabilities.
Environmental Health	Member of the TERC. Perform training, planning and health and safety of the community.
Facilities Department	Perform inspections to facilities prior to and after emergencies or disasters.

The pre-disaster policies will be strengthened with additional tribal policies prohibiting building in high hazard areas, and additional personnel have been given authority to enforce prohibition of development in these areas. Responsibility for assessing damage and determining post disaster reconstruction to reduce future hazard losses will be detailed in the tribal emergency response plan. Pre- and post-disaster capabilities will be improved with development of detailed pre-and post-disaster documents (Hazard Mitigation Plan and Emergency Operations Plan), and training for department directors on both plans. Tribal policies will become more stringent, with Tribal ordinances and adopted building codes prohibiting such development in hazard prone areas.

As Tables 6-1-11, 6-2-11, 6-3-11 and 6-4 indicate, the Yavapai-Prescott Indian Tribe has many good programs, policies and regulations in-place to provide for effective hazard mitigation. An evaluation of those capabilities was performed and the following mitigation related gaps and opportunities were identified:

- Need for increased understanding of available mitigation grant programs.
- Need for better floodplain hazard mapping across the Tribe.

Upon receipt of a presidential disaster declaration, the Tribe will work with FEMA to develop two post-disaster hazard management tools: a Public Assistance Administration Plan and a Hazard Mitigation Grant Program

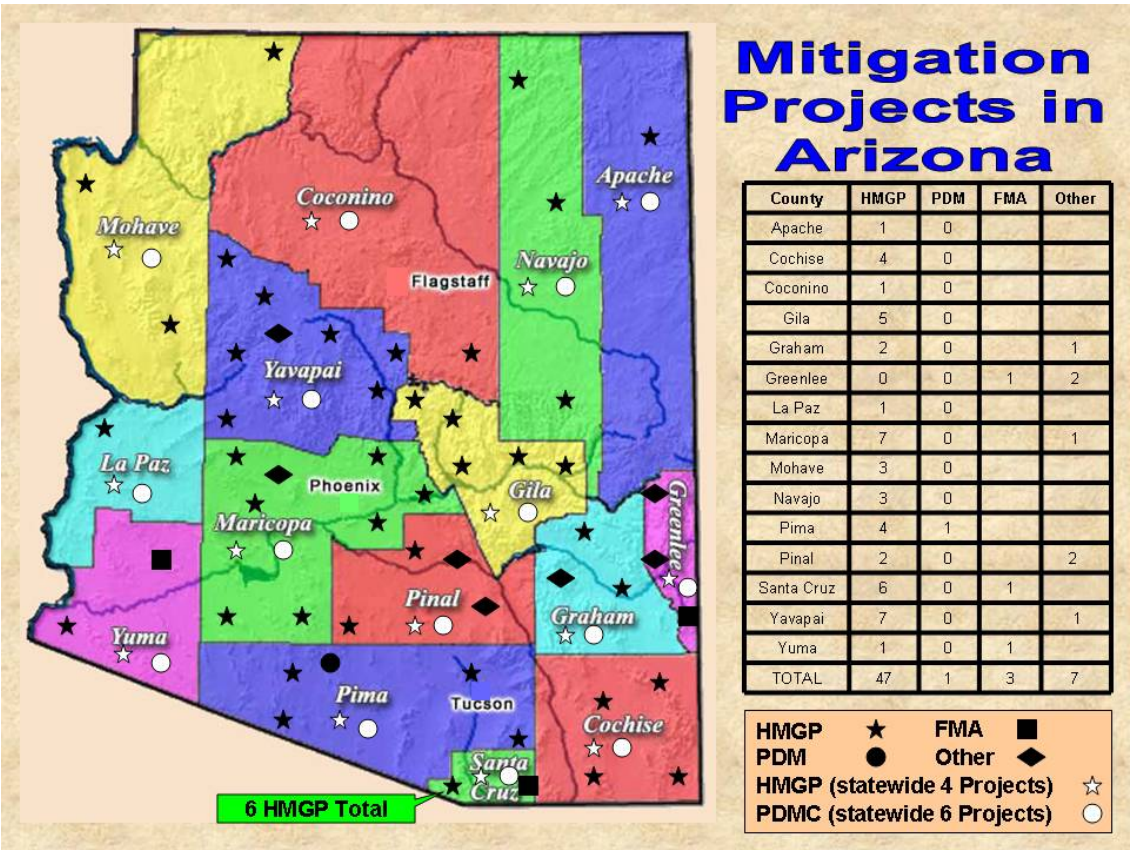
Administration Plan. Both plans will be used by the Tribe to identify their roles and responsibilities in administering the FEMA Public Assistance (PA) and Hazard Mitigation Grant Programs (HMGP) and to outline staffing requirements and the policies and procedures to be used. A result of developing these plans, as well as preparing this Plan, will be to further focus Tribal resources on the importance of hazard management and mitigation planning.

6.2.2 Previous Mitigation Activities

During the last planning cycle many mitigation activities have been accomplished by the jurisdictions within Yavapai County. Table 6-5 provides an updated summary, by jurisdiction, of recent mitigation activities performed over the last planning cycle or generally within the last five to ten years.

Yavapai County, the Cities of Cottonwood, Prescott and Sedona, and the Towns of Camp Verde and Jerome all received funding for a project through federal hazard mitigation grant money such as FMA, HMGP, or PDM. In 1979, the County received $412,500 (total project cost of $550,000) in HMGP funds from the 1978 flooding disaster (FEMA-570-DR) to relocate property owners in the Verde Lakes area. In 1998, Yavapai County, the Cities of Prescott and Cottonwood, and the Towns of Camp Verde and Jerome collectively received $53,973 ($71,964 total project cost) of HMGP funds from the 1993 flooding disaster (FEMA-977-DR) to develop flood mitigation plans for each jurisdiction. In 2001, Yavapai County received $24,000 ($32,000 total project cost) of HMGP funds from the 2000 Flood disaster (FEMA-1347-DR) to install upgrades to the county's communications van. In 2007, the City of Sedona received $16,800 ($22,400 total project cost) in HMGP funds from the 2004-2005 winter storm disaster to construct a gabion bank-stabilization project to protect the banks at the Oak Creek crossing on Sycamore Road.

Figure 6-1 is depicts past federally funded mitigation projects in the State tracked by ADEM.



County	HMGP	PDM	FMA	Other
Apache	1	0		
Cochise	4	0		
Coconino	1	0		
Gila	5	0		
Graham	2	0		1
Greenlee	0	0	1	2
La Paz	1	0		
Maricopa	7	0		1
Mohave	3	0		
Navajo	3	0		
Pima	4	1		
Pinal	2	0		2
Santa Cruz	6	0	1	
Yavapai	7	0		1
Yuma	1	0	1	
TOTAL	47	1	3	7

Source: ADEM, 2010

Figure 6-1: Past Mitigation Projects in Arizona

Table 6-5: Previous mitigation activities for Yavapai County jurisdictions

Jurisdiction	Project Name	Project Description	Project Cost	Funding Source	Responsible Department	Completion Date
Yavapai County	Partnership Projects	Annually the District partners with the Public Works Department to perform various drainage improvement projects throughout the County	$389,790	Flood Control District	Public Works Department and Flood Control District	6/30/2006 through 6/30/2010
Yavapai County and Incorporated Communities	Intergovernmental Agreements	Annually the District engages in IGA's with the incorporated communities of: Towns of Camp Verde, Chino Valley, Clarkdale, Prescott Valley, Cities of Cottonwood, Prescott, and the Yavapai County portion of Sedona for their continued drainage projects.	$5,340,852	Flood Control District	Flood Control District and Communities	6/30/2006 through 6/30/2010
Yavapai County	Dry Creek Levee	Storm repair to levee (Sedona Area)	$4,425	Flood Control District	Flood Control District	6/30/2006
Yavapai County	Diamond Valley	Flood Damage mitigation Alberson Wash Coop with Public Works (Prescott Valley area)	$250,000	Flood Control District	Flood Control District	6/30/2007
Yavapai County	VOC – SR 179	Storm Drain – IGA with State of AZ (Sedona area)	$220,515	Flood Control District	Flood Control District and ADOT	
Yavapai County	Wineglass Dam	Reconstruction of dam (Paulden area) – IGA with State Land and ADWR	$103,628	Flood Control District	Flood Control District and State	6/30/2006
Yavapai County	Big Springs Road	Low Water Crossing (Paulden Area)	$28,024	Flood Control District	Flood Control District	6/30/2006
Yavapai County	VOC – Devil's Kitchen	Devil's Kitchen Dr. and Merry Go Round Rock Rd. route storm water runoff into natural stream downstream of the roadway (Sedona area)	$132,000	Flood Control District	Flood Control District Coop with Public Works	6/30/2007
Yavapai County	Cortez Dr	Low Water Crossing Improvement Project (Village of Oak Creek, Sedona Area)	$125,000	Flood Control District	Flood Control District Coop with Public Works	6/30/2007
Yavapai County	Seligman	Drainage channel at outlet of ADOT box culvert under Old Route 66 in Seligman proper. Coop with Public Works.	$30,462	Flood Control District	Flood Control District Coop with Public Works	6/30/2008
Yavapai County	VOC – Red Rock Cove	Red Rock Cove wash flood and erosion mitigation project. Coop with Public Works	$48,935	Flood Control District	Flood Control District Coop with Public Works	6/30/2008
Yavapai County	Pioneer Park	Stormwater Quality Project – installation of a number of measures to improve the water quality and reduce discharge from the site. Grant from ADEQ and matching funds from the District	$481,320	Flood Control District	Flood Control District with ADEQ and Public Works	6/30/2009
Yavapai County	Cordes Lakes	Drainage improvements – reconstruct channel, replace culverts, etc.	$82,845	Flood Control District	Flood Control District	6/30/2008
Camp Verde	Fort River Caves Subdivision	Repair and improve severely eroded drainage channel into Verde River caused by stormwater runoff	$5,000	CIP	Public Works Department	October 2010
Camp Verde	Reddell Ranch Acres Subdivision	Drainage Improvements to existing culverts	$7,000	HURF	Public Works Department	March 2010
Camp Verde	Annual maintenance to drainage basins	Cleaning, maintenance and repairs to drainage basins throughout the incorporated areas of the Town.	$28,000	Budget	Public Works Department	FY 2010-2011

Table 6-5: Previous mitigation activities for Yavapai County jurisdictions

Jurisdiction	Project Name	Project Description	Project Cost	Funding Source	Responsible Department	Completion Date
Camp Verde	Verde Lakes Drive Culvert Mitigation	Replace existing culverts for improved drainage and mitigation of roadway flooding that closes the main corridor to the Verde Lakes subdivision during storm events. ***A more comprehensive project would involve funding through HMGP to complete the culverts and a bridge.	$8,000 ***$2,500,000	Town CIP	Public Works	FY 2012-2013
Camp Verde	Cliffs Parkway Drainage	The Cliffs Parkway/Finnie Flat Rd. Drainage Improvement Project is intended to mitigate flood hazards that are a result of the stormwater runoff from several residential subdivision and commercial developments located along the Cliffs Parkway and Finnie Flat Road corridors.	$1,800,000	Possible HMGP and Town CIP	Public Works	FY 2012-2013
Camp Verde	Salt Mine Road	Stabilize earth on hillside next to Right of Way to prevent further hazardous conditions caused by mud slide onto the road	$15,000	HURF	Public Works	March 2010
Clarkdale	Planning Assistance for Rural Areas (PARA): 2010	The PARA is a transportation study to forecast future conditions and infrastructure deficiencies of roadways and transit for the years 2015, 2020, and 2030, including: • Inventory and evaluation of future land use patterns, travel d functional classification of roads, access management, and r street conditions. • Inventory and evaluation of current and future levels of transit services. • Inventory and evaluation of current and future levels of multi-model services. • Develop a planning tool for future needs of Clarkdale • Gather and compile information to be incorporated into the General Plan.	$125,000	ADOT	Public Works	January 2011
Clarkdale	Transportation Enhancement (TE21) (Local) - 2010	Clarkdale Parkway Improvements include: • 6’ predestination pathway along Clarkdale Parkway from Eleventh Street to Hwy 89A, East side of the parkway • Bicycle lanes along Clarkdale Parkway from Eleventh Street to Hwy 89A, both sides of the parkway	$494,799.	Grant	Public Works	2011
Clarkdale	Transportation Enhancement (TE21) (State)	State Route Highway 89A Improvements include: • Sidewalk from Clarkdale Parkway Roundabout to Lisa, Lincoln Roundabout	$495,000	State	Public Works	2011

Table 6-5: Previous mitigation activities for Yavapai County jurisdictions

Jurisdiction	Project Name	Project Description	Project Cost	Funding Source	Responsible Department	Completion Date
Clarkdale	Transportation Enhancement (ADOT, ARA) - 2010	State Route Highway 89A Improvements include: • Sidewalks both sides from Clarkdale Parkway Roundabout to Blackhills Roundabout • Bus Stop w/ shelters • Benches along sidewalks	$1,300,000	ADOT	Public Works	May 2011
Clarkdale	Safe Routes to School (SRTS) - 2010	Main Street and 16th Street Improvements include: • Curb / Gutter and sidewalk along Main Street past 16th St. • Curb / Gutter and sidewalk along 16th Street from First South to the alley located between Main St and First North St. • Bicycle striping lane along Main Street from 16th street to 11th Street. • Improved handicap access at the intersection of Main Street and 16th Street.	$309,000	Grant	Public Works	2011
Clarkdale	Community Development Block Grant (CDBG) - 2010	Broadway Road improvements include: • Curb / Gutter and sidewalk from the Bitter Creek Bridge to Patio Park neighborhood • Improved road crosswalk at Bitter Creek Bridge • Solar Street Lighting (5) • Stop and Yield signage at Bitter Creek Bridge	$365,000	Grant	Public Works	2012
Clarkdale	Surface Transportation Program (STP) - 2010	Broadway Road and Main Street intersection improvements include: • Development of a roundabout • Development of 2 slip lanes, Broadway Road onto Main Street from South to East and Broadway Road onto Main Street from North to West • Improved crosswalks, and signage	$1,200,000	Grant	Public works	2011

Table 6-5: Previous mitigation activities for Yavapai County jurisdictions

Jurisdiction	Project Name	Project Description	Project Cost	Funding Source	Responsible Department	Completion Date
Clarkdale	Yavapai County Flood Projects: 2009/2010	Flood Mitigation Projects: • Palisades Dr. & Quail Run Ct. - Minor Project • Lanny Lane & Lanny Ave. - Major Project • Deborah Dr. wash crossing - Major Project • Old Jerome & Rogers Pl. / Sky Drive - Major Project • Luke Lane & Broadway Road - Minor Project • Main Street & 16th Street - Major Project • Rebuild Sky Drive retention ponds - Major Project • Park Rd. & Western Ave. - Minor Project • Broadway Road at Town boundary - Minor Project • Cemetery drainage controls / ditches - Major Project • Town complex drainage - Minor Project • Sycamore Road drainage controls / ditches - Minor Project • Broadway Road & Gerry Heights - Minor Project • Rincon Dr. & Vista Ln - Minor Project • Deception Wash Crossing on Old Jerome Highway - Major Project • Intersection of Old Jerome Highway & Minerrich Road - Major Project NOTE: Major Projects are driven by Historical Events Minor Projects are driven by local issues	$260,000	Yavapai County	Public Works	2009/2011
Clarkdale	Defensible Space	Church and Fire District together combined to mitigate fire hazard to historic building	None	None	Church Fire District	2010
Clarkdale	Tumbleweed Abatement	Fire District, Public Works, and Utility crew cleared tumbleweed around fire hydrants and utility boxes	None	None	Fire District	2010
Cottonwood	SCADA Upgrade	Control and Monitoring system upgrade: Reduces Response time, improves system wide status verification	$300,000 5 years @ 60,000 a year	Capital Reserves	Utilities Department	Projected 2015
Cottonwood	System Interconnects	Allows transference of water between separate systems provides redundancy, reduces outage duration	$100,000 Year	Capital Reserves	Utilities Department	On Going
Cottonwood	Radio Upgrades	Enhanced handheld devices to improve communications and monitoring between departments	$6,000	Utilities	Utilities Department	2011
Cottonwood	Utility Building	New Utility building with improved SCADA monitoring and generator back-up power allows continued monitoring of operations during prolonged power outage	$850,000	Capital Purchase	Utilities Department	2010
Cottonwood	Employee Training	Expanded on-going training of Utility Maintenance Staff improves continuity of operations, post-disaster management awareness	NA	NA	Utilities Department	On Going
Cottonwood	Equipment Purchase	Acquisition of additional system maintenance equipment such as portable generators, pumps, lights, and vehicles. Improves redundancy, response times and ability to respond to multiple incidents	$50,000	Capital Reserves	Utilities Department	On Going

Table 6-5: Previous mitigation activities for Yavapai County jurisdictions

Jurisdiction	Project Name	Project Description	Project Cost	Funding Source	Responsible Department	Completion Date
Cottonwood	Wet Water Crossings	Replace wet crossings with structures to allow uninterrupted traffic access during flood events on 6th Street and Camino Real crossings	$350,000	Capital Reserves	Public Works	2009
Cottonwood	Early Warning System	Active early warning system for inclement weather and flooding conditions. Cooperative with Yavapai Co and NOAA	$75,000	Capital Reserves	Police Department	On Going
Cottonwood	Railroad Wash Channelization	Complete Channelization of Railroad Wash between State Route 89A to Beach Street to remove residential properties from floodplain	$100,000	Capital Reserves	Public Works	On Hold
Dewey-Humboldt	Antelope Meadows Commercial Center Drainage Modifications	Study historic, existing, and current drainage hydraulics and hydrology. Design drainage modification to alleviate downstream flooding.	Unknown - $9,500 spent to date	IGA through Yavapai County	Public Works / Engineering	Not yet completed – awaiting stakeholder cooperation
Dewey-Humboldt	Codes	Adopt and enforce applicable codes.	Unknown – Staff time	Town general fund	Public Works / Engineering / Code Enforcement / Community Outreach / Development Services	Ongoing
Dewey-Humboldt	NFIP	Maintain compliance with the NFIP.	Unknown – Staff time	Town general fund	Public Works / Engineering / Development Services	Ongoing
Prescott Valley	Tani Drainage Flood Control Project	Constructed channel improvements and two 6'x3' box culverts at road crossings to protect residential area from flooding	$225,000		Public Works	7/7/09
Prescott Valley	Windsong Drainage Flood Control Project	Constructed channel improvements, culverts and headwalls to protect residential area from flooding	$270,000		Public Works	4/30/09
Prescott Valley	Glassford Hill Interceptor Channel	Constructed channel improvements to redirect floodwater around a residential area to alleviate residential flooding during major storm events.	$1.32 million		Public Works	7/12/06
Prescott Valley	Mission Lane Drainage Flood Control Project	Constructed flood control improvements to protect residential areas from flooding.	$1.5 million		Public Works	3/13/07
Prescott Valley	Yavapai Drainage Flood Control Project	Constructed flood control improvements to protect residential areas from flooding.	$1.1 million		Public Works	1/18/07
Prescott Valley	Mobile Emergency Operations/Command Center	Obtained and equipped an alternate first response mobile Emergency Operations Center to be able to mitigate Hazardous Materials leaks and spills and other incidents.				
Sedona	Sedona Floodplain Ordinance	City Council adopted the Sedona Floodplain Ordinance on September 26, 2006. The ordinance incorporated Special Flood Hazard Areas (SFHA) delineated in the City of Sedona Floodplain Management Study as well as SFHA shown on the FEMA Flood Insurance Rate Maps.	N/A	N/A	Public Works. and Legal	September 2006

Table 6-5: Previous mitigation activities for Yavapai County jurisdictions

Jurisdiction	Project Name	Project Description	Project Cost	Funding Source	Responsible Department	Completion Date
Sedona	Early Warning Siren System	The early warning siren system installation for Uptown and Oak Creek Canyon was completed on June 15, 2007. Signage throughout the canyon directs people to tune their radios to 92.9 FM for specific instructions. A total of nine sirens were installed, with the Southernmost siren located at the Arroyo Roble Resort and Northernmost siren located at Pine Flats.	$120,000	95K Fire Act Grant and $25,000 Sedona Fire District	Sedona Fire District	June 2007
Sedona	Doodlebug Low Water Crossing	In July 2007, the City of Sedona Streets Maintenance Department, in coordination with Brewer Brothers Construction, completed a gabion bank-stabilization project to protect the banks at the Oak Creek crossing on Sycamore Road. The banks at this crossing have notoriously had washout problems during Oak Creek flooding.	$27,844	75 % HMGP and 25% City of Sedona	Sedona Streets Maintenance Department	July 2007
Sedona	CERT Training	Participation in the CERT Training through the SFD – More than 100 people have been certified in light search and rescue techniques, CPR, First Aide and disaster preparedness.	N/A	N/A	Sedona Fire District	August 2007
Sedona	179 Sewage Lift Station Gabion	The City of Sedona Engineering Dept, in coordination with Tiffany Construction, completed a gabion bank-stabilization project to protect the bank at the 179 Sewage Lift Station. The 179 Lift Station is responsible for pumping the sewage from most of the properties along Hwy. 179. This lift station was threatened of being undermined by the erosion process of Morgan Wash. The project also included raising the lift station equipment/controls to the Morgan Wash 100-year flood elevation.	$160,397	City of Sedona	Public Works	August 2007
Sedona	La Marra Subdivision	The Sedona Fire District now has an alternate route to the Village of Oak Creek. It passes through the La Marra Subdivision off Upper Red Rock Loop Road.	Unknown	Unknown	Private Developer	July 2008
Sedona	Fire Hydrant Installations	150 fire hydrants were installed within the City of Sedona between 2001 and 2008 as part of the Franchise Agreement that exists between the City, AZ Water Company, and the SFD. The goal of the SFD is to have a fire hydrant within 500 ft of every building within the City. As of 2008, the installation of approximately 150 more fire hydrants was needed in order to accomplish that goal. In 2009, 31 hydrants were installed as part of the SR 179 Project. In 2010, 13 hydrants were installed in the Western Hills area. The total still needed is 106.	$970,000	Arizona Water Company and City of Sedona	City of Sedona, Arizona Water Company, and the Sedona Fire District	On-going
Sedona	SR 89A Variable Message Boards	A.D.O.T. installed two permanent variable message boards north of Sedona on SR 89A. One of the boards was installed near Lomacasi Cottages, and the other one was installed just south of Flagstaff.	Unknown	A.D.O.T.	A.D.O.T.	June 2009

Table 6-5: Previous mitigation activities for Yavapai County jurisdictions

Jurisdiction	Project Name	Project Description	Project Cost	Funding Source	Responsible Department	Completion Date
Sedona	Harmony Windsong Drainage Project	The Harmony/Windsong Drainage Project, Phase I of multiple phases. This phase was for drainage improvements from the north side of SR 89A to a point just east of the Navajo Dr./Aria St. intersection. This design was based on the 2005 Sedona Stormwater Master Plan, and has capacity for a 25-year storm event.	$1,704,583	City of Sedona	Public Works	July 2010
Sedona	Chapel Area Sanitary Sewer and Drainage Project	The sewer portion of the project included installation of mainline and 379 new service laterals to individual parcels. The storm drain portion was for improvements based on the 2005 Sedona Stormwater Master Plan, and to allow capacity for a 25-year storm event.	$10,184,008	City of Sedona	Public Works	August 2010
Sedona	SR 179 Project	All of the utilities: sewer main, high pressure gas main, water main, and communications were placed on the new pedestrian bridge over Oak Creek. These utilities are much better protected from the effects of floodwaters than they were in their past configuration on the old vehicular bridge.	Unknown	A.D.O.T.	A.D.O.T.	December 2009
Sedona	Three Majors	The City of Sedona Public Works Engineering Dept has been working with Fann Construction to install 11,280-gallon bypass wet wells at the three major sewage pump stations. The bypass wet wells will allow for preventative maintenance on the primary wet wells, as well as, additional capacity during emergency situations. All three of the new bypass wet wells were operational as of February 2009. This project is scheduled for completion in January 2011.	$8,700,000	City of Sedona	Public Works	January 2011

6.2.3 National Flood Insurance Program Participation

Participation in the NFIP is a key element of any community's local floodplain management and flood mitigation strategy. Yavapai County and all incorporated jurisdictions other than Jerome, participate in the NFIP. Joining the NFIP requires the adoption of a floodplain management ordinance that requires jurisdictions to follow established minimum standards set forth by FEMA and the State of Arizona, when developing in the floodplain. These standards require that all new buildings and substantial improvements to existing buildings will be protected from damage by the 100-year flood, and that new floodplain development will not aggravate existing flood problems or increase damage to other properties. As a participant in the NFIP, communities also benefit from having Flood Insurance Rate Maps (FIRM) that map identified flood hazard areas and can be used to assess flood hazard risk, regulate construction practices and set flood insurance rates. FIRMs are also an important source of information to educate residents, government officials and the private sector about the likelihood of flooding in their community. Table 6-6 summarizes the NFIP status and statistics for each of the jurisdictions participating in this Plan.

Table 6-6: NFIP status and statistics for Yavapai County and participating jurisdictions as of August 31, 2010

Jurisdiction	Community ID	NFIP Entry Date	Current Effective Map Date	Number of Policies	Amount of Coverage (x $1,000)	Floodplain Management Role
Yavapai County	040093	9/18/1985	9/3/2010	952	$197,890	Provides floodplain management for the Unincorporated County, Camp Verde, Clarkdale, Dewey-Humboldt, and Sedona
Camp Verde	040131	12/30/1988	9/3/2010	282	$58,921	Town will do an initial review with ultimate floodplain management provided by Yavapai County
Chino Valley	040094	9/1/1981	9/3/2010	27	$6,377	Floodplain management provided by Town staff.
Clarkdale	040095	9/1/1981	9/3/2010	24	$5,117	Town will do an initial review with ultimate floodplain management provided by Yavapai County
Cottonwood	040096	9/16/1981	9/3/2010	79	$16,518	Floodplain management provided by City staff.
Dewey-Humboldt	040061	4/11/2008	9/3/2010	0	$0	Town will do an initial review with ultimate floodplain management provided by Yavapai County
Jerome	Not a participant in the NFIP Program					
Prescott	040098	2/2/1977	9/3/2010	351	$74,928	Floodplain management provided by City staff.
Prescott Valley	040121	8/16/1982	9/3/2010	48	$12,040	Floodplain management provided by Town staff.
Sedona	040130	12/30/1988	9/3/2010	104	$24,877	City will do an initial review with ultimate floodplain management provided by Yavapai County

Source: http://bsa.nfipstat.com/reports/1011.htm (8/31/2010); FEMA Community Status Report in NFIP (2/3/2009)

6.3 Mitigation Actions/Projects and Implementation Strategy

Mitigation actions/projects (A/P) are those activities identified by a jurisdiction, that when implemented, will have the effect of reducing the community's exposure and risk to the particular hazard or hazards being mitigated. The implementation strategy addresses the "*how, when, and by whom?*" questions related to implementing an identified A/P.

The process for defining the list of mitigation A/Ps for the Plan was accomplished in three steps. First, an assessment of the actions and projects specified in Section 5 of the 2006 Plan was performed, wherein each jurisdiction reviewed and evaluated their jurisdiction specific list. Second, a new list of A/Ps for the Plan was developed by combining the carry forward results from the assessment with new A/Ps. Third, an implementation strategy for the combined list of A/Ps was formulated. Details of each step and the results of the process are summarized in the following sections.

6.3.1 Previous Mitigation Actions/Projects Assessment

The Planning Team and Local Planning Team for each jurisdiction reviewed and assessed the actions and projects listed in Tables 5-5 and 5-6 of their corresponding 2006 Plans. The assessment included evaluating and classifying each of the previously identified A/Ps based on the following criteria:

STATUS		***DISPOSITION***	
Classification	Explanation Requirement:	Classification	Explanation Requirement:
"***No Action***"	Reason for no progress	***"Keep"***	None required
"***In Progress***"	What progress has been made	***"Revise"***	Revised components
"***Complete***"	Date of completion and final cost of project (if applicable)	***"Delete"***	Reason(s) for exclusion.

Any A/P with a disposition classification of "Keep" or "Revise" was carried forward to become part of the A/P list for the Plan. All A/Ps identified for deletion were removed and are not included in this Plan. The results of the assessment for each of the 2006 Plan A/Ps are summarized by jurisdiction in Tables 6-7-1 through 6-7-10. It is noted that there is no Table 6-6-xx provided for the Yavapai-Prescott Indian Tribe, as this is their first mitigation plan and there are no previous A/Ps to evaluate.

Table 6-7-1
Yavapai County assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
7.A.1	High Wind Damage Video	Produce a video for local cable airing discussing the dangers and losses that occur due to high wind events to protect existing and future buildings and infrastructure.	• Yavapai Co EM • $12,000 • May 2006	No Action	Delete	Funding did not become available.
9.C.1	Collaborative Transportation Accident Mitigation Plan	Develop a plan to mitigate the length of transportation delays and the secondary effects of a transportation accident, Including hypothermia, dehydration, carbon monoxide poisoning, road rage and other accidents.	• Yavapai Co EM • $25,000 • December 2006	No Action	Delete	DPS revised their procedures for accident investigation, greatly reducing the backups and associated problems, thereby making the proposed plan unnecessary.
5.B.1	Lynx Creek Channelization	Proposed channelization of Lynx Creek downstream of SR 69 through Fain Rd bridge. Channel will contain 100-year flood flows with gabion bank stabilization. Local asset exposure of approximately $5 million.	• Yavapai Co Flood Control District • $2,200,000 • April 2007	In Progress	Keep	Environmental Permitting Complete, Project on hold for funding
5.B.2	Beaver Creek Channel Restoration	Channel bank restoration to prevent ongoing erosion hazard to protect existing and future buildings and infrastructure.	• Yavapai Co Flood Control District • $100,000 • June 2007	In Progress	Keep	Environmental Permitting Delay
7.B.1	High Wind Safety Actions Video	Produce a video for local cable airing discussing the safety actions and precautions to take before/during high wind events.	• Yavapai County Emergency Management • $12,000 • May 2006	No Action	Delete	Funding not available
5.G.1	Flood Hazard Mapping	Identify and map new flood hazard areas and update existing mapping in accordance with FEMA requirements to protect existing and future buildings and infrastructure from flood hazards.	• Yavapai County Flood Control District • $1,000,000 • Ongoing	In Progress	Keep	Many flood hazard area studies have been completed or are in various stages of completion.

Table 6-7-1
Yavapai County assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
5.A.1 (3.A)	Flood Warning System	Install additional in stream, weather, and precipitation gauges in watersheds impacting Yavapai County. To include website development and remote dial-up for public agencies.	• Yavapai County Flood Control District • $500,000 • Ongoing	In Progress	Keep	Gauges continue to be added to the County system. Website development is ongoing
5.A.2 (1.A)	Flood Damage Prevention, Drainage Criteria Ordinance and Stormwater Management Plan	Amend ordinances to prevent flood damage and water quality degradation and to protect existing and future buildings and infrastructure.	• Yavapai Co Flood Control District • $150,000 • June 2006	In Progress	Keep	The Flood Damage Prevention Ordinance was updated in 2006, the Drainage Criteria Manual is currently being reviewed for potential revision, the Stormwater Management Plan is ongoing with the state.
10.A.1	Groundwater Identification and Conservation	Establish the extent of available groundwater and coordinate growth in accordance with defined water resources. Apply water allocation/budgeting as a growth management tool County wide.	• Federal, State, Yavapai County • $10,000,000 • Ongoing	Ongoing	Keep	The economy of the past several years has thwarted this initiative. A re-emphasis will be forthcoming once fiscal resources become available.
3.A.2 (4.A)	Public Safety Information Network	Enhance communications and database information capabilities among public safety agencies (to include police, fire, ems, etc.) to provide for advanced intelligence sharing.	• Sedona Fire, Central Yavapai Fire and DPS • $3,500,000 • 2009	Ongoing	Keep	This is an extensive, long term project.
10.B.1	County Building Security Project	Provide security to Yavapai County Complex Buildings against civil disturbance and terrorism.	• Yavapai County • $900,000 • 2010	Ongoing	Keep	YCSO partially complete, funding will need to be identified for all other county facilities.
3.B.1	Alternate County Emergency Operations Center	Design, development and equipment of an alternate County EOC in Chino Valley.	• Yavapai EM and Town of Chino Valley • $145,000 • 2007	Complete	Delete	The EOC structure was identified, all equipment has been purchased and is in place. The EOC is operational.

Table 6-7-1
Yavapai County assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
3.C.1	First Responder Training and Equipment	Through advanced training and use of equipment first responders are better able to identify hazards and protect the public.	• Yavapai EM • $400,000 • 2010	Complete	Delete	Funding sources were identified. Equipment has been purchased and training completed. The responders are using advanced equipment and techniques.
6.D.2 (2.A)	Neighborhood Wildfire Assessment	Develop neighborhood wildfire assessment and rank at-risk neighborhoods with the goal to provide accurate wildfire information to residents and motivate them to implement personal and neighborhood mitigation measures.	• PAWUIC • $150,000 • Ongoing	Ongoing	Keep	Significant progress has been achieved. Most HOA's and communities are on board.
6.B.2	Regional Fuels Crew	Support two full-time crews dedicated to hazard fuel reduction, fire suppression, and public education in the Prescott Basin and surrounding areas.	• Prescott Fire and PAWUIC • $750,000 • Ongoing	Ongoing	Keep	Grants continue to support the crews and other defensible space initiatives.
6.B.3	County Fuels Crew	Support part-time road crew to perform roadside hazard fuel reduction along County roads in the interface.	• Yavapai Co and PAWUIC • $150,000 • Ongoing	Ongoing	Keep	Grants and county funding will enable this operation to continue.
6.B.4 (2.A)	Fire Wise Community Programs	Develop Fire Wise programs for all communities, neighborhoods and home owners associations within the wildland fire/urban interface including instruction materials & facilitating partnerships with insurance agencies.	• PAWUIC • $30,000 • Ongoing	Ongoing	Keep	8 communities having attained national Firewise status and several others in application process
10.B.2	Ensure Potable Water Supply	Procure portable, mobile water purification systems for emergency drinking water supply as mandated by Homeland Security.	• Yavapai Co EM • $130,000 • December 2006	Complete	Delete	26 Mobile, portable purification systems were purchased and distributed to all jurisdictions.

Table 6-7-1
Yavapai County assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
3.A.1	Reverse 911 System	Purchase and implement Reverse 911 system out of Prescott Police / Sheriff / Fire Dispatch Center to warn public of emergency situations. A second system will be implemented out of Sedona Fire Dispatch Center.	• Prescott Police and Sedona Fire • $260,000 • December 2006	Complete	Delete	Two systems have been purchase, installed and are operational. One, county-wide system resides with the Sheriff the other with Prescott PD.
6.D.1 (2.A)	Wildfire Public Education Activities	Continue and expand Town Hall style meeting to include annual expo and continuation and expansion of the regional alert website to protect existing and future buildings and infrastructure. Over ten years.	• Prescott Area Wildland/Urban Interface Commission (PAWUIC) • $250,000 • Ongoing	Ongoing	Keep	Annual EXPO's are held and draw increasingly large audiences. The website now belongs to YCEM.
6.F.1	Small Diameter Wood Business Recruitment	Partnership between PAWUIC and development agencies to conduct outreach and attract sustainable, small-diameter wood-based businesses into the area.	• PAWUIC • $75,000 • Ongoing	Ongoing	Keep	ARRA Grants, Drake and the proposed pellet plant have provided a great start. Efforts will continue.
6.B.1	County Wildland Mapping for State GIS	Establish and maintain a County component of the state GIS mapping system documenting forest treatments, hazard data, grants, etc.	• County Assessors and PAWUIC • $250,000 • Ongoing	Ongoing	Keep	Partially complete, new systems will allow for continued progress.
6.A.1	Yavapai Communities Wildfire Protection Plan	Develop comprehensive communities planning and prioritization for wildfire fuels reduction and defensible space to protect existing and future buildings and infrastructure from wildfire hazards.	• Yavapai Co EM, Assessors Office and PAWUIC • $100,000 • 2012	Complete	Delete	An updated version of the YCWPP which includes the entire county was completed October 2010.
6.B.4	Boundary Project	Develop a 270 degree defensible wildfire boundary around interface immediately to the south of the City of Prescott.	• Prescott National Forest • $10,000,000 • 2013	Ongoing	Keep	Work continues on the project and is 75% complete.

Table 6-7-1
Yavapai County assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
10.A.2	Urban Search and Rescue Team Project	Develop urban search and technical rescue capability in the County through training and procurement of specialized equipment.	• Prescott, Chino Valley, and Sedona Fire Departments • $750,000 • 2008	Ongoing	Keep	Aspects of technical rescue have been introduced into a number of agencies along with specialized equipment.
10.B.1	Ensure Water Quality	Protect water quality from contamination through development of household hazardous waste programs over ten years.	• Yavapai Co • $2,500,000 • Ongoing	No Action	Keep	The economy's fiscal limitations have stalled progress here. As the situation improves, this should once again gain momentum.
8.B.1	Personal Protection and Detection Equipment	Identify and purchase first responder advanced technology personal protection and detection equipment for chemical and biological incidents.	• Yavapai Co EM • $650,000 • 2008	Ongoing	Keep	Equipment has been purchased, however, advances continue to emerge. Subsequent purchases will be made.
3.B.2	Community Emergency Response Team Program	Citizen disaster training to form neighborhood teams as interim first responders in wide spread disasters or events where communities and neighborhoods are isolated. Ten year program.	• Yavapai Co EM • $300,000 • Ongoing	Ongoing	Keep	This program will continue as long as the training is available.
5.F.1	Repetitive Flood Loss Properties	Inform and coordinate property owners to flood mitigation programs such as retrofit and/or property acquisition.	• Yavapai Co Flood Control District • $5,000,000 • Ongoing	In Progress	Keep	We have acquired one repetitive loss property for demolition and continue to annually inform and educate repetitive loss property owners of their options.

Table 6-7-2
Camp Verde assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
7.A.1	Enforce Current Building Codes	Continue to enforce building codes to mitigate against high wind damage to protect existing and future buildings and infrastructure from wind damage and other natural and human-caused disasters. 5 year cost.	• Camp Verde Community Development • $220,000 • Ongoing	Completed In progress	Keep	In 2009 the Town adopted 2006 IBC and IRC Building Codes; updating from the 2003 codes. Will continue to enforce building codes and provide inspections to ensure.
3.A.1	Reverse 911 System	Purchase and implement Reverse 911 system out of Camp Verde Police / Camp Verde/Sedona Fire Dispatch Center to warn public of emergency situations.	• Camp Verde E911 Communications Center • $260,000 • 2010	In progress	Keep	Seeking funding; funds unavailable due to economic climate.
9.B.1	Variable Message Signs	Acquire two variable message signs for traffic control to mitigate transportation accident potential.	• Camp Verde Streets Department • $20,000 • 2010	In progress	Keep	Current budgets are not adequate to fund at this time; staff has researched costs and designs for signage; acquisition is accounted for in long-range planning
10.B.1	Emergency Evacuation Route Signs	Acquire and install Emergency Evacuation Route Signs along several routes.	• Camp Verde Streets Department • $5,000 • 2010	Complete	Delete	Staff has purchased signs.
6.E.2	Update Weed Abatement Code	Revise weed abatement ordinance to include wildfire defensible space to protect existing and future buildings and infrastructure from wildfire hazards.	• Camp Verde Community Development • $15,000 • Ongoing	In progress	Keep	Currently being reviewed by consultants (Dava & Associates) as part of Zoning Code update; to be adopted in early 2010.
9.A.1	Develop Transportation Master Plan	Hire a consultant or develop a Town transportation engineer to develop a Transportation Master Plan to identify transportation hazards in the community.	• Camp Verde Community Development • $200,000 • 2010	Complete	Delete	Small Area Transportation Study completed by consultants Jacobs which identified transportation hazards and mitigation remedies; completed September 2009.

Table 6-7-2
Camp Verde assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
5.A.1	Update Stormwater Master Plan	Hire a consultant or develop a Town stormwater engineer to develop a Stormwater Master Plan to identify flooding hazards in the community.	• Camp Verde Community Development • $200,000 • 2010	In progress	Revise	Stormwater Master Plan was updated in 2007; as budget permits, plans are to hire an engineer that will devote a portion of their time to stormwater and flooding hazards. Currently Yavapai Co. Flood Control and FEMA are excellent resources.
8.B.1	Personal Protection and Detection Equipment	Identify and purchase first responder advanced technology personal protection and detection equipment for chemical and biological incidents. 5 year cost.	• Camp Verde Fire District • $1,000,000 • 2010	Complete In progress	Keep	Have obtained hazmat technical vehicle and equipment including monitors and personal protection.
8.A.1	First Responder and Technician Training and Equipment	Through advanced training and use of equipment first responders are better able to identify hazards and protect the public.	• Camp Verde Fire District • $420,000 • 2010	Complete In progress	Keep	Hazmat technicians continually train to maintain ceu's and stay abreast of response practices and technology.
7.B.2	Uninterrupted Power System for Traffic Signals	Install battery backup power systems at major traffic intersections.	• Camp Verde Streets Department • $150,000 • 2010	In progress	Keep	Quotes for different options will be obtained so that the purchase of backup power can be planned for in future budgets.
10.A.1	Portable Repeater	Acquire portable repeater for emergency communications in the event of site repeater damage.	• Camp Verde Marshal's Office • $50,000 • 2010	No action	Delete	Will not be acquiring portable repeater.
2.A.1	CERT Program	Civilian Emergency Response Team. Train and educate public on basic first response capabilities. 5 year cost.	• Camp Verde Marshal's Office /Camp Verde Fire District • $10,000 • 2010	Complete	Delete	Training provided by Yavapai Co EM and completed in early 2010.

Table 6-7-2
Camp Verde assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
6.E.1	Develop Fire Code IGA	Develop an IGA with the Camp Verde Fire District to enforce the current Fire Code adopted by the Town. Conduct public election within the Fire District to adopt Fire Code. Hire Fire Marshall/inspector to enforce the code. 5 year cost.	• Camp Verde Fire District • $250,000 • 2006	Complete	Delete	Approved Intergovernmental Agreement on 5/23/2010 between the Town of Camp Verde and the Camp Verde Fire District to have the Fire Inspector review plans and ensure compliance with the International Fire Codes.
6.C.1	Fire Protection Water Source	Town to work with private water companies to establish adequate water sources for fire protection by establishing a reservoir and/or fire hydrants.	• Town of Camp Verde • $1,000,000 • 2010	No Action	Delete	Due to economic climate, funding is not available at this time for such an undertaking.
5.B.1	Flood Prone Property Acquisition	Inform and coordinate property owners to flood mitigation programs such as retrofit and/or property acquisition in Verde Lakes area including Verde Lakes Drive/Clear Creek Restoration.	• Town of Camp Verde • $1,500,000 • Ongoing	In progress	Keep	The Town has acquired 135 properties; properties were donated to the Town.
5.B.2	Middle Verde Area Drainage Improvements	Channelization of Middle Verde area with box culverts, retention/detention basins to remove several homes from the floodplain as reported in the Middle Verde Area Drainage Evaluation by the USACE.	• Town of Camp Verde • $2,000,000 • Undetermined	In progress	Keep	Enlarging box culverts to mitigate flooding; Phase 1) Design Engineering and construction plans, Phase 2) Budgeting and grant submittal

Table 6-7-3
Chino Valley assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
8.B.1	Personal Protection and Detection Equipment	Identify and purchase first responder advanced technology personal protection and detection equipment for chemical and biological incidents including personnel training. 5 year cost.	• Chino Valley Police Department • $1,000,000 • Undetermined	In Progress	Keep	Continue to Supply Equipment to officers on and as needed basis
5.B.4	Road 3 North and Voss Drive Drainage	Install box culverts to convey sheet flow across Road 3 North with Retention/Detention basins southwest of Voss Drive.	• Chino Valley Public Works, Engineering Dept • $250,000 • Undetermined	No Action	Keep	Ongoing projects as time/funding allows
2.A.1	Hazard Public Education Activities	Continue and expand Town Hall style meetings, annual expos, and other public outreach. Expansion of the Town, Police, and Fire website. Distribution of educational materials related to all hazards the Town is susceptible to. 5 year cost.	• Chino Valley Police Dept, Chino Valley Public Works, Chino Valley Fire District • $200,000 • Ongoing	In Progress	Keep	Information is posted on PD website as updates are needed
9.B.1	Variable Message Signs	Acquire two variable message signs for traffic control to mitigate transportation accident potential.	• Chino Valley Public Works • $40,000 • 2007	No Action	Delete	Unable to complete due to lack of funding
6.B.3	Town Fuels Crew	Hire, train, and equip crew to perform wildfire hazard fuel reduction for prevention and suppression in cooperation with State, County and private property owners to protect existing and future buildings and infrastructure.	• Chino Valley Public Works • $300,000 • Ongoing	No Action	Delete	PW is not in the fire fighting business

Table 6-7-3
Chino Valley assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
7.B.2	Uninterrupted Power System for Traffic Signals	Install battery backup power systems at major traffic intersections.	• ADOT, Chino Valley Public Works • $125,000 • Undetermined	No Action	Delete	N/A
9.A.1	Emergency Vehicle Pre-emption System	Purchase vehicle pre-emption system, software, conduits, and hardware to provide necessary pre-emption services and connections for all traffic signals within the Town limits. System to provide priority system for police and fire emergency response vehicles.	• Chino Valley Police Dept, Chino Valley Public Works, Chino Valley Fire District, Lifeline Ambulance • $600,000 • Undetermined	No Action	Delete	FD utilizes the Pre-emption system due to the time needed to stop/start large fire vehicles, Police will continue to stop on red light before proceeding through intersection.
5.B.1	Bridge Structure at Road 5 North	Bridge Structure and drainage control at Road 5 North and Reed Road to construct an all weather crossing, preventing road closures due to heavy rains and allowing uninterrupted access.	• Chino Valley Public Works - Engineering Dept • $750,000 • Undetermined	No Action	Keep	N/A
6.E.1	Develop Fire Code IGA	Develop an IGA with the Chino Valley Fire District to enforce the current Fire Code adopted by the Town and to protect existing and future buildings and infrastructure. 5 year cost.	• Chino Valley Community Development, Chino Valley Legal Depts, Chino Valley Fire District • $250,000 • Undetermined	Complete	Delete	Fire Codes have been adopted and are enforced by Fire Department
5.B.3	Bridge on Road 2 North	Reconstruction of Bridge on Road 2 North over Santa Cruz Wash to eliminate frequent overtopping due to sedimentation. Project will prevent road closures due to heavy rains and allow uninterrupted access.	• Chino Valley Public Works - Engineering Dept • $1,200,000 • Undetermined	In Progress	Keep	Project is in design and pending construction. Expect construction in Summer 2011 and project cost is estimated at $600K

Table 6-7-3
Chino Valley assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
7.A.1	Strengthen New Building Codes	Adopt and enforce new building codes to protect existing and future buildings and infrastructure from high wind and other natural and human caused disasters. 5 year cost.	• Chino Valley Community Development, Chino Valley Legal Depts, Chino Valley Fire District, Chino Valley Public Works • $75,000 • Undetermined	In Progress	Keep	Adopted 2006 ICC Codes. Will be adopting 2012 Codes when made available as a continual update.
9.A.1	Covered Load Ordinance	Adopt and enforce a new ordinance requiring vehicles to cover loads to prevent accidental spills. 5 year cost.	• Chino Valley Police Dept, Chino Valley Legal Depts, Chino Valley Public Works • $20,000 • Undetermined	No Action	Delete	Officers continue to use State Statutes reference the enforcement of load spilling issues
5.B.2	Granite Creek Crossing at Perkinsville Road	All weather crossing on Perkinsville Road at Granite Creek Wash to prevent road closures due to heavy rains and allow uninterrupted access.	• Chino Valley Public Works - Engineering Dept • $3,000,000 • Undetermined	No Action	Delete	Unable to complete due to lack of funding

Table 6-7-4
Clarkdale assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• **Lead Agency** • **Proposed Cost** • **Proposed Comp Date**	Status	Disposition	Explanation
5.F.1	Improve Flood Warning System on Verde River	Install gage and equipment for flood warning system in the Verde River at Tuzigoot Bridge.	• Yavapai Co Flood Control District • $10,000 • October 2006	No Action	Keep	Funding
5.B.1	Tuzigoot Bridge	Enlarge or replace Tuzigoot Bridge to alleviate traffic and emergency response vehicles during flooding events on the Verde River.	• ADOT • $28,000,000 • 2015	No Action	Keep	ADOT Project
8.A.1	First Responder and Technician Training and Equipment	Through advanced training and use of equipment first responders are better able to identify hazards and protect the public.	• Clarkdale Fire District • $75,000 • 2010	Completed Ongoing	Revise	Review and modify as needed.
9.A.1	Develop Transportation Master Plan	Hire a consultant or develop a Town transportation engineer to develop a Transportation Master Plan to identify transportation hazards in the community.	• Clarkdale Public Works Dept • $200,000 • 2010	In Progress	Revise	PARA Study scheduled to be completed in January 2011
7.B.1 (6.E) (1.B)	Property Maintenance Code	Adopt Int'l Construction Code Appendix - Property Maintenance Code to help maintain building integrity to prevent injury or loss of life and to mitigate structure damage to existing structures resulting from thunderstorms and high winds.	• Town of Clarkdale • $35,000 • July 2006	Complete Ongoing	Revise	Review and modify as needed.
5.B.2 (6.B)	Targeted Debris Removal and Wildfire Fuel Reduction	Remove overgrowth and debris around washes in the Town including the Verde River. Project to increase river capacity and reduce wildfire hazard.	• Clarkdale Fire District • $25,000 • May 2006	In Progress	Keep	Ongoing education and maintenance with property owners as needed.

Table 6-7-4
Clarkdale assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• **Lead Agency** • **Proposed Cost** • **Proposed Comp Date**	Status	Disposition	Explanation
7.B.2 (1.B)	Enforce Building Codes	Enforce recently adopted International Construction Codes to prevent injury or loss of life and to mitigate structure damage to future structures resulting from thunderstorms and high winds.	• Town of Clarkdale • $5,000 • Ongoing	In Progress	Keep	Ongoing education and maintenance with property owners as needed.
6.B.1	Wildfire Fuel Reduction	Conduct wildfire hazard fuel reduction within and surrounding Clarkdale to reduce the risk to existing and new structures.	• Clarkdale Fire District • $50,000 • April 2006	In Progress	Keep	Ongoing education and maintenance with property owners as needed.
3.A.1	Adopt Sprinkler Ordinance	Adopt fire protection sprinkler ordinance to protect existing and new structures against potential fire hazards.	• Town of Clarkdale • $0 • Completed	Complete	Delete	May 27, 2008 Adopted
7.B.3	Back up Generators	Purchase and install backup generators to provide power in the event of a power outage related to thunderstorms/high winds. Install back up power systems for critical public services and disaster shelters in the Town.	• Town of Clarkdale • $300,000 • July 2008	In Progress	Keep	Continuing to apply for grant funds.

Table 6-7-5
Cottonwood assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
7.A.1	Enforce Current Building Codes	Continue to enforce building codes to protect existing and future buildings and infrastructure from wind damage and other natural and human-caused disasters. 5-year cost.	• Cottonwood Building Dept • $75,000 • Ongoing	On going	Keep	City of Cottonwood has added 2 code enforcement officers to work on zoning and code enforcement within the City.
5.B.1	Complete Railroad Wash Channelization Project	Complete channelization of Railroad Wash between State Route 89A to Beach Street to remove residential properties from the floodplain.	• Cottonwood Public Works • $100,000 • 2006	In progress	Keep	Project is 90% complete and waiting on Hospital to remove water lines for project to be complete.
9.B.1	Variable Message Signs	Acquire two variable message signs for traffic control to mitigate transportation accident potential.	• Cottonwood Police Dept • $20,000 • Undetermined	No action	Delete	Pending grant funds
2.A.1	Public Education Activities	Initiate public outreach for hazard mitigation utilizing City information systems, distribution of educational materials, and neighborhood watch meetings related to all hazards. 5-year cost.	• Cottonwood Fire Dept • $50,000 • Ongoing	In Progress	Keep	Pending funding ability
8.B.3	HAZMAT Transportation Enforcement	Initiating interaction with commercial vehicle safety specialists to promote the continued enforcement of rules and regulations of HAZMAT transport.	• Cottonwood Police Dept • $25,000 • Ongoing	Complete	Keep	Police Department has trained a commercial truck inspector and had completed numerous commercial truck inspections within the City with the assistance of MVD.
8.B.1	HAZMAT First Responder Training and Resource Development	Through advanced training and use of equipment first responders are better able to identify hazardous materials and protect the public.	• Cottonwood Police Dept • $50,000 • Undetermined	On going	Keep	Compliance through NIMS training and first responder training for officers to handle HAZMAT as crime scenes.

Table 6-7-5
Cottonwood assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
8.B.2	Haz Mat Code Enforcement	Ensure code compliance related to hazardous materials use, storage and disposal in the community.	• Cottonwood Fire Dept • $20,000 • Ongoing	In progress	Keep	Ongoing inspection and code enforcement
9.B.2	Accident Reduction Details	Continuation of traffic accident mitigation by selective enforcement in high risk areas. 5-year cost.	• Cottonwood Police Dept • $75,000 • Ongoing	In progress	Keep	Selective traffic enforcement, DUI patrols, Red light enforcement etc.
9.B.3	MCI Training Exercises	Inter agency participation and involvement in mass casualty incident response. 5 exercises.	• Cottonwood Police Dept • $50,000 • 2006	On going	Delete	Active shooter training with school staff and police and fire.
5.A.1	Early Warning Systems	Active early warning system for inclement weather and flooding conditions. Cooperative with Yavapai County and NOAA.	• Cottonwood Police Dept • $75,000 • 2008	In Progress	Keep	Pending grant funding for reserve 911 program and system. Also working on a Utility reverse 911 system.
7.B.1	Backup Power Supply for Water Distribution Systems	Obtain backup electrical generation systems for emergency operation for the water distribution system.	• Cottonwood Utilities • $1,500,000 • Undetermined	In progress	Keep	Currently searching for a pull behind type generator for use at emergency scenes. Currently the Cottonwood Water system in on a gravity feed and had a minimum of 24 hour supply in the event of a power failure.
7.B.2	Public Safety Communication Improvements	Upgrade public safety communication systems to handle storm related operational disruptions.	• Cottonwood Police Dept • $1,000,000 • Undetermined	In progress	Keep	New communications center is in planning stages. The center will possibly be a regional dispatch center for numerous police and fire departments.

Table 6-7-5
Cottonwood assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
5.B.2	Eliminate Wet Crossings on collector streets within the City	Replace wet crossings with structures to allow uninterrupted traffic access during flood events on 6th Street and Camino Real crossing of Silver Springs Gulch.	• Cottonwood Public Works • $350,000 • 2010	In progress	Keep	New dry crossing on Willard Street opened in 2009 helps the 6th Street wet crossing by providing an alternate route.
5.B.3	Targeted Stormwater Drainage Improvements	Identify repetitive flooding problems within the community and develop projects to reduce the flooding hazard.	• Cottonwood Public Works • $2,200,000 • Undetermined	In progress	Keep	Willard Street Extension built in 2009 protected a neighborhood with a flood channel.
6.B.1	Wildfire Fuel Reduction Program	Identify and remove excess wildfire fuels from targeted wildland/urban interface areas to protect existing and future buildings and infrastructure.	• Cottonwood Fire Department • $220,000	In progress	Keep	Little progress due to lack of funding

Table 6-7-6
Dewey-Humboldt assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
1	Antelope Meadows Commercial Center	Remove flooding risk to the resident downstream of the Antelope Industrial Park (1 mi east of SR69, on SR169) by diverting flow to the Agua Fria River. This will include constructing to capture and convey drainage in a controlled manner.	• Dewey-Humboldt • $100,000 • Pending stakeholder cooperation (2011-2012)	In Progress	Keep	Hydraulic and Hydrologic study has been performed. Will continue to work with stakeholders towards a solution.
2	Codes	Continue to enforce building codes and adopt new international codes as they become available and/or are applicable.	• Dewey-Humboldt • $0 • Ongoing	In Progress	Revise	Implement and enforce council directed codes

Table 6-7-6
Dewey-Humboldt assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• **Lead Agency** • **Proposed Cost** • **Proposed Comp Date**	Status	Disposition	Explanation
3	Public Outreach	Educate the public on the risks resulting from Drought & Thunderstorms/High Winds, including providing recommendations on how to conserve water and protect themselves and their property from damages due to wind events. Outreach materials will be made available/distributed via fliers and Town website. Phase 1 = info in newsletter by Jan 2009.	• Dewey-Humboldt • $0 • Ph I – Jan 2009 & Ongoing	No Action	Keep	Staff turnover Achievable through existing monthly newsletter
4	Firewise	Apply for and ready community to become a Firewise Community. This will include completing work to meet program requirements.	• Dewey-Humboldt • $0 • Mid 2010	No Action	Delete	Staff turnover Staff availability Fabric of community not conducive to Firewise Program
5	NFIP	Maintain compliance with the National Flood Insurance Program (NFIP).	• Dewey-Humboldt • $0 • Ongoing	In Progress	Keep	Comply with federal and state regulations to maintain compliance

Table 6-7-7
Jerome assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
13.A.1	Alternative Water Supply Study	Hire a consultant to conduct a study to identify an alternative water supply or filtration system in the event of a contamination.	• Jerome Public Works • $5,000 • 2006	No Action	Delete	No longer a priority
9.B.1	Traffic Control Equipment	Identify and acquire traffic control equipment for first responders related to transportation accidents including personal protection and communication equipment.	• Jerome Fire Department • $15,000 • 2007	In Progress	Delete	Purchases made on an ongoing basis. Project is response oriented and will be discontinued
3.B.1	Backflow Prevention Study	Identify facilities with potential to contaminate the community water supply in the event of Town water supply shutoff and negative pressure occurrence. Develop a program for requiring backflow prevention devices. Address amending the Town ordinance and incur legal fees for the amended ordinance.	• Jerome Public Works • $15,000 • Completed	In progress	Keep	Study needs to be done. Code allows for refusal of service if no backflow device is in place.
8.C.1	Hazardous Materials Public Outreach	Educate the public about hazardous materials safety.	• Jerome Fire Department • $500 • 2010	No action	Keep	Plan to undertake soon
6.B.3	Town Fuels Crew	Hire, train, support and equip part-time wildland fire crew to perform wildfire hazard fuel reduction for prevention and suppression in cooperation with the Forest Service, mining companies and private property owners to protect existing and future buildings and infrastructure. 5-year cost.	• Jerome Public Works • $150,000 • 2010	In Progress	Keep	Town has established a wildlands crew including a Type 6 engine. We have leased an area from the mining company for use as a brush pile to mitigate fuels. Also, Ord. 358 established a Property Maintenance Code that requires fuel abatement.

Table 6-7-7
Jerome assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
10.B.1	Structure Seismic Retrofit	Identify and retrofit critical Town facilities including Fire Department, Spook Hall, and Civic Center to protect existing and future buildings and infrastructure.	• Jerome Fire Department • $500,000 • 2010	No Action	Delete	No seismic retrofits have been or will be pursued.
12.A.1	Pneumatic Airbag Rescue Equipment	Acquire Pneumatic Airbag Rescue Equipment and other rescue tools and train personnel.	• Jerome Fire Department • $150,000 • 2010	In Progress	Delete	Tools acquired in 2006. Training is ongoing. Project is response oriented and will be discontinued.
5.A.1	Storm sewer and Utility Master Plan	Hire a consultant to prepare a storm sewer and utility master plan to identify storm drain problems and prioritize infrastructure improvements.	• Jerome Public Works - Streets Department • $50,000 • 2010	Not Action	Keep	Funding not available. GPS software has been obtained. Problem areas with drainage have been identified. In process of creating a master Capital Improvement Plan to address needed infrastructure improvements.
7.A.1	Adopt and Enforce New Building Codes	Adopt and enforce new building codes to protect existing and future buildings and infrastructure from high wind damage and other natural and human caused disasters. 5 year cost.	• Town of Jerome • $35,000 • Ongoing	In Progress	Keep	Ordinance updating all codes to 2003 in 2009. Ongoing review.

Table 6-7-8
Prescott assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
5.B.1	Drainage Master Plan	Prepare a Drainage Master Plan for entire Prescott area to identify potential flooding hazards and identify and implement flood control alternatives.	• City of Prescott Public Works • $75,000 • July 2007	Completed	Delete	Developing a program to complete mitigation measures. $50,000 cost, complete summer of 2008.
3.C.1	Improve Communications Infrastructure	Construct seven communication sites to improve emergency response communication capabilities.	• City of Prescott Police and Fire • $2,075,000 • July 2007	In Progress	Revise	Final phase implemented target completion date of 6/1/2012. 85% complete.
6.B.1	Wildfire Fuel Reduction	Continue wildfire fuel reduction on private/public property to protect existing and future buildings and infrastructure. 5 year cost.	• City of Prescott Fire • $2,500,000	In Progress	Keep	On-going need for funding, program needs State Fire Assistance grants to continue.
8.A.1	Improve Response Capability	Purchase additional hazardous materials mitigation equipment.	• City of Prescott Fire • $500,000 • Ongoing	In Progress	Keep	Minimal detection equipment purchased, need additional equipment and rolling stock due to lack of space.
10.B.1	Improve Emergency Operations Center	Purchase and install computer, audio/visual, communications, and reverse 911 equipment.	• City of Prescott Fire • $250,000 • Undetermined	No Action	Keep	No funding available
3.C.2	First Responder Training and Equipment	Through advanced training and use of equipment first responders are better able to identify hazards and protect the public.	• City of Prescott Fire • $150,000 • Undetermined	In Progress	Keep	Continue training due to attrition and purchasing of needed equipment.
5.A.3	Improve Low Water Crossings	Install gates to prevent vehicle travel in 28 low water crossings during flooding events.	• City of Prescott Fire • $200,000 • Undetermined	In Progress	Keep	Completed survey and costs will include revised plan for 2011

Table 6-7-8
Prescott assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
10.B.1	City Hall Building Security Project	Provide security to City Hall against civil disturbance and terrorism.	• City of Prescott Police Department • $200,000 • Undetermined	In Progress	Keep	Limited funding, major entries secured. Completed by COP funding $68,000 on July 1, 2009.
10.A.2	Urban Search and Rescue Team Project	Improve urban search and technical rescue capability in the City through training and procurement of specialized equipment.	• City of Prescott Fire • $250,000 • Undetermined	In Progress	Keep	Acquired limited equipment and Mass Casualty trailer. $100,000 expended still need $150,000
7.A.1	Enforce Current Building Codes	Continue to enforce building codes to protect existing and future buildings and infrastructure from high wind damage and other natural and human caused disasters. 5 year cost.	• City of Prescott Building Department • $75,000 • Undetermined	In Progress	Keep	Maintain current codes and staffing to ensure safety.
9.A.1	Uninterrupted Power System for Traffic Signals	Install battery backup power systems at major traffic intersections.	• City of Prescott Public Works • $300,000 • Undetermined	No progress	Keep	Identify costs and begin implementation.
6.E.1	Wildfire Code Enforcement	Continue enforcement of wildland urban interface code. 5 year cost.	• City of Prescott Fire • $500,000 • Ongoing	In Progress	Keep	Need help with funding.

Table 6-7-9
Prescott Valley assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
3.A.1	Reverse 911 System	Purchase and implement Reverse 911 system out of Prescott Police / Fire Dispatch Center to warn public of emergency situations. A second system will be implemented out of Sedona Fire Dispatch Center.	• Prescott/Prescott Valley • $260,000 • Undetermined	Completed	Delete	Informed that Yav. Co. Sheriff's Office completed this project.
6.D.2	Neighborhood Wildfire Assessment	Develop neighborhood wildfire assessment and rank at-risk neighborhoods with the goal to provide accurate wildfire information to residents and motivate them to implement personal and neighborhood mitigation measures.	• Central Yavapai Fire District • $50,000 • Undetermined	No Action	Keep	Unknown. Need follow-up coordination with CYFD
6.B.1	Wildfire Defensible Space Program	Provide funding for residents in at-risk subdivisions to create defensible space around their homes in designated high risk urban interface areas to protect existing and future buildings and infrastructure. 5-year program.	• Central Yavapai Fire District • $500,000 • Undetermined	No Action	Keep	Unknown. Need follow-up coordination with CYFD
6.B.3	Town Fuels Crew	Support and equip part-time road crew to perform roadside wildfire hazard fuel reduction along roads in the interface to protect existing and future buildings and infrastructure.	• Prescott Valley • $150,000 • Ongoing	In-Progress Ongoing	Keep	Ongoing maintenance within the Public Works Department.
5.B.2	Agua Fria Sewer Line	Flood mitigation on existing sewer line under Agua Fria River.	• Prescott Valley • $75,000 • 2006	Completed	Delete	Work completed on this project.
5.B.3	Tani Drainage	Flood control project to protect residential areas.	• Prescott Valley • $300,000 • 2007	Completed	Delete	Channel improvements and 2 6'x3' box culverts under road. 7/7/09 $225 K

Table 6-7-9
Prescott Valley assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
5.B.4	Windsong Drainage	Flood control project to protect residential areas.	• Prescott Valley • $530,000 • 2007	Completed	Delete	Channel improvements, culverts and headwalls installed. 4/30/09 $270 K.
3.A.1	Emergency Vehicle Pre-emption System	Traffic signal priority system for police and fire emergency response vehicles.	• Prescott Valley • $500,000 • Undetermined	No Action	Keep	
5.B.1	Glassford Hill Interceptor Channel	Divert floodwater out of a residential area to protect Castle Canyon Mesa area existing and future buildings and infrastructure.	• Prescott Valley • $1,560,000 • 2006	Completed	Delete	Channel construction around residential area to alleviate residential flooding during major events.7/12/06 $1.32M
9.B.1	First Responder/Traffic Control	Ensure proper training and equipment for Police, Fire, and Public Works to mitigate transportation accidents and other incidents in the community at a minimum of first responder level.	• Prescott Valley • $1,500,000 • Undetermined	In Progress	Keep	Working on plan. Wish list includes 2 lighted sign boards and trailer with traffic control devices.
5.B.5	Mission Lane Drainage	Flood control project to protect residential areas.	• Prescott Valley • $1,230,000 • 2007	Completed	Deleted	Project was completed at a cost of $1.5 M. Completed 3/13/07
5.B.6	Agua Fria Channel	Flood control project to protect residential areas.	• Prescott Valley • $750,000 • 2008	No Action	Keep	Waiting on funding.
5.B.7	Western Drainage	Flood control project to protect residential areas.	• Prescott Valley • $2,200,000 • 2008	In Progress	Revise	Phase 1 of project nearing completion. Phase 2 to begin if funded next fiscal year. $1M. Revise to address 2nd phase.
5.B.8	Spouse Drainage	Flood control project to protect residential areas.	• Prescott Valley • $1,800,000 • 2009	No Action	Keep	Waiting on funding/priority.

Table 6-7-9
Prescott Valley assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
5.B.9	Yavapai Drainage	Flood control project to protect residential areas.	• Prescott Valley • $1,700,000 • 2010	Completed	Delete	Finished 1/18/07 $1.1 M
8.B.1	Mobile Emergency Operations/Command Center	Obtain and equip an alternate first response mobile Emergency Operations Center to be able to mitigate Hazardous Materials leaks and spills and other incidents.	• Prescott Valley • $200,000 • Undetermined	Completed	Delete	Mobile EOC has been acquired and placed into service
7.B.1	Secondary Well Site Power System	Obtain backup electrical generation systems for emergency operation at all well sites.	• Prescott Valley • $500,000 • Undetermined	In Progress	Keep	Mobile generator purchased. Additional funding currently not available for additional ones.
1.A.1	Source Water Assessment Program	Develop source water assessment program.	• Prescott Valley • $100,000 • 2007	No Action	Keep	
7.B.2	Uninterrupted Power System for Traffic Signals	Install battery backup power systems at major traffic intersections.	• Prescott Valley • $300,000 • Undetermined	In Progress	Keep	Installed 3 systems over the last five years. Are targeting 10 more to consider project complete.
10.B.1	Town Building Security Project	Provide security to Town of Prescott Valley Complex Buildings against civil disturbance and terrorism	• Prescott Valley • $500,000 • Undetermined	In Progress	Keep	Have installed card-key systems on bullet resistant panels on council chambers desk.
2.C.1	Implement Community Secondary Route Regulations for new subdivisions	Develop requirements for secondary accessibility to all new residential developments.	• Prescott Valley • $0 • 2006	In Progress Ongoing	Delete	Have requirements in place and will continue to enforce on a case-by-case basis.
3.C.2	Joint Police and Fire Training Center	Training facility to meet the changing needs and requirements of the emergency response personnel.	• Prescott Valley/ Central Yavapai Fire District • $7,500,000 • Undetermined	In Progress	Keep	Bond Funding is developing a portion of this project. Currently phasing under construction.

Table 6-7-9
Prescott Valley assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
2.C.1	Community Secondary Routes	Plan, design, construct secondary access routes for emergency vehicles.	• Prescott Valley • $5,000,000 • Undetermined	No Action	Keep	Funding necessary.

Table 6-7-10
Sedona assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
5.B.2	Debris Removal in Oak Creek	Remove debris and vegetation upstream of the Oak Creek/179 Bridge to maintain uninhibited conveyance under bridge during large flood events and prevent debris blockage that could force water over the bridge, scour bridge abutments, and cutoff traffic.	• City of Sedona • $30,000 • 2007	No Action	Delete	No action was taken on this initiative due to denial of FEMA Mitigation Funding. This area is also located on private property. The bridge at this location was replaced in 2010 as part of the ADOT SR 179 Project.
1.A.1	Update Fire Code	Update and adopt the current fire code. Train officers, field assessments, update equipment to protect existing and future buildings and infrastructure from wildfire damage and other natural and human-caused disasters. 5 year cost.	• Sedona Fire District • $2,000,000 • 2006	Complete	Delete	On 9/11/07, the public (residents within the Sedona Fire District) voted to adopt the 2003 Fire Code. The SFD currently has one Fire Inspector that is Fire Code Certified. One position was cut during the 09/10 Plan Year due to budgetary constraints. Training is ongoing.

Table 6-7-10
Sedona assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
5.B.1	Protect Sewage Lift Station	Protect 179 sewage lift station from Morgan Wash 100-year floodplain.	• City of Sedona • $250,000 • 2006	Complete	Delete	In July and August of 2007, the City of Sedona Engineering Dep, in coordination with Tiffany Construction, completed a gabion bank-stabilization project to protect the bank at the 179 Sewage Lift Station. This initiative is complete.
7.A.1	Increase Building Inspector Capability	Increase capability to inspect buildings and facilities to enforce building codes to protect existing and future buildings and infrastructure from wind damage and other natural and human-caused disasters. Including software, equipment and vehicle. 5-year cost.	• City of Sedona • $300,000 • Undetermined	Complete	Delete	New residential and commercial structures have been reviewed, inspected and built to meet snow, wind and seismic loads per building code since the City's incorporation in 1988. City Council adopted the Sedona Floodplain Ord on Sept 26, 2006. Due to budgetary constraints, no new software, equipment or vehicles were purchased.
8.A.1	Establish Haz Mat Unit	Retain, train and certify personnel. Aquire equipment and vehicle. 5-year cost.	• Sedona Fire District • $5,000,000 • Undetermined	Complete Ongoing	Delete	Thus far, six SFD employees are certified Haz Mat Technicians. A Haz Mat tender truck has been procured for Station #1. A medium duty rescue truck went into service in April 2009.
9.A.1	Vehicle Inspection Certification	Train, certify and retain personnel for commercial vehicle safety inspections. 5-year cost.	• Sedona Police Department • $2,000,000 • Undetermined	Complete Ongoing	Delete	Since the Fall of 2007, one officer has been conducting routine commercial vehicle inspections during his shifts. The current officer is Jerome Bilas.

Table 6-7-10
Sedona assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
2.A.1	CERT Program	Civilian Emergency Response Team. Train and educate public on basic first response capabilities. 5 year cost.	• Sedona Fire District • $10,000 • Ongoing	Complete Ongoing	Keep	More than 100 people were certified prior to 2008. No certifications during the 09/10 reporting period, due to lack of public interest. However, the certified people are still active.
3.A.3	Sedona Alternate Route	To construct an alternate route between Sedona and the Village of Oak Creek which would enhance emergency service response times and would provide a secondary route should the Hwy. 179 bridge become impassable.	• City of Sedona • $15,000,000 • Undetermined	Complete for Emergency Service Vehicles	Delete	In May 2009, the Verde Valley Multimodal Transportation Study was completed by Lima & Assoc. for Yavapai County. The study does not recommend a project for an alternate route between 2010and 2030. However, there is an emergency services route to VOC via the La Marra Subdivision on Upper RR Loop Rd. Improvements were made to Brewer and Ranger Roads to ease pressure on the "Y" during the SR 179 Project.
6.A.2	Adopt Wildland Code Urban Wildland Interface Training	~~Adopt and urban wildland interface development code.~~ Urban Wildland Interface Training for officers, risk assessments. 5-year cost.	• Sedona Fire District • $1,000,000 • Ongoing	Complete Ongoing	Revise	On 9/11/07, the public (residents within the Sedona Fire District) voted to adopt the 2003 International Urban-Wild-land Interface Code. The SFD has one Fire Inspector that is Wild-land Evaluator Certified. One position was cut during the 09/10 Plan Year due to budgetary constraints. Training is ongoing.

Table 6-7-10
Sedona assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• Lead Agency • Proposed Cost • Proposed Comp Date	Status	Disposition	Explanation
3.A.1	Early Warning Siren System	Install five sirens throughout the community to notify the public of impending hazards.	• Sedona Fire District • $75,000 • 2005	Complete	Delete	This project was specifically for Uptown and Oak Creek Canyon. This initiative was completed on June 15, 2007. A total of nine sirens were installed, with the Southernmost siren located at the Arroyo Roble Resort and Northernmost siren located at Pine Flats.
3.A.2	Variable Message Sign	Oak Creek Canyon condition announcements along 89-A north.	• City of Sedona • $10,000 • 2006	Complete	Delete	ADOT installed two permanent variable message boards on SR 89A during FY 2008-2009. One board is near Lomacasi Cottages, the other is just south of Flagstaff. This initiative is complete.
6.A.1	Wildland Mitigation	Proposed wildland fire assessments to identify urban wildland interface. 5-year cost.	• Sedona Fire District • $250,000 • Ongoing	Complete Ongoing	Keep	SFD advertises and offers free property assessment to homeowners and business owners. They've adopted the 2003 International Urban-Wildland Interface Code. Inspections were done for several subdivisions and homeowners in the past 5-years. SFD has developed a Sedona Wild-land Interface Map that shows priority threat areas.

Table 6-7-10
Sedona assessment of previous plan cycle mitigation actions/projects

ID	Name	Description	• **Lead Agency** • **Proposed Cost** • **Proposed Comp Date**	Status	Disposition	Explanation
7.B.1	Develop Survey and Assessment Program	Develop program to assess vulnerability of structures in the community likely to be vulnerable to the affects of thunderstorms and high winds.	• City of Sedona • $200,000 • Undetermined	No Action	Delete	No action was taken on this initiative due to budgetary constraints. Per FEMA regulations, we only take action on flooding issues if a structure has at least 50% substantial damage.
2.C.1	Engine Company Inspection Program	Promote hazard mitigation in the business and residential areas in the community. ~~Install computer and communications equipment in existing facilities.~~ 5-year cost.	• Sedona Fire District • $200,000 • Ongoing	Complete Ongoing	Revise	10 inspections are conducted per captain per shift per station. This equates to 30 inspections per station per month for a total of 90 inspections per month (three stations participate). Commercial inspections are done on a routine annual basis. Residential inspections are by citizen request only and they are free.

6.3.2 New Mitigation Actions / Projects and Implementation Strategy

Upon completion of the assessment summarized in Section 6.3.1, each jurisdiction's Local Planning Team developed new A/Ps using the goals and objectives, results of the vulnerability analysis and capability assessment, and the planning team's institutional knowledge of hazard mitigation needs in the community. The A/Ps can be generally classified as either structural or non-structural. Structural A/Ps typify a traditional "bricks and mortar" approach where physical improvements are provided to effect the mitigation goals. Examples may include forest thinning, channels, culverts, bridges, detention basins, dams, emergency structures, and structural augmentations of existing facilities. Non-structural A/Ps deal more with policy, ordinance, regulation and administrative actions or changes, buy-out programs, and legislative actions. For each A/P, the following elements were identified:

- **ID No.** – a unique alpha-numeric identification number for the A/P.
- **Description** – a brief description of the A/P including a supporting statement that tells the "what" and "why" reason for the A/P.
- **Hazard(s) Mitigated** – a list of the hazard or hazards mitigated by the A/P.
- **Community Assets Mitigated** – a brief descriptor to qualify the type of assets (existing, new, or both) that the proposed mitigation A/P addresses.
- **Estimated Costs** – concept level cost estimates that may be a dollar amount or estimated as staff time.

Once the full list of A/Ps was completed to the satisfaction of the Local Planning Team, the team then developed the implementation strategy for those A/Ps. The implementation strategy addresses the *"priority, how, when, and by whom?"* questions related to the execution and completion of an identified A/P. Specific elements identified as a part of the implementation strategy included:

- **Priority Ranking** – each A/P was assigned a priority ranking of either "High", "Medium", or "Low". The assignments were subjectively made using a simple process that assessed how well the A/P satisfied the following considerations:
  - A favorable benefit versus cost evaluation, wherein the perceived direct and indirect benefits outweighed the project cost.
  - A direct beneficial impact on the ability to protect life and/or property from hazards.
  - A mitigation solution with a long-term effectiveness
- **Planning Mechanism(s) for Implementation** – where applicable, a list of current planning mechanisms or processes under which the A/P will be implemented. Examples could include CIPs, General Plans, Area Drainage Master Plans, etc.
- **Anticipated Completion Date** – a realistic and general timeframe for completing the A/P. Examples may include a specific target date, a timeframe contingent upon other processes, or recurring timeframes.
- **Primary Agency and Job Title Responsible for Implementation** –the agency, department, office, or other entity and corresponding job title that will have responsibility for the A/P and its implementation.
- **Funding Source** – the source or sources of anticipated funding for the A/P.

Tables 6-8-1 through 6-8-11 summarize the current mitigation A/P and implementation strategy for each jurisdiction participating in the Plan. Projects listed in *italics font* are recognized as being more response and recovery oriented, but are considered to be a significant part of the overall hazard management goals of the community.

Table 6-8-1: Mitigation actions and projects and implementation strategy for Yavapai County

Mitigation Action/Project					Implementation Strategy				
ID No	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
1	Lynx Creek Channelization. Proposed channelization of Lynx Creek downstream of SR 69 through Fain Rd bridge. Channel will contain 100-year flood flows with gabion bank stabilization. Local asset exposure of approximately $5 million.	Flood	Both	$2,200,000	Low	N/A	June 2013	Flood Control District	Flood Control District
2	Beaver Creek Channel Restoration. Channel bank restoration to prevent ongoing erosion hazard to protect existing and future buildings and infrastructure.	Flood	Both	$100,000	Med	N/A	June 2013	Flood Control District	Flood Control District
3	Flood Hazard Mapping. Identify and map new flood hazard areas and update existing mapping in accordance with NFIP compliant requirements to protect existing and future buildings and infrastructure from flood hazards.	Flood	Both	$1,000,000	High	N/A	On Going	Flood Control District	Flood Control District
4	Flood Warning System. Install additional in stream, weather, and precipitation gauges in watersheds impacting Yavapai County. To include website development and remote dial-up for public agencies.	Flood	Both	$500,000	High	N/A	On Going	Flood Control District	Flood Control District
5	Flood Damage Prevention, Drainage Criteria Ordinance and Stormwater Management Plan. Amend ordinances to prevent flood damage and water quality degradation and to protect existing and future buildings and infrastructure.	Flood	Both	$150,000	Med	N/A	December 2012	Flood Control District	Flood Control District
6	Groundwater Identification and Conservation. Establish the extent of available groundwater and coordinate growth in accordance with defined water resources. Apply water allocation/budgeting as a growth management tool County wide.	Drought	Both	$40,000	High	Local Plan	on-going	Water Advisory Committee	General Fund

Table 6-8-1: Mitigation actions and projects and implementation strategy for Yavapai County

Mitigation Action/Project					Implementation Strategy				
ID No	**Description**	**Hazard(s) Mitigated**	**Assets Mitigated (Ex/New)**	**Estimated Cost**	**Priority Ranking**	**Planning Mechanism(s) for Implementation**	**Anticipated Completion Date**	**Primary Responsible Agency / Job Title**	**Funding Sources**
7	*Public Safety Information Network. Enhance communications and database information capabilities among public safety agencies (to include police, fire, ems, etc.) to provide for advanced intelligence sharing.*	*All – Response Oriented*	*Both*	*$20,000*	*High*	*Communications Plan*	*December 2011*	*Sheriff & Central Yavapai Fire*	*Homeland Security*
8	County Building Security Project. Provide security to Yavapai County Complex Buildings against civil disturbance and terrorism.	Civil Disturbance, Terrorism	Existing	$100,000	High	Existing Plans	2014	Capital Improvements	Building Fund
9	Neighborhood Wildfire Assessment. Develop neighborhood wildfire assessment and rank at-risk neighborhoods with the goal to provide accurate wildfire information to residents and motivate them to implement personal and neighborhood mitigation measures.	Wildfire	Both	$500,000	High	National Fire Code	On-going	Prescott Fire & Central Yavapai Fire	USDA/FS Grants
10	Regional Fuels Crew. Support two full-time crews dedicated to hazard fuel reduction, fire suppression, and public education in the Prescott Basin and surrounding areas.	Wildfire	Both	$3,000,000	High	National Fire Code	On-going	Prescott Fire & Central Yavapai Fire	USDA/FS Grants
11	County Fuels Crew. Support part-time road crew to perform roadside hazard fuel reduction along County roads in the interface.	Wildfire	Both	$300,000	Med	Local Plans	On-going	Public Works	USDA/FS Grants
12	Fire Wise Community Programs. Develop Fire Wise programs for all communities, neighborhoods and home owners associations within the wildland fire/urban interface including instruction materials & facilitating partnerships with insurance agencies.	Wildfire	Both	$15,000	Med	Firewise Requirements	On-going	HOA's, Community Groups	Grants USDA/FS
13	Wildfire Public Education Activities. Continue and expand Town Hall style meeting to include annual expo and continuation and expansion of the regional alert website to protect existing and future buildings and infrastructure. Over ten years.	Wildfire	Both	$100,000	Med	Local Plans	On-going	PAWUIC	USDA/FS Grants

Table 6-8-1: Mitigation actions and projects and implementation strategy for Yavapai County

Mitigation Action/Project					Implementation Strategy				
ID No	**Description**	**Hazard(s) Mitigated**	**Assets Mitigated (Ex/New)**	**Estimated Cost**	**Priority Ranking**	**Planning Mechanism(s) for Implementation**	**Anticipated Completion Date**	**Primary Responsible Agency / Job Title**	**Funding Sources**
14	Small Diameter Wood Business Recruitment. Partnership between PAWUIC and development agencies to conduct outreach and attract sustainable, small-diameter wood-based businesses into the area.	Wildfire	Both	$1,200,000	Med	Local Plans	On-going	PAWUIC/ YCEM	ARRA Grants
15	County Wildland Mapping for State GIS. Establish and maintain a County component of the state GIS mapping system documenting forest treatments, hazard data, grants, etc.	Wildfire	Both	$25,000	Med	Local Plans	Dec. 2012	County GIS	General Fund
16	Boundary Project. Develop a 270 degree defensible wildfire boundary around interface immediately to the south of the City of Prescott.	Wildfire	Both	$3,000,000	High	Local Plan	2015	PAWUIC/ USFS	USDA/FS Grants
17	*Urban Search and Rescue Team Project. Develop urban search and technical rescue capability in the County through training and procurement of specialized equipment.*	*All – Response Oriented*	*Both*	*$1,000,000*	*High*	*Local Plans*	*On-going*	*Participating Fire Depts.*	*Homeland Security*
18	Ensure Water Quality. Protect water quality from contamination through development of household hazardous waste programs over ten years.	Drought; HAZMAT	Both	$200,000	Med	Local Plans	2015	YCEM	county, city, ADEQ
19	*Personal Protection and Detection Equipment. Identify and purchase first responder advanced technology personal protection and detection equipment for chemical and biological incidents.*	*Chemical and Biological*	*Both*	*$150,000*	*High*	*Local Plans*	*2012*	*county-wide Public Safety*	*Homeland Security*
20	*Community Emergency Response Team Program. Citizen disaster training to form neighborhood teams as interim first responders in wide spread disasters or events where communities and neighborhoods are isolated. Ten year program.*	*All – Response Oriented*	*Both*	*$50,000*	*Low*	*Local Plans*	*On-going*	*YCEM*	*FEMA*
21	Repetitive Flood Loss Properties. Inform and coordinate property owners to flood mitigation programs such as retrofit and/or property acquisition.	Flood	Existing	$5,000,000	Low	N/A	On Going	Flood Control District	Flood Control District

Table 6-8-1: Mitigation actions and projects and implementation strategy for Yavapai County

Mitigation Action/Project					Implementation Strategy				
ID No	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
22	Purchase and Store Rain Gages for use after a forest fire to assist in mitigating flood and mudslide losses.	Flood and Mudslide	Both	$50,000	High	N/A	December 2012	Flood Control District	Flood Control District
23	Mayer Local Drainage. Construct various flood mitigation projects to protect structures from flooding.	Flood	Existing	$30,000	High	N/A	August 2012	Flood Control District	Flood Control District
24	Lake Montezuma Area-Wide Drainage Plan. Area-wide planning project to determine hazard and mitigation projects for construction.	Flood	Both	$200,000	High	N/A	June 2012	Flood Control District	Flood Control District
25	Village of Oak Creek Area-Wide Construction Projects. Five of eight various flood mitigation projects as determined in the area-wide planning study.	Flood	Both	$250,000	High	N/A	June 2016	Flood Control District	Flood Control District

Table 6-8-2: Mitigation actions and projects and implementation strategy for Camp Verde

Mitigation Action/Project					Implementation Strategy				
ID No	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
1	Enforce Current Building Codes. Continue to enforce building codes to protect existing and future buildings and infrastructure from severe wind damage and other natural and human-caused disasters. 5 year cost.	All	Both	Staff time	High	Building Codes	Continued	Town of Camp Verde/ Building Official	General Fund
2	Update Weed Abatement Code. Revise weed abatement ordinance to include wildfire defensible space to protect existing and future buildings and infrastructure from wildfire hazards.	Wildfire	Both	Staff time	Med	Planning & Zoning Codes	March 2011 next update	Community Development/ Code Enforcement Official	General Fund

Table 6-8-2: Mitigation actions and projects and implementation strategy for Camp Verde

Mitigation Action/Project					Implementation Strategy				
ID No	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
3	Implement Stormwater Master Plan. Hire an engineer to devote a portion of their time to overseeing the implementation of the Stormwater Master Plan for mitigation of stormwater and flooding hazards.	Flooding	Both	Staff time	High	Storm Water Master Plan	February 2011	Public Works/Project Manager	General Fund
4	Uninterrupted Power System for Traffic Signals. Install battery backup power systems at major traffic intersections.	Transportation Accident	Both	$150,000	High	Engineering Standards	2012	Public Works/Public Works Director	General Fund
5	Flood Prone Property Acquisition. Inform and coordinate property owners to flood mitigation programs such as retrofit and/or property acquisition in Verde Lakes area including Verde Lakes Drive/Clear Creek Restoration.	Flooding	Existing	Staff time	Med	Storm Water Master Plan	Continued	Public Works/Public Works Director	General Fund
6	Middle Verde Area Drainage Improvements. Channelization of Middle Verde area with box culverts, retention/detention basins to remove several homes from the floodplain as reported in the Middle Verde Area Drainage Evaluation by the USACE.	Flooding	Both	$2,000,000	Low	Storm Water Master Plan	Continued	Public Works/Public Works Director	FEMA HMGP / General Fund match
7	Maintain IGA with the County as Floodplain Managers to ensure compliance with NFIP regulations for management and review of new developments located in the floodplain in regards to issuance of floodplain use permits.	Flooding	Both	Staff time	High	Town Codes/IGA's	Continued	Public Works/Public Works Director	General Fund

Table 6-8-3: Mitigation actions and projects and implementation strategy for Chino Valley

Mitigation Action/Project					Implementation Strategy				
ID No	**Description**	**Hazard(s) Mitigated**	**Assets Mitigated (Ex/New)**	**Estimated Cost**	**Priority Ranking**	**Planning Mechanism(s) for Implementation**	**Anticipated Completion Date**	**Primary Responsible Agency / Job Title**	**Funding Sources**
1	*Personal Protection and Detection Equipment. Identify and purchase first responder advanced technology personal protection and detection equipment for chemical and biological incidents including personnel training. 5 year cost.*	*Chemical and Biological Incidents*	*Both*	*$1 million*	*Low*	*None*	*TBD*	*Community Development, Legal, and Public Wo*	*Federal Grant*
2	Road 3 North and Voss Drive Drainage. Install box culverts to convey sheet flow across Road 3 North with Retention/Detention basins southwest of Voss Drive.	Flood	Both	$250,000	Low	CIP Program	TBD	Public Works / Director	CIP Program
3	Hazard Public Education Activities. Continue and expand Town Hall style meetings, annual expos, and other public outreach. Expansion of the Town, Police, and Fire website. Distribution of educational materials related to all hazards the Town is susceptible to. 5 year cost.	All	Both	$200,000	Low	None	Ongoing	Police and Public Works, Chino Valley Fire District	CIP Program
4	Bridge Structure at Road 5 North. Construct an all weather crossing at Road 5 North and Reed Road to mitigate road closures due to heavy rains and provide uninterrupted access.	Flood	Both	$750,000	Low	CIP Program	TBD	Public Works / Director	CIP Program
5	Bridge on Road 2 North. Reconstruction of Bridge on Road 2 North over Santa Cruz Wash to eliminate frequent overtopping due to sedimentation. Project will prevent road closures due to heavy rains and allow uninterrupted access.	Flood	Both	$600,000	Med	CIP Program	December 2011	Public Works / Director	CIP Program
6	Strengthen Building Codes. Adopt and enforce new building codes to protect existing and future buildings and infrastructure from high wind and other natural and human caused disasters. 5 year cost.	All	Both	$75,000	Low	Unified Development Ordinance	Ongoing	Community Development, Legal, and Public Works, Chino Valley Fire District	General Funds

Table 6-8-3: Mitigation actions and projects and implementation strategy for Chino Valley

Mitigation Action/Project					Implementation Strategy				
ID No	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
7	Maintain compliance with NFIP regulations by enforcement of the FEMA floodplain management through review of new development located in the floodplain and issuance of FEMA floodplain use permits.	Flood	Both	None	Low	Floodplain Ordinance	Ongoing	Community Development, Legal, and Public Works	General Fund

Table 6-8-4: Mitigation actions and projects and implementation strategy for Clarkdale

Mitigation Action/Project					Implementation Strategy				
ID No	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
1	Improve Flood Warning System on Verde River. Install gage and equipment for flood warning system in the Verde River at Tuzigoot Bridge.	Flood	Both	$10,000	High	N/A	2013	Yavapai County Flood Control District	Yavapai County
2	Tuzigoot Bridge. Enlarge or replace Tuzigoot Bridge to alleviate traffic and accommodate emergency response vehicles during flooding events on the Verde River.	Flood	Both	$28,000,000	Med	N/A	2015	ADOT	ADOT
3	Finalize PARA Study. Work with consultant or finalize the Transportation Master Plan for the Town.	Transportation Accident	Both	$125,000	Med	General Plan	2011	ADOT	ADOT
4	Review and modify International Construction Code Appendix - Property Maintenance Code to help maintain building integrity to prevent injury or loss of life and to mitigate damage to existing and future structures resulting from severe winds.	Severe Wind	Both	$5,000 +Staff Time	Med	Town Code	On Going	Town of Clarkdale Community Development Department	General Fund

Table 6-8-4: Mitigation actions and projects and implementation strategy for Clarkdale

Mitigation Action/Project					Implementation Strategy				
ID No	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
5	Targeted Debris Removal and Wildfire Fuel Reduction. Remove overgrowth and debris around washes in the Town including the Verde River. Project to increase river capacity and reduce wildfire hazard.	Flood; Wildfire	Both	$25,000	Med	Defensible Space Plan	2015	Clarkdale Fire District	Fire District
6	Enforce recently adopted International Construction Codes to prevent injury or loss of life and to mitigate damage to existing and future structures resulting from severe winds.	Severe Wind	Both	$5,000 +Staff Time	High	Town Code	On Going	Town of Clarkdale Community Development Department	General Fund
7	Wildfire Fuel Reduction. Conduct wildfire hazard fuel reduction within and surrounding Clarkdale to reduce the risk to existing and new structures.	Wildfire	Both	$20,000	High	Defensible Space Plan	2012	Clarkdale Fire District	Fire District
8	Purchase and install backup generators to provide power in the event of a power outage related to severe wind and winter storm events. Install back up power systems for critical public services and disaster shelters in the Town.	Severe Wind; Winter Storm	Both	$300,000	Med	N/A	2014	Town of Clarkdale	General Fund Grants
9	Develop IGA with Yavapai County Flood Control District for establishing procedural guidelines for the implementation and enforcement of the NFIP floodplain management.	Flood	New	Staff Time	Med	Town Code	Annually	Town of Clarkdale Community Development Department	General Fund
10	Yavapai County Flood Mitigation Projects. Major projects are driven by historical events and minor projects are driven by local issues	Flood	New	Staff Time	High	Flood Mitigation Project Plan	Annually	Town of Clarkdale Public Works Department	Yavapai Co Grants
11	Twin 5 Water Main Location. Replace/relocate vulnerable existing exposed above ground dual 5" water main pipelines with a minimum 12" ductile iron pipe to enhance system security and improve operating capability.	Flood, Wildfire, Terrorism, Vandalism	New	3,500,000	High	Water Master Plan	2015	Town of Clarkdale Utility Department	Water Fund HUD Homeland Security Grant

Table 6-8-4: Mitigation actions and projects and implementation strategy for Clarkdale

Mitigation Action/Project					Implementation Strategy				
ID No	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
12	89A Reservoir Site Protection. Install traffic control barricades to protect vulnerable existing reservoir tanks.	Transportation Accident	New	30,000	Med	Water Master Plan	2015	Town of Clarkdale Utility Department	Water Fund HUD

Table 6-8-5: Mitigation actions and projects and implementation strategy for Cottonwood

Mitigation Action/Project					Implementation Strategy				
ID No	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
1	Enforce Current Building Codes. Continue to enforce building codes to protect existing and future buildings and infrastructure from severe wind damage and other natural and human-caused disasters. 5-year cost.	All	New	$200,000	High	A physical need to get plight and unsafe conditions cleaned up within the City.	On Going	Code Enforcement Officers	General Fund
2	Complete Railroad Wash Channelization Project. Complete channelization of Railroad Wash between State Route 89A to Beach Street to remove residential properties from the floodplain.	Flood	Both	$1,000,000	Med	FEMA Flood Plain	On Hold	Public Works Utilities	Grants and General Funding
3	Public Education Activities. Initiate public outreach for hazard mitigation utilizing City information systems, distribution of educational materials, and neighborhood watch meetings related to all hazards. 5-year cost.	All	Existing	$5,000	Low	Block watch meetings and Citizen Police Academes planned throughout the year. Seeking public input through public awareness.	2016	Police/ Developmental Services	General Fund

Table 6-8-5: Mitigation actions and projects and implementation strategy for Cottonwood

Mitigation Action/Project					Implementation Strategy				
ID No	**Description**	**Hazard(s) Mitigated**	**Assets Mitigated (Ex/New)**	**Estimated Cost**	**Priority Ranking**	**Planning Mechanism(s) for Implementation**	**Anticipated Completion Date**	**Primary Responsible Agency / Job Title**	**Funding Sources**
4	HAZMAT Transportation Enforcement. Initiating interaction with commercial vehicle safety specialists to promote the continued enforcement of rules and regulations of HAZMAT transport. Through spot inspections of commercial vehicles with the aid of surrounding law enforcement agencies and Motor Vehicle Division.	HAZMAT	Existing	$2,500 Year	Med	Police Officers trained in Commercial Vehicle inspections and working hand in hand with Motor Vehicle Division.	On Going	Police Department	General and RICCO Funds
5	*HAZMAT First Responder Training and Resource Development. Through advanced training and use of equipment first responders are better able to identify hazardous materials and protect the public.*	*HAZMAT*	*Both*	*$1,000*	*Low*	*OSHA Requirement and annual refresher for HAZMAT First Responder Operations Level*	*On Going*	*Fire Department*	*General Fund or Grant funding*
6	HAZMAT Code Enforcement. Ensure code compliance related to hazardous materials use, storage and disposal in the community.	HAZMAT	Both	$10,000	Med	Semi and Annual inspections of Tire 2 Level Reporting Facilities	On Going	Fire Department	Grants and General Fund
7	Accident Reduction Details. Continuation of traffic accident mitigation by selective enforcement in high risk areas. 5-year cost.	Traffic Accident	Existing	N/A	High	Traffic enforcement in areas where accidents frequently occur.	On Going	Police Department	General Fund
8	Early Warning System. Active early warning system for inclement weather and flooding conditions. Cooperative with Yavapai County and NOAA.	All	Both	$30,000	Med		Pending Funding	Public Works And Police Department	Grant Funds
9	Backup Power Supply for Water Distribution Systems. Obtain backup electrical generation systems for emergency operation for the water distribution system during power outages caused by severe wind or other hazard event.	Severe Wind Winter Storm	Both	$750,000	High	Operational Requirement to maintain system continuity and redundancy	Pending Funds	Utilities	General Fund and Grant Funds

Table 6-8-5: Mitigation actions and projects and implementation strategy for Cottonwood

Mitigation Action/Project					Implementation Strategy				
ID No	**Description**	**Hazard(s) Mitigated**	**Assets Mitigated (Ex/New)**	**Estimated Cost**	**Priority Ranking**	**Planning Mechanism(s) for Implementation**	**Anticipated Completion Date**	**Primary Responsible Agency / Job Title**	**Funding Sources**
10	*Public Safety Communication Improvements. Upgrade public safety communication systems to handle storm related operational disruptions during sever.*	*All – Response Oriented*	*Existing*	*$1,000,000*	*High*	*Studies are being conducted to determine the size of communications center needed to handle all demands from the community and natural disasters.*	*Underway*	*Public Safety (Fire Department and Police Department)*	*Grant Funds General Funds*
11	Eliminate Wet Crossings On Collector Streets Within the City. Replace wet crossings with structures to allow uninterrupted traffic access during flood events on 6th Street and Camino Real crossing of Silver Springs Gulch.	Flood	Both	$20,000	High	Wet water crossings cause major traffic problems during the monsoon season. Flash Flood issues	2015	Public Works	Capital Purchase
12	Targeted Stormwater Drainage Improvements. Identify repetitive flooding problems within the community and develop projects to reduce the flooding hazard.	Flood	Both	$50,000	High	Response from past experiences involving areas within the City that community.	On Going	Public Works	General Fund
13	Wildfire Fuel Reduction Program. Identify and remove excess wildfire fuels from targeted wildland/urban interface areas to protect existing and future buildings and infrastructure.	Wildfire	Both	$160,000	High	Reduce fuel loads and potential for catastrophic fires along the river bottom in River Front Park	On Going	Fire Department and Street Department	General Fund

Table 6-8-6: Mitigation actions and projects and implementation strategy for Dewey-Humboldt

Mitigation Action/Project					Implementation Strategy				
ID No	**Description**	**Hazard(s) Mitigated**	**Assets Mitigated (Ex/New)**	**Estimated Cost**	**Priority Ranking**	**Planning Mechanism(s) for Implementation**	**Anticipated Completion Date**	**Primary Responsible Agency / Job Title**	**Funding Sources**
1	Antelope Meadows Commercial Center. Remove flooding risk to the resident downstream of the Antelope Industrial Park (1 mi east of SR69, on SR169) by diverting flow to the Agua Fria River. This will include constructing to capture and convey drainage in a controlled manner.	Flood	Existing	$100,000	3	Completed studies & stakeholder outreach. Project cannot be completed as recommended by engineering consultant w/o stakeholder cooperation (easements).	Dependent upon stakeholder cooperation.	Town of Dewey-Humboldt Engineering and Public Works Department	IGA, General Fund, or HURF
2	Codes. Implement and enforce council directed building codes and adopt new international codes as they become available and/or are applicable.	All	Both	$0	1	Building official alertness and council adoption.	As published	Town of Dewey-Humboldt Community Development and Building Department	N/A
3	Public Outreach. Educate the public on the risks resulting from severe weather and associated hazards; including recommendations on how protect themselves and their property from damages due to natural and man-made hazards events.	Drought, Severe Wind, Fire	Both	$5,000	4	Outreach materials will be made available/distributed via fliers, newsletter, and Town website.	Semi-annual basis	Town of Dewey-Humboldt Community Outreach	General Fund

Table 6-8-6: Mitigation actions and projects and implementation strategy for Dewey-Humboldt

Mitigation Action/Project					Implementation Strategy				
ID No	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
4	Maintain compliance with National Flood Insurance Program (NFIP) regulations by enforcement of the county floodplain management ordinance through review of new development located in the floodplain and issuance of floodplain use permits.	Flood	Both	$0	2	IGA with Yavapai County to delineate Special Flood Hazard Areas (SFHA) and adopt and enforce regulations governing SFHA and SFHA management in its area of jurisdiction	6/2011	Town of Dewey-Humboldt Community Development and Engineering and Public Works Department	N/A

Table 6-8-7: Mitigation actions and projects and implementation strategy for Jerome

Mitigation Action/Project					Implementation Strategy				
ID No	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
1	Storm Sewer And Utility Master Plan. Hire a consultant to prepare a storm sewer and utility master plan to identify storm drain problems and prioritize infrastructure improvements.	Flood, Landslide/ Mudslide	Both	$50,000	1	In process of creating a master Capital Improvement Plan to address needed infrastructure improvements.	Ongoing	Town Manager, Fire Chief, Public Works Chief	Grants (CDBG, FEMA, USDA, others) plus town budget

Table 6-8-7: Mitigation actions and projects and implementation strategy for Jerome

Mitigation Action/Project					Implementation Strategy				
ID No	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
2	Town Fuels Crew. Support and equip part-time wildland fire crew to perform wildfire hazard fuel reduction for prevention and suppression in cooperation with the Forest Service, mining companies and private property owners to protect existing and future buildings and infrastructure. 5-year cost.	Wildfire, Landslide/ Mudslide	Both	$20,000	2	Ord. 358 - a Property Maintenance Code that requires fuel abatement on private property.	Ongoing	Fire Chief and Chief Building Official.	Wildlands fees
3	HAZMAT Public Outreach. Educate the public about hazardous materials safety by including information in Town newsletter and distributing flyers at Town events.	HAZMAT	Both	$500	3	None	Ongoing	Town Manager and Fire Chief.	Town budget – general fund.
4	Adopt and enforce new building codes to protect existing and future buildings and infrastructure from severe wind damage and other natural and human caused disasters. 5 year cost.	All	Both	$3,000	4	Town has recently adopted and is enforcing the 2003 IFC and IBC and related Codes	Ongoing	Fire Chief, Chief Building Official, Police Chief	Town budget

Table 6-8-8: Mitigation actions and projects and implementation strategy for Prescott

Mitigation Action/Project					Implementation Strategy				
ID No	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
1	*Improve Communications Infrastructure. Finalize construction of seven communication sites to improve emergency response communication capabilities.*	*All – Response Oriented*	*Both*	*$500,000*	*High*	*CIP and Engineers Est.*	*7/1/12*	*Police Department*	*GF/Grants*
2	Wildfire Fuel Reduction. Continue wildfire fuel reduction on private/public property to protect existing and future buildings and infrastructure. 5 year cost.	Wildfire	Both	$600,000 Annually	High	Community Wildfire Protection Plan	On-going	Fire Department	GF/Grants

Table 6-8-8: Mitigation actions and projects and implementation strategy for Prescott

Mitigation Action/Project					Implementation Strategy				
ID No	**Description**	**Hazard(s) Mitigated**	**Assets Mitigated (Ex/New)**	**Estimated Cost**	**Priority Ranking**	**Planning Mechanism(s) for Implementation**	**Anticipated Completion Date**	**Primary Responsible Agency / Job Title**	**Funding Sources**
3	Improve Response Capability. Purchase additional hazardous materials mitigation equipment.	HAZMAT	Both	$300,000	Med	CIP	7/1/16	Fire Department	Grants
4	*Improve Emergency Operations Center. Purchase and install computer, audio/visual, communications, and reverse 911 equipment.*	*All – Response Oriented*	*Both*	*$200,000*	*Med*	*CIP*	*7/1/16*	*Fire Department*	*Grants*
5	*First Responder Training and Equipment. Through advanced training and use of equipment first responders are better able to identify hazards and protect the public.*	*All – Response Oriented*	*Both*	*$75,000*	*Low*	*CIP*	*7/1/12*	*Fire Department*	*Grants*
6	Improve Low Water Crossings. Install gates, signs, and gages to prevent vehicle travel in 28 low water crossings during flooding events.	Flood	Both	$383,731	High	CIP and Engineers Est.	7/1/12	Public Works	GF/Grants
7	City Hall Building Security Project. Provide security to City Hall against civil disturbance and terrorism. To include badging-entry system, and hardening glass around front office employees.	Civil Disturbance, Terrorism	Existing	$100,000	Med	CIP and Engineers Est.	7/1/12	Administrative Services	Grants
8	*Urban Search and Rescue Team Project. Improve urban search and technical rescue capability in the City through training and procurement of specialized equipment.*	*All – Response Oriented*	*Both*	*$200,000*	*Low*	*CIP*	*7/1/12*	*Fire Department*	*Grants*
9	Enforce Current Building Codes. Continue to enforce building codes to protect existing and future buildings and infrastructure from sever wind damage and other natural and human caused disasters. 5 year cost.	All	Both	$75,000 Annually	Med	On-going need	On-going	Community Development	GF/Grants
10	Uninterrupted Power System for Traffic Signals. Install battery backup power systems at major traffic intersections to mitigate potential accidents due to power outages associated with severe weather.	Traffic Accident, Severe Wind, Winter Storm	Both	$300,000	Low	CIP/Engineers Est	7/1/12	Public Works	GF/Grants

Table 6-8-8: Mitigation actions and projects and implementation strategy for Prescott

Mitigation Action/Project					Implementation Strategy				
ID No	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
11	Wildfire Code Enforcement. Continue enforcement of wildland urban interface code. 5 year cost.	Wildfire	Both	$75,000 annually	High	CWPP	On-going	Fire Department	GF/Grants
12	Improve drainage infrastructure at various channel crossings and off-channel site locations.	Flooding	New	$2,757,000	High	Engineers Est	7/1/12	Public Works	GF/Grants
13	Replacement and protecting of existing sewer and water mains within FEMA Floodplains which are subject to runoff.	Flooding	New	$9,772,611	High	Engineers Est.	7/1/16	Public Works	GF/Grants
14	Enforcement of floodplain management requirements in accordance with the NFIP, including regulating all and substantially improved construction in floodplains to reduce the losses to property and people.	Flooding	New	$75,000	High	NFIP	7/1/12	Public Works	GF/Grants

Table 6-8-9: Mitigation actions and projects and implementation strategy for Prescott Valley

Mitigation Action/Project					Implementation Strategy				
ID No	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
1	Neighborhood Wildfire Assessment. Develop neighborhood wildfire assessment and rank at-risk neighborhoods with the goal to provide accurate wildfire information to residents and motivate them to implement personal and neighborhood mitigation measures.	Wildfire	Both	$50,000	High	Neighborhood meetings, flyers and pamphlets. Central Yavapai Fire District (CYFD) assessment.	Ongoing	Central Yavapai Fire District (CYFD)	Grant

Table 6-8-9: Mitigation actions and projects and implementation strategy for Prescott Valley

Mitigation Action/Project					Implementation Strategy				
ID No	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
2	Wildfire Defensible Space Program. Provide funding for residents in at-risk subdivisions to create defensible space around their homes in designated high risk urban interface areas to protect existing and future buildings and infrastructure. 5-year program.	Wildfire	Both	$500,000	Low	Education programs. Neighborhood volunteers.	Ongoing	CYFD	Grant
3	Town Fuels Crew. Support and equip part-time road crew to perform roadside wildfire hazard fuel reduction along roads in the interface to protect existing and future buildings and infrastructure.	Wildfire	Both	$150,000	Low	Staff Training & Employees as available	Ongoing	Public Works (PW)	General Fund
4	*Emergency Vehicle Pre-Emption System. Install a traffic signal priority system for police and fire emergency response vehicles.*	*Response*	*Response*	*$500,000*	*Low*	*Call assessment for priority determination of routes.*	*Ongoing*	*Police Department (PD) & CYFD*	*Grant*
5	Traffic Control Devices. Obtain 2 lighted sign boards and trailer for use in providing location specific traffic control during hazard events.	Traffic Accident	Both	$50,000	Low	Staff Training	June 2016	PW	Grant
6	Construct Agua Fria Channel flood control facilities on the to protect residential areas from flood damages.	Flooding / Flash Flooding	Both	$1,200,000	Med	Funding delayed due to economy	June 2013	PW	Flood Control District
7	Complete Phase 2 of the Western Drainage flood control project to protect residential areas from flood damages.	Flooding / Flash Flooding	Both	$1,000,000	Med	Project Construction Scheduled for October 2011	March 2012	PW	Flood Control District
8	Construct Spouse Drainage flood control facilities to protect residential areas from flood damages.	Flooding / Flash Flooding	Both	$1,800,000	Low	Preliminary Design Considerations	June 2014	PW	Flood Control District
9	Secondary Well Site Power Systems. Obtain backup electrical generation systems for emergency operation at all well sites.	Severe Wind, Power Outage	Existing	$500,000	Med	Continued facility assessment for additional generators	Ongoing	Utilities	Impact Fees

Table 6-8-9: Mitigation actions and projects and implementation strategy for Prescott Valley

Mitigation Action/Project					Implementation Strategy				
ID No	**Description**	**Hazard(s) Mitigated**	**Assets Mitigated (Ex/New)**	**Estimated Cost**	**Priority Ranking**	**Planning Mechanism(s) for Implementation**	**Anticipated Completion Date**	**Primary Responsible Agency / Job Title**	**Funding Sources**
10	Source Water Assessment Program for the North Well Field, Big Chino Water System and the Agua Fria Recharge Facilities.	Drought	Both	$100,000	Med	Design, Assessments & Approvals under way	August 2014	Utilities & Water Resources	Impact Fees
11	Uninterrupted Power System for Traffic Signals. Install battery backup power systems at 10 major traffic intersections.	Traffic Accident, Severe Wind	Both	$300,000	Low	Assessments by PD & CYFD to determine phasing	Ongoing	PD, CYFD, PW	Grant
12	Town Building Security Project. Provide security to Town of Prescott Valley Complex Buildings against civil disturbances and terrorism. 2nd exit from PD Enclosed parking, bullet proof glass @ PD lobby, upgrade to larger generator at PD, bullet proof panels at Council desks and "safe haven" area, cameras @ Library & Civic Center, additional cameras at PD.	Terrorism, Civil Disturbance	Both	$230,000	High	Capital Improvements Projects and Facilities Upgrades	Within 5 years	PD, PW	Grant, Bond, General Fund
13	*Joint Police and Fire Training Center. Complete the construction of a training facility to meet the changing needs and requirements of the emergency response personnel.*	*Response*	*Response*	*$7,500,000*	*High*	*Certain phases under construction, others under design*	*July 2015*	*PD, CYFD*	*Grants & Bond*
14	Community Secondary Routes. Plan, design, construct secondary access routes for emergency vehicles.	All	Both	$5,000,000	Med	Emergency personnel assessment and determination of routes	August 2016	PD, CYFD	Grants, Bonds & General Fund
15	Maintain compliance with NFIP regulations by enforcement of the Town's floodplain management ordinance through the review of all new or substantially improved development located within FEMA delineated Special Flood Hazard Areas and the issuance of floodplain use permits.	Flood	Both	Staff Time	Med	NFIP Compliance, Floodplain Management	On-going	PW / Engineering Division Mgr	General Fund

Table 6-8-10: Mitigation actions and projects and implementation strategy for Sedona

Mitigation Action/Project					Implementation Strategy				
ID No.	**Description**	**Hazard(s) Mitigated**	**Assets Mitigated (Ex/New)**	**Estimated Cost**	**Priority Ranking**	**Planning Mechanism(s) for Implementation**	**Anticipated Completion Date**	**Primary Responsible Agency / Job Title**	**Funding Sources**
1	*Civilian Emergency Response Team. Train and educate public on basic first response capabilities. 5-year cost.*	*All – Response Oriented*	*Existing*	*N/A – Uses current staff*	*Low*	*General Plan*	*Ongoing*	*Sedona Fire District*	*N/A*
2	Urban Wildland Interface Training for officers, risk assessments. 5-year cost.	Wildfire	Both	N/A – Uses current staff	Low	General Plan	Ongoing	Sedona Fire District	N/A
3	Provide wildland fire property assessments to homeowners and business owners to identify urban wildland interface. Assessments will be based on the currently adopted International Urban-Wildland Interface Code and the latest Sedona Wild-land Interface Map that shows priority threat areas. 5-year cost.	Wildfire	Both	N/A – Uses current staff	Med	General Plan	Ongoing	Sedona Fire District	N/A
4	Keep sand and bags available to the public at the following three locations: 431 Forest Road, 120 Indian Cliffs Road, and Red Rock High School. 5-year cost.	Flooding/ Flash Flooding	Both	$25,000	High	General Plan	Ongoing	City Public Works Dept./ Maintenance Superintendent	City Maintenance Budget
5	2065 Sanborn Drive: Headwall and bank protection work at existing drainage crossing to protect the integrity of Sanborn Drive.	Flooding/ Flash Flooding	Existing	$30,000	High	N/A	Fall of 2011	City Public Works Dept./ Assistant City Engineer	Yavapai Co Flood Hazard Mitigation Grant Funding
6	Phase 2 of the Harmony/Windsong Drainage Project: Increase capacity to convey the 25-year storm under SR 89A at 2970 W. SR 89A. Capacity will increase from 400 CFS to 900 CFS.	Flooding/ Flash Flooding	Existing	$400,000	High	Capital Improvement Program	Spring of 2012	City Public Works Dept./ Assistant City Engineer	Yavapai Co Flood Hazard Mitigation Grant Funding and City Development Impact Fees

Table 6-8-10: Mitigation actions and projects and implementation strategy for Sedona

Mitigation Action/Project					Implementation Strategy				
ID No.	Description	Hazard(s) Mitigated	Assets Mitigated (Ex/New)	Estimated Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
7	Phase 3 of the Harmony/Windsong Drainage Project: Increase capacity and culvert the existing drainage channel between Navajo Drive and Lyric Drive.	Flooding/ Flash Flooding	Both	$1,100,000	High	Capital Improvement Program	Spring of 2012	City Public Works Dept./ Assistant City Engineer	Yavapai Co Flood Haz Mitigation Grant Funding and City Development Impact Fees
8	Phase 4 of the Harmony/Windsong Drainage Project: Increase capacity and culvert the existing drainage channel between Lyric Drive and Thunder Mountain Road.	Flooding/ Flash Flooding	Both	$1,400,000	High	Capital Improvement Program	Fall of 2015	City Public Works Dept./ Assistant City Engineer	Yavapai Co Flood Hazard Mitigation Grant Funding and City Development Impact Fees
9	Enforcement of floodplain management requirements in accordance with the NFIP, including regulating all and substantially improved construction in floodplains to reduce the losses to property and people.	Flooding/Flash Flooding	Both	N/A – Uses current staff	High	General Plan	Ongoing	City Public Works Dept./ Assistant Engineer	N/A
10	Improve floodplain administration under the NFIP program by using best available community information to provide base flood elevations for unnumbered "A Zones" in order to provide more detailed information on the DFIRM maps.	Flooding/ Flash Flooding	Both	$10,000	Medium	N/A	Fall of 2015	City Public Works Dept./ Assistant Engineer	City General Fund

Table 6-8-11: Mitigation actions and projects and implementation strategy for Yavapai-Prescott Indian Tribe

Mitigation Action/Project					Implementation Strategy				
ID No.	Description	Hazard(s) Mitigated	Community Assets Mitigated (Ex/New)	Est Cost	Priority Ranking	Planning Mechanism(s) for Implementation	Anticipated Completion Date	Primary Responsible Agency / Job Title	Funding Sources
1	Educate tribal community on the hazards of flooding/flash flooding through an informational / outreach meeting to be conducted at least once in the next year	Flooding/ Flash Flooding	Both	$500	High	Education	Ongoing	Yavapai-Prescott Indian Tribe Environmental Protection	GAP
2	Educate tribal community on severe wind through an informational / outreach meeting to be conducted at least once in the next year.	Severe Wind	Both	$500	High	Education	Ongoing	Yavapai-Prescott Indian Tribe Environmental Protection	GAP
3	Clearing of overburden and brush and establishing defensible space on tribal properties.	Wildfire	Existing	$12,000	High		2011	Yavapai-Prescott Indian Tribe Environmental Protection	BIA
4	Educate tribal community on winter storm hazards and how to deal with them through an informational / outreach meeting to be conducted at least once in the next year.	Winter Storm	Both	$500	High	Education	Ongoing	Yavapai-Prescott Indian Tribe Environmental Protection	GAP

SECTION 7: PLAN MAINTENANCE PROCEDURES

> ***§201.6(c)(4):*** *[The plan shall include…] (4) A* ***plan maintenance process*** *that includes:*
> *(i) A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.*
> *(ii) A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.*
> *(iii) Discussion on how the community will continue public participation in the plan maintenance process.*
>
> ***§201.6(d)(3):*** *Plans must be reviewed, revised if appropriate, and resubmitted for approval within five years in order to continue to be eligible for HMGP project grant funding.*

According to the DMA 2000 requirements, each plan must define and document processes or mechanisms for maintaining and updating the hazard mitigation plan within the established five-year planning cycle. Elements of this plan maintenance section include:

Monitoring and Evaluating the Plan

Updating the Plan

Implementing the Plan by Incorporation into Other Agency or Jurisdictional Planning Mechanisms

Continued Public Participation

Yavapai County and the participating jurisdictions recognize that this hazard mitigation plan is intended to be a "living" document with regularly scheduled monitoring, evaluation, and updating.

Section 6 of the 2006 Plan outlined specific steps for plan maintenance. A poll of the Planning Team indicated that with the exception of the City of Sedona, few formal reviews or maintenance activities occurred over the past five years. The formal reviews by the City of Sedona were conducted annually and informational presentations to the Sedona City Council were done as well. Documentation of those reviews is included in Appendix E. The mitigation actions/projects in the 2006 Plan were referred to by several other jurisdictions on a periodic basis. Reasons for the lack of review included:

- Changes in staff and a lack of effectively communicating plan maintenance requirements and responsibilities,
- A general lack of priority regarding the importance and requirements of the maintenance element.
- Limited perceived value in performing the maintenance and evaluation and especially given the overwhelming workload of many jurisdictional staff.
- A lack of personnel or staff resources to take responsibility for the task.

Recognizing the need for improvement, the Planning Team discussed ways to make sure that the Plan review and maintenance process will occur over the next five years. The results of those discussions are outlined in the following sections and the plan maintenance strategy.

7.1 Monitoring and Evaluation

7.1.1 General Planning Team Monitoring and Evaluation

Developing a true multi-jurisdictional plan will aide in the Plan monitoring and evaluation by consolidating information for all county jurisdictions into one document. The Planning Team has established the following monitoring and evaluation procedures:

- **Schedule** – The Plan shall be reviewed annually around the end of February or following a major disaster. The Yavapai County Office of Emergency Management (YCOEM) will take the lead by arranging for a date and meeting place and distributing a reminder 30-days in advance of the meeting to each of the Community Points of Contact and other targeted members of the Planning Team. ADEM has also committed to help with reminders to the County on or around the anniversary of the Plan, as a double accountability.

- **Review Content** – The content and scope of the Plan review and evaluation will address the following questions:
  - ***Hazard Identification:*** *Have the risks and hazards changed?*
  - ***Goals and objectives:*** *Are the goals and objectives still able to address current and expected conditions?*
  - ***Mitigation Projects and Actions:*** *Has the project been completed? If not complete but started, what percent of the project has been completed? How much money has been expended on incomplete projects? Did the project require additional funds over the expected amount or were the costs less than expected?*

The reminder sent out by YCOEM to the Planning Team will include a note directing the attention of Planning Team to this section of the Plan and the questions above. Each jurisdiction will review the Plan as it relates to their community prior to the actual review meeting and document responses to the above questions in the form of an informal memorandum. During the annual meeting, each jurisdiction will have the opportunity to summarize their review findings to the group and discuss concerns or successes. Documentation of the annual meeting will include a compilation of memorandums generated by each jurisdiction plus any notes on the meeting discussions and conclusions. Copies of the annual review report will be included in Appendix E.

7.1.2 Monitoring of Tribal Mitigation Activities

This section describes the Yavapai-Prescott Indian Tribe's strategy for reviewing and assessing the progress of the mitigation goals and actions/projects (A/Ps) identified in this Plan.

Unless otherwise directed or warranted, the goals and objectives' review will coincide with the annual overall plan review and update schedule. Goals will be assessed using a subjective approach and a summary of the assessment will be included in the annual review memorandum.

The A/Ps and the corresponding implementation strategies for the Yavapai-Prescott Indian Tribe are identified in the Plan's mitigation strategy. For each annual review and plan update, the Yavapai-Prescott Indian Tribe will coordinate with the agencies identified for each A/P, to assess the implementation status of the identified A/P and generate a brief memorandum summarizing the status of each project using the following criteria:

Current Status of Action/Project - Assign a 'No Action', 'In-Progress' or 'Completed' status as appropriate

Project Disposition – Assign a 'Keep' or 'Drop' to identify future disposition of action/project

Explanation - Provide a description of the current project status including date of implementation, challenges faced, percentage completed, funding sources used, etc.

The implementation and progress of the A/Ps will be monitored by the Yavapai-Prescott Indian Tribe on at least an annual basis as described in Section 7.1.1. For FEMA supported projects, progress reports will be submitted to FEMA on a quarterly basis, or as required throughout the project duration. The degree of quarterly reporting will be dependent upon the type of A/P, its funding source, and the associated requirements. At a minimum, the quarterly report shall address:

- ✓ Project Completion Status
- ✓ Project Challenges/Issues (If any)
- ✓ Budgetary Considerations (Cost Overruns or Underruns)
- ✓ Detailed Documentation of Expenditures

Upon completion of projects, the project location will be visited and final results viewed and documented. Closed projects will then be monitored for effectiveness in the intended mitigation. FEMA supported project closeouts will include an audit of the A/P financials as well as other guidelines/requirements set forth under the funding or grant rules, and any attendant administrative plans developed by the Yavapai-Prescott Indian Tribe.

7.2 Plan Update

According to DMA 2000, the Plan requires updating and approval from FEMA every five years. The plan updates will adhere to that set schedule using the following procedure:

- ✓ One year prior to the plan expiration date, the Yavapai Co of EM will reconvene the Planning Team to begin the formal Plan update process.
- ✓ The Planning Team will review and assess the materials accumulated in Appendix E, and update and/or revise the appropriate or affected portions of the Plan and produce a revised Plan document.
- ✓ The revised plan will be submitted to ADEM and FEMA for review, comment and initial approval.
- ✓ The state and FEMA approved Plan document will be presented before the respective councils and boards for an official concurrence/adoption of the changes.

7.3 Incorporation Into Existing Planning Mechanisms

Incorporation of the Plan into other planning mechanisms, either by content or reference, enhances a community's ability to perform hazard mitigation by expanding the scope of the Plan's influence. A poll of the participating jurisdictions revealed that success of incorporating the 2006 Plan elements over the past planning cycle into other planning programs has varied. Ways in which the 2006 Plans have been successfully incorporated or referenced into other planning mechanisms are summarized below. Participating jurisdictions not listed either had nothing to report or did not have a 2006 Plan.

Yavapai County:

- The 2006 Plan mitigation strategy was referenced by the Yavapai County Flood Control District in the preparation and prioritization of flood control projects.

Camp Verde

- Since adoption of the 2006 Plan, the Town of Camp Verde incorporated the plan's recommendations in several planning mechanisms as follows:
    - As outlined in the primary goals of the 2006 Plan, the Town accomplished the following implementation strategies to prepare for the planning of hazardous events:
        - Goal 5.S.1 – the Town's Stormwater Master Plan was updated
        - Goal 8.A.1 – First Responder and Technician Training and Equipment was completed by the Camp Verde Fire Department
        - Goal 9.A.1 – A Small Area Transportation study was completed; the study identified the need for improved connectivity in the event of an emergency
        - Goal 10.B.1 – Emergency Evacuation Route Signs – The Town acquired Emergency Evacuation Route Signs in November 2010
    - February 2010 – 2006 Plan requirements were referenced in CDBG grant application relating to the Hollamon Street Project.

Clarkdale

- The 2006 Plan was used and referenced during the update of the Town's emergency operations plan.
- The 2006 Plan was referenced during the release of the FEMA Map Modernization data.

Cottonwood:

- The 2006 Plan was used as a reference for the update and implementation of the City's Emergency plan.
- The 2006 Plan was used as a reference for the update and implementation of the City's High Water Crossing plan.
- The 2006 Plan assisted with the planning for traffic control issues.

Dewey-Humboldt:

- The 2009 Plan was incorporated into the capital improvement plan (CIP) and the fiscal year budgets.
- The Antelope Meadows Commercial Center Drainage Modifications project (a 2009 Plan mitigation action/project) was included in the CIP and subsequently the FY10 and FY11 budget.

Prescott:

- The 2006 Plan was referenced during the update of the Community Wildfire Protection Plan.
- The 2006 Plan's mitigation strategy is tied to the City's Capital Improvement Program.
- The 2006 Plan risk assessment was referenced during the update of the City's Emergency Operations and Response Plan.

Sedona:

- City Council adopted the Sedona Floodplain Ordinance on September 26, 2006. The ordinance incorporated Special Flood Hazard Areas (SFHA) delineated in the 1994 City of Sedona Floodplain Management Study as well as SFHA shown on the FEMA Flood Insurance Rate Maps.
- 2005 Storm Water Master Plan - Provides a procedure for identifying and prioritizing stormwater improvements for the City; provides a watershed hydrology model for the City. This is a plan for implementing storm drainage improvements for the 25-year storm capacity, thus reducing the impacts of flooding on neighboring properties.
- During periodic updates to the City Code and Land Development Code, the 2006 Plan was referenced and opportunities were taken to make additions that will mitigate the impacts of hazards.
- Using the 2006 Plan as a reference, Wastewater Planning has recently removed a sewer lift station from a local floodway and built a new one outside of the special flood hazard area.

In all of the above instances, the 2006 Plan was found to be beneficial, and especially with regard to the critical facility inventories, vulnerability analysis results, and the mitigation strategy. Obstacles to further incorporation of the 2006 Plan for some of the communities were generally tied to:

- A lack of awareness of the 2006 Plan by departments outside the emergency management community
- The relative "newness" of the 2006 Plan with regard to other, more commonplace planning mechanisms such as comprehensive or general plans.
- No real opportunity for incorporation of reference of the 2006 Plan (e.g. – very little other planning being done by a community).

Typical ways to use and incorporate the Plan over the next five-year planning cycle, discussed by the Planning Team, included:

- Use of, or reference to, Plan elements in general and comprehensive planning update documents.
- Addition of defined mitigation A/Ps to capital improvement programming.
- Inclusion of Plan elements into development planning and practices.
- Resource for developing and/or updating emergency operations plans.

The Plan will continue to function as a standalone document subject to its own review and revision schedule presented in Sections 7.1 and 7.2. The Plan will also serve as a reference for other mitigation and land planning needs of the participating jurisdictions. Whenever possible, each jurisdiction will endeavor to incorporate the risk assessment results and mitigation actions and projects identified in the Plan, into existing and future planning mechanisms. At a minimum, each of the responsible agencies/departments noted in Tables 6-1-1 through 6-1-11 will review and reference the Plan and revise and/or update the legal and regulatory planning documents, manuals, codes, and ordinances summarized in Tables 6-1-1 through 6-1-11, as appropriate. Specific incorporation of the Plan risk assessment elements into the natural resources and safety elements of

each jurisdictions' general plans (county comprehensive plan) and development review processes, adding or revising building codes, adding or changing zoning and subdivision ordinances, and incorporating mitigation goals and strategies into general and/or comprehensive plans, will help to ensure hazard mitigated future development. In addition, an implementation strategy outlining assignments of responsibility and completion schedules for specific actions/projects proposed in this plan are summarized in Tables 6-8-1 through 6-8-11.

Table 7-1 presents a list of current planning efforts for the Tribe that are either related to, referenced in, and/or are parallel to this Plan. It is the Tribe's intention to integrate information as described below to ensure correlation of common planning elements.

Table 7-1: Yavapai-Prescott Indian Tribe planning efforts for future integration

Document	Description	Integration Characteristics/Mitigation Opportunities	Author / Owner
Yavapai-Prescott Indian Tribe Land Use Master Plan (1999)	Plan is to formally establish & adopt a plan which represents goals, desires & feelings of the present members of the Tribe regarding existing and future land use for the ultimate benefit of future generations. The Plan is a management tool that can be used by the Tribe to prevent adverse impacts on the land & human resources of the Tribe	Material from the Tribal Plan's risk assessment will be used as a resource for any updates to the Land Use Plan.	Gary Parker Environ Protection/ Planning Dept
Multi-year Capital Improvement budget (updated annually)	We don't really have a Capital Budget per se. What we have is a "Capital Suggestion List" that is presented to the Board every year. This lists major purchases and construction projects that different supervisors would like to have, to give the Board a "heads-up!" But then each major purchase and/or construction project must be brought to the Board individually to get approved before it can be implemented.	Mitigation actions/projects from the Tribal Plan will be reviewed when developing the "Capital Suggestion List" for potential implementation opportunities.	YPIT Depts YPIT Board of Directors
Emergency Response Plan (first competed in 2000 and updated annually)	Emergency Response and Emergency Operations Plans are combined documents. These plans give an overview of who is responsible and what to do in the event of an emergency on Tribal properties.	Material from the Plan's risk assessment will be used as a resource and reference during the annual updates of the Emergency Response and Emergency Operations Plans.	Environ Protection
Emergency Operations Plan, Yavapai-Prescott Indian Tribe (2002)			Environ Protection
Yavapai-Prescott Indian Tribe Water Management Plan (1999)	Used to identify the water resources and the associated use of these resources by the Tribe. The plan was used for the intention to summarize the information from the numerous studies and investigations for water supplies and quality and to incorporate the findings into an achievable water management plan with an associated implementation plan.	Information and data are shared between the Water Management Plan and the drought hazard profile of the Tribal Plan	Gary Parker Environ Protection
Wildland Fire Management Plan Yavapai-Prescott Indian Reservation (2003)	This plan outlines Wildland Urban Interface solutions to fire management problems on the Reservation.	Information and data are shared between the Wildland Fire Management Plan and the wildfire hazard profile of the Tribal Plan	George Kleindienst (BIA) Environ Protection & BIA Truxon Cannon Office
Yavapai-Prescott	Explains how to evacuate the Tribe and which	The Plan risk assessment data will	Police

Table 7-1: Yavapai-Prescott Indian Tribe planning efforts for future integration			
Document	**Description**	**Integration Characteristics/Mitigation Opportunities**	**Author / Owner**
Indian Tribe Evacuation Route (2002)	homes would need assistance.	be useful in developing a new evacuation route with the next update of this plan.	Police & TERC
Hazardous Materials Sources on the Yavapai-Prescott Indian Tribe Reservation	This document has not been kept; we do not have an up-to-date copy of this.	In process of requiring all tenants to give Real Estate a list of hazardous materials and MSDS sheets. This material could form the basis for future HAZMAT hazard risk assessment with the next update of the Tribal Plan	

7.4 Continued Public Involvement

The Planning Team reviewed Section 6.4 of the 2006 Plan and discussed the challenges and successes regarding the identified continued public involvement strategy. The 2006 Plan identified the following elements for continued public involvement:

- Provide periodic summary updates of hazard mitigation A/P measures being implemented using local media.
- Conduct an annual presentation of hazard mitigation planning discoveries, progress, or proposed A/P measures at the local board and council meetings.
- Participate in annual events such as the County fair and other public events.
- Perform public outreach and mitigation training meetings for targeted populations known to be in higher risk hazard areas (i.e. – floodplain residents).

All of the participating jurisdictions were successful to varying degrees, in their efforts to elevate hazard mitigation awareness in the general public and community on an ongoing basis. Yavapai County and participating jurisdictions remain committed to keeping the public informed about the hazard mitigation planning efforts, actions and projects. Table 7-2 summarizes successful public involvement efforts previously conducted by the participating jurisdictions, and proposed activities for public involvement and dissemination of information that shall be pursued whenever possible and appropriate.

Table 7-2: Past and proposed continued public involvement activities or opportunities identified by Yavapai County jurisdictions

<table>
<tr><th rowspan="2">Jurisdiction</th><th colspan="2">Public Involvement Activity or Opportunity</th></tr>
<tr><th>PAST</th><th>PROPOSED</th></tr>
<tr><td>Yavapai County</td><td>
Public involvement activities related to drainage and floodplain studies conducted by YCFCD:
<table>
<tr><th>STUDY NAME</th><th>YEAR</th></tr>
<tr><td>Allen Canyon Wash Area Drainage Study</td><td>Apr-09</td></tr>
<tr><td>BCC Floodplain Delineation Re-Study</td><td>Jul-05</td></tr>
<tr><td>Big Bug Creek Flood Hazard Study</td><td>Nov-09</td></tr>
<tr><td>Black Canyon City Drainage Improvement Study</td><td>Jun-05</td></tr>
<tr><td>Carrol Canyon Wash</td><td>Oct-10</td></tr>
<tr><td>Central Lake Montezuma AMDS</td><td>Feb-05</td></tr>
<tr><td>Cordes Lakes Alternative Analysis</td><td>Jul-10</td></tr>
<tr><td>Cornville Drainage Analysis FLO-2D</td><td>Feb-08</td></tr>
<tr><td>Deception Wash Floodplain Delineation Restudy</td><td>Aug-09</td></tr>
<tr><td>Finnie Flat Drainage Study</td><td>Mar-09</td></tr>
<tr><td>Floodplain Delineation Study of a Portion of Spring Creek</td><td>Aug-06</td></tr>
<tr><td>Hydrologic Analysis & Results for the Agua Fria River & Tributaries.</td><td>Apr-08</td></tr>
<tr><td>KC's Korner ADMS</td><td></td></tr>
<tr><td>Lonesome Valley Wash Re-Study</td><td>Jun-07</td></tr>
<tr><td>Lower Geronimo Wash</td><td>Feb-10</td></tr>
<tr><td>Mint Wash Floodplain Delineation Report</td><td>2005/2006</td></tr>
<tr><td>Poquito Valley Flood Hazard Study Supplemental Hydraulic Analysis</td><td>Aug-07</td></tr>
<tr><td>Prescott Country Club</td><td></td></tr>
<tr><td>Verde Village Area Drainage Improvement Study</td><td>Jan and May 09</td></tr>
<tr><td>VOC Areawide Drainage Analysis - TDN</td><td>Jun-08</td></tr>
<tr><td>West Chino Valley Floodplain Delineation Restudy</td><td>Jul-08</td></tr>
<tr><td>Williamson Valley Area Drainage Master Study</td><td>Mar-06</td></tr>
<tr><td>Yarber Wash Floodplain Delineation Study</td><td>Aug-05</td></tr>
</table>
</td><td>

Conduct public involvement efforts related to drainage and floodplain delineation studies to keep public aware of flood hazards and mitigation efforts.
Maintain a hazard mitigation webpage presence with a copy of the Plan posted for public review and comment.
Present all major mitigation related projects to the Board of Supervisors for approval and funding.

</td></tr>
<tr><td>Camp Verde</td><td>

Requested public participation in all council actions involving the approval or funding of mitigation projects or actions.
Development of a website page on the Town’s website to provide information on preparedness tips in the event of an emergency.

</td><td>

Provide a public notice in local papers of progress, including completed mitigation actions/projects, at least once per year.
Provide an update on the mitigation plan status to the Town Council during a public hearing at least once per year, as well as, provide public awareness of the potential hazards in the community.
Maintain and update the Town’s Hazard Mitigation webpage.
Educate the public to increase the awareness of hazards and opportunities for mitigation actions with informational hazard mitigation brochures at local events such as:

National Night Out,
Pecan and Wine Festival
Fort Verde Days).

</td></tr>
</table>

Table 7-2: Past and proposed continued public involvement activities or opportunities identified by Yavapai County jurisdictions

Jurisdiction	Public Involvement Activity or Opportunity	
	PAST	**PROPOSED**
Chino Valley	• None reported	• Maintain a website linking the public to the county website location where the Plan will be posted. • Provide hazard mitigation brochures provided by ADEM at Town Hall and other public venues. • Present and obtain approval for all hazard mitigation related projects from the Town Council
Clarkdale	• Contribute/Participate in WET • Communicated flooding related issues via flyers/phone calls/door hangers • Provided Town and Fire District information via the web for questions concerning hazards and mitigation. • Provided Defensible Space, Chimneys, and Smoke Alarms information in the "Talk About the Town" Newsletter • Disseminated flood hazard related information county wide via KBRD • Participated in the Nat'l Night Out program which Annually beginning of August • Participated in the 2007 & 2008 Oct Fest events, which are held on the last Saturday in Sept • Participation on the LEPC • Church/Fire District Defensible Space Cleaning • Residents/Fire District - Tumbleweed abatement on vacant lots in development area • Police Dept Explorer Education Program • Yavapai County Flood Grant Funding Planning Schedule	The Town of Clarkdale will continue to participate in the same activities as before, plus the following: • Fire District Tweets • School/Fire District/Police Department preparedness planning • July 4th Booth for distribution of mitigation pamphlet • Halloween Booth for distribution of mitigation pamphlet
Cottonwood	• Processed traffic related complaints from the public to prepare to prepare traffic control response plan and detour routes	• The city will maintain a website or link to the county website, where the Plan will be posted and the public will have an opportunity to comment and make recommendations for changes. • PSA announcements in the local News Papers and public notices will be posted with the development of mitigation activities.

Table 7-2: Past and proposed continued public involvement activities or opportunities identified by Yavapai County jurisdictions

Jurisdiction	Public Involvement Activity or Opportunity	
	PAST	**PROPOSED**
Dewey-Humboldt	• The public was offered an opportunity to participate on the capital improvement committee. This committee formed what eventually became the capital improvements plan. This plan was presented to council and the entire public body during council meetings. The capital improvements plan was partially borne from the hazard mitigation plan.	• The public will have the opportunity to implement projects contained within the hazard mitigation plan in the next 5 years by participating on the capital improvements committee and/or in the budget meetings.
Jerome	• None reported.	• Newsletter articles will be placed as appropriate to announce hazard mitigation activities. • All mitigation projects will be presented to and approved by the town council and the public will be invited to participate.
Prescott Valley	• Past project information has been posted on the Town web page for public review and comment. • The Town issues a weekly newsletter with information related to town events. • Past projects were processed through Council meetings which are public meetings. • Conducted neighborhood meetings on major upcoming projects along with having an annual citizens' academy.	• The Town will continue to provide the same public involvement opportunities as is in the past. • Maintain website link to the county's website where the Plan will be posted.
Prescott	• Participated in Wildland Fire Outreach Meetings annually in the Spring since 2006 • Participated in LEPC meeting annually.	• The City will continue to participate in the same public meetings listed in column to the left. • The City will participate in the annual spring Prescott Home Show and disseminate hazard mitigation materials and pamphlets.
Sedona	[SEE SUMMARY BELOW TABLE]	[SEE SUMMARY BELOW TABLE]
Yavapai-Prescott Indian Tribe	• N/A – The Tribe did not have a prior plan	The Tribe will conduct continued public involvement through the following: • LEPG meetings (conducted quarterly), • Regular public outreach through Environmental Program events (events are conducted 6 times throughout a year from August to July; every couple of months), • TEDC Newsletter (published 4 times a yr)

Sedona PAST Public Involvement Activities:

2006 - 2007:

- Coconino County Emergency Services, Sedona Fire District (SFD) and the Coconino National Forest hosted a community meeting on July 10th and 12th, 2006 at the Elks Lodge on Airport Road in Sedona. The purpose of the meeting was to inform Oak Creek Canyon residents and business owners of the potential risk of rock and debris slides in Oak Creek Canyon following the Brins fire. Local agencies shared

information as to what actions were needed in the event of a threatening storm in the canyon, particularly in the vicinity of the Brins fire.

- Held exhibits for the public at City Hall for Public Works Week on May 22, 2007. One of the exhibits covered FEMA's National Flood Insurance Program and flood awareness.
- The SFD continuously conducts outreach on defensible space for wildfire. In May 2007, two weekends (three days each weekend) were available to residents of the SFD to bring in yard brush and tree cuttings. Fire Station No. 4 was the collection point for this free service. SFD employees had a chipper which all of the delivered material was fed into. During the 2007 event, 15 large capacity roll-off dumpsters were filled with the chipped debris.
- The SFD periodically runs their "In-Quarters" Fire & EMS News in the Sedona Red Rock Newspaper. In-Quarters Fire & EMS news topics include: Wild-land fire defensible space, rockslides, burn restrictions, fire code, and miscellaneous household safety topics. SFD also has brochures on "Fire-wise Communities" and "Oak Creek Canyon Fire Evacuation for Visitors & Travelers".
- On August 7, 2007, the Sedona Police Department hosted its annual "National Night Out" event. This event offers public safety displays and information. Firefighters were also there to display rescue equipment and hand out information.

2007 – 2008:

- Participation in the Citizen's Emergency Response Team (CERT) Training through the Sedona Fire District (SFD) – More than 100 people have been certified in light search and rescue techniques, CPR, First Aide and disaster preparedness.
- On May 16, 2008, the SFD tested the emergency siren system that is designed to notify residents of Oak Creek Canyon and Uptown Sedona of severe emergencies that would require evacuation. The test served two purposes: (1) Assuring that the system is functioning properly; and (2) So that residents, business owners, and visitors become aware of what to expect in an actual emergency.
- Held exhibits for the public at the Teen Center for Public Works Week on May 20, 2008. One of the exhibits covered FEMA's National Flood Insurance Program and flood awareness. The local water companies also provided their own displays.
- SFD continuously conducts outreach on defensible space for wildfire. In May 2008, SFD held their annual Sedona cleanup weekend. Three days were available to residents within the SFD to bring in yard brush and tree cuttings. Fire Station No. 4 was the collection point for this free service. SFD employees had a chipper which all of the delivered material was fed into. During the 3 days of the cleanup, the SFD received 127 loads of flammable vegetation from 75 different locations within the District. Seven 40-cubic yard capacity roll-off dumpsters were filled with the chipped debris. The City of Sedona contributed to the event by paying for the backhoe rental.
- The SFD periodically runs their "In-Quarters" Fire & EMS News in the Sedona Red Rock Newspaper. In-Quarters Fire & EMS news topics include: Wild-land fire defensible space, rockslides, burn restrictions, Fire Code, Community Emergency Response Team Training, and miscellaneous household safety topics. SFD also has brochures on "Fire-wise Communities" and "Oak Creek Canyon Fire Evacuation for Visitors & Travelers".
- On August 5, 2008, the Sedona Police Department hosted its annual "National Night Out" event. This event offers public safety displays and information. Firefighters were also there to display rescue equipment (including a helicopter on Cardinal Lane) and to hand out information.

2008 – 2009:

- A.D.O.T. installed two permanent variable message boards north of Sedona on SR 89A. One of the boards was installed near Lomacasi Cottages, and the other one was installed just south of Flagstaff.
- On October 11, 2008, the City of Sedona, in conjunction with the Arizona Department of Environmental Quality, hosted a free household hazardous waste drop-off event for City of Sedona residents and City of Sedona employees. The drop-off site for the event was at the Sedona Red Rock High School.
- Held exhibits for the public at the Posse Grounds Community Park for Public Works Week on Earth Day in May 2009. One of the exhibits covered FEMA's National Flood Insurance Program and flood awareness. Another exhibit educated people on stormwater pollution prevention.
- In May 2009, the Sedona Fire District (SFD) tested the emergency siren system that is designed to notify residents of Oak Creek Canyon and Uptown Sedona of severe emergencies that would require evacuation.

The test served two purposes: (1) Assuring that the system is functioning properly; and (2) So that residents, business owners, and visitors become aware of what to expect in an actual emergency.

- SFD continuously conducts outreach on defensible space for wildfire. In May 2009, SFD held their annual Sedona cleanup weekend. Three days were available to residents within the SFD to bring in yard brush and tree cuttings. Fire Station No. 4 was the collection point for this free service. SFD employees had a chipper which all of the delivered material was fed into. The City of Sedona contributed to the event by paying for the backhoe rental.
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- In August 2009, the Sedona Police Department hosted its annual "National Night Out" event. This event offers public safety displays and information. Firefighters were also there to display rescue equipment (including a helicopter on Cardinal Lane) and to hand out information.

2009 – 2010:

- In April 2010, a Water Wise Day event was held at the West Sedona School for 4th graders from Big Park and W. Sedona School (over 100 students). Presentations on water conservation, sanitary sewer system basics, and stormwater pollution prevention were given.
- In May 2010, the Sedona Fire District (SFD) tested the emergency siren system that is designed to notify residents of Oak Creek Canyon and Uptown Sedona of severe emergencies that would require evacuation. The test served two purposes: (1) Assuring that the system is functioning properly; and (2) So that residents, business owners, and visitors become aware of what to expect in an actual emergency.
- SFD continuously conducts outreach on defensible space for wildfire. In May 2010, SFD held their annual Sedona cleanup weekend. Three days were available to residents within the SFD to bring in yard brush and tree cuttings. Fire Station No. 4 was the collection point for this free service. SFD employees had a chipper which all of the delivered material was fed into. The City of Sedona contributed to the event by paying for the backhoe rental.
- The SFD periodically runs their "In-Quarters" Fire & EMS News in the Sedona Red Rock Newspaper. In-Quarters Fire & EMS news topics include: Wild-land fire defensible space, rockslides, burn restrictions, Fire Code, Community Emergency Response Team Training, and miscellaneous household safety topics. SFD also has brochures on "Fire-wise Communities" and "Oak Creek Canyon Fire Evacuation for Visitors & Travelers".
- In August 2010, the Sedona Police Department hosted its annual "National Night Out" event. This event offers public safety displays and information. Firefighters were also there to display rescue equipment (including a helicopter) and to hand out information. The event was held at the Posse Grounds Park for the first time this year.

Sedona PROPOSED Public Involvement Activities:

- Have exhibits for the public during Public Works Week each year (in the years that we have the budget to hold a function).
- The Sedona Fire District (SFD) continuously conducts outreach on defensible space for wildfire. In May of each year, two weekends (three days each weekend) are available to residents of the SFD to bring in yard brush and tree cuttings in an effort to mitigate the extent of residential structural damage from a wildfire.
- The SFD runs media releases as needed on Fire & EMS related News in the Sedona Red Rock Newspaper. Fire & EMS news topics include: Wild-land fire defensible space, rockslides, burn restrictions, fire code, and miscellaneous household safety topics. SFD also has brochures on "Fire-wise Communities" and "Oak Creek Canyon Fire Evacuation for Visitors & Travelers".
- In August of each year, the Sedona Police Department hosts its annual "National Night Out" event. This event offers public safety displays and information. Firefighters are also there to display rescue equipment and hand out information.

- Participation in the CERT Training through the Sedona Fire District.
- In May of each year, the SFD tests the emergency siren system that is designed to notify residents of Oak Creek Canyon and Uptown Sedona of severe emergencies that would require evacuation. The test serves two purposes: (1) Assuring that the system is functioning properly; and (2) So that residents, business owners, and visitors become aware of what to expect in an actual emergency.
- A.D.O.T. installed two permanent variable message boards north of Sedona on SR 89A. One of the boards was installed near Lomacasi Cottages, and the other one was installed just south of Flagstaff. These message boards are used to warn drivers of unsafe driving conditions.
- Have exhibits for the public at the Posse Grounds Community Park for Earth Day in May of each year. One of the exhibits covered FEMA's National Flood Insurance Program and flood awareness. Another exhibit educated people on stormwater pollution prevention.
- In April of each year, a Water Wise Day event is held at the West Sedona School for 4th graders from Big Park and W. Sedona School (over 100 students). Presentations on water conservation, sanitary sewer system basics, and stormwater pollution prevention are given.
- The SFD has a Life and Fire Safety (LAFS) outreach program that involves going to each school in the Fire District (once per year) and talking on the subject as well as disseminating information.
- The SFD conducts annual outreaches at the following events/venues: Moonlight Madness, Halloween, Sedona Marathon, Senior Center, and local churches.

SECTION 8: PLAN TOOLS

8.1 Acronyms

A/P.....Mitigation Action/Project
ADEM .....Arizona Division of Emergency Management
ADEQ .....Arizona Department of Environmental Quality
ADWR .....Arizona Department of Water Resources
AGFD .....Arizona Game and Fish Department
ARS .....Arizona Revised Statutes
ASCE .....American Society of Civil Engineers
ASERC .....Arizona State Emergency Response Commission
ASLD .....Arizona State Land Department
ASU .....Arizona State University
AZGS .....Arizona Geological Survey
BLM .....Bureau of Land Management
CAP .....Central Arizona Project
CAP .....Community Assistance Program
CFR .....Code of Federal Regulations
CRS .....Community Rating System
CWPP .....Community Wildfire Protection Plan
DEMA .....Arizona Department of Emergency and Military Affairs
DFIRM .....Digital Flood Insurance Rate
DMA 2000 .....Disaster Mitigation Act of 2000
DOT .....Department of Transportation
EHS .....Extremely Hazardous Substance
EPA .....Environmental Protection Agency
EPCRA .....Emergency Planning and Community Right to Know Act
FEMA .....Federal Emergency Management Agency
FMA .....Flood Mitigation Assistance Grant Program
GIS .....Geographic Information System
HAZMAT .....Hazardous Material
HAZUS-99 .....Hazards United States1999
HAZUS-MH .....Hazards United States Multi-Hazard
IFCI .....International Fire Code Institute
LEPC .....Local Emergency Planning Committee
MJHMP .....Multi-Jurisdictional Hazard Mitigation Plan
MMI .....Modified Mercalli Intensity
NCDC .....National Climate Data Center
NDMC .....National Drought Mitigation Center
NESDIS .....National Environmental Satellite, Data and Information Service
NFIP .....National Flood Insurance Program
NFPA .....National Fire Protection Association
NHC .....National Hurricane Center
NIBS .....National Institute of Building Services
NID .....National Inventory of Dams
NIST .....National Institute of Standards and Technology
NSF .....National Science Foundation
NOAA .....National Oceanic and Atmospheric Administration
NRC .....National Response Center
NWCG.....National Wildfire Coordination Group
NWS .....National Weather Service
PSDI .....Palmer Drought Severity Index
PAWUIC .....Prescott Area/Urban Interface Commission

RL .....Repetitive Loss
SARA .....Superfund Amendments and Reauthorization Act
SRLP .....Severe Repetitive Loss Properties
SRL .....Severe Repetitive Loss
UBC .....Uniform Building Code
USACE .....United States Army Corps of Engineers
USDA .....United States Department of Agriculture
USFS .....United States Forest Service
USGS .....United States Geological Survey
VA .....Vulnerability Analysis
WUI .....Wildland Urban Interface
YCEM .....Yavapai County Emergency Management
YCFCD.....Yavapai County Flood Control District

8.2 Definitions

The following terms and definitions are provided for reference and are taken from the 2010 State Plan with a few minor modifications.

ARIZONA HAZARDS

Dam Failure
A dam failure is a catastrophic type of failure characterized by the sudden, rapid and uncontrolled release of impounded water. Dam failures are typically due to either overtopping or piping and can result from a variety of causes including natural events such as floods, landslides or earthquakes, deterioration of foundation or compositional materials, penetration by vegetative roots or animal burrows, fissures or improper design and construction. Such a failure presents a significant potential for a disaster as significant loss of life and property would be expected in addition to the possible loss of power and water resources.

Drought
A drought is a deficiency of precipitation over on extended period of time, resulting in water shortage for some activity, group or environmental sector. "Severe" to "extreme" drought conditions endanger livestock and crops, significantly reduce surface and ground water supplies, increase the potential risk for wildland fires, increase the potential for dust storms, and cause significant economic loss. Humid areas are more vulnerable than arid areas. Drought may not be constant or predictable and does not begin or end on any schedule. Short term droughts are less impacting due to the reliance on irrigation and groundwater in arid environments.

Earthquake
An earthquake is a naturally-induced shaking of the ground, caused by the fracture and sliding of rock within the Earth's crust. The magnitude is determined by the dimensions of the rupturing fracture (fault) and the amount of displacement that takes place. The larger the fault surface and displacement, the greater the energy. In addition to deforming the rock near the fault, this energy produces the shaking and a variety of seismic waves that radiate throughout the Earth. Earthquake magnitude is measured using the Richter Scale and earthquake intensity is measured using the Modified Mercalli Intensity Scale.

Fissure
Earth fissures are tension cracks that open as the result of subsidence due to severe overdrafts (i.e., pumping) of groundwater, and occur about the margins of alluvial basins, near exposed or shallow buried bedrock, or over zones of differential land subsidence. As the ground slowly settles, cracks form at depth and propagate towards the surface, hundreds of feet above. Individual fissures range in length from hundreds of feet to several miles, and from less than an inch to several feet wide. Rainstorms can erode fissure walls rapidly causing them to widen and lengthen suddenly and dangerously, forming gullies five to 15- feet wide and tens of feet deep.

Flooding
Flooding is an overflowing of water onto normally dry land and is one of the most significant and costly of natural disasters. Flooding tends to occur in Arizona during anomalous years of prolonged, regional rainfall (typical of an El Nino year), and is typified by increased humidity and high summer temperatures.

Flash flooding is caused excessive rain falling in a small area in a short time and is a critical hazard in Arizona. Flash floods are usually associated with summer monsoon thunderstorms or the remnants of a tropical storm. Several factors contribute to flash flooding: rainfall intensity and duration, topography, soil conditions, and ground cover. Most flash flooding is caused by slow-moving thunderstorms or thunderstorms repeatedly moving over the same area and can occur within a few minutes or hours of excessive rainfall, or a quick release from a dam or levee failure. Thunderstorms produce flash flooding, often far from the actual storm and at night when natural warnings may not be noticed.

Landslide / Mudslide
Landslides like avalanches are massive downward and outward movements of slope-forming materials. The term landslide is restricted to movement of rock and soil and includes a broad range of velocities. Slow movements, although rarely a threat to life, can destroy buildings or break buried utility lines. A landslide occurs when a portion of a hill slope becomes too weak to support its own weight. The weakness is generally initiated when rainfall or some other source of water increases the water content of the slope, reducing the shear strength of the materials. A mud slide is a type of landslide referred to as a flow. Flows are landslides that behave like fluids: mud flows involve wet mud and debris.

Levee Failure / Breach
Levee failures are typically due to either overtopping or erosive piping and can result from a variety of causes including natural events such as floods, hurricane/tropical storms, or earthquakes, deterioration of foundation or compositional materials, penetration by vegetative roots or animal burrows, fissures, or improper design, construction and maintenance. A levee breach is the opening formed by the erosion of levee material and can form suddenly or gradually depending on the hydraulic conditions at the time of failure and the type of material comprising the levee.

Severe Wind
Thunderstorms are characterized as violent storms that typically are associated with high winds, dust storms, heavy rainfall, hail, lightning strikes, and/or tornadoes. The unpredictability of thunderstorms, particularly their formation and rapid movement to new locations heightens the possibility of floods. Thunderstorms, dust/sand storms and the like are most prevalent in Arizona during the monsoon season, which is a seasonal shift in the winds that causes an increase in humidity capable of fueling thunderstorms. The monsoon season in Arizona typically is from late-June or early-July through mid-September.

Tornadoes are violently rotating columns of air extending from a thunderstorm to the ground. The most violent tornadoes are capable of tremendous destruction with wind speeds in excess of 250 mph. Damage paths can exceed a mile wide and 50 miles long. The damage from tornadoes is due to high winds. The Fujita Scale of Tornado Intensity measures tornado / high wind intensity and damage.

Tropical Storms are storms in which the maximum sustained surface wind ranges from 39-73 mph. Tropical storms are associated with heavy rain and high winds. High intensity rainfall in short periods is typical. A tropical storm is classified as a hurricane when its sustained winds reach or exceed 74 mph. These storms are medium to large in size and are capable of producing dangerous winds, torrential rains, and flooding, all of which may result in tremendous property damage and loss of life, primarily in coastal populated areas. The effects are typically most dangerous before a hurricane makes landfall, when most damage occurs. However, Arizona has experienced a number of tropical storms that caused extensive flooding and wind damage.

Subsidence
Land subsidence in Arizona is primarily attributed to substantial groundwater withdrawal from aquifers in sedimentary basins. As the water is removed, the sedimentary layers consolidate resulting in a general lowering of the corresponding ground surface. Subsidence frequently results in regional bowl-shaped depressions, with loss of elevation greatest in the center and decreasing towards the perimeter. Subsidence can measurably change or reverse basin gradients causing expensive localized flooding and adverse impacts or even rupture to long-baseline infrastructure such as canals, sewer systems, gas lines and roads. Earth fissures are the most spectacular and destructive manifestation of subsidence-related phenomena.

Wildfire
Wildfire is a rapid, persistent chemical reaction that releases heat and light, especially the exothermic combination of a combustible substance with oxygen. Wildfires present a significant potential for disaster in the southwest, a region of relatively high temperatures, low humidity, low precipitation, and during the spring moderately strong daytime winds. Combine these severe burning conditions with people or lightning and the stage is set for the occurrence of large, destructive wildfires.

Winter Storm
Winter storms bring heavy snowfall and frequently have freezing rain and sleet. Sleet is defined as pellets of ice composed of frozen or mostly frozen raindrops or refrozen partially melted snowflakes. These pellets of ice usually bounce after hitting the ground or other hard surfaces. Freezing rain begins as snow at higher altitudes and melts completely on its way down while passing through a layer of air above freezing temperature, then encounters a layer below freezing at lower level to become supercooled, freezing upon impact of any object it then encounters. Because freeing rain hits the ground as a rain droplet, it conforms to the shape of the ground, making one thick layer of ice. Snow is generally formed directly from the freezing of airborne water vapor into ice crystals that often agglomerates into snowflakes. Average annual snowfall in Arizona varies with geographic location and elevation, and can range from trace amounts to hundreds of inches. Severe snow storms can affect transportation, emergency services, utilities, agriculture and basic subsistence supply to isolated communities. In extreme cases, snowloads can cause significant structural damage to under-designed buildings.

GENERAL PLAN TERMS

Asset
Any natural or human-caused feature that has value, including, but not limited to people; buildings; infrastructure like bridges, roads, and sewer and water systems; lifelines like electricity and communication resources; or environmental, cultural, or recreational features like parks, dunes, wetlands, or landmarks.

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

Critical Facilities and Infrastructure
Systems or facilities whose incapacity or destruction would have a debilitating impact on the defense or economic security of the nation. The Critical Infrastructure Assurance Office (CIAO) defines eight categories of critical infrastructure, as follows:

Telecommunications infrastructure: Telephone, data services, and Internet communications, which have become essential to continuity of business, industry, government, and military operations.

Electrical power systems: Generation stations and transmission and distribution networks that create and supply electricity to end-users.

Gas and oil facilities: Production and holding facilities for natural gas, crude and refined petroleum, and petroleum-derived fuels, as well as the refining and processing facilities for these fuels.

Banking and finance institutions: Banks, financial service companies, payment systems, investment companies, and securities/commodities exchanges.

Transportation networks: Highways, railroads, ports and inland waterways, pipelines, and airports and airways that facilitate the efficient movement of goods and people.

Water supply systems: Sources of water; reservoirs and holding facilities; aqueducts and other transport systems; filtration, cleaning, and treatment systems; pipelines; cooling systems; and other delivery mechanisms that provide for domestic and industrial applications, including systems for dealing with water runoff, wastewater, and firefighting.

Government services: Capabilities at the federal, state, and local levels of government required to meet the needs for essential services to the public.

Emergency services: Medical, police, fire, and rescue systems.

Disaster Mitigation Act of 2000 (DMA2K)
A law signed by the President on October 30, 2000 that encourages and rewards local and state pre-disaster planning, promotes sustainability as a strategy for disaster resistance, and is intended to integrate state and local planning with the aim of strengthening statewide mitigation planning.

Emergency Preparedness and Response (EPR) Directorate
One of five major Department of Homeland Security Directorates which builds upon the formerly independent Federal Emergency Management Agency (FEMA). EPR is responsible for preparing for natural and human-caused disasters through a comprehensive, risk-based emergency management program of preparedness, prevention, response, and recovery. This work incorporates the concept of disaster-resistant communities, including providing federal support for local governments that promote structures and communities that reduce the chances of being hit by disasters.

Emergency Response Plan
A document that contains information on the actions that may be taken by a governmental jurisdiction to protect people and property before, during, and after a disaster.

Federal Emergency Management Agency (FEMA)
Formerly independent agency created in 1978 to provide a single point of accountability for all Federal activities related to disaster mitigation and emergency preparedness, response and recovery. As of March 2003, FEMA is a part of the Department of Homeland Security's Emergency Preparedness and Response (EPR) Directorate.

Flood Insurance Rate Map (FIRM)
Map of a community, prepared by FEMA that shows the special flood hazard areas and the risk premium zones applicable to 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, and/or extent typically occurs, on average. Statistically, a hazard with a 100-year recurrence interval is expected to occur once every 100 years on average, and would have a 1% chance – its probability – of happening in any given year. The reliability of this information varies depending on the kind of hazard being considered.

Geographic Information Systems (GIS)
A computer software application that relates physical features on the earth to a database to be used for mapping and analysis.

Hazard
A source of potential danger or adverse condition. Hazards include both natural and human-caused events. A natural event is a hazard when it has the potential to harm people or property and may include events such as floods, earthquakes, tornadoes, tsunami, coastal storms, landslides, and wildfires that strike populated areas. Human-caused hazard events originate from human activity and may include technological hazards and terrorism. Technological hazards arise from human activities and are assumed to be accidental and/or have unintended consequences (e.g., manufacture, storage and use of hazardous materials). While no single definition of terrorism exists, the Code of Federal Regulations defines terrorism as "…unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives."

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

Hazard Identification
The process of identifying hazards that threaten an area.

Hazard Mitigation
Cost effective measures taken to reduce or eliminate long-term risk associated with hazards and their effects.

Hazard Profile
A description of the physical characteristics of hazards and a determination of various descriptors including magnitude, duration, frequency, probability, and extent.

HAZUS
A GIS-based nationally standardized earthquake, flood and high wind event loss estimation tool developed by FEMA.

Mitigate
To cause to become less harsh or hostile; to make less severe or painful. Mitigation activities are actions taken to eliminate or reduce the probability of the event, or reduce its severity of consequences, either prior to or following a disaster/emergency.

Mitigation Plan
A systematic evaluation of the nature and extent of vulnerability to the effects of hazards typically present in a defined geographic area, including a description of actions to minimize future vulnerability to hazards.

100-Hundred Year Floodplain
Also referred to as the Base Flood Elevation (BFE) and Special Flood Hazard Area (SFHA). An area within a floodplain having a 1% or greater chance of flood occurrence in any given year.

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

Probability
A statistical measure of the likelihood that a hazard event will occur.

Promulgation
To make public and put into action the Hazard Mitigation Plan via formal adoption and/or approval by the governing body of the respective community or jurisdiction (i.e. – Town or City Council, County Board of Directors, etc.).

Q3 Data
The Q3 Flood Data product is a digital representation of certain features of FEMA's Flood Insurance Rate Map (FIRM) product, intended for use with desktop mapping and Geographic Information Systems technology. The digital Q3 Flood Data are created by scanning the effective FIRM paper maps and digitizing selected features and lines. The digital Q3 Flood Data are designed to serve FEMA's needs for disaster response activities, National Flood Insurance Program activities, risk assessment, and floodplain management.

Repetitive Loss Property
A property that is currently insured for which two or more National Flood Insurance Program losses (occurring more than ten days apart) of at least $1,000 each have been paid within any 10 year period since 1978.

Risk
The estimated impact that a hazard would have on people, services, facilities, and structures in a community; 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 sustaining damage beyond a particular threshold due to a specific type of hazard event. It also can be expressed in terms of potential monetary losses associated with the intensity of the hazard.

Substantial Damage
Damage of any origin sustained by a structure in a Special Flood Hazard Area whereby the cost of restoring the structure to its before-damaged condition would equal or exceeds 50% of the market value of the structure before the damage.

Vulnerability
Describes how exposed or susceptible to damage an asset is. Vulnerability depends on an asset's construction, contents, and the economic value of its functions. Like indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. For example, many businesses depend on uninterrupted electrical power–if an electric substation is flooded, it will affect not only the substation itself, but a number of businesses as well. Often, indirect effects can be much more widespread and damaging than direct effects.

Vulnerability Analysis

The extent of injury and damage that may result from a hazard event of a given intensity in a given area. The vulnerability analysis should address impacts of hazard events on the existing and future built environment.

Vulnerable Populations
Any segment of the population that is more vulnerable to the effects of hazards because of things such as lack of mobility, sensitivity to environmental factors, or physical abilities. These populations can include, but are not limited to, senior citizens and school children.

Goals
General guidelines that explain what you want to achieve. Goals are usually broad statements with long-term perspective.

Objectives
Defined strategies or implementation steps intended to attain the identified goals. Objectives are specific, measurable, and have a defined time horizon.

Actions/Projects
Specific actions or projects that help achieve goals and objectives.

Implementation Strategy
A comprehensive strategy that describes how the mitigation actions will be implemented.

GENERAL HAZARD TERMS

Fujita Scale of Tornado Intensity
Rates tornadoes with numeric values from F0 to F5 based on tornado winds peed and damage sustained. An F0 indicates minimal damage such as broken tree limbs or signs, while an F5 indicates severe damage sustained.

Liquefaction
The phenomenon that occurs when ground shaking (earthquake) causes loose soils to lose strength and act like viscous fluid. Liquefaction causes two types of ground failure: lateral spread and loss of bearing strength.

Modified Mercalli Intensity Scale
The Modified Mercalli Intensity Scale is commonly used in the United States by seismologists seeking information on the severity of earthquake effects. Intensity ratings are expressed as Roman numerals between I at the low end and XII at the high end. The Intensity Scale differs from the Richter Magnitude Scale in that the effects of any one earthquake vary greatly from place to place, so there may be many Intensity values (e.g.: IV, VII) measured from one earthquake. Each earthquake, on the other hand, should have just one Magnitude, although the several methods of estimating it will yield slightly different values (e.g.: 6.1, 6.3).

Monsoon
A monsoon is any wind that reverses its direction seasonally. In the Southwestern U.S., for most of the year the winds blow from the west/northwest. Arizona is located on the fringe of the Mexican Monsoon which during the summer months turns the winds to a more south/southeast direction and brings moisture from the Pacific Ocean, Gulf of California, and Gulf of Mexico. This moisture often leads to thunderstorms in the higher mountains and Mogollon Rim, with air cooled from these storms often moving from the high country to the deserts, leading to further thunderstorm activity in the desert. A common misuse of the term monsoon is to refer to individual thunderstorms as monsoons.

Richter Magnitude Scale
A logarithmic scale devised by seismologist C.F. Richter in 1935 to express the total amount of energy released by an earthquake. While the scale has no upper limit, values are typically between 1 and 9, and each increase of 1 represents a 32-fold increase in released energy.

Date	**Hazard**
12/28/2004	Flooding
12/29/2004	Severe Wind
01/06/2005	Winter Storm
10/23/2005	Winter Storm
03/10/2006	Winter Storm
12/15/2008	Winter Storm
03/22/2009	Severe Wind
04/03/2009	Severe Wind
09/10/2009	Flooding
09/12/2009	Flooding
10/04/2009	Severe Wind

Description

A strong Pacific storm system moved across Arizona December 28th and 29th with heavy rainfall. T

A winter storm brought strong wind to many locations across northern Arizona with gusts over 50

A powerful winter storm began to move across northern Arizona on January 3rd and lingered into

Arizona Department of Public Safety reported 5 wrecks due to hail covered road on I-17 near High

A major winter storm affected all of Northern Arizona from Friday (03/10) though most of the day

Snow began falling over the area during the afternoon of December 15th. By the morning of Decem

Up to 50 MPH wind caused blowing dust that reduced the visibility down to 20 feet between Chino

A spotter in Chino Valley reported strong wind (52 MPH) that blew down fences and caused shingl

Heavy rain, with rates up to 4 inches in an hour, fell on the Red Rocks on the northwest side of Sed

Two to three feet of flowing water in a low water crossing trapped one car. A swift water rescue wa

High winds knocked down tree limbs and power lines in Prescott, Groom Creek, and Walker. As m

			Damage Estimates	
Location	**Fatalities**	**Injuries**	**Property**	**Crop/Livestock**
AZZ007>008 - 012>013 - 015>016 - 018 - 037>038			$1,000,000	
AZZ008 - 015 - 037			$40,000	
AZZ004 - 006 - 008 -	2			
Cordes Junction	1			
AZZ004>018 - 037>(	3			
AZZ008 - 015 - 016		10		
AZZ011 - 014 - 037			$150,000	
Yavapai County			$12,000	
Oak Creek Canyon Arpt			$2,600,000	
Smelter City			$2,000	
Yavapai County Mtns.			$12,000	

Total	**Data Source**						
$1,000,000	NCDC, April 2010						
$40,000	NCDC, April 2010						
	NCDC, April 2010						
	NCDC, April 2010						
	NCDC, April 2010						
	NCDC, April 2010						
	NCDC, April 2010						
$150,000	NCDC, April 2010						
$12,000	NCDC, April 2010						
$2,600,000	NCDC, April 2010						
$2,000	NCDC, April 2010						
$12,000	NCDC, April 2010						

						Damage Estimates			
Date	Hazard	Description	Location	Fatalities	Injuries	Property	Crop/Livestock	Total	Data Source
11/14/1952	Severe Wind	Length=0mi. Width=200yds.						$0	NCDC, August 2004
08/05/1954	Severe Wind							$0	NCDC, August 2004
11/02/1959	Severe Wind	Fujita Tornado Scale: F1 (73-112mph / 63-97kts.). Length=0mi. Width=200yds.				$25,000		$25,000	NCDC, August 2004
04/07/1961	Severe Wind	Winds measured at 50 knots.						$0	NCDC, August 2004
07/26/1962	Severe Wind	Fujita Tornado Scale: F0 (40-72mph / 35-62kts.)				$250		$250	NCDC, August 2004
06/25/1964	Severe Wind							$0	NCDC, August 2004
08/06/1966	Severe Wind	Winds measured at 51 knots.						$0	NCDC, August 2004
08/05/1967	Severe Wind							$0	NCDC, August 2004
08/16/1967	Severe Wind	Winds measured at 52 knots.						$0	NCDC, August 2004
08/12/1971	Severe Wind	Winds measured at 50 knots.						$0	NCDC, August 2004
07/17/1972	Severe Wind	Winds measured at 50 knots.						$0	NCDC, August 2004
08/10/1972	Severe Wind	Fujita Tornado Scale: F3 (158-206mph / 137-179kts.).				$30		$30	NCDC, August 2004
08/02/1973	Severe Wind	Fujita Tornado Scale: F0 (40-72mph / 35-62kts.). Length=0mi. Width=10yds.						$0	NCDC, August 2004
09/04/1974	Severe Wind							$0	NCDC, August 2004
07/08/1975	Severe Wind							$0	NCDC, August 2004
07/24/1975	Severe Wind							$0	NCDC, August 2004
05/03/1976	Severe Wind	Winds measured at 51 knots.						$0	NCDC, August 2004
07/06/1976	Severe Wind	Fujita Tornado Scale: F0 (40-72mph / 35-62kts.). Length=0mi. Width=17yds.						$0	NCDC, August 2004
07/23/1976	Severe Wind							$0	NCDC, August 2004
07/24/1976	Severe Wind							$0	NCDC, August 2004
07/19/1977	Severe Wind	Length=1mi. Width=20yds.						$0	NCDC, August 2004
07/19/1977	Severe Wind	F1 tornado/high winds (73-112 mph), 8 injured			8			$0	URS, October 2003
08/07/1978	Severe Wind	Winds measured at 71 knots.						$0	NCDC, August 2004
05/01/1980	Severe Wind	Fujita Tornado Scale: F1 (73-112mph / 63-97kts.). Length=8mi. Width=50yds. Beginning Lat, Long (35.32, 112.88) Ending (35.32, 112.75)						$0	NCDC, August 2004
07/25/1980	Severe Wind	Winds measured at 50 knots.						$0	NCDC, August 2004
09/04/1980	Severe Wind							$0	NCDC, August 2004
10/24/1983	Severe Wind	Winds measured at 50 knots.						$0	NCDC, August 2004
06/11/1987	Severe Wind	Winds measured at 52 knots.						$0	NCDC, August 2004
07/07/1989	Severe Wind							$0	NCDC, August 2004
07/21/1990	Severe Wind	Fujita Tornado Scale: F0 (40-72mph / 35-62kts.). Length=0mi. Width=10yds.				$2,500		$2,500	NCDC, August 2004
09/03/1990	Severe Wind							$0	NCDC, August 2004
07/29/1991	Severe Wind							$0	NCDC, August 2004
09/02/1991	Severe Wind	Fujita Tornado Scale: F0 (40-72mph / 35-62kts.). Length=0mi. Width=10yds.						$0	NCDC, August 2004
09/19/1991	Severe Wind							$0	NCDC, August 2004
03/27/1993	Severe Wind	A light pole outside a K-Mart store was hit by lightning. The current then traveled from the wiring in the pole into the wiring within the building, and blew contractors off the interior wall. Damage was done to the roof, electrical wiring, sprinkler system, and computers.	Prescott Valley					$0	NCDC, August 2004
05/12/1993	Severe Wind	A pilot reported the funnel cloud. 12 mi. NW of Prescott.						$0	NCDC, August 2004
08/03/1993	Severe Wind	Thunderstorms produced heavy rains and small hail. An observer in Prescott reported a peak gust of 68 mph.	Prescott					$0	NCDC, August 2004
08/04/1993	Severe Wind	The funnel cloud moved north toward Chino Valley, almost touching the ground.	Paulden					$0	NCDC, August 2004
08/30/1993	Severe Wind		Prescott					$0	NCDC, August 2004
06/28/1994	Severe Wind	A storage shed was damaged by thunderstorm winds gusting to 79 mph. Winds measured at 69 knots.	Lake Montezuma					$0	NCDC, August 2004
06/28/1994	Severe Wind	A mobile home was demolished by thunderstorm winds.	Paulden					$0	NCDC, August 2004
06/28/1994	Severe Wind	Sheds and roofs were damaged by thunderstorm winds in Spring Valley. 4 mi. W of Cordes Junction. Approximately $500,000 in damages.						$0	NCDC, August 2004
06/30/1994	Severe Wind	Large limbs were snapped off trees during a thunderstorm. 0.8 in. diameter hail.	Prescott					$0	NCDC, August 2004
02/22/1995	Severe Wind		Prescott Valley					$0	NCDC, August 2004
02/27/1995	Severe Wind	25 mi. NW of Prescott.						$0	NCDC, August 2004
03/17/1995	Severe Wind	A strong pressure gradient associated with a cold low pressure system crossing Arizona, produced strong gusty surface winds over much of the state. A peak gust of 60 mph was observed. 0.75 in. diameter hail.	Heber					$0	NCDC, August 2004
03/23/1995	Severe Wind	A strong pressure gradient associated with a cold low pressure system crossing Arizona, produced strong gusty surface winds over much of the state. A peak gust of 60 mph was observed.	Lake Montezuma					$0	NCDC, August 2004
05/12/1995	Severe Wind	Strong, gusty winds were reported at Lake Montezuma. Location of spotter within canyon suggests that the strong winds were enhanced by local terrain. Winds measured at 61 knots.	Lake Montezuma					$0	NCDC, August 2004
05/13/1995	Severe Wind	Strong, gusty winds were reported at Lake Montezuma. Location of spotter within canyon suggests that the strong winds were enhanced by local terrain. Winds measured at 57 knots.	Lake Montezuma					$0	NCDC, August 2004
08/15/1995	Severe Wind	Several trees were blown down from thunderstorm winds.	Cottonwood					$0	NCDC, August 2004
09/27/1995	Severe Wind	A microburst completely ripped a roof off a house.	Wagoner					$0	NCDC, August 2004

						Damage Estimates			
Date	Hazard	Description	Location	Fatalities	Injuries	Property	Crop/Livestock	Total	Data Source
09/28/1995	Severe Wind	A poultry barn was destroyed killing 500 turkeys inside. Numerous trees were stripped of leaves and branches. Many birds were killed. Many south-facing windows were broken. A large motel sign was damaged and nearly toppled. A large commercial trash dumpster was moved over 50 yards. A spotter in the area estimated wind gusts to be 75 mph. 4.5 in. diameter hail.	Mayer					$0	NCDC, August 2004
01/25/1996	Severe Wind	Thunderstorm wind gusts experienced at Lake Montezuma. Winds measured at 62 knots. 10 mi. NE of CAMP VERDE.						$0	NCDC, August 2004
06/26/1996	Severe Wind	Thunderstorm wind gust to 40 kts snapped a power pole. The pole fell on a mobile home causing a fire. The mobile home was extensively damaged by the pole and the fire.	PRESCOTT					$0	NCDC, August 2004
07/04/1996	Severe Wind	Thunderstorm wind gusts ESTIMATED at 100 mph by a trained Skywarn weather spotter snapped off the top half of a large amateur radio antenna tower. Also, a 400 pound sun collector was moved 5 feet. Winds measured at 100 knots.	COTTONWOOD			$500		$500	NCDC, August 2004
08/29/1996	Severe Wind	Funnel cloud spotted by the public.	DEWEY					$0	NCDC, August 2004
09/02/1996	Severe Wind	Lightning struck and set fire to a car.	CORDES JUNCTION					$0	NCDC, August 2004
09/04/1996	Severe Wind	Thunderstorm wind gust to 50 kts/58 mph reported at the Sedona Airport.	SEDONA					$0	NCDC, August 2004
09/06/1996	Severe Wind	Wind damage: several large trees were knocked down by thunderstorm wind gusts. The same storm produces golf ball sized hail. 1.75 in. diameter hail.	SPRING VALLEY					$0	NCDC, August 2004
09/13/1996	Severe Wind	$250,000 property damage, $30,000 crop damage. A tornado moved through the east end of Chino Valley. Two mobile homes were moved 7 feet off their foundations and received moderate exterior and interior damage. Several power poles were snapped off at 3 feet above the ground. One wood frame home received extensive roof damage where 95% of the roof surface was removed. Eight other wood frame homes received light to moderate roof damage. One greenhouse was extensively damaged where 18 foot long wood planks were thrown 100 feet and 850 plants were destroyed. Many sheds were completely destroyed. Fujita Tornado Scale: F1 (73-112mph / 63-97kts.). Length=4mi. Width=100yds.	CHINO VLY			$280,000		$280,000	NCDC, August 2004
09/14/1996	Severe Wind		CHINO VLY					$0	NCDC, August 2004
05/09/1997	Severe Wind	Single thunderstorm gust to 59 kts/68 mph near Beaver Creek Country Club in Lake Montezuma. Winds measured at 59 knots. 6 mi. NE of CAMP VERDE.						$0	NCDC, August 2004
05/11/1997	Severe Wind	Spotter reported a funnel cloud but the report was unconfirmed and only minor thunderstorms were in the area at the time.	MAYER					$0	NCDC, August 2004
05/16/1997	Severe Wind	A thunderstorm caused wind damage to eastern sections of Camp Verde. One report was received from the public of a tornado, but no witnesses could be found to verify this. We concluded the damage was caused by gusty winds, but no winds speeds were recorded. Several trailers were moved off their foundations in the White Hills Trailer Park. On Hardy Lane branches broke off trees and were scattered over the road. In the Sierra Verde area an older barn lost part of its roof. Winds measured at 50 knots. 5 mi. E of CAMP VERDE.				$5,000		$5,000	NCDC, August 2004
08/05/1997	Severe Wind	Strong thunderstorm winds knocked down several telephone poles. Winds measured at 65 knots. 10 mi. NE of PRESCOTT.				$2,000		$2,000	NCDC, August 2004
08/05/1997	Severe Wind	Strong Thunderstorm wind caused some damage in the Chino Valley area. Electrical power was knocked out when lightning hit a transformer. The power outage lasted 30 minutes. A cabana was torn off a trailer home. A section of the cabana with a swamp cooler attached was thrown 50 feet, while the rest of the cabana's roof was thrown 100 feet by the wind, and landed in an adjacent street. Winds measured at 55 knots.	CHINO VLY			$5,000		$5,000	NCDC, August 2004
09/05/1997	Severe Wind	Thunderstorm wind gust to 77 knots (88 mph). Winds measured at 77 knots. 3 mi. S of RIMROCK.						$0	NCDC, August 2004
03/06/1998	Severe Wind	A single wind gust to 62 kts. (71 mph), associated with synoptic scale southwest gradient winds, was recorded by a spotter in Lake Montezuma.						$0	NCDC, August 2004
04/06/1998	Severe Wind	A single wind gust to 62 kts. (71 mph), associated with synoptic scale southwest gradient winds, was recorded by a spotter in Lake Montezuma.						$0	NCDC, August 2004
04/11/1998	Severe Wind	Spotter recorded a single gradient wind gust to 53 kts (61 mph) in Lake Montezuma.						$0	NCDC, August 2004
07/19/1998	Severe Wind	A weather spotter reported down power lines due to thunderstorm outflow winds. 15 mi. SE of CAMP VERDE.				$1,000		$1,000	NCDC, August 2004
07/28/1998	Severe Wind	A mobile home was destroyed by thunderstorm outflow winds estimated at 58 mph.	PAULDEN			$7,000		$7,000	NCDC, August 2004
08/06/1998	Severe Wind	A house under construction was destroyed by an F0 tornado. A neighbor to the house under construction reported he saw a narrow, rotating cloud that extended from the ground to the base of a thunderstorm. This rotating cloud moved from about 300 yards away from the house under construction into the house under construction. The walls of the house were removed from the foundation and reduced to 2 x 4 inch stock and 4 by 8 feet sheets of plywood. This material was suspended in air about 30 seconds. 12 mi. SSW of PRESCOTT. Fujita Tornado Scale: F0 (40-72mph / 35-62kts.). Length=0mi. Width=50yds.				$4,000		$4,000	NCDC, August 2004
10/25/1998	Severe Wind	A weather spotter reported thunderstorm winds gusting to 65 mph at Lake Montezuma. Winds measured at 56 knots. 5 mi. E of MC GUIREVILLE.						$0	NCDC, August 2004
07/21/1999	Severe Wind	A weather spotter in Lake Montezuma measured thunderstorm outflow winds at 58 mph. Winds measured at 50 knots. 4 mi. E of MC GUIREVILLE.						$0	NCDC, August 2004
08/05/1999	Severe Wind	Lightning struck a residential home in Humboldt, igniting a roof fire.	HUMBOLDT			$100,000		$100,000	NCDC, August 2004
08/23/1999	Severe Wind	Arizona Dept. of Public Safety officers reported a funnel cloud near Seligman.	SELIGMAN					$0	NCDC, August 2004
09/14/1999	Severe Wind	Winds measured at 52 knots.	DEWEY					$0	NCDC, August 2004

						Damage Estimates			
Date	Hazard	Description	Location	Fatalities	Injuries	Property	Crop/Livestock	Total	Data Source
09/14/1999	Severe Wind	A stationary trough of low pressure centered over Nevada introduced strong westerly vertical shear to northern Arizona. This shear combined with the ever present monsoon moisture to produce numerous reports of severe weather across Yavapai county. The tornado 8 miles east of Chino Valley was observed to land in an open field and did no damage. Lightning started a house fire in Cottonwood.	COTTONWOOD			$40,000		$40,000	NCDC, August 2004
09/14/1999	Severe Wind		PAULDEN					$0	NCDC, August 2004
09/14/1999	Severe Wind	Fujita Tornado Scale: F0 (40-72mph / 35-62kts.). 8 mi. E of CHINO VLY.						$0	NCDC, August 2004
09/14/1999	Severe Wind	10 mi. NE of PRESCOTT.						$0	NCDC, August 2004
09/14/1999	Severe Wind	Law enforcement officials reported a tornado touching down briefly west of the Prescott Country Club. Fujita Tornado Scale: F0 (40-72mph / 35-62kts.). Beginning Lat, Long (34.55, 112.28) Ending (34.55, 112.65). Approximately 10 mi. E of PRESCOTT.						$0	NCDC, August 2004
09/15/1999	Severe Wind	For the second day in a row, vertical wind shear combined with monsoon moisture to produce several instances of severe weather. Hail did significant damage in Prescott Valley and in Dewey, with newspaper accounts indicate widespread damage to cars and skylights. Insurance claims from this days severe weather were approximately $18 million dollars. Two people were injured by the falling hail. 1.75 in. diameter hail.	DEWEY		2	$18,000,000		$18,000,000	NCDC, August 2004
09/15/1999	Severe Wind	Fujita Tornado Scale: F0 (40-72mph / 35-62kts.)	DEWEY					$0	NCDC, August 2004
06/20/2000	Severe Wind	A weather spotter estimated 50 mph wind and higher. The wind blew over fruit trees in Dewey.	DEWEY					$0	NCDC, August 2004
06/29/2000	Severe Wind	A weather spotter in Prescott reported a funnel cloud 10 to 15 miles southwest of Prescott.						$0	NCDC, August 2004
07/22/2000	Severe Wind	Yavapai County officials reported that thunderstorm wind had knocked down power lines. Winds measured at 50 knots.	CAMP VERDE					$0	NCDC, August 2004
08/01/2000	Severe Wind	A powerful thunderstorm moved through the Verde Valley with strong wind, hail, and a funnel cloud. At 730 PM MST, a funnel cloud was reported by a weather spotter in Camp Verde. At 735 PM MST, strong wind blew down power lines and damaged roofs in Camp Verde, Cottonwood, and in Lake Montezuma. At 830 PM MST, a funnel cloud was reported 1/2 miles southeast of the Cottonwood airport. The wind damaged several roofs and tore off a patio deck in Cottonwood. Three-quarter inch hail was reported in Clarkdale at 855 PM MST. Winds measured at 53 knots.	COTTONWOOD					$0	NCDC, August 2004
08/01/2000	Severe Wind	A powerful thunderstorm moved through the Verde Valley with strong wind, hail, and a funnel cloud. At 730 PM MST, a funnel cloud was reported by a weather spotter in Camp Verde. At 735 PM MST, strong wind blew down power lines and damaged roofs in Camp Verde, Cottonwood, and in Lake Montezuma. At 830 PM MST, a funnel cloud was reported 1/2 miles southeast of the Cottonwood airport. The wind damaged several roofs and tore off a patio deck in Cottonwood. Three-quarter inch hail was reported in Clarkdale at 855 PM MST. 0.75 in. diameter hail.	CLARKDALE					$0	NCDC, August 2004
08/01/2000	Severe Wind	A powerful thunderstorm moved through the Verde Valley with strong wind, hail, and a funnel cloud. At 730 PM MST, a funnel cloud was reported by a weather spotter in Camp Verde. At 735 PM MST, strong wind blew down power lines and damaged roofs in Camp Verde, Cottonwood, and in Lake Montezuma. At 830 PM MST, a funnel cloud was reported 1/2 miles southeast of the Cottonwood airport. The wind damaged several roofs and tore off a patio deck in Cottonwood. Three-quarter inch hail was reported in Clarkdale at 855 PM MST. Winds measured at 53 knots. Beginning Lat, Long (34.57, 111.85) Ending Lat, Long (34.65, 111.73)	CAMP VERDE					$0	NCDC, August 2004
08/01/2000	Severe Wind	A powerful thunderstorm moved through the Verde Valley with strong wind, hail, and a funnel cloud. At 730 PM MST, a funnel cloud was reported by a weather spotter in Camp Verde. At 735 PM MST, strong wind blew down power lines and damaged roofs in Camp Verde, Cottonwood, and in Lake Montezuma. At 830 PM MST, a funnel cloud was reported 1/2 miles southeast of the Cottonwood airport. The wind damaged several roofs and tore off a patio deck in Cottonwood. Three-quarter inch hail was reported in Clarkdale at 855 PM MST.	COTTONWOOD					$0	NCDC, August 2004
08/01/2000	Severe Wind	A powerful thunderstorm moved through the Verde Valley with strong wind, hail, and a funnel cloud. At 730 PM MST, a funnel cloud was reported by a weather spotter in Camp Verde. At 735 PM MST, strong wind blew down power lines and damaged roofs in Camp Verde, Cottonwood, and in Lake Montezuma. At 830 PM MST, a funnel cloud was reported 1/2 miles southeast of the Cottonwood airport. The wind damaged several roofs and tore off a patio deck in Cottonwood. Three-quarter inch hail was reported in Clarkdale at 855 PM MST.	CAMP VERDE					$0	NCDC, August 2004
08/17/2000	Severe Wind	Four house trailers were pushed off their foundations and one was overturned in the Black Canyon City area. One person was injured. There were also several traffic accidents reported on nearby I-17. Winds measured at 60 knots.	BLACK CANYON CITY		1			$0	NCDC, August 2004
10/27/2000	Severe Wind	Arizona Department of Transportation (ADOT) officials reported a funnel cloud near Cordes Junction. The thunderstorm that produced the funnel cloud also produced strong wind that tipped over a tool shed at the ADOT facility in Cordes Junction.	CORDES					$0	NCDC, August 2004

						Damage Estimates			
Date	Hazard	Description	Location	Fatalities	Injuries	Property	Crop/Livestock	Total	Data Source
05/12/2001	Severe Wind	Lightning strikes caused three homes to catch fire. Two of the homes were completely burned and/or destroyed.	CORNVILLE					$0	NCDC, August 2004
07/05/2001	Severe Wind	A thunderstorm moved across the Verde Valley with strong wind, hail and torrential rain. A wind gust of 60 MPH was reported 5 miles southeast of Cottonwood. One inch hail was reported in Cottonwood. The sun porch at the historic Jerome Grand Hotel was blown off and moved 150 feet away. One and a half inches of rain fell in just 35 minutes in Cornville and over an inch fell in just 25 minutes in Cottonwood. The roof of the Sears building in Cottonwood collapsed due to the heavy rain and hail. Other buildings in the shopping center also sustained water damage. Two men were injured when part of the Sears roof fell on them as they were cleaning up the mess the next morning. The damage to the shopping center was estimated at $150,000. 1 in. diameter hail.	COTTONWOOD					$0	NCDC, August 2004
07/25/2001	Severe Wind	A thunderstorm move through Verde Lakes (8 SE Camp Verde) with damaging wind, one inch hail and heavy rain. The strong wind split a large cottonwood tree in half and knocked large branches off other trees. Heavy rain also caused two feet deep water to flow over some roads in town. 1 in. diameter hail.	CAMP VERDE					$0	NCDC, August 2004
07/25/2001	Severe Wind	A thunderstorm move through Verde Lakes (8 SE Camp Verde) with damaging wind, one inch hail and heavy rain. The strong wind split a large cottonwood tree in half and knocked large branches off other trees. Heavy rain also caused two feet deep water to flow over some roads in town.	CAMP VERDE					$0	NCDC, August 2004
08/10/2001	Severe Wind	Three-quarter inch diameter hail was reported in Black Canyon City. Wind gusts to 60 MPH, washes running with water, rock slides, and auto accidents were also reported. 0.75 in. diameter hail.	BLACK CANYON CITY					$0	NCDC, August 2004
08/10/2001	Severe Wind	Three-quarter inch diameter hail was reported in Black Canyon City. Wind gusts to 60 MPH, washes running with water, rock slides, and auto accidents were also reported. Winds measured at 51 knots.	BLACK CANYON CITY					$0	NCDC, August 2004
08/19/2001	Severe Wind	A severe thunderstorm produced one inch diameter hail and wind gust to 80 MPH in Rim Rock. Verde Valley Sheriffs reported a large treed blown down, power lines blown down, flooding of dry creeks and 6 accidents on I-17due to the storm near Rim Rock. 1 in. diameter hail.	RIMROCK					$0	NCDC, August 2004
08/19/2001	Severe Wind	A severe thunderstorm produced one inch diameter hail and wind gust to 80 MPH in Rim Rock. Verde Valley Sheriffs reported a large treed blown down, power lines blown down, flooding of dry creeks and 6 accidents on I-17due to the storm near Rim Rock. Winds measured at 80 knots.	RIMROCK					$0	NCDC, August 2004
07/03/2002	Severe Wind	A severe thunderstorm produced damaging wind as it moved through central Yavapai county. The ASOS at the Prescott airport had a peak wind gust of 61 MPH. Shingles blew off the roof and 20 inch diameter branches were blown down at a Prescott golf course. A spotter in Dewey estimated 60 MPH wind gusts. Winds measured at 53 knots. Starting location was in Prescott area ending in Dewey area. Beginning Lat, Long (34.55, 112.47) Ending Lat, Long (34.53, 112.23)	PRESCOTT					$0	NCDC, August 2004
07/13/2002	Severe Wind	Trees were blown down in Bagdad between 5:00 PM and 6:00 PM. Some of the trees fell onto power lines. Winds measured at 50 knots.	BAGDAD					$0	NCDC, August 2004
09/10/2002	Severe Wind	A funnel cloud was seen southeast of Paulden.						$0	NCDC, August 2004
09/27/2002	Severe Wind	Strong wind interrupted power in Prescott and Dewey. Power poles may have been knocked down. Wind measured at 45 knots.						$0	NCDC, August 2004
05/28/2003	Severe Wind	A microburst produced a wind gust of 70 MPH about three miles south of Mayer.						$0	NCDC, August 2004
07/18/2003	Severe Wind	Strong wind from a thunderstorm blew over a camper that was sitting on the ground. The camper was severely damaged. Winds reported at 40 knots.				$2,000		$2,000	NCDC, August 2004
07/27/2003	Severe Wind	A thunderstorm in northeast Prescott produced a wind gust of 61 MPH. This storm also produced two inches of rain and pea sized hail. Winds also reported at 59 knots.	Prescott					$0	NCDC, August 2004
08/14/2003	Severe Wind	A tornado touched down twice in an unpopulated area near Paulden. Fujita Tornado scale: F0 (40-72 mph / 35-62 kt.). Length=0mi. Width=1yd.	Paulden					$0	NCDC, August 2004
08/14/2003	Severe Wind	A tornado touched down five miles southeast of Camp Verde. 60 MPH wind was also reported in Camp Verde. Fujita Tornado scale: F0 (40-72 mph / 35-62 kt.). Length=0mi. Width=1yd.						$0	NCDC, August 2004
08/15/2003	Severe Wind	Trees were blown down and a carport roof was blown off in Verde Valley. Winds reported at 50 knots.						$0	NCDC, August 2004
08/25/2003	Severe Wind	Lightning hit an apartment building and started a fire. The fire caused $5,000 damage. Street flooding hampered firefighting efforts.	Prescott			$5,000		$5,000	NCDC, August 2004
08/25/2003	Severe Wind	A garage roof was blown onto power poles. The power line was damaged. Winds reported at 50 knots.	CAMP VERDE					$0	NCDC, August 2004
08/25/2003	Severe Wind	A funnel cloud was sighted 1/2 mile south of Jerome.	Jerome					$0	NCDC, August 2004
08/27/2003	Severe Wind	Lightning hit a radio station and caused $10,000 damage to electrical equipment.	Prescott			$10,000		$10,000	NCDC, August 2004
09/05/2003	Severe Wind	Lightning struck a radio station in Sedona and caused $10,000 damage to electrical equipment.	SEDONA			$10,000		$10,000	NCDC, August 2004
12/29/2004	Severe Wind	A winter storm brought strong wind to many locations across northern Arizona with gusts over 50 MPH. There were numerous reports of broken tree limbs and other minor wind damage. Part of the roof on Camp Verde's Town Hall was ripped off. The Black Canyon fire station also suffered roof damage. The strong wind caused power outages in the Flagstaff area. Some wind gust reports include: Bright Angel 65 MPH, Grand Canyon 44 MPH, Crown King 49 MPH, Winslow 59 MPH, Flagstaff 53 MPH, and Sunset Point 54 MPH.	AZZ008 - 015 - 037			$40,000		$40,000	NCDC, April 2010

						Damage Estimates			
Date	Hazard	Description	Location	Fatalities	Injuries	Property	Crop/Livestock	Total	Data Source
03/22/2009	Severe Wind	Up to 50 MPH wind caused blowing dust that reduced the visibility down to 20 feet between Chino Valley and Paulden just after 200 PM. There was a 15 car pile up near mile post 333. At least three people were taken to the hospital. A strong cold front brought very strong and gusty winds to northern Arizona on March 22, 2009. The winds locally caused damage to buildings, power outages, and near zero visibility in blowing dust.	AZZ011 - 014 - 037		3	$150,000		$150,000	NCDC, April 2010
04/03/2009	Severe Wind	A spotter in Chino Valley reported strong wind (52 MPH) that blew down fences and caused shingle damage on multiple homes. A 15 foot tower similar to a hunting blind was knocked over even though the posts were set in concrete. A strong low pressure system approaching Arizona brought damaging winds, blowing dust, blowing sand to northern portions of the state.	Yavapai County			$12,000		$12,000	NCDC, April 2010
10/04/2009	Severe Wind	High winds knocked down tree limbs and power lines in Prescott, Groom Creek, and Walker. As many as 6,300 customers lost power 5 to 6 times. The downed power lines also caused a several small grass fires. Cable and phone lines were also knocked out. A strong cold front brought strong winds to the Little Colorado River Valley.	Yavapai County Mtns.			$12,000		$12,000	NCDC, April 2010
12/08/2009	Severe Wind	Very strong winds knocked over a 70' tall-two fool thick ponderosa pine tree abouty 20 miles east of Camp Verde. The tree fell on a man sleeping in a tent; the man was struck in the head and died instantly. Measured wind speeds include Prescott Love Field: 74 MPH; Crown King 69 MPH, and Mingus Mountain 70 MPH.		1					Camp Verde, 2010

Yavapai County Undeclared Events September 1960 to July 2010				
Hazard	No. of Records	Recorded Losses		
		Fatalities	Injuries	Damage Costs ($)
Dam Failure	1	0	0	$0
Drought	0	0	0	$0
Earthquake	1	0	0	$0
Fissure	0	0	0	$0
Flooding / Flash Flooding	58	0	2	$4,668,000
Landslide/Mudslide	0	0	0	$0
Levee Failure	0	0	0	$0
Severe Wind	123	1	14	$18,713,280
Subsidence	0	0	0	$0
Wildfire	183	0	7	$4,818,647
Winter Storm	4	6	10	$0

Notes: Damage Costs include property and crop/livestock losses and are reported as is with no attempt to adjust costs to current dollar values. Furthermore, wildfire damage cost do not include the cost of suppression which can be quite substantial. Sources: ADEM, NCDC, NWCG, NWS, USFS

State and Federally Declared Events That Included Yavapai County
January 1966 to August 2010

Hazard	No. of Declarations	Recorded Losses		
		Fatalities	Injuries	Damage Costs ($)
Drought	5	0	0	$300,000,000
Dam Failure	0	0	0	$0
Earthquake	0	0	0	$0
Extreme Heat	0	0	0	$0
Fissure	0	0	0	$0
Flooding / Flash Flooding	14	42	1090	$1,339,250,000
Landslide / Mudslide	0	0	0	$0
Levee Failure	0	0	0	$0
Severe Wind	0	0	0	$0
Subsidence	0	0	0	$0
Wildfire	20	0	0	$0
Winter Storm	2	8	0	$750,000

Notes:
- Damage Costs are reported as is and no attempt has been made to adjust costs to current dollar values. Sources: ADEM, FEMA, USDA

State of Arizona Declaration				Federal Presidential Declaration				
Date	Hazard	State PCA No.	Expenditures	Date	ID	Expenditures	Counties Affected	Description
3/2/1978	Flooding		$485,718	03/04/78	550-DR	$67,122,627	Statewide	Warm temeratures accompanied by heavy rain filled reservoirs behind all of the dams on the Salt and Verde Rivers and forced large volumes of runoff to be released. This was the largest flow of water down the Salt since 1891. The released water overflowed the channel and flooded residential areas and farmlands. During the same period storm fronts passing over the state caused flash flooding and destruction. 9.53 inches of rainfall occurred on Mt Lemmon. Overflows of the Gila River flooded Duncan and 1000-2000 acres of farmland in Safford Valley. The Rillito Creek, Pantano and Tanque Verde Creeks in Tucson were near bankfull. Total damage was approximately $65.9 million, of which $37 million was attributed to Maricopa County alone. Thousands of homes were damaged and 116 homes were destroyed. More than 7,000 people had to be sheltered and four people lost their lives. For Maricopa County - the storm centered over the mountains north and east of Phoenix, 35 miles north at Rock Springs. Extrapolation of intensity-probability data: 5.73 in./ 24 hr. equates to a 400 yr. storm. Main source of flooding due to Verde River with runoff volume exceeding reservoir storage capacity above Bartlett Dam. Flooding also occurred along irrigation canals on north side of metro area, and along tributaries of the Gila River and Queen Creek. 1 death-countywide. Total damage costs: $37 million: $3.1 million-residential, $16 million-public, $4 million-agriculture, $7.8 million-industrial, $0.75 million-commercial. "Flood Damage Report, 28 February-6 March 1978 on the storm and floods in Maricopa County, Arizona", U.S. Army Corps of Engineers, Los Angles District, FCDMC Library #802.024.
12/16/1978	Flooding		$1,909,498	12/21/78	570-DR	$113,561,122	Statewide	Following the spring flooding, Arizona was hit hard again in December 16th-20th. Total precipitation ranged from less than 1 inch in the northeastern and far southwestern portions of Arizona to nearly 10 inches in the Mazatzal Mountains northeast of Phoenix. A large area of the central mountains received over 5 inches. The main stems of the Gila, Salt, Verde, Agua Fria, Bill Williams, and Little Colorado Rivers, as well as a number of major tributaries, experienced especially large discharges. The flooding areas with the most significant damages included the Little Hollywood District near Safford and major portions of Duncan, Clifton, Winslow, and Williams. Damages were estimated at $39,850,000. 10 people die and thousands are left homeless. Severe damage to roads and bridges. For Maricopa County, 4 deaths, $16.3 million-public and $5 million-agriculture losses estimated. ["Flood Damage Report, Phoenix Metropolitan Area, December 1978 Flood", November 1979, U.S. Army Corps of Engineers, FCDMC Library #802.027]
2/15/1980	Flooding	29266	$1,958,610	02/19/1980	614-DR	$42,744,642	Maricopa, Gila, Yavapai, Mohave, White Mtn.Apache Tribe, San Carlos Apache Tribe, Gila River Indian Community, Fort McDowell Indian Community, Salt River Indian Community	Severe flooding in central Arizona. Record discharges (later broken in 1993) were recorded in the Phoenix metro area on the Salt, Verde, Agua Fria and Gila Rivers, as well as on Oak Creek in north central Arizona. The Phoenix metro are is almost cut in half as only two bridges remain open over the Salt River. It takes hours for people to move between Phoenix and the East Valley using either the Mill Avenue or Central Avenue bridges. Even the Interstate 10 bridge is closed for fear that it has been damaged. Precipitation during this period at Crown King in the Bradshaw Mountains was 16.63 inches. Three people die. Salt River has a peak flow of 170,000 cubic feet per second. Damages estimated at $63,700,000 for Phoenix Metro Area. [Phoenix Flood Damage Survey, February 1980, U.S. Army Corps of Engineers, Los Angles District, FCDMC Library #802.029]
9/23/1983	Flooding	30582		10/05/1983	691-DR		Yavapai	Heavy winds, rains, and flooding in Prescott/Yavapai area.
09/07/1990	Flooding	EUZ901	$1,175,040	12/06/90	884-DR	$5,875,202	Mohave, Gila, Pima, Pinal, Yavapai, Graham, Coconino, Maricopa	Severe storms caused monsoon rains from July 8 through September 14, 1990. Heavy rains and high winds caused flash flooding and wind damage. Havasupai reservation received heavy flood losses. Three lives were lost.
01/08/1993	Flooding	93003	$30,072,157	01/19/93	977-DR	$104,069,362	Statewide	During January and February 1993, winter rain flooding damage occurred from winter storms associated with the El Nino phenomenon. These storms flooded watersheds throughout Arizona by dumping excessive rainfall amounts that saturated soils and increased runoff. Warm temperature snowmelt exacerbated the situation over large areas. Erosion caused tremendous damage and some communities along normally dry washes were devastated. Stream flow velocities and runoff volumes exceeded historic highs. Many flood prevention channels and retention reservoirs were filled to capacity and so water was diverted to the emergency spillways or the reservoirs were breached, causing extensive damage in some cases (e.g., Painted Rock Reservoir spillway). Ultimately, the President declared a major federal disaster that freed federal funds for both public and private property losses for all of Arizona's fifteen counties. Damages were widespread and significant, impacting over 100 communities. Total public and private damages exceeded $400 million and eight deaths and 112 injuries were reported to the Red Cross (FEMA, April 1, 1993; ADEM, March, 1998). All creeks, streams and rivers began rising after very heavy rains. Rockslides in the Jerome area closed Highway 89A. Evacuations were ordered for persons along the Oak Creek, and a trailer park in Mayer was flooded. Large boulders slid down hills and blocked I-17 near Black Canyon City. A bridge was washed out at Lake Montezuma. Camp Verde flooded. (NCDC, 2010)
02/15/1995	Flooding	95007	$1,525,663				Coconino, Gila, Graham, Geenlee, La Paz, Maricopa, Navajo, Pinal, Yavapai, Yuma	On February 15, 1995, the Governor proclaimed an emergency due to flooding in Coconino, Gila, Maricopa, Yavapai, and Yuma Counties. The proclamation included an allocation of $100,000 for emergency measures and recovery costs. The proclamation was amended to include Graham, Greenlee, LaPaz, navajo, and Pinal Counties.
3/7/1995	Flooding	95008	$280,436				Coconino, Mohave, Yavapai	The Governor proclaimed an emergency due to flooding in Coconino, Mohave, and Yavapai Counties. A strong Pacific storm resulted in heavy rain falling over the central and northern mountains, where soils were already saturated from previous events. Between the afternoon of March 5, and the morning of March 6, a remote rain gage at Mt. Union, south of Prescott reported 4.92 inches, with many locations receiving about two inches of rain. Near record flows were observed on Oak Creek, at Cornville (peak 17.94 feet), and on Dry Beaver Creek. The record at Cornville is 19.5 feet, set in 1980. At Oak Creek Cliffs, at least 10 vehicles were flooded and pushed around. In the Sedona, Cornville, and Oak Creek Canyon area 20 homes were flooded. About 200 people were relocated. Several roads and bridges were damaged. Damages were estimated at over $1.4 million.
12/29/2004	Flooding	25004	$2,131,217	02/17/2005	1581-DR	$5,986,604	Gila, Graham, Greenlee, Pinal, Yavapai, Maricopa, Mohave	A strong Pacific storm system moved across Arizona December 28th and 29th with heavy rainfall. The heavy rain and melting snow resulted in excessive runoff in many areas from Williams to Flagstaff to Winslow and south to Prescott and Black Canyon City. High water, mudslides, and rock slides resulted in numerous road closures and evacuations in the area. Many creeks experienced significant rises. Seventy people were evacuated in southwest Flagstaff when water over-topped an earthen flood control dam. A dozen neighborhoods (about 300 people) along Oak Creek were evacuated in the Sedona area and two neighborhoods down stream. A 14 mile section of Highway 89 between Flagstaff and Sedona was closed because of rock slides. High water on the Verde River forced evacuations in Cornville and Bridgeport. Four RVs were lost in Oak Creek at the Page Springs RV park while 23 vehicles were removed before the water rose too high. About 100 people were evacuated in Black Canyon City in two different mobile-home parks. Portions of Navajo Route 71 and Old Navajo Route 2 were closed northeast of Winslow when the Little Colorado River overflowed the banks. Six families were evacuated near Bird Springs on the Navajo Reservation. All thirty-one low water crossings and seven other streets were closed in Prescott due to flooding. Two passengers were rescued from a stranded vehicle in Prescott. Preliminary counts indicate that as many as 150 homes may have sustained damages up to approximately one million dollars. Roads and bridges sustained an additional one million dollars damage.

State of Arizona Declaration				Damage Estimates			
Date	Hazard	Fatalities	Injuries	Property	Crop/Livestock	Total	Sources
3/2/1978	Flooding	4		$65,900,000		$65,900,000	ADEM, 2008; Tucson NWS, 2008 at http://www.wrh.noaa.gov/twc/hydro/floodhis.php; AFMA Flood Happens, Fall 2003
12/16/1978	Flooding	10		$39,850,000		$39,850,000	ADEM, 2008; Tucson NWS, 2008 at http://www.wrh.noaa.gov/twc/hydro/floodhis.php; AFMA Flood Happens, Fall 2003
2/15/1980	Flooding	3	3	$63,700,000	$3,000,000	$66,700,000	ADEM, 2008; NCDC, 2010
9/23/1983	Flooding					$0	ADEM, 2008
09/07/1990	Flooding	3				$0	ADEM, 2008; NCDC, 2010
01/08/1993	Flooding	8	112	$330,000,000	$70,000,000	$400,000,000	ADEM, 2008; NCDC, 2010
02/15/1995	Flooding					$0	ADEM, 2008
3/7/1995	Flooding			$1,400,000		$1,400,000	ADEM, 2008 NCDC, 2008
12/29/2004	Flooding			$2,000,000		$2,000,000	ADEM, 2008 NCDC, 2008

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12/29/2004	Flooding	25004	$1,222,805	02/17/2005	1581-DR	$6,114,025	Coconino, Yavapai, Gila, Navajo, Apache, Maricopa, Mohave	**Northern Arizona Winter Storm:** A strong Pacific storm system moved across Arizona December 28th and 29th with heavy rainfall. The heavy rain and melting snow resulted in excessive runoff in many areas from Williams to Flagstaff to Winslow and south to Prescott and Black Canyon City. High water, mudslides, and rock slides resulted in numerous road closures and evacuations in the area. Many creeks experienced significant rises. Seventy people were evacuated in southwest Flagstaff when water over-topped an earthen flood control dam. A dozen neighborhoods (about 300 people) along Oak Creek were evacuated in the Sedona area and two neighborhoods down stream. A 14 mile section of Highway 89 between Flagstaff and Sedona was closed because of rock slides. High water on the Verde River forced evacuations in Cornville and Bridgeport. Four RVs were lost in Oak Creek at the Page Springs RV park while 23 vehicles were removed before the water rose too high. About 100 people were evacuated in Black Canyon City in two different mobile-home parks. Portions of Navajo Route 71 and Old Navajo Route 2 were closed northeast of Winslow when the Little Colorado River overflowed the banks. Six families were evacuated near Bird Springs on the Navajo Reservation. All thirty-one low water crossings and seven other streets were closed in Prescott due to flooding. Two passengers were rescued from a stranded vehicle in Prescott. Preliminary counts indicate that as many as 150 homes may have sustained damages up to approximately one million dollars. Roads and bridges sustained an additional one million dollars damage.
2/16/2005	Flooding	25005	$4,669,352	03/14/2005	1586-DR	$9,536,276	Gila, Graham, Greenlee, Pinal, Yavapai, Maricopa, Mohave	**February 2005 Winter Storm and Flood:** A strong storm system drew moist subtropical air from the Pacific to give northern Arizona widespread moderate to heavy rains. This precipitation event began Thursday night (02/10) and lasted through the early hours on Sunday (02/13). Rainfall totals of 2 to 3 inches were common in many locations...with locally heavier amounts found in portions of Yavapai and Northern Gila counties. Flooding caused road closures in Black Canyon City, Walker, Pinedale, and Globe. Paper Mill Road in Snowflake was washed out by the flood waters. Highway 377 was closed due to flooding between Heber and Holbrook. A trailer park in Black Canyon City was evacuated before the water rose into the parking lot. No trailers were damaged. Minor pasture flooding was reported in Comville. A trailer park in the community of Tonto Creek was evacuated. Flood waters entered homes in Porter Creek Estates (near Show Low). The Gila River at the Town of Duncan had moderate flooding and the smaller dikes broke allowing water to backup into the town. Damage occurred to a residence near Duncan High School, and a trailer downstream of the high school. Also, U.S. Highway 70 near the high school was covered with four feet of water and the approach ramps to the highway were overtopped with flowing water. East Avenue and low lying areas in the west end of the Town of Duncan were evacuated on the evening of Saturday February 12, 2005. The railroad tracks also on the west end of Duncan were covered with water and power went out in the west side of the town. The San Francisco River at the Town of Clifton had minor flooding reported. There was no damage reported in the Town of Clifton. However, there was water to the bottom of the Railroad Bridge which stopped railroad traffic from the Morenci Mine and minor overflow of the river in the northern end of Clifton. Also, the town gates, designed to divert water away from the Town of Clifton were closed, isolating the town from road and railroad access from the north. The Town of Solomon at the Gila River reported minor flooding. The Solomon Road, Pima Road, and Thatcher Road bridge approaches were all flooded and closed. U.S. Highway 70 Bridge near Bylas was also flooded and closed. The Verde River and Williamson Valley Wash were heavily impacted by heavy rainfall on snowpack that resulted in evacuations, rescues, isolated communities, and extraordinary damage. Yavapai County received extensive flooding and road damages. The Wineglass subdivision in Paulden was completely cuttoff for over 10 days by floodwaters overtopping the three access roads. A Yavapai County Detention Facility was isolated for five days, denying parolees' access for mandatory check in.
9/28/1983	Tropical Storm / Hurricane		$863,283	10/05/83		$13,446,148	Mohave, Apache, Yavapai, Gila, Graham, Greenlee, Pinal, Pima, Santa Cruz, Cochise, Navajo	The autumn floods of 1983. Tropical storm remains, including those from Hurricane Octave, caused heavy rain over Arizona during a 10-hour period. Southeast Arizona and Yavapai and Mohave Counties are particularly hard hit. Severe flooding occurred in Tucson, Clifton and Safford. Fourteen fatalities and 975 injuries were attributed to the flooding. At least 1000 Arizonans were left temporarily homeless. Damage estimated at $370 million in today's value (2001). Record water levels in the Santa Cruz, Gila, San Pedro and San Francisco Rivers contributed to heavy flooding statewide. Greenlee County was hit hard. Damages in Clifton alone were over $20 million where approximately 41 businesses were destroyed and over 231 homes and 57 businesses suffered major damages. The Corps constructed an emergency dike in the Winkelman Flats area to try and protect 112 homes. There were floodfight activities at Florence to protect a sewage treatment pland and at Safford to protect critical arterial bridge embankment from severe damage.
09/24/1997	Tropical Storm / Hurricane	98002	$2,318,259				Statewide	Hurricane Nora - $200 million property damage. An estimated $150 to $200 million in damage was sustained by crops throughout Yuma County due mainly to flooded crops. About $30 to $40 million was to lemon trees. The heavy rain was attributed to Tropical Storm Nora. Flooding from Hurricane Nora results in the breaching of Narrows Dam. The calculated 24-hour, 100-year rainfall amount in NW Maricopa County was exceeded at six ALERT measuring sites. 3 to 5 inches of rain which fell from Nora led to some flash flooding inportinons of northwest Maricopa County. Two earthen dams gave way in Aguila and caused widespread flooding. One dike was located seven miles east of Aguila and the second in the center of the Martori Farms complex. Half of the cotton crop was lost at Martori Farms, as well as 300 to 500 acres of melons. Up to five feet of water filled Aqguila. About 40 people were evacuated from the hardest hit area of the town. Water flowing down the Sols Wash was so high that the Sols Wash Bridge in Wickenburg was closed for more than two hours. There was some flooding below Sols Wash in the streets around coffinger Park. Several houses in the area were flooded. Highway 71 west of Wickenburg and Highway 95 north were closed due to high water form the storm.
1/21/2010	Winter Storm	20102	$4,497,895	03/18/2010	1888-DR	$14,210,904	Apache, Coconino, Gila, Greenlee, La Paz, Maricopa, Mohave, Navajo, Yavapai, Hopi Tibe, Navajo Nation	**January 2010 Winter Storm Emergency:** About 10 inches of snow occurred in Northern Greenlee County around Rose Peak and Hannagan Meadow. A strong Pacific winter storm produced moderate valley rain and mountain snow to much of southeast Arizona. Heavy snow combined with strong winds to produce significant blowing and drifting at the higher elevations. Strong gusty winds also affected many valley locations during the evening hours of the 19th and the early morning hours of the 20th. Six inches of snow fell at 6700 feet 6 miles south of Prescott. A strong winter storm hit northern Arizona with widespread snow and rain. Heavy snow fell along the Eastern Mogollon Rim. Snowfall totals for this one storm include: Clints Well 16 inches, Heber 13 inches, Clay Springs 14 to 15 inches, and Forest Lakes 16 inches. The second in a series of strong Pacific storms moved across northern Arizona with widespread heavy precipitation. The snow level dropped down to between 5000 and 5500 feet elevation by the storm moved east. The Governor Jan Brewer signed a Declaration of Emergency and released $200,000 to pay for emergency responses and and recovery expenses from the weather events. Declared that a State of Emergency in Apache, Coconino, Gila, Greenlee, La Paz, Maricopa, Mohave, Navajo, and Yavapai Counties due to the 2010 Winter Storm beginning January 21, 2010. President Obama approved the Governor's request for Emergency Declaration in support of life and property-saving operations on Hopi Tribe and Navajo Nation lands within Apache, Coconino and Navajo counties. Isolation of some communities and rough terrain, compounded with snow accumulations, has complicated delivery of assistance like fuel, food and medical provisions. An additional $1 million was approved by Governor Brewer to cover state-share costs. Response efforts for the Hopi Tribe and Navajo Nation were named Operation Winter Storm and pooled the resources of federal, state and local agencies. Over nine days, 42,500 meals, 21,780 gallons of water, 279 cots, 5,475 blankets and over 800 wood bundles were delivered by air and ground transport.

State of Arizona Declaration				Damage Estimates			
Date	Hazard	Fatalities	Injuries	Property	Crop/Livestock	Total	Sources
12/29/2004	Flooding			$2,000,000		$2,000,000	ADEM, 2010 NCDC, 2008
2/16/2005	Flooding			$1,500,000		$1,500,000	ADEM, 2010 NCDC, 2008
9/28/1983	Tropical Storm / Hurricane	14	975	$370,000,000		$370,000,000	ADEM, 2008; NCDC, 2010
09/24/1997	Tropical Storm / Hurricane			$200,000,000	$175,000,000	$375,000,000	ADEM, 2008; NCDC, 2010
1/21/2010	Winter Storm			$14,900,000		$14,900,000	ADEM, 2010 FEMA, 2010