Yavapai County Multi-Jurisdictional Hazard Mitigation Plan

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SECTION 1: INTRODUCTION

1.1 Purpose

The purpose of this 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 Planning Team prepared this Plan in compliance with DMA 2000 requirements.

1.2 Background and Scope

Each year in the United States, disasters injure of take the lives of thousands of people. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. These monies only partially reflect the true cost of disasters, because tax dollars do not reimburse for the additional expenses to insurance companies and nongovernmental. Many disasters are predictable, and much of the damage caused by these events can be alleviated or even eliminated.

FEMA defines hazard mitigation as "any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event." The results of a three-year congressionally mandated independent study to assess future savings from mitigation activities provides evidence that mitigation activities are highly cost-effective. On average, each dollar spent on mitigation saves society an average of $4 in avoided future losses in addition to saving lives and preventing injuries (National Institute of Building Science Multi-Hazard Mitigation Council 2005).

Examples of hazard mitigation measures include, but are not limited to:

- Development of mitigation standards, regulations, policies, and programs.
- Land use/zoning policies.
- Strong building code and floodplain management regulations.
- Dam safety program, seawalls, and levee systems.
- Acquisition of flood prone and environmentally sensitive lands.
- Retrofitting/hardening/elevating structures and critical facilities.
- Relocation of structures, infrastructure, and facilities out of vulnerable areas.
- Public awareness/education campaigns.
- Improvement of warning and evacuation systems.

The Hazard mitigation planning process identifies hazards that threaten communities; determines the likely affects of those hazards; sets mitigation goals; and determines, prioritizes, and implements appropriate strategies to lessen impacts to hazards that threaten communities. This Plan documents the planning process employed by the Planning Team. The Plan identifies relevant hazards and risks and identifies the strategy used to decrease vulnerability and increase resiliency and sustainability.

This Plan was prepared pursuant to the requirements of the Disaster Mitigation Action of 2000 and the implementing regulations set forth in the Federal Register (hereafter, these requirements will be referred to collectively as the DMA2K). While the act emphasized the need for mitigation plans and more coordinated mitigation planning and implementation efforts, the regulations established the requirements that hazard mitigation plans must meet in order to be eligible for certain Federal disaster assistance and hazard mitigation funding under the Robert T. Stafford Disaster Relief and Emergency Act.

Information in this Plan will be used to help guide and coordinate mitigation activities and decisions for future land use. Proactive mitigation planning will help reduce the cost of disaster response and recovery to the community and its property owners by protecting structures, reducing exposure, and minimizing overall community impacts and disruption. Hazards have and continue to affect the community and thus the community is committed to

reducing future disaster impacts and maintaining eligibility for Federal funding.

This is a multi-jurisdictional plan that geographically covers the participating communities and tribe within the Yavapai County boundaries (hereinafter referred to as the Planning Area). The following jurisdictions participated in the planning process:

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

1.3 Assurances

As participants in this Plan assure that they will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c). Specifically, the Yavapai Apache Tribe will amend this Plan whenever necessary to reflect changes in Federal laws and statutes as required in 44 CFR 133.11(d).

1.4 Plan Organization

This Plan is organized as follows:

- Section 1: Introduction
- Section 2: Community Profile
- Section 3: Planning Process
- Section 4: Risk Assessment
- Section 5: Mitigation Strategy
- Section 6: Plan Maintenance

SECTION 2: COMMUNITY PROFILES

2.1 Yavapai County

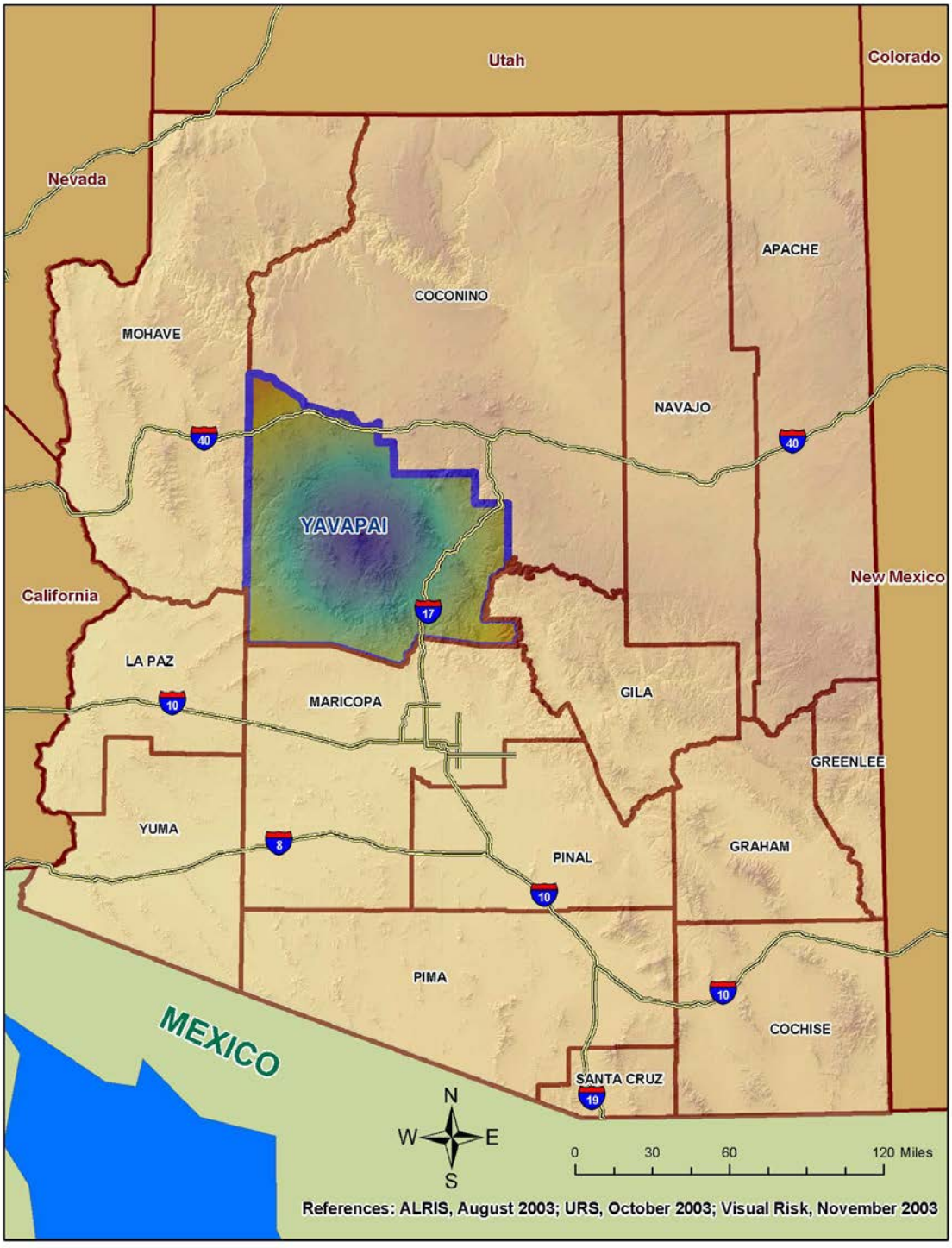
Geography

Yavapai County 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 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. 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.

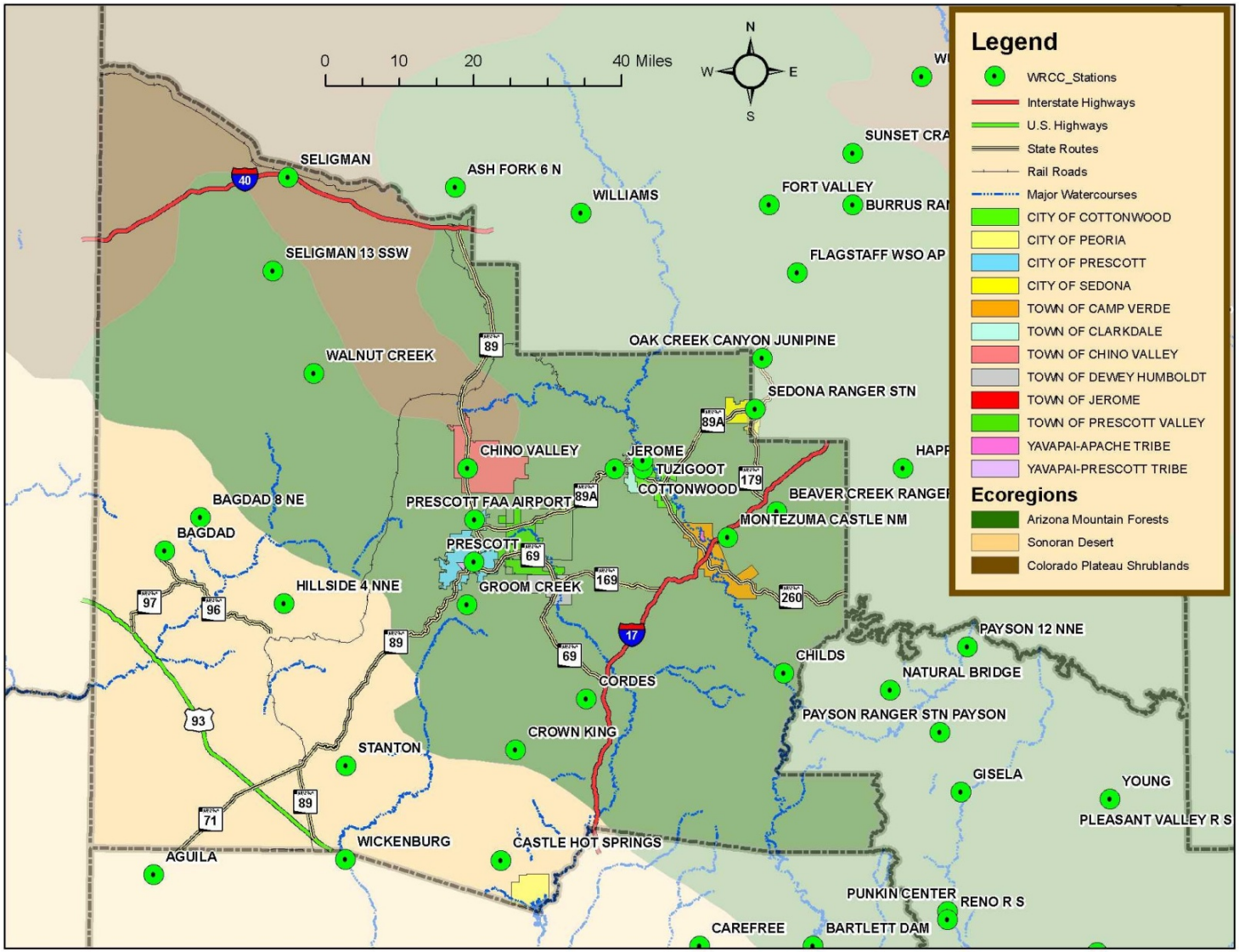
Yavapai County is home to portions of five rivers and four mountain ranges. The Verde River is the longest stretch of riparian area, which has yearlong flows and is located along the eastern portion of the County. All the other rivers have intermittent flows and include the Santa Maria River, Aqua Fria 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:

- **Arizona Mountain Forests** – this ecoregion contains a mountainous landscape, with moderate to steep slopes. Elevations in this zone range from approximately 4,000-3,000 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 are 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.



Map 2-1: Vicinity Map



Map 2-2: Terrestrial Ecoregions

Climate

The majority of Yavapai County has a climate classification of 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. The Western Region Climate Center[1] produces climatic statistics for weather stations within the County and span records dating back to the early 1900's.

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.

Elevation and season of the year, largely, governs the precipitation throughout Yavapai County. 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. Strong winds, blowing dust, and infrequent hailstorms[2] often accompany these thunderstorms.

PRESCOTT, ARIZONA (026796)

Period of Record Monthly Climate Summary

Period of Record : 05/01/1898 to 06/10/2016

Observation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	50.8	53.9	59.2	66.8	75.5	85.8	89	86.1	81.8	72.1	60.5	51.6	69.4
Average Min. Temperature (F)	21.3	24.1	28.4	34.3	41	49.3	57.7	56.3	48.7	37.3	27.5	22	37.3
Average Total Precipitation (in.)	1.74	1.85	1.7	0.92	0.47	0.38	2.87	3.18	1.7	1.08	1.22	1.67	18.78
Average Total SnowFall (in.)	5.8	4.7	5	1.3	0.2	0	0	0	0	0.2	2.1	4.6	23.7
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
Source: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?az6796, accessed December 27, 2016

Population

Yavapai County is home to 217,778 residents, with a large portion of the population living in Prescott and Prescott Valley.

[11] Most of the data provided and summarized in this plan are taken from the West Regional Climate Center (WRCC) website beginning at the following URL: http:// http://www.wrcc.dri.edu

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

Table 4-1: Jurisdictional population estimates for Yavapai County						
Jurisdiction	**1990**	**2000**	**2010**	**2015****	**2020**	**2025**
Yavapai County (Total)	**108,500**	**160,075**	**211,033**	**217,778**	**234,726**	**252,122**
Cities, Towns, and Tribal Communities						
Camp Verde	6,375	8,955	10,873	10,970	11,436	11,958
Chino Valley	4,835	7,860	10,817	10,895	11,790	12,844
Clarkdale	2,170	3,135	4,097	4,141	4,339	4,609
Cottonwood	5,930	9,405	11,265	11,532	12,042	12,692
Dewey - Humboldt	n/a	3,421	3,894	3,923	4,082	4,297
Jerome	405	580	444	445	447	447
Peoria (part)	n/a	n/a	7	7	6	6
Prescott	26,625	36,975	39,843	40,989	40,897	41,465
Prescott Valley	9,040	23,285	38,822	41,415	43,516	46,681
Sedona (part)	n/a	7,229	7,189	7,302	7,442	7,745
Wickenburg (part)	n/a	n/a	0	18	780	2,780
Yavapai-Apache Nation Reservation	n/a	743	718	726	765	807
Yavapai-Prescott Reservation	n/a	182	192	201	231	247

Notes:

* Projections for 2016 and beyond refer to July 1 of each year.
** For incorporated places, these are previously published estimates for July 1 of each year; for CDPs and reservations, these are estimates produced in the projection process.

Source: https://population.az.gov/population-projections, Accessed December 27, 2016

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.[3] Tourism also continues to serve a significant role in the economic health of the county and communities. As of September 2015, the civilian workforce was estimated at 95,402 with an unemployment rate of 6.3%.

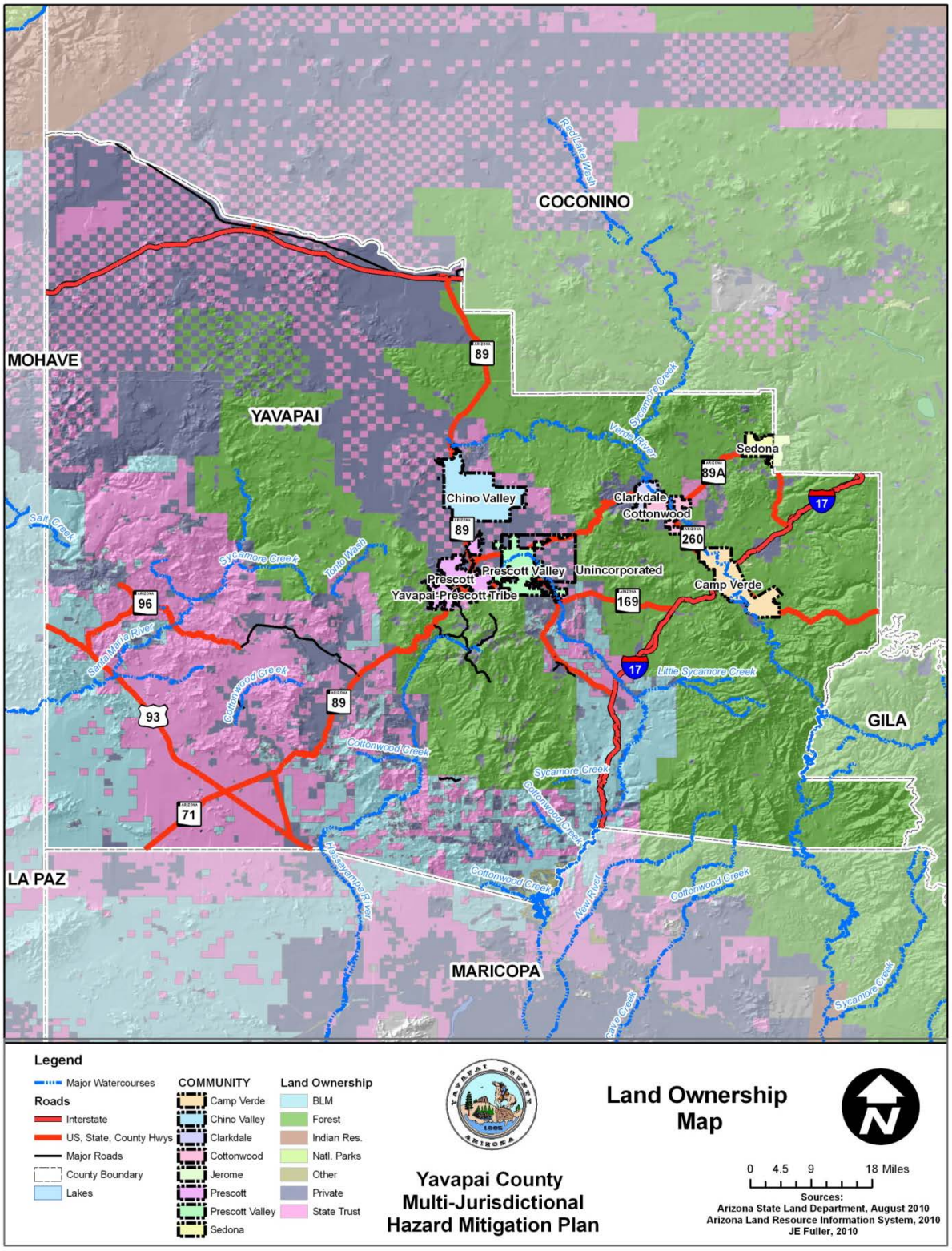
Development History

The Arizona Territorial Government established Yavapai County in 1864, with the first Territorial Capital established in Prescott. Miners migrated to southern and western parts of 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 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, constitute nearly 75% of land ownership combined. The majority of which is owned by the US Forest Service at 38%. Twenty-five percent 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.[4] 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 these lands will be treated as unincorporated Yavapai County for the purposes of this plan.

[3] Arizona Dept of Commerce, 2009, *Community Profile for Yavapai County*

[4] Arizona Department of Commerce, 2009, *Community Profile for Yavapai County*



Map 2-3: County Land Ownership and Location

2.2 Camp Verde

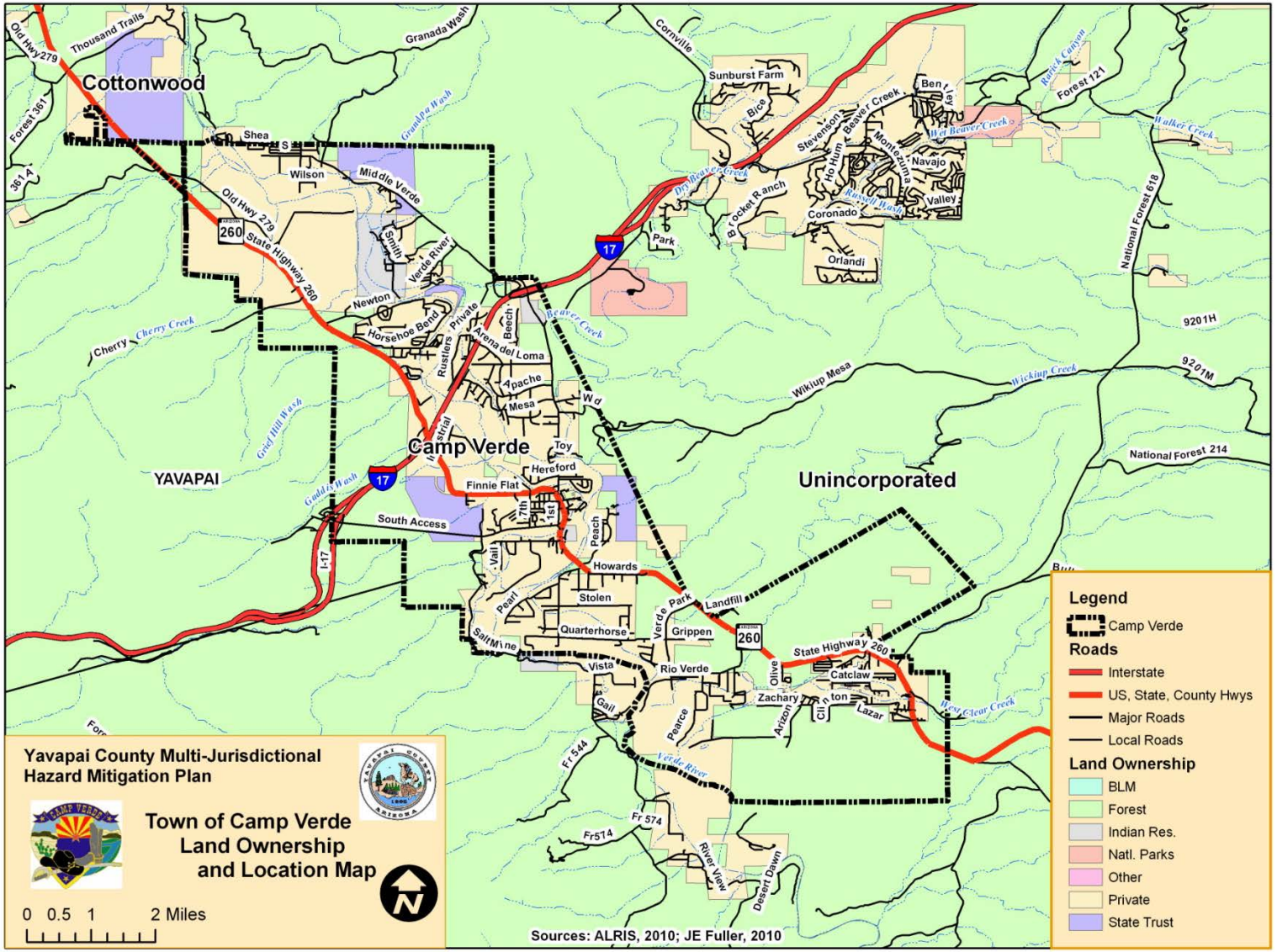
Historic Fort Verde State Park and Montezuma Castle National Monument provide a historic backdrop for the Verde Valley's oldest community. It was established as a military fort on the banks of the Verde River in 1865, to protect settlers. Founded in 1865 and incorporated in 1986, the Town now covers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

Located near the geographical center of Arizona, the Town of Camp Verde is located in the eastern portion of Yavapai County, and situated at an elevation of 3,160 feet. The State Route 260 and Interstate-17 pass through Camp Verde and serve as the major roadways servicing the community.

A wide variety of services provides employment in Camp Verde. Major public employers include Town of Camp Verde, Camp Verde Unified School District, Yavapai Apache Nation, Yavapai County, and the State of Arizona. Major private employers include Northern Arizona Healthcare and Bashas. The civilian labor force from June 2010-2015 (5 year estimate) was 4,497 with an unemployment rate of 12.65%.

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 U.S. Army relieved the voluntary military in 1866. 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 because 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. In 2011, there were 71 Single Family (Site Built) Residence Permits and 85 Manufactured home permits issued.



Map 2-4: Camp Verde Land Ownership and Location

2.3 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[5] 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.

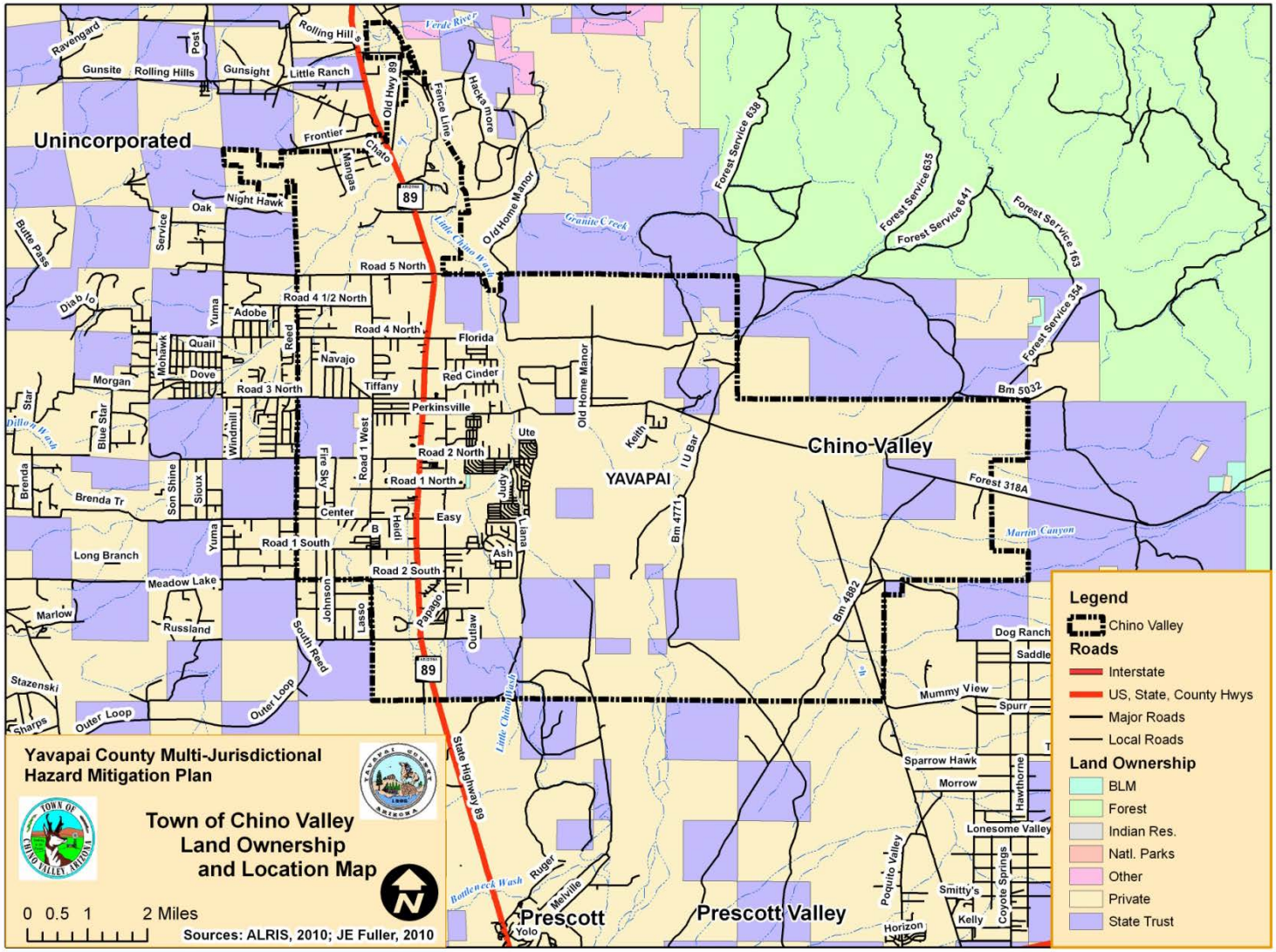
Chino Valley is located in central Yavapai County and situated at an elevation of 4,750 feet. The Town is 115 miles northwest of Phoenix, 228 miles northwest of Tucson, and State Route 89 passes through Chino Valley and serves as the only major roadway servicing the community.

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.

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



Map 2-5: Chino Valley Land Ownership and Location

2.4 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[6] Clarkdale was built from a unified master plan intended to include all typical parts of a comprehensive planned small town. Because 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. Clarkdale was incorporated in 1957.

The Town of Clarkdale, situated at an elevation of 3,550 feet, occupies approximately 10.1 square miles in the Verde Valley of North Central Arizona in Yavapai County. The Verde River bisects the north portion of the town at a low elevation of around 3,300 feet. 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 feet above sea level. The Town 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 Town boundary. State Route 89A passes through Clarkdale and serves as the major roadway servicing the community. The figure below shows the land ownership and major transportation routes around Clarkdale.

The Town of Clarkdale is located in the Arizona Mountain Forest terrestrial eco-region as described in Section 4.2. The description of climate and elevation ranges may not be appropriate descriptors for Clarkdale.

Clarkdale's economy developed as a service center for the mining industry. Today, major public employers include Clarkdale-Jerome School District, Yavapai College, the US Post Office, Verde Valley Fire District, and the Town of Clarkdale. Major private employers include Bent River Machine, Salt River Maricopa Group (Phoenix Cement), Wolf Insulation, Mold in Graphic Systems, Olsen's Grain, and Verde Canyon Railroad. The civilian labor force in 2016 was 1,631 with an unemployment rate of 5.9%[2].

Clarkdale has averaged ten permits for new home construction since 2012. 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.

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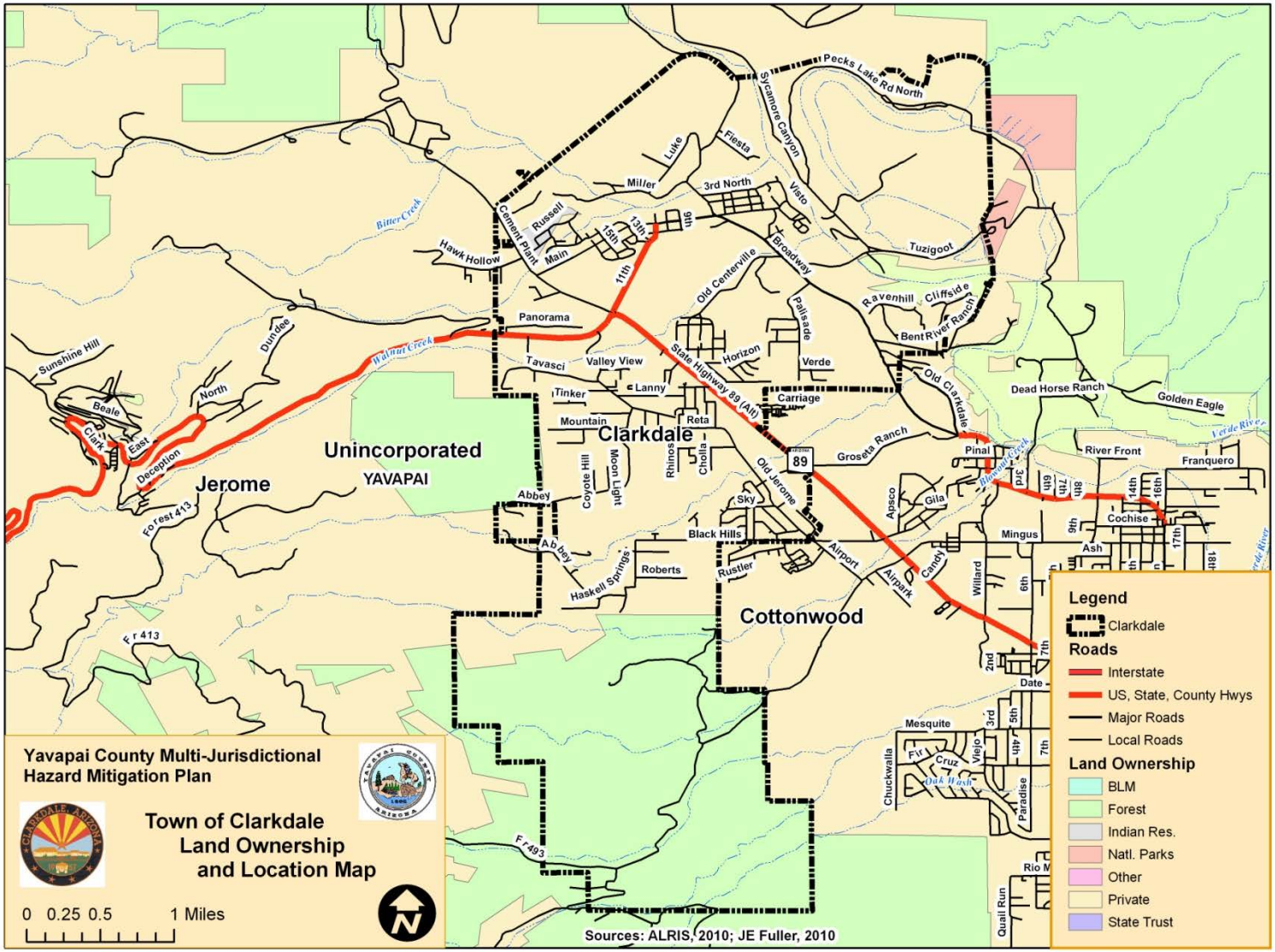
[6] Clarkdale's 2002 General Plan, April 2002



Map 2-6: Clarkdale Land Ownership and Location

2.5 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[7], Cottonwood was founded in 1879 and later incorporated in 1960.

Cottonwood, situated at an elevation of 3,320 feet, s located in the Northeastern portion of Yavapai County. The City is 106 miles north of Phoenix, 217 miles northwest of Tucson, and State Routes 89A and 260 pass through Cottonwood and serve as the major roadways servicing the community.

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.[8] 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 as well as 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.

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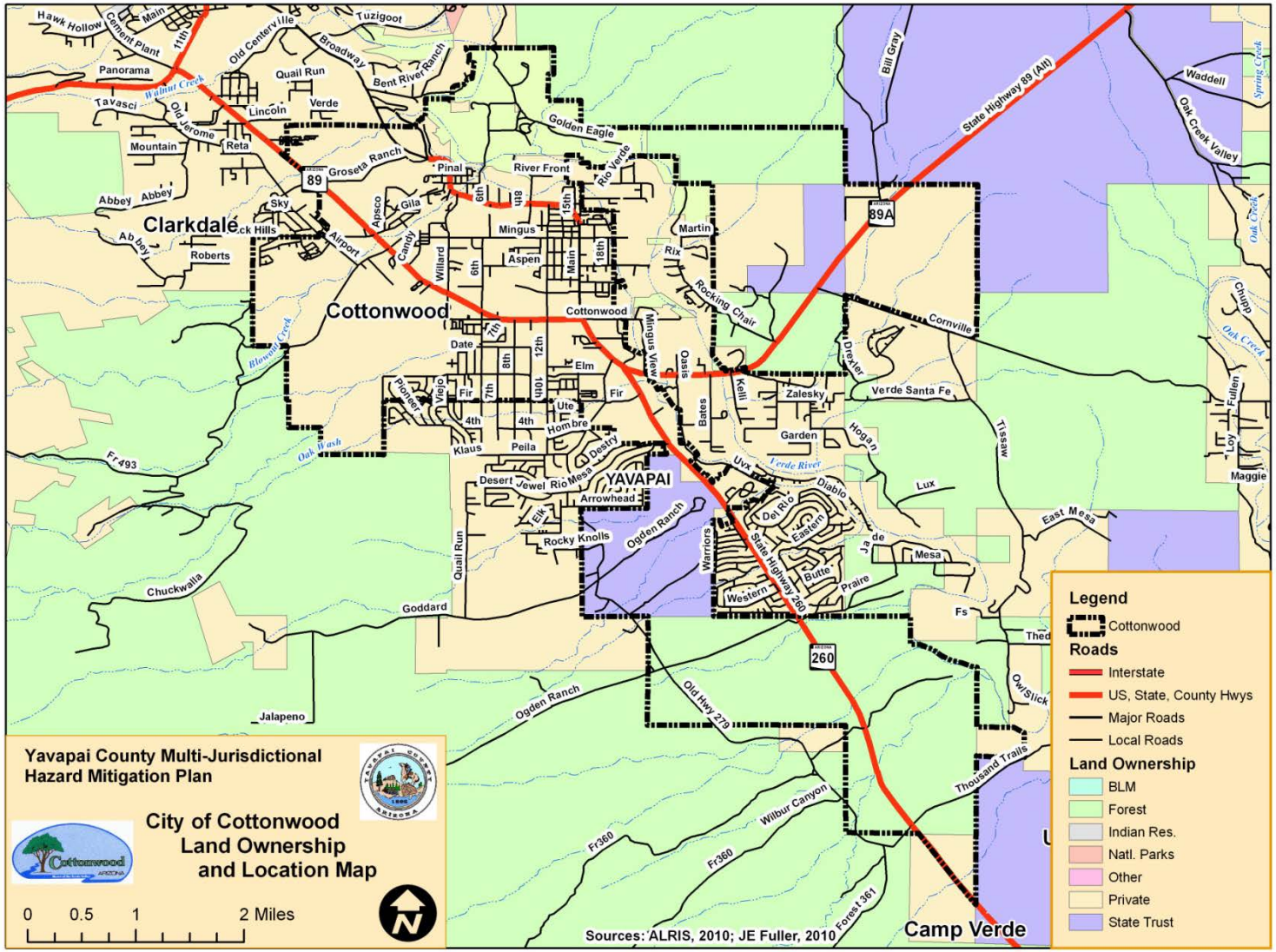
[7] Arizona Department of Commerce, 2009, *Community Profile for Cottonwood, Arizona*

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



Map 2-7: Cottonwood Land Ownership and Location

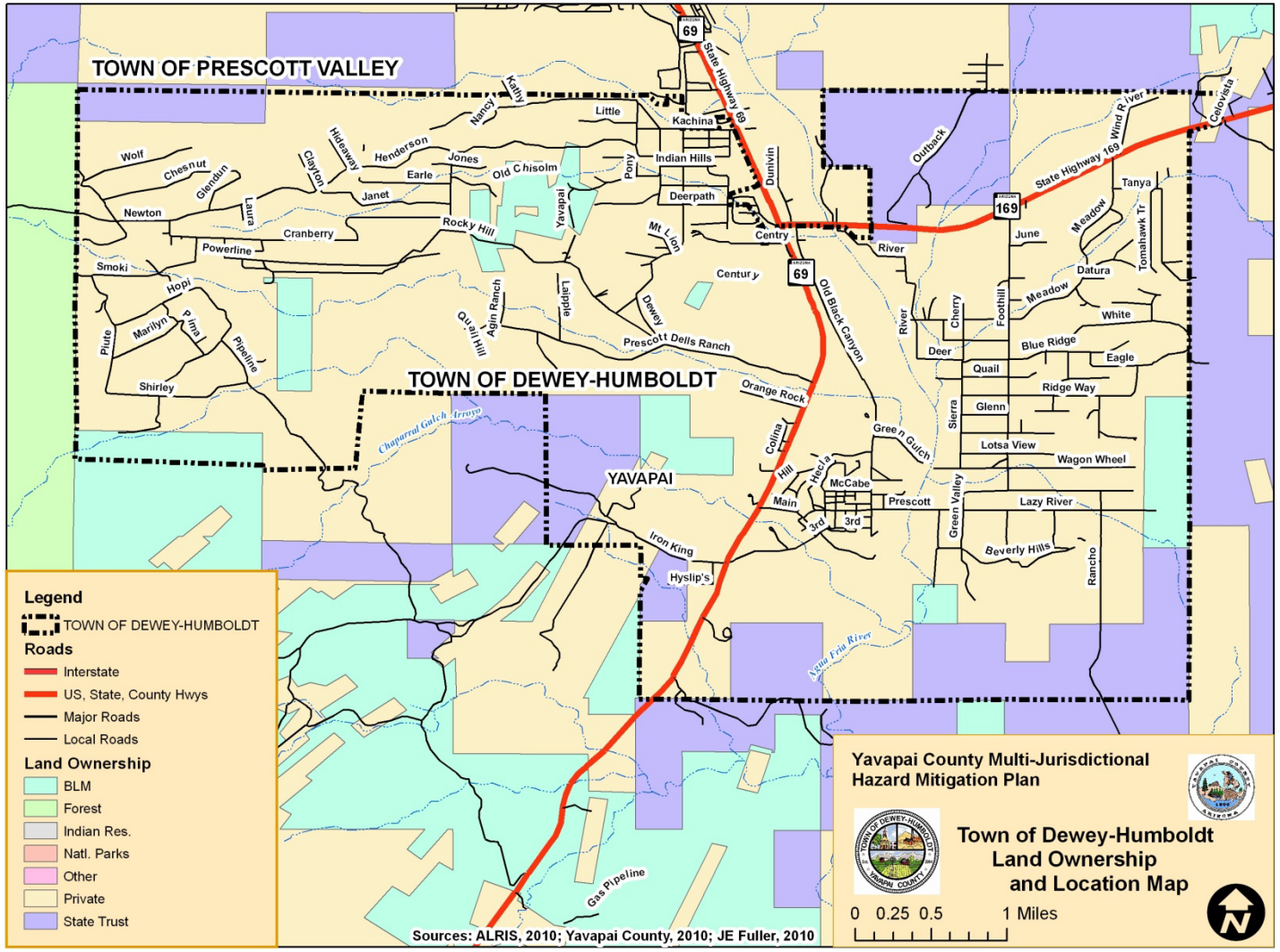
2.6 Dewey-Humboldt

Dewey-Humboldt is adjacent to and south of the Town of Prescott Valley, located in central Yavapai County, and at an elevation of 4,556 feet. The Town 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.

Dewey-Humboldt's economic base is small and dependant on a 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.

The Dewey-Humboldt Community has a long history. 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 Humboldt Smelter site and the Iron King Mine site are classified as Environmental Protection Agency's Superfund sites. The community diligently works on the clean-up process.



Map 2-8: Dewey-Humboldt Land Ownership and Location

2.7 Jerome

Located in the mid-northeastern portion of Yavapai County and situated on Cleopatra Hill at an elevation of 5,435 feet sites Jerome. The Town is 110 miles north of Phoenix and 224 miles northwest of Tucson and State Route 89A passes through Jerome and serves as the major roadway servicing the community.

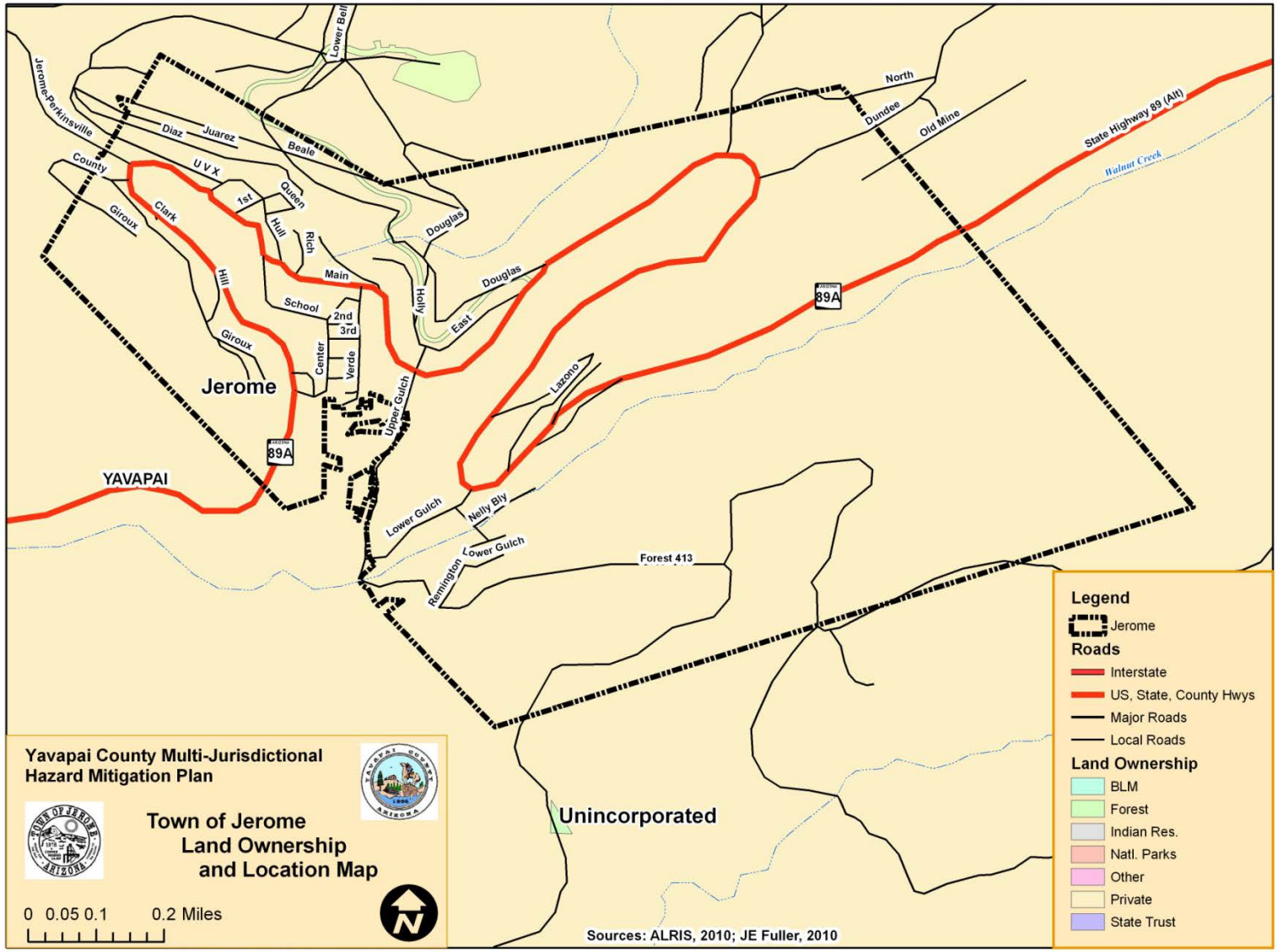
Founded in 1876, Jerome started as a mining town and became Arizona's largest copper mine. According to the Arizona Department of Commerce[9], Jerome incorporated in 1899. Building collapse and landslides were common. During the 1930s, dynamite blasts provided the catalyst for a landslide causing the 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, making it well known for today.

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 Grand Hotel, Grapes, Spirit Room, Conner Hotel, Paul & Jerry's, The English Kitchen, Western Heritage Furniture, Mile High Grill & Inn, and the Jerome Palace. The civilian labor force in 2014 was 292 with an unemployment rate of 1.4%.

The Town of Jerome once had a population of 15,000. However, the drop of copper prices caused the Phelps Dodge Mine to close 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[10].

[9] Arizona Department of Commerce, 2015, *Community Profile for Jerome*, *Arizona.*

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



Map 2-9: Jerome Land Ownership and Location

2.8 Prescott

Founded in 1864, Prescott became the first Territorial Capital of Arizona[1]. The community was named for William Hickling Prescott, a historian and now known as one of the Quad-Cities including Prescott Valley, Chino Valley, and Dewey-Humbolt. Prescott incorporated as a town in 1883.

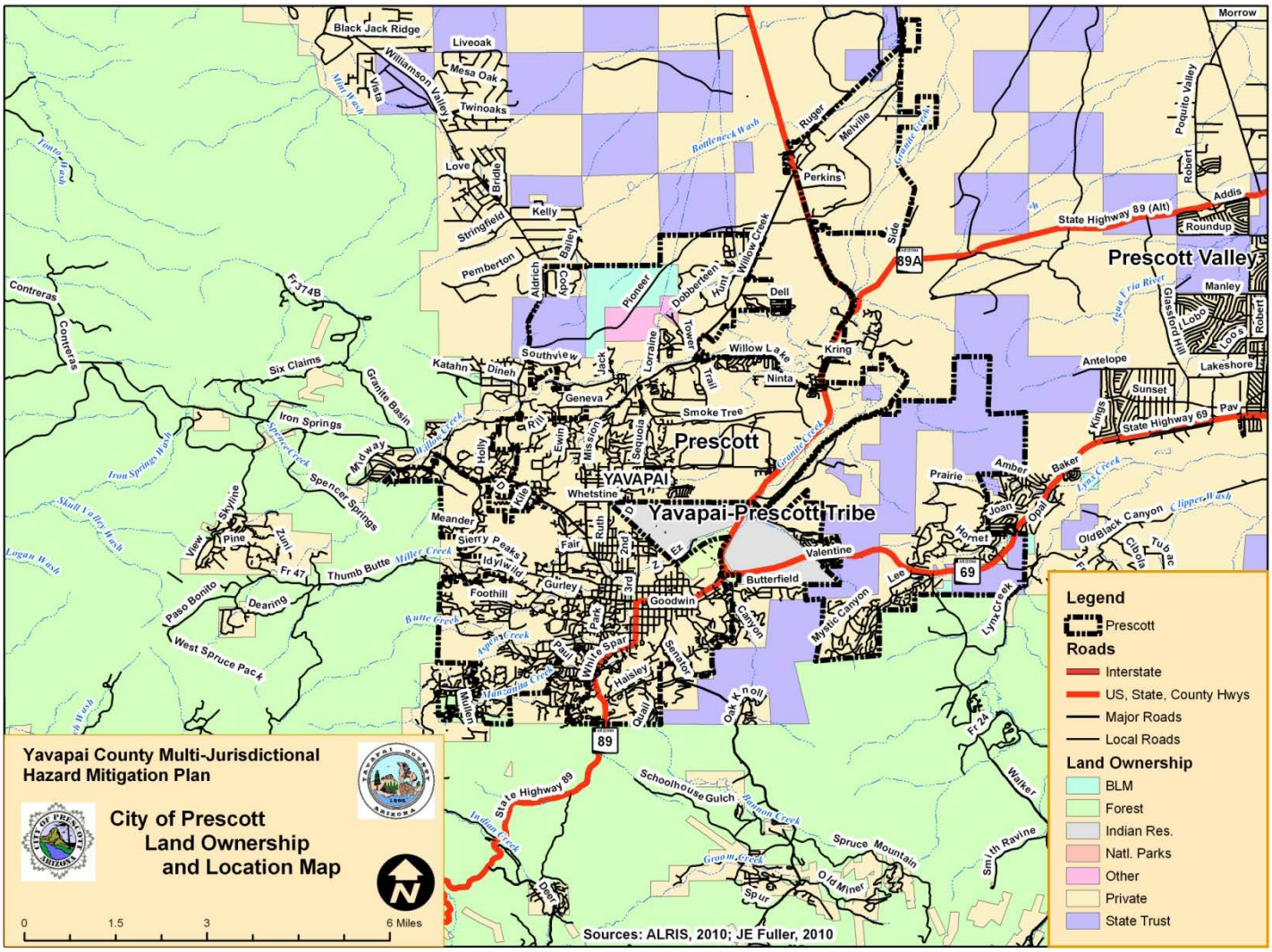
Located in central Yavapai County and situated at an elevation of 5,400 feet sits Prescott. The City is approximately 100 miles north-northwest of Phoenix and State Routes 69 and 89 pass through Prescott and serve as two major roadways servicing the community.

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 2015 was 17,269 with an unemployment rate of 6.02%.

The City of Prescott has a long history as an incorporated City, dating as far back as 1883 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 functions. Much of downtown Prescott has been designated as historic preservation districts. 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 also been established, adding to the City's economic growth.

New building permits declined from an estimated 1,145 in 2000 to 390 in 2008. New building permits and property sales have since rebounded to nearly the 2000 era rates.



Map 2-10: Prescott Land Ownership and Location

2.9 Prescott Valley

Prescott Valley, known for its beautiful rolling hills and lush grasslands, is one of the Tri-Cities including Prescott and Chino Valley and is. Prescott Valley was founded in 1966 on the outskirts of the City of Prescott. Prescott Valley incorporated in 1978.

Prescott Valley is located in the central part of Yavapai County, and situated at an elevation of 5,100 feet. The Town is 87 miles north-northwest of Phoenix, 186 miles northwest of Tucson, and State Routes 69 and 89A pass through Prescott Valley and serve as two major roadways servicing the community.

The Town of Prescott Valley is located within the Arizona Mountain Forest terrestrial eco-region. However, the Colorado Plateau Shrublands describes a much better representation of Prescott Valley with its grasslands.

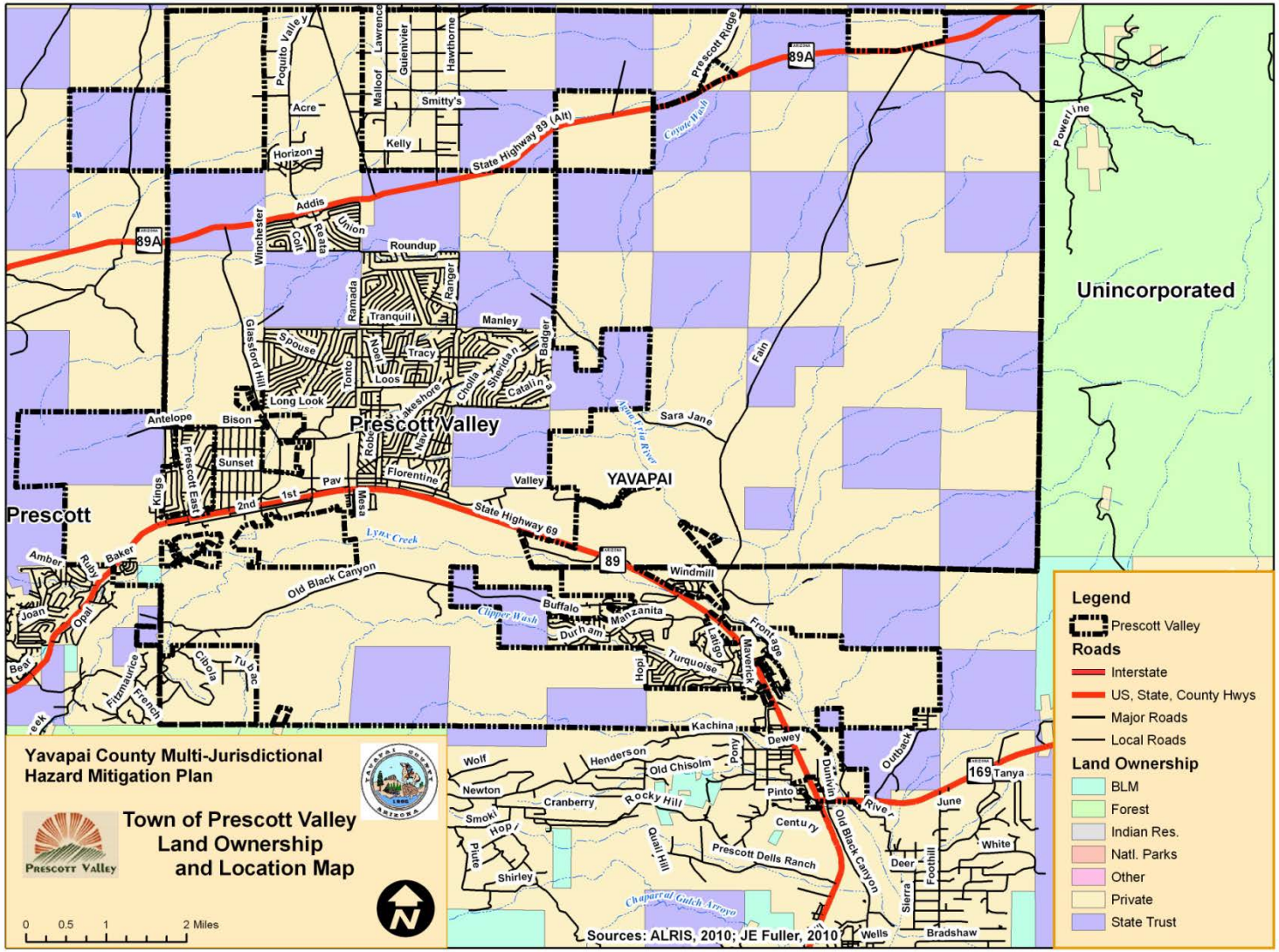
Growth defines Prescott Valley's economy. Its industry, manufacturing, retail, and services businesses are all growing. Major public employers include the AZ Department of Transportation, Town of Prescott Valley, and Humboldt School District. Major private employers include AAE, Arizona Public Service, 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.[11] 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 only incorporated in 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 45,500 in 2015.

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.

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



Map 2-11: Prescott Valley Land Ownership and Location

2.10 Sedona

Sedona is located at the base of the red sandstone cliffs with numerous red buttes and monoliths around the City. The beautiful Oak Creek Canyon that runs southwest bisects the City. Sedona was founded in 1902 and later incorporated in 1988.

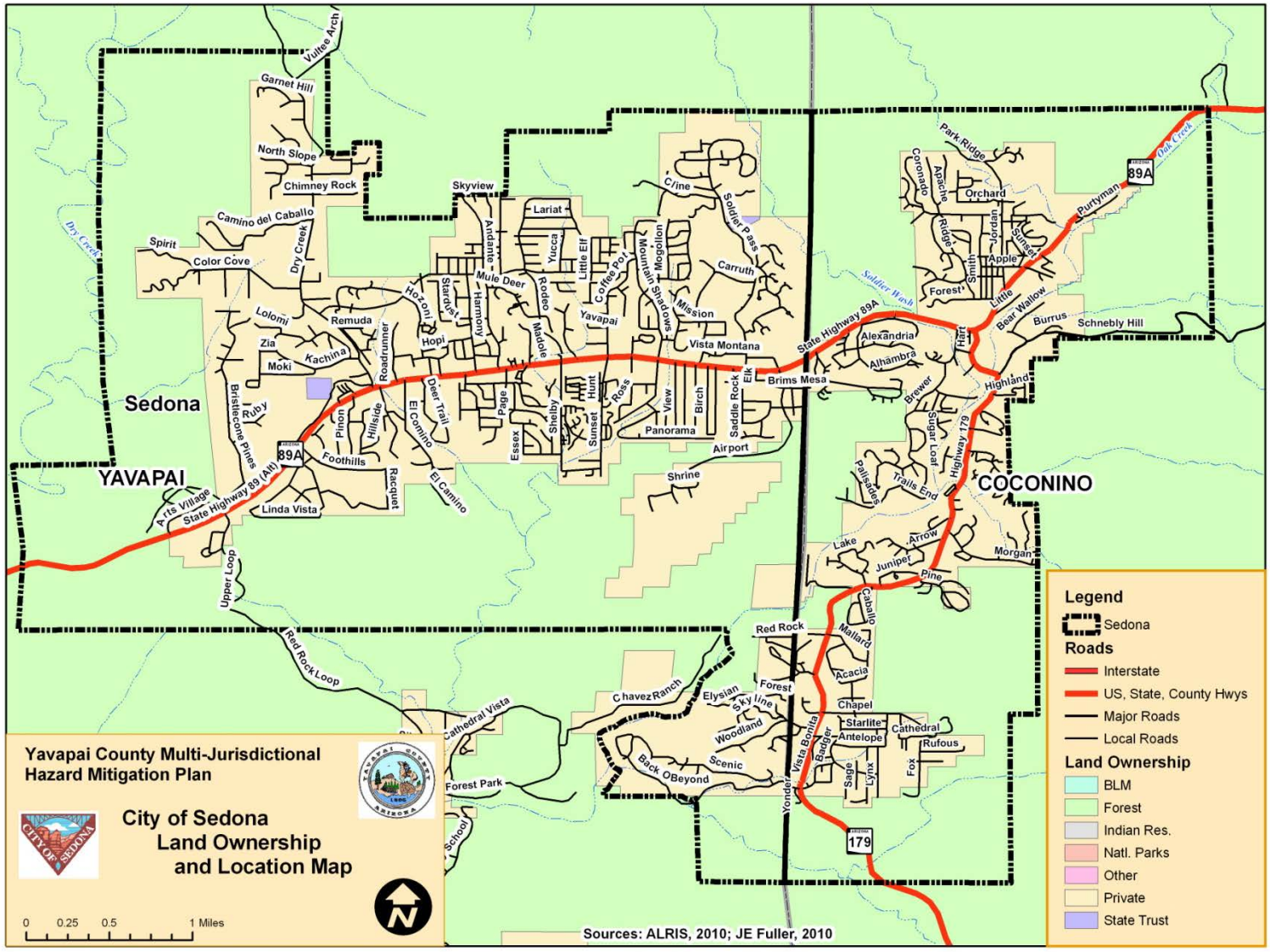
Sedona's location is in the northeastern portion of Yavapai County, and situated at an elevation of 4,500 feet. The City is 119 miles north of Phoenix, 230 miles northwest of Tucson, and State Routes 89A and 179 pass through Sedona and serve as the major roadways servicing the community.

Sedona's economy is centered on 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, Marriott Courtyard, Basha's' Grocery Store, Safeway Grocery Store, and Whole Foods Store. According to the U.S. Department of Labor, Bureau of Labor Statistics, the City of Sedona had a labor force of 5,528 and an unemployment rate of 3.5% in 2015.

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.[12] 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 numbers 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, due to the recession; however, these permit numbers rebounded to 491 by 2015. Taxable sales within the City of Sedona were $474.2 million during calendar year 2015.

[12] Partially taken from the following web link: http://www.azjerome.com/



Map 2-12: Sedona Land Ownership and Location

2.11 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[13], 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. The Reservation boundaries are within the central portion of Yavapai County, and situated north of and adjacent to the City of Prescott. The Reservation contains 1,395 trust acres and approximately 29 acres of permanent easement. 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.

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 bisecting 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 includes coyote, brush mouse, roadrunner, pronghorn, Red-tailed hawk, Gambel's quail, common raven, rock squirrel, and mule deer.

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 known now 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 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

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

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, an Act of Congress established the Yavapai-Prescott Indian Reservation 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 for the surrounding labor force available from Prescott, Prescott Valley, and surrounding communities.

Table 2-2: On-Reservation Development & Business Ventures

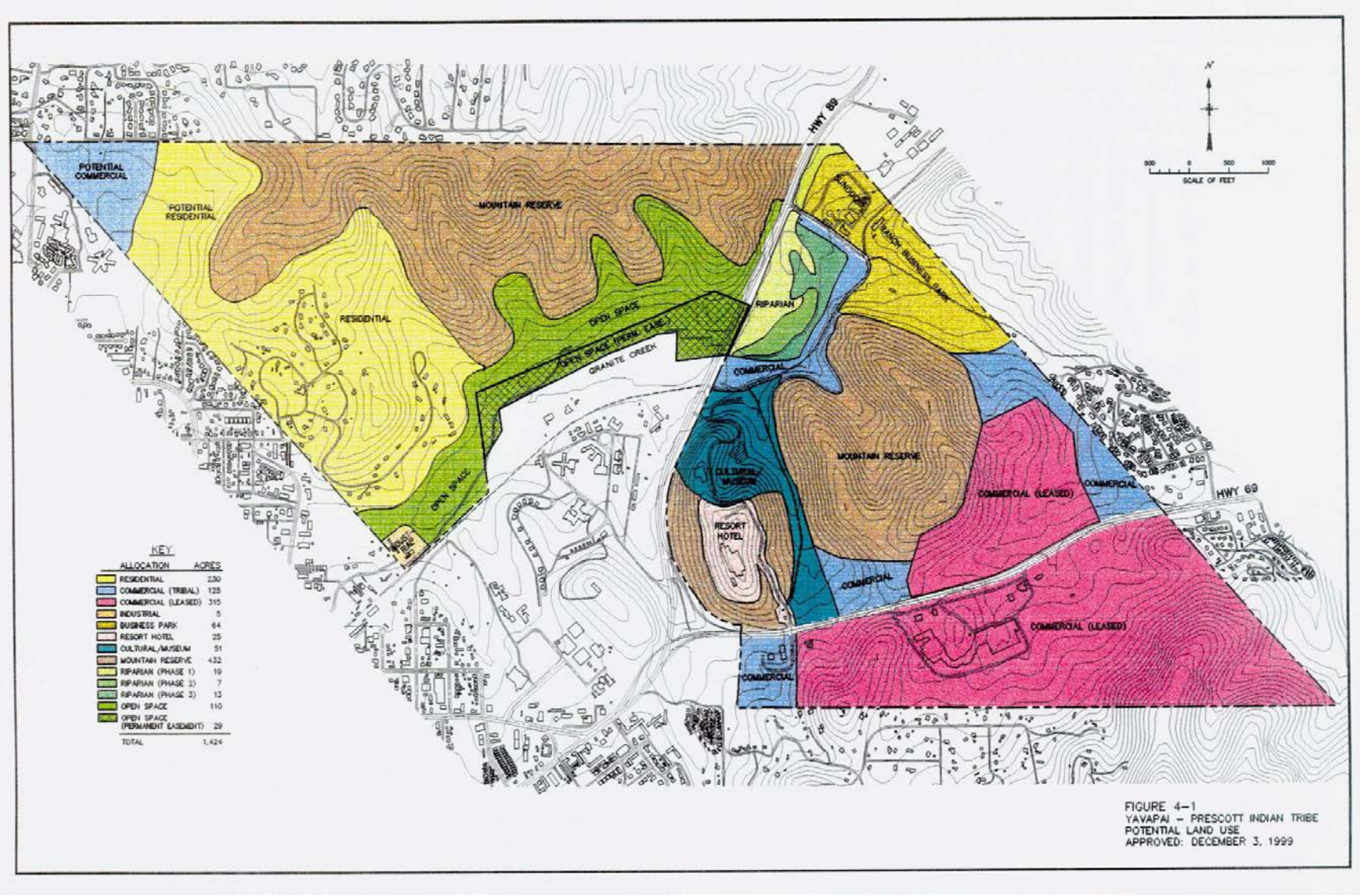
Business Venture	Number of Employees
Frontier Village (44 Tenants)	820
Sundog Business Park (14 Tenants)	56
Prescott Resort	130
Tribal Gaming Agency (includes Bucky's & Yavapai Casinos)	275
Government Operations	
Tribal Government (includes Tribal Administration & Regulatory)	305
TOTAL	**1,586**

Note: Figures from Yavapai-Prescott Indian Tribe as of October 12, 2016.

The Yavapai-Prescott Indian Tribe Land Use Master Plan will guide future development of Reservation lands. The Master Plan identifies and maps provisions for potential future development of residential, commercial, and light industrial land uses. 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 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.



Map 2-13: Yavapai-Prescott Indian Tribe Land Use Master Plan

SECTION 3: PLANNING PROCESS

3.1 Section Changes

- Detailed information on planning meetings and activities was omitted. This is now discussed in narrative form and supporting documentation is in the Appendix.

3.2 Planning Team and Activities

Primary Planning Points of Contact:

Yavapai County
Denny Foulk
Emergency Manager
Office of Emergency Management

Yavapai Prescott Indian Tribe
Amber Tyson
Environmental Protection Specialist
Tribal Emergency Manager

Camp Verde
Troy Odell
Deputy Director
Public Works Department

Chino Valley
Michael Lopez
Town Engineer/Public Works Director
Public Works Department

Clarkdale
Kathy Bainbridge
Finance Director

Cottonwood
Mike Kuykendall
Fire Chief

Dewey-Humboldt
Yvonne Kimball
Town Manager

Jerome
Rusty Blair
-and-
Candace Gallagher
Town Manager

Prescott
Dennis Light
Fire Chief

Prescott Valley
Boyd Robertson
Deputy Public Works Director
Public Works Department

Sedona
David Peck
Associate Engineer
Public Works Department

At the beginning of the update planning process, Yavapai County identified members for the Planning Team by inviting County departments and the respective communities and Indian Tribes to participate in the development of this Plan. The list below shows Planning Team members with returning members in **bold** print.

Table 3-1: Planning Team Members

Name **Agency/Jurisdiction**	**Department/Position**
Ron Sauntman Yavapai County	YC-OEM, Emergency Management Planner
Hugh Valley Yavapai County	YC-OEM, Deputy County Emergency Manager
Denny Foulk Yavapai County	YC-OEM, County Emergency Manager
John Sterling Yavapai Prescott Indian Tribe	Environmental Safety
Amber Tyson Yavapai Prescott Indian Tribe	Environmental Safety, Director
Chris Steele Yavapai County	Public Works, Civil Engineer

Table 3-1: Planning Team Members	
Name **Agency/Jurisdiction**	**Department/Position**
Paul Jungen Yavapai County	Flood Control, Engineer
Troy Odell Camp Verde	Administrator
Charlie German Camp Verde	Mayor
Kathy Bainbridge Clarkdale	Town Clerk/Finance Director
Morgan Scott Cottonwood	Development Services Manager
Mike Kuykendall Cottonwood	Fire Dept. Chief
Yvonne Kimball Dewey-Humboldt	Administrator
Stephanie Miller Prescott	Public Works, Engineer
Bobbie King Prescott	Public Works, Street Supervisor
Mic Fenech Prescott	Facilities Manager
Willie Black Prescott	Solid Waste Superintendent
Tim Legler Prescott	Recreational Services Superintendent
Michael Carr Prescott	Fleet Manager
Scott Stebbins Prescott Valley	Police Dept. Lt.
Boyd Robertson Prescott Valley	Public Works, Engineer
David Peck Sedona	Assistant Engineer
Michael Righi Sedona	Assistant Engineer
Bob Betts Prescott Area Wildland Urban Interface Commission	Chairman

The Planning Team met for the first time on September 15, 2016 to begin the planning update process. Two more meetings were convened on about a monthly basis to step through the plan review and update process. Planning Team members used copies of the 2011 Plan for their jurisdiction for review and reference. Following the first Planning Team meeting, invitations were then extended to several entities to provide an opportunity for participation in the planning process. The following is a sampling of those invited: Dam Safety, AZ Geological Survey, AZ State Climatologist, CERT Team, all area Fire Depts/Districts, all area Public Safety Depts., Community Development, Public Works, County Regional Hospital, Chamber of Commerce, Schools Districts, and various community associations and groups.

As a part of the plan update process each planning team member representing a local or tribal community utilized local resources and coordinated efforts with others to ensure accurate material for this Plan. This activity could range from technical assistance to having a local planning team established. The others involved in the process are captured below so that the information may be helpful in future planning efforts.

Table 3-2: Local Planning Resources

Name Title	Jurisdiction Agency/Dept/Division	Role/Contribution
Nancy Gardner Town Marshall	Camp Verde	Assisted in Revisions
Russ Martin Town Manager	Camp Verde	Reviewed & Revised Plan
Robert Foreman Chief Building Official	Camp Verde	Assisted in Revisions
Paul Grasso Building Inspector	Clarkdale	Building and property Codes/ Ordinances. FEMA flood maps.
Beth Escobar Senior Planner	Clarkdale	Zoning, grading and planning information.
Joe Moore Deputy Chief/Fire Marshall	Clarkdale	Wildfire information
Robert Winiecke City Engineer	Cottonwood Public Works	Flood Hazard identification
Dan Cherry Director	Yavapai County Flood Control District	Taxing jurisdiction provides a source of funds for Flood Control Projects.
Ed Hanks	Dewey-Humboldt Public Works Department	Public Works Director
Rusty Blair Fire Chief	Jerome Fire Department	Town Fire abatement / Facts submittal
Allen Muma Police Chief	Jerome Police Department	Traffic Control / Facts submittal
Candace Gallagher Town Manager	Jerome Town Hall	Research / Facts submittal
Kyle Dabney Zoning Administrator	Jerome Town Hall	Research / Facts submittal
Jerome Historical Society	Historical Archives	Research / Facts submittal
George Worley Planning Manager	Prescott/ Development Services/Planning Dept	Provided updated demographic and land use elements associates with plan development
Cat Moody GIS Coordinator	Prescott/Development Services/Geographical Information Systems	Provided updated geographical boundary information and maps
Bobbie King Street Maintenance Superintendent	Prescott/Public Works/Streets Dept.	Provided summary of resources available for response
Ralph Lucas Battalion Chief	Prescott/Fire Dept/Suppression Division	Provided summary of resources available for response
Don Devendorf Division Chief	Prescott/Fire Department/Community Risk Reduction Division,	Provided summary of efforts designed towards mitigation of wildfire risk/defensible space.

Table 3-2: Local Planning Resources		
Name Title	**Jurisdiction Agency/Dept/Division**	**Role/Contribution**
Boyd Robertson Deputy Director	Prescott Valley Public Works Department	Design, CAD, NEPA, Right of Way, traffic control, and Construction
Larry Prentice GIS Div Manager	Prescott Valley Geographic Information Systems	Mapping, modeling, demographics
Jon Davis Deputy Fire Marshal	Sedona Fire District	Wildfire mitigation strategies
Jayson Coil Battalion Chief	Sedona Fire District	Wildfire mitigation strategies
Jeff Piechura Assistant Chief	Sedona Fire District	Wildfire mitigation strategies

3.3 Public Outreach/Stakeholder Involvement

For the purpose of this Plan, the jurisdictions and Indian Tribe defines the 'Public' as the area residents and stakeholders.

To educate the public and stakeholders on the risks facing the communities and engage them in the planning process, the Planning Team used a whole *community approach*. This type of approach to public and stakeholder outreach can produce benefits such as a better understanding of risks and needs, increased resources to take action, and of course, more resilient communities.

The County posted draft public notice and copy of the draft plan to the County website, as well as a press release announcing the availability of the draft for public review and comment. The participating jurisdictions' websites also posted updated website notices directing readers to the Yavapai County website. Copies of the public notices, web pages, and press releases are provided in this Plan's Appendices. Public outreach efforts did not produce any questions, concerns, or responses.

During the previous plan cycle, the participating jurisdictions/tribe took the following action to keep the public and stakeholders aware of and involved in their respective risks and mitigation efforts:

Table 3-3: Past Public Outreach/Involvement	
Jurisdiction	**Activities**
Yavapai County	• Conducted public involvement efforts related to drainage and floodplain delineation studies to keep public aware of flood hazards and mitigation efforts. • Maintained a hazard mitigation webpage presence with a copy of the Plan posted for public review and comment. • Presented all major mitigation projects to the Board of Supervisors for approval and funding • Developed Firewise and Defensible Space community education program: Expos, community meetings, education programs for civic groups, and town hall meetings. • Worked with all stakeholders from Federal, State, and Local Agencies to develop a comprehensive wildland fuel mitigation program.

Table 3-3: Past Public Outreach/Involvement	
Jurisdiction	**Activities**
Camp Verde	• Provided a public notice in local papers of progress, including completed mitigation actions/projects, at least once per year. • Provided an update on the mitigation plan status to the Town Council during a public hearing at least annually, as well as, provide public awareness of the potential hazards in the community. • Maintained and updated the Town's Hazard Mitigation webpage. • Educated 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).
Chino Valley	• Maintained a website linking the public to the county website where the Plan will be posted. • Provided hazard mitigation brochures provided by ADEM at Town Hall and other public venues. • Presented and obtain approval for all hazard mitigation related projects from the Town Council
Clarkdale	• The Town maintained a website linking to the county website where the Plan was posted. • Educated 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, July 4th, Halloween. • Clarkdale, Clarkdale Police Dept and Clarkdale Fire District co-hosted a Community Meeting on January 26, 2016 with the Yavapai Co Emergency Management Dept and the Yavapai Co Sheriff's Office on Community Emergency Preparedness and Flood Preparedness. The video includes the Power Point presentation as well as a recording of the information presented at the meeting. • Informed and encouraged residents to join the County Code Red emergency notification system through website , newsletter articles and social media information blasts • Conducted public involvement efforts related to drainage and floodplain to keep the public aware of flood hazards and mitigation efforts. • Provided brochures provided by DEMA at Town Hall and other public venues
Cottonwood	• The City maintained 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 Newspapers and public notices were posted with the development of mitigation activities.
Dewey-Humboldt	• Provided the public the opportunity to view and discuss projects contained within the hazard mitigation plan in the previous 5 years by participating in the budget meetings every year.
Jerome	• Continued the Drainage Master Plan work on Golf Road through public input. • Distributed flyers, pamphlets, newsletters, posting of mitigation issues throughout the town as wells as during the Annual Firewise Community Day.
Prescott	• Participated in a vast array of local stakeholder meetings in order to garner input to various community needs associated with city issues at Public Works Forums, Fire Dept Open House Events, and as part of public comment periods at regular voting meetings of the City Council • Participated in the annual Home Show sponsored by the Yavapai County Contractors Association distributing fire and public safety awareness materials. • Regularly attended and serve as participant at the Prescott Area Wildland Urban Interface Commission (PAWUIC) and interact with community leaders in each of the 22 Fire Wise communities within Prescott. • Participated in Earth Day activities on the Courthouse Square in order to interact with the visiting public and showcase the inter-agency cooperation between the City of Prescott, US Forest Service, Dept of Forestry and Fire Management, PAWUIC, and our other local fire districts focusing on Wildfire risk and prevention.

Table 3-3: Past Public Outreach/Involvement	
Jurisdiction	**Activities**
Prescott Valley	• Conducted public involvement efforts related to floodplain delineation studies, as well as all hazards to keep public aware of the various hazards and mitigation efforts. • Maintained a hazard mitigation webpage with the Plan posted for public review and comment. • Presented all major mitigation related projects to the Town Council for approval and funding. • The Town continued to provide the same public involvement opportunities as is in the past. • Maintained website link to the county's website where the Plan will be posted.
Sedona	• Had 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 conducted outreach on defensible space for wildfire. Every year in May residents of the SFD can bring in yard brush and tree cuttings in an effort to mitigate the extent of residential structural damage from a wildfire. • The SFD ran media releases 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". • Firefighters displayed equipment and provided information at the "National Night Out" event. This event offers public safety displays and information. • Participated in the CERT Training through the Sedona Fire District. • The SFD tests the emergency siren system 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. • Provided 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 storm water pollution prevention. • Held the Water Wise Day event 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 conducted annual outreaches at the following events/venues: Moonlight Madness, Halloween, Sedona Marathon, Senior Center, and local churches. • The City of Sedona has an email address of FloodStatus@SedonaAZ.gov for real estate agents and members of the community to request Flood Status Reports on any parcel within the City.
Yavapai-Prescott Indian Tribe	The Tribe conducted 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)

3.4 Program Integration

During the planning process, the Planning Team reviewed various plans, studies, reports, and technical information for incorporation or reference purposes in this Plan. The table below lists the primary documents and technical resources reviewed and how they were useful to the planning process.

Table 3-4: Review/Incorporation of Existing Plans and Resources	
Resource	**Description of Reference and Its Use**
2012 IFC & IBC	Resource for Town of Camp Verde
AZ Department of Commerce	Reference for demographic and economic data for the county. Used for community descriptions
AZ Division of Emergency Management	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	Resource for data on drought conditions and statewide drought management (AzGDTF), and dam safety data. Used in risk assessment.
AZ Geological Survey	Resource for earthquake, fissure, landslide/mudslide, subsidence, and other geological hazards. Used in the risk assessment.
AZ State Land Department	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	Source of wildfire hazard profile data and urban interface at risk communities. Used in the risk assessment.
Cottonwood General Plan	Source for history, demographic and development trend data for the city.
Clarkdale General Plan	Source for history, demographic and development trend data for the town.
Clarkdale General Plan	Source for history, demographic and development trend data for the city.
Northern Arizona University Website	Source for historical earthquake information for Clarkdale. Used in Risk Assessment
Clarkdale Town Code	2012 International Building Codes for building, residential, plumbing, mechanical, electric, fuel gas, fire, and property maintenance. Flood Damage Prevention Ordinance. Grading Ordinance.
FEMA – 2015 Flood Insurance Study	Used to establish vulnerable areas needing mitigation work for county flood grant projects and infrastructure enhancements.
Town Area Master Drainage Study	Used to establish vulnerable areas needing mitigation work for county flood grant projects and infrastructure enhancements.
Yavapai County Flood Control District	Resource for identification of flood hazard areas.
National Weather Service	Historical data to determine winter storm risk
Cottonwood Master Drainage Study	Resource to determine hazard levels posed by low water crossings on city streets
Cottonwood General Plan	Source for history, demographic and development trend data for the city.
Yavapai County Emergency Operations Plan	Source for history, demographic and development trend data for the county, as well as hazard demographics.
Yavapai County Community Wildfire Protection Plan	Source of data and strategy for wildland fire mitigation. It is a collaborative document used in planning and technical information.
Yavapai County Geographic Information Systems Department	Source for countywide GIS coverage. Used in the risk assessment.
Yavapai County Recovery Plan	Source for history, demographic and development trend data for the county, as well as hazard demographics.
Yavapai County Gap Analysis	Source for history, demographic and development trend data for the county, as well as hazard demographics.
Dewey-Humboldt General Plan	Source for history, demographic and development trend data for the city.
Dewey-Humboldt Transportation Study	Source for town wide road conditions and needs.

Table 3-4: Review/Incorporation of Existing Plans and Resources	
Resource	**Description of Reference and Its Use**
Jerome Master Drainage Plan – on file at Town Hall	Source for the history and development of Jerome's drainage plan – Identification of drainage projects and prioritization of improvements for excessive overflow and/or flood control
Prescott Valley Community Ingress/Egress Study	Evaluate communities and subdivisions for ingress and egress for the purpose of evacuation and emergency response. A traffic impact analysis is required for all new development
Prescott Valley Floodway Channelization Study	Data associated with the four major floodway channels intersecting Prescott Valley.
Prescott Valley Historical Data	Historical Data of hazardous events in Prescott Valley
Yavapai County Flood Control District Flood Data Sets	GIS Data Layers of district water courses, elevation, and capacity.
Sedona Community Plan	Source for history, demographic and development trend data for the city.
Yavapai-Prescott Indian Tribe's Land Use Master Plan	Source of land planning information on tribal lands.
Yavapai-Prescott Indian Tribe Water Management Plan	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	Information and data are shared between the Wildland Fire Management Plan and the wildfire hazard profile where it pertains to the Tribe.

SECTION 4: RISK ASSESSMENT

4.1 Section Changes

- Added Earthquake as a new hazard.

4.2 Hazard Identification

The Planning Team reviewed the list of hazards identified in the 2011 Plan with the goal of refining the list to reflect the hazards that pose the greatest risk to the jurisdictions represented by this Plan.

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

- Experiential knowledge 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 the Planning Team to develop effective mitigation for the hazard.
- Compatibility with the State Hazard Mitigation Plan hazards.
- Duplication of effects attributed to each hazard.

As part of the screening, the Planning Team reviewed and updated the historic hazard information. The Table below summarized information regarding declared disaster events.

Table 4-1: Declared Hazard Events That Included Yavapai Co., Feb. 1966 – Aug. 2010

Hazard Type	# 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 was spent in the subject county.
Source: DEMA - Recovery Section, October 2010

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 2011

The Planning Team has selected the following list of hazards for profiling and updating based on the above explanations and screening process:

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

4.3 Vulnerability Analysis Methodology

For this Plan, the Planning Team reviewed the vulnerability analysis and if necessary, updated to reflect the new hazard categories, the availability of new data, or differing loss estimation methodology.

Calculated Priority Risk Index (CPRI) Evaluation

The Planning Team used the CPRI to assess the perceived overall risk of each hazard identified in this Plan. The

CPRI value is obtained by assigning varying degrees of risk to four categories for each hazard, and then calculating an index value based on a weighting scheme.

Table 4-2: CPRI Categories & 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 2 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/illnesses result in permanent disability and at least 1 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 hrs	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	

Rather than the asset inventory and loss estimations that were used in the previous plan, this Plan takes a qualitative approach rather than data driven discussion.

Cultural and Sacred Sites

4.4 Hazard Risk Profiles

The following sections summarize the risk profiles for each of the Plan's identified hazards. For each hazard, the following elements address the overall risk profile to present:

- **Description**
- **History**
- **Probability and Magnitude**
- **Vulnerability**

4.4.1 Earthquake

Description

An earthquake occurs when the pressure of seismic stress is abruptly released. The seismic energy is dispersed in waves that move through the earth and cause the ground to shake violently. It is this shaking motion and the subsequent behavior of the earth's surface which is strongest in areas of soft soils, such as in river valleys or along the shorelines of bays and lakes that cause liquefaction, landslides, ruptures, or ground failure that destroy buildings and other infrastructure. Wave velocity is slower in soils than in the underlying rock of the earth's crust. Softer soils amplify ground shaking. The greater the wave velocity difference, the greater the amplification of ground surface shaking. Consequently, ground shaking in areas of soft soils underlain by stiffer soils or rock is generally stronger than in areas where there is little or no variation between the surface and lower layer. Ground failures include surface faulting, landslides, subsidence, and uplifting. Surface faulting is the differential movement of two sides of a fracture – in other words, the location where the ground breaks apart. The length, width, and displacement of the ground characterize surface faults. Subsidence is the sinking of soils. Uplifting is the elevation of soils. Unstable and unconsolidated soils are most vulnerable to ground failures and surface faulting. Liquefaction is the phenomenon that occurs when ground shaking 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. Lateral spreads develop upon gentle slopes and entail the sidelong movement of large masses of soil as an underlying layer liquefies. Loss of bearing strength results when the soil supporting the structures liquefies. This can cause structures to tip and topple. Liquefaction typically occurs in artificial fills and in areas of loose sandy soils that are saturated with water, such as low-lying coastal areas, lakeshores, and river valleys.

The magnetic data of the Upper and Middle Verde maps paleochannels that were filled with basalt and reveals a predominantly northeast to North-striking structural grain within Proterozoic basement rocks. The magnetic grain may serve as a proxy for fracturing and impermeable rocks.

History

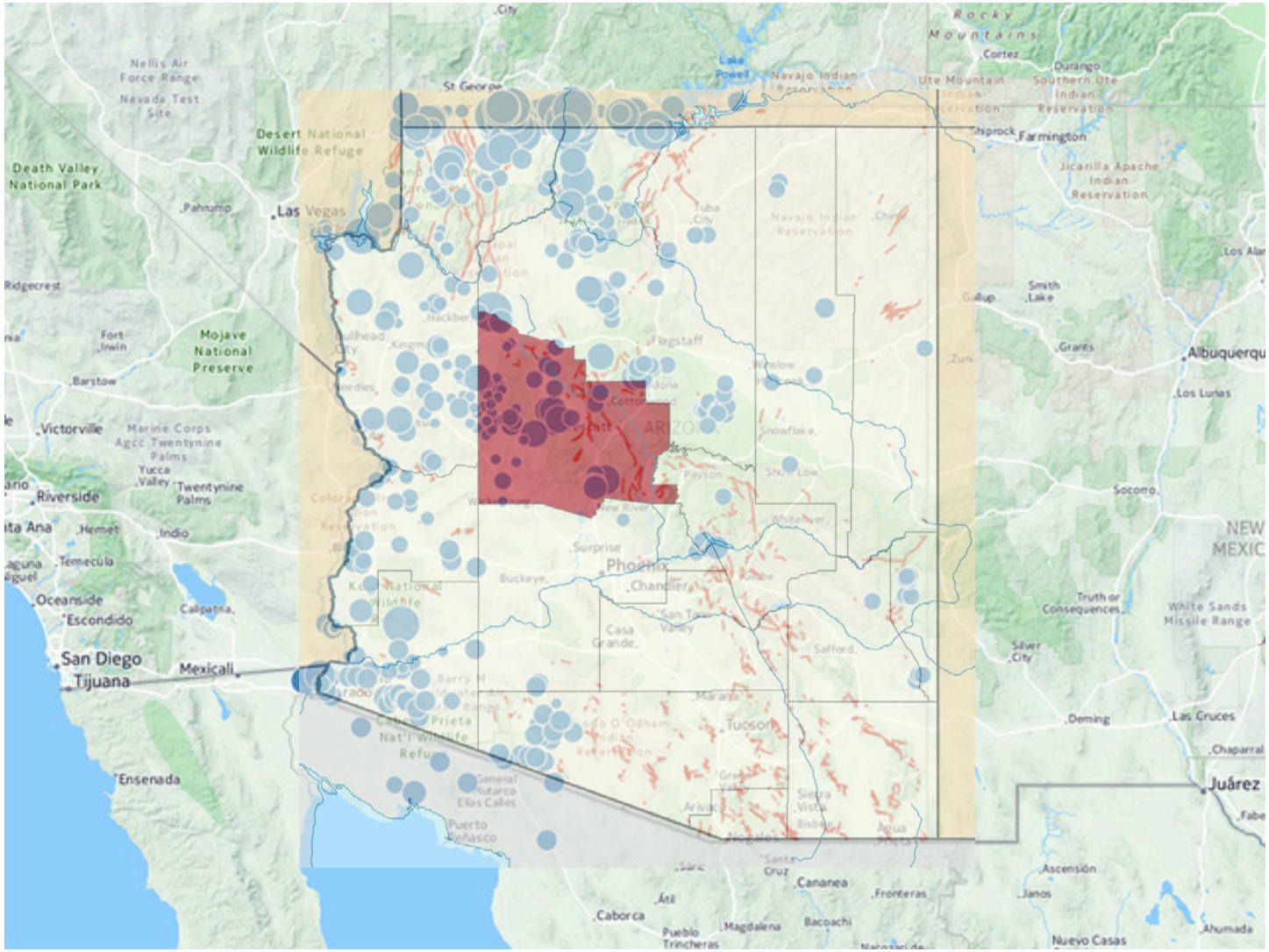
Yavapai County is subject to ground shaking from earthquakes originating on neotectonic faults within the County, as well as from other nearby earthquake sources, such as the Hurricane or Toroweap faults and the Northern Arizona Seismic Belt (NASB). Historically, earthquakes originating in this belt have resulted in ground shaking to the Yavapai County region in 1906 (M 6.2), 1910 (M 6.0), and 1912 (M 6.2). The M_L 5.1 Chino Valley earthquake of February 1976 resulted in minor damage to several Yavapai County communities. Other historical accounts describe earthquake shaking in the Yavapai County area (DuBois and others, 1982). Portions of Yavapai County are underlain by a northwest trending system of faults, including the Aubrey, Big Chino, Verde and Horseshoe faults. These faults bisect the County from the northwest to the southeast. Paleoseismological studies by Euge and others (1992) indicate movement within the past 100,000 years and the potential to produce a magnitude 7.25 earthquake. A large ground-rupturing earthquake on either of these faults is considered a worst-case scenario for the Yavapai County community. The largest event of spring 2011, was the ML 3.7 north of Clarkdale, AZ, which was widely felt in Cottonwood, Arizona, and as far east as Winslow. The Arizona Earthquake Information Center (AEIC) received felt reports for this event from several Cottonwood residents, all of whom experienced the shaking from indoors. Based on community feedback, the US Geological Survey assigned this event a Modified Mercalli Intensity of IV -- weak shaking and no apparent damage. This event followed a ML3.6 earthquake that occurred January 23, 2011, in virtually the same location, near the mouth of Sycamore Canyon. The felt area for this second event was much smaller, and no reports were filed at the AEIC. These two Sycamore Canyon events are considerably larger than any recent or historic activity at this location. Within a 50-mile radius, the other significant activity included two magnitude 2 events near Perkinsville to the northwest and a few small events near Clarkdale, possibly mining related. For the largest fault in the area, the Big Chino, maximum credible earthquakes are estimated between 7.0-7.25 with long recurrence intervals. The largest historic event on record in this zone is the 4.9 earthquake that occurred in 1976, possibly associated with the Prescott Valley Grabens near Williamson, Arizona; in the late 1990's, several lower magnitude events occurred in the area. Overall, microseismicity rates in this area are an order of magnitude lower than in the Intermountain Seismic Belt to the north. Despite this, continued seismicity indicates that low-level deformation here, as well as within the NASB, is ongoing. More significant recent earthquakes have been recorded. A magnitude-4.7 earthquake hit Arizona December 2, 2014. There were no injuries or damage

because of the earthquake; however, the temblor's epicenter was 7 miles north of Sedona, Arizona, or 16 miles south-southwest of Flagstaff, the USGS reported. The earthquake could be felt in areas such as Flagstaff, Prescott, Sedona, Winslow and Tuba City, Arizona. On November 1, 2015, a magnitude 3.2 quake struck at 8:59 p.m. (10:59 p.m. ET), the second, a magnitude 4.1 tremor, happened at 11:29 p.m. The third, a magnitude 4.0 quake, took place at 11:49 p.m. Several cities in the area felt shaking. All three took place near Black Canyon City, Arizona, about 45 miles north of Phoenix sending shockwaves through several cities.

Yavapai County is geographically located in an area of numerous seismic zones, and the potential for damage exists to critical infrastructures and facilities as well as the possibility for loss of life.

Table 4-3: Earthquake Historical Events

Date	Magnitude	Location
11-1-2015	4.0	5km NE Black Canyon City
11-1-2015	3.2	10km NNE Black Canyon City
11-1-2015	4.1	8km NNE Black Canyon City
4-30-2015	2.33	5km NW Clarkdale
4-30-2015	2.33	5km NW Clarkdale
7-23-2013	2.20	18 km NNW Clarkdale
11-14-2012	2.10	6 km NE Clarkdale
6-24-2012	1.67	15 km NNE Clarkdale
10-4-2011	2.61	13 km NNE Clarkdale
6-29-2011	2.27	Clarkdale
6-13-2011	2.0	Sycamore Canyon Clarkdale
6-13-2011	1.92	Clarkdale
6-13-2011	2.29	Clarkdale
5-2-2011	2.26	Sycamore Canyon Clarkdale
4-26-2011	2.5	Sycamore Canyon Clarkdale
3-18-2011	3.7	Clarkdale



Map 4-1: Earthquake Hazard Area

Location

The Big Chino Fault and Verde Fault Zone have the largest amounts of vertical throw of the faults in the study area based on gravity, magnetic, and limited well data. These faults bound deep (1-2 km) basins in Big Chino and Verde Valleys. The geophysical data also reveal concealed faults in Williamson Valley that bound a previously undiscovered basin with approximately 1 km of Cenozoic fill inferred from inversion of gravity data. Little Chino and Lonesome Valleys, including the upper reach of the Agua Fria Basin are characterized by basin fill that has an irregular distribution with local North to Northwest striking pockets of thicker sediment, but nowhere exceeds 1 km of thickness. A 15 to 20 km long Northwest striking magnetic lineament that passes through Page Springs in Verde Valley can be used to project a mapped fault 5-10 km Northwest and Southeast of its mapped trace. The collocation of the lineament, mapped fault, and Page Springs suggests structural influence on the location of this large spring.

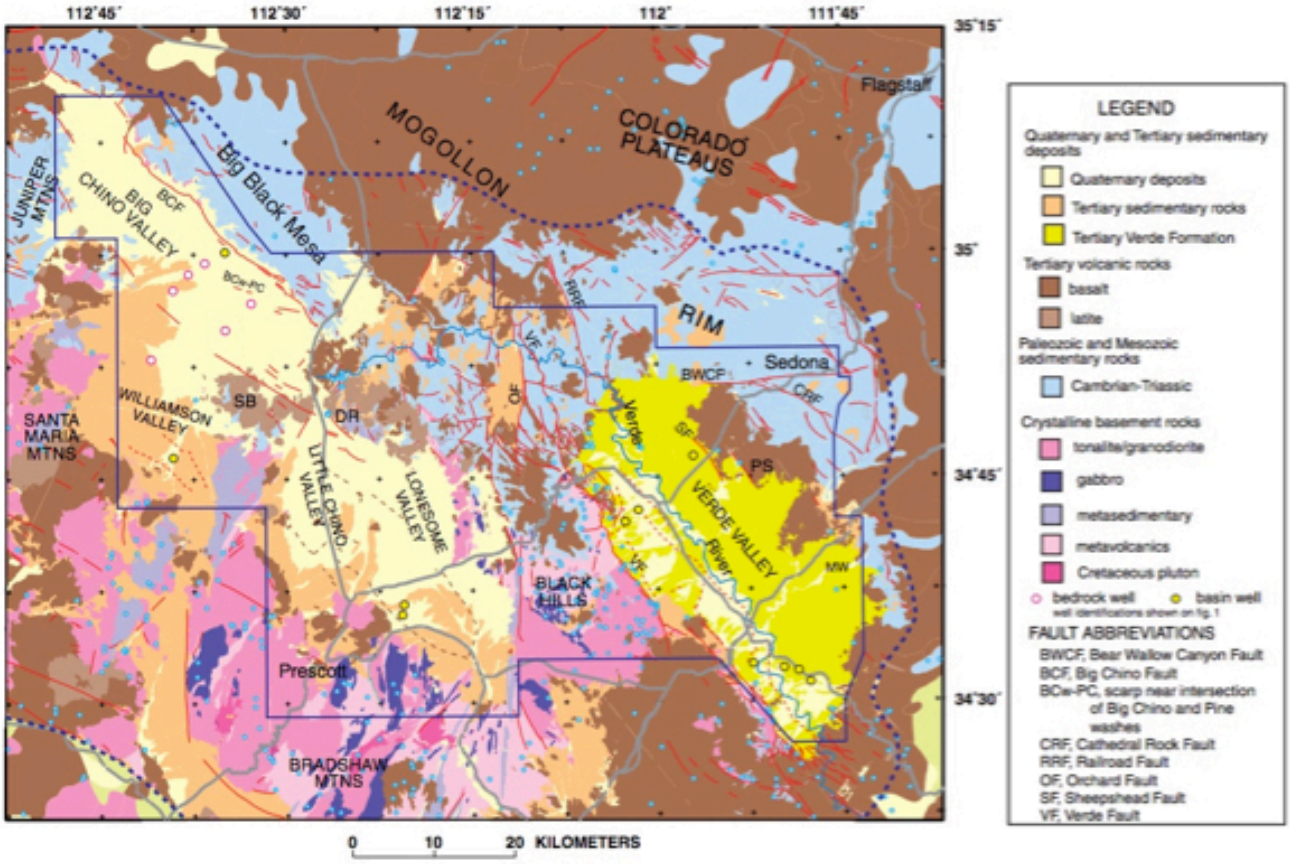


Fig 1-4: Yavapai County Seismic Fault Map

Abrupt, linear changes in magnetization and density are often the result of faulting or fracturing. Because of this, linear magnetic and gravity boundaries can be used to estimate the distribution of faults, large fracture systems, or both. The Big Chino Fault is steeply dipping and other prominent magnetic and density boundaries coincide, in part, with mapped faults, which locally project into areas that are covered by surficial deposits. \Because of this relation, the geophysical boundaries can be used to map extensions of the faults, such as the Verde Fault Zone Northwest of Interstate 17, where it is beneath young sedimentary deposits. Other gravity and magnetic lineaments do not coincide with mapped faults, but can be used to infer the locations of concealed faults, such as the basin-bounding faults beneath Williamson Valley and faults forming the eastern margin of the basins along the Verde Fault Zone. Northwest striking anomalies West and Northwest of exposed 6-4 Ma basalt in the Paulden area are most likely caused by faulting related relief on the upper surface of the buried basalt or by relief on the bottom

surface in fault-controlled paleochannels. Mapped faults in Little Chino Valley cut across many magnetic boundaries, suggesting that their displacements are small. We include the interpreted lineaments from an earlier study and expand the area of analysis to include the new aeromagnetic survey. Many of the lineaments are produced by physical property variations in the Proterozoic basement that parallel faults and folds mapped in outcrop. The structural grain may serve as a proxy for fracturing, an important source of permeability in these generally impermeable basement rocks. In some cases, the Precambrian structural grain may have influenced subsequent faulting. The Bear Wallow Canyon Fault, an east-west striking fault that bisects Sedona, offsets Permian sedimentary rocks. The maximum displacement is 52 m (170 ft.) with offset down to the south. A change in magnetic signature coincides with the fault, suggesting that Precambrian basement rocks are a controlling factor. The magnetic data can be used to extend the Bear Wallow Canyon Fault west of its mapped extent into the northern part of Verde Valley, where it curves to the southwest. This fault appears to disrupt the regional ground-water flow. The Cathedral Rock Fault, a northwest-striking fault that merges into the Bear Wallow Canyon Fault, coincides with the edge of a magnetic block where it offsets weakly magnetic sedimentary rocks as much as 244 m (800 ft.). South of the Bear Wallow Canyon Fault are pronounced northwest striking magnetic gradients. One of these gradients coincides with the trace of the Sheepshead Fault. The Sheepshead Fault served as a growth fault during deposition of the Hickey Formation and older sediment of the Verde Formation, but not for the beds at the ground surface. The aeromagnetic data can be used to project the concealed trace of this normal fault beneath the Verde Formation 5 km southward of its mapped location. Parallel to and northeast of the Sheepshead Fault is another magnetic lineament. Part of this lineament coincides with a normal fault mapped through Page Springs suggesting that structure plays a role in the location of this large spring. The magnetic data can be used to project this structure another 5-10 km northwest and southeast of its mapped trace. Prominent in the eastern part of Verde Valley are northeast-striking magnetic anomalies. Some of these anomalies have gentle to moderate gradients that indicate sources within the Proterozoic basement. One such anomaly is in the northern part of the Valley near Sedona. Three narrow anomalies with steep gradients occur between Dry Beaver Creek and Lake Montezuma. The width and steep gradients of these anomalies suggest that the sources are either exposed or only shallowly buried. Modeling of the southernmost anomaly near Montezuma Well indicates that a source at 300 m depth (approximately the top of Proterozoic basement) would have to be no more than 1 meter wide and have unreasonably high magnetizations to reproduce the width and amplitude of the observed anomaly. The southernmost anomaly projects northeast towards outcrops of Paleozoic sedimentary rocks, but does not continue onto these outcrops. It corresponds with outcrops of the 6-4 Ma “ramp” basalts that are considered the likely source. The linear nature of the anomalies suggests either fault-controlled channels or dikes. Both of these geologic scenarios have drawbacks. The 6-4 Ma basalts do not appear to fill paleochannels into the Verde Formation, and dikes are not likely because virtually all of the dikes feeding Tertiary basalt flows in this area strike northwest, perpendicular to the direction of Basin and Range extension. Tertiary dikes, however, may have been influenced by the preexisting Proterozoic structural grain, as imaged by northeast-striking anomalies in the basement gravity and filtered magnetic data. North of Clarkdale a magnetic grain striking north-northeast to north-northwest is pervasive. The anomalies that cause this grain coincide in part with mapped faults that offset the Paleozoic sedimentary sequence. From depth estimates based on the anomaly gradients, we infer that these anomalies are caused by magnetization variations in the Proterozoic basement. Superposed on these anomalies are very subtle features that appear on the residual and vertical derivative maps. The gradients and amplitudes of these subtle anomalies suggest that weakly magnetic Paleozoic rocks are the cause. Despite difficulties in attributing the source of magnetic and gravity lineaments to rock type and age, these data are effective in mapping structure concealed beneath sedimentary cover.

Earthquakes by City: Communities Affected by Seismic Actives

Ash Fork	Cottonwood	Sedona
Bagdad	Dewey Humboldt	Seligman
Black Canyon City	Jerome	Spring Valley
Camp Verde	Lake Montezuma	Verde Village
Chino Valley	Mayer	Village of Oak Creek

Clarkdale	Paulden	Wilhoit
Congress	Peeples Valley	Williamson
Cordes Lakes	Prescott	Yarnell
Cornville	Prescott Valley	

Severity

There are several common measures of earthquakes. The Richter Magnitude Scale is a mathematical scale, which measures the intensity of ground motion. Because of the logarithmic basis of the scale, each whole number increase in magnitude represents a ten-fold increase in measured amplitude, and 31 times more energy released. The Modified Mercalli Intensity Scale measures the earthquake intensity by the damage it causes. Peak Ground Acceleration (PGA) is a measure of the strength of ground movements. It expresses an earthquake's severity by comparing its acceleration to the normal acceleration due to gravity. The severity of an earthquake is also dependent upon the source of the quake. The severity of the vibration increases with the amount of energy released and decreases with distance from the causative fault or epicenter.

Soil type can also affect the severity of an earthquake at a given location. This is because seismic waves propagate from the epicenter and travel outward through the bedrock up into the soil layers. As the waves move into the soils, how stiff or soft the soil is affects the wave speed and velocity. In stiff or hard soil, the wave generally will travel at lower velocities. With slower waves, the seismic energy is modified, resulting in waves with greater amplitude. This amplification results in greater earthquake damage.

Richter Magnitudes	Earthquake Effects
Less than 3.5	Generally not felt, but recorded.
3.5 – 5.4	Often felt, but rarely causes damage.
Under 6.0	At most slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1 – 6.9	Can be destructive in areas up to about 100 kilometer across where people live.
7.0 – 7.9	Major earthquake. Can cause serious damage over large areas.
8 or greater	Great earthquake. Can cause serious damage in areas several hundred kilometers across.

Fig 4-20: Richter Scale

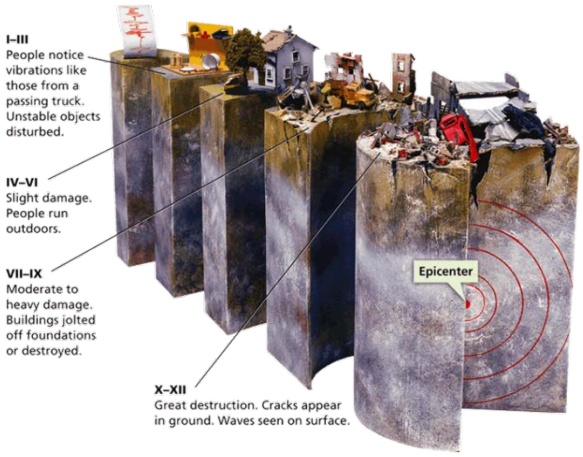


Fig 4-3: Mercalli Scale

Vulnerability

Within minutes of shaking, the earthquake reveals the vulnerabilities of buildings, households, communities, and of a country. The consequences expose flaws in governance, planning, siting of physical structure, design, construction, and use of the built environment with seismic hazard. It reveals the influence of prevailing culture and way of life, on the capacity of the community to be prepared for an earthquake hazard. The scale of physical damage and social disruption inflicted upon a community or a nation by an earthquake event is the measure of how vulnerable the community or the nation is. Vulnerability is a set of prevailing or consequential conditions, which adversely affect an individual, a household, or a community's ability to mitigate, prepare for, or respond to the earthquake hazard. Vulnerability can also be defined as the degree of loss to a given element at risk, or set of such elements, resulting from an earthquake of a given magnitude or intensity, which is usually expressed on a scale from zero (no damage) to 10 (total loss). Earthquake vulnerability is thus a function of the potential losses from earthquakes (death and injury to people, damage, and other physical structures) and the level of preparedness (the extent to which a society has been able to translate mitigation measures into practice). It reflects the unattended weakness in the built environment of a community and the constraints in the society that affects ability (or inability) to absorb losses after an earthquake and to recover from the damage. Vulnerability condition precedes the earthquake event and contributes to its severity, impedes emergency response, and usually continues long after the earthquake has struck.

Distinguishing characteristics of a community that is earthquake-resistant:

- The extent of investments in public policies to protect people, property, and community resources through the adoption and implementation of mitigation, preparedness, emergency response, and recovery and reconstruction measures and regulations, and
- The attitudinal extent of policymakers and stakeholders who seek to add a value of at least one dollar for every dollar invested in mitigation. Antonyms of the phrase “earthquake vulnerability” are “earthquake-resistance” in case of the built environment, and “earthquake resilience” in case of social vulnerabilities.

Vulnerability Categories a range of factors, including, determines vulnerability:

- The population density
- Level and nature of physical assets
- Economic activities located in the earthquake risk zones. Human action and hazard risks continually interact to alter vulnerability, both at the household and macroeconomic level. Anderson and Woodrow (1989) grouped vulnerabilities into three categories:
- Physical/material vulnerability: inherent weakness of the built environment and lack of access to resources, especially of poor section of the population
- Social/organizational vulnerability: inherent weakness in the coping mechanism, lack of resiliency, lack of commitment
- Attitudinal/motivational vulnerability: fatalism, ignorance, and low level of awareness.

Vulnerable elements in the physical environment:

The likelihood of an earthquake disaster increases when the community's built environment (i.e., buildings and lifeline systems--or community infrastructure) is comprised of the following vulnerable elements

- Older residential and commercial buildings and infrastructure constructed of unreinforced masonry (i.e., URM's) or any other construction materials having inadequate resistance to lateral forces of ground shaking, or if they were built to seismic codes and standards that are now considered by engineers to be outdated and inadequate
- Older non-engineered residential and commercial buildings that have no lateral resistance and are vulnerable to fire following an earthquake.

- New buildings and infrastructure that have not been sited, designed, and constructed with adequate enforcement of modern, state-of-the-art building regulations, lifeline standards, and land use ordinances.
- Buildings and lifeline systems sited in close proximity to an active fault system, or on poor soils that either enhance ground shaking or fail through permanent displacements (e.g., liquefaction and landslides), or in low-lying or coastal areas subject to either seiches or tsunami flood waves.
- Modern buildings of poor design and construction (examples are buildings that were damaged seriously even in low intensity of shaking in Ahmedabad and Bhuj in the January 2001 earthquake).
- Schools and other buildings that have been built to low construction standards.
- Communication and control centers that is concentrated in one area.
- Hospital facilities that is insufficient for large number of casualties and injuries.
- Bridges, overhead crossings and viaducts that have not been built to withstand lateral forces of earthquakes and are likely to collapse or be rendered unusable by ground shaking.
- Electrical, gas, and water supply lines that are likely to be knocked out of service by ground failure (i.e., liquefaction, lateral spreads, and landslides).

Factors contributing to earthquake vulnerability of built environment:

There are large human settlements located in earthquake/prone areas. Many of these settlements have a significant proportion of old buildings that are of poor quality because of either aging or lack of maintenance, or because of the deterioration of the material quality.

Prevalence of the use of poor building typologies

The type of housing construction is a major risk factor for injuries due to earthquakes. Statistics for 1950-1990 shows that the greatest proportion of victims dies in the collapse of masonry buildings (e.g., adobe, rubble stone, rammed earth, or unreinforced fire-brick and concrete block masonry buildings). Such buildings are known to have collapsed even at low intensities of ground shaking. Generally these buildings have heavy roofs and walls. During collapse, they kill many of the people inside. Concrete-frame houses are generally safer i.e. they are less likely to collapse, if constructed properly with adequate engineering. Non-engineered concrete-frame buildings are vulnerable and, when they collapse, they are considerably more lethal and kill higher percentage of people than masonry structures.

Who is vulnerable?

Household level Earthquakes affect the full range of social classes – from the wealthy to the homeless. Apparently, earthquake treats everyone equally. However, some are more equal than others are! Actually, the poor and socially disadvantaged groups of the society are the most vulnerable to, and affected by, earthquakes and other natural hazards, reflecting their social, cultural, economic and political environment. Usually, communities in seismic countries are subject to a multitude of natural hazards and environmental problems. The natural hazards themselves are the source of transient hardship and distress, and a factor contributing to persistent poverty. Disasters exacerbate poverty by inflicting physical damage, loss of income-generating opportunities, and the resulting indebtedness. Thus at the household level, poverty is the single most important factor determining vulnerability to natural hazards including earthquake. The poor are the vulnerable. The vulnerability is reflective of

- The location of housing (poor and marginal lands)
- Poor quality building (non-engineered, using poor quality materials)
- Primary types of occupation, level of access to capital (low)
- Degree (low) of concentration of assets

Specific Vulnerability

Table 4-4: Earthquake CPRI Rating					
Jurisdiction	Probability	Magnitude/ Severity	Warning Time	Duration	Rating
Camp Verde	Possible	Limited	< 6 hours	< 6 hours	2.20
Chino Valley	Possible	Catastrophic	< 6 hours	< 6 hours	2.80
Clarkdale	Possible	Negligible	< 6 hours	< 6 hours	1.90
Cottonwood	Possible	Negligible	< 6 hours	< 6 hours	1.90
Dewey-Humboldt	Possible	Critical	< 6 hours	< 6 hours	1.90
Jerome	Highly Likely	Catastrophic	< 6 hours	> 1 week	4.00
Prescott	Possible	Limited	< 6 hours	> 1 week	2.50
Prescott Valley	Possible	Catastrophic	< 6 hours	< 6 hours	2.80
Sedona	Likely	Negligible	< 6 hours	< 24 hours	2.35
Unincorporated Yavapai Co	Possible	Catastrophic	< 6 hours	< 6 hours	2.80
Yavapai-Prescott Indian Tribe	Possible	Limited	12-24 hours	< 24 hours	2.00

Yavapai County – Yavapai County has four major *"Normal"* faults, which intersect at various points the communities of Chino Valley, Cottonwood, Jerome, Paulden, Perkinsville, Poquito Valley, and Seligman. USGS estimates that the maximum moment intensity potential of the "Big Chino" and "Aubrey" faults would be 7.1 MMI (USGS, 2015). Critical infrastructure impacted would be power distribution from Hover Dam to Yavapai County and Phoenix, high-pressure natural gas from the Trans western pipeline servicing Arizona, California, New Mexico, and Texas, as well as possible impacts to the Chino aquifer servicing the greater Prescott basin. BNSF railroad provides east west service across this region transporting millions of tons of goods. Unknown is the scope and size of the "Little Chino" fault.

Graben(s) exist across the greater Prescott Basin, as well as the western side of the Sierra Prieta's (Skull Valley), and are susceptible to point ruptures. Notable example is the 3.7 MMI point rupture on October 2011, 3.7 miles west-northwest of Chino Valley.

Black Canyon City was affected by three earthquakes on November 1, 2015. At 8:59PM, a 3.2-magnitude earthquake was reported about 6 miles northeast of Black Canyon City, the second earthquake, registering 4.1 magnitude, was reported at around 11:29 p.m. about 7 miles northeast of Black Canyon City, and The third earthquake happened at around 11:49 p.m. at 4.0-magnitude about 3 miles northeast of Black Canyon City. This is a previously unknown fault system.

Approximately 160,000 people are vulnerable to a major earthquake in this region.

Camp Verde – Camp Verde is located between the "Verde Valley" and "Horseshoe" fault zones. Potential loss from earthquakes is slight; however, the possibility from damage would exist in interruption of electricity to the municipality as well as disruption of some water delivery systems by private water companies. The possibility of disruption of municipal sewer services would be of a concern. Should the Town of Camp Verde eventually purchase water delivery companies and expand with additional sewer services the potential for increased loss would be experienced and appropriate planning would have to be considered.

Chino Valley – To the north of Chino Valley exist the "Aubrey" fault which extends northwest along the western boundary of the Mogollon Rim. North of Chino Valley extending west to east exist the "Big Chino" fault. It lies just south of the west side of Mogollon Rim. On the east side of Chino Valley lies the little known "Little Chino" fault zone. West and south of Chino Valley are grabens.

Chino Valley has a moderate earthquake risk, with 15 earthquakes since 1931. The USGS database shows that there is a 21.84% chance of a major earthquake within 50km of Chino Valley, AZ within the next 50 years. The largest earthquake within 30 miles of Chino Valley, AZ was a 4.9 Magnitude in 1976. (USGS)

Clarkdale – The outlying areas of Clarkdale have experienced tremor type earthquake activity that has produced

negligible damages to date.

Cottonwood – Earthquakes are very infrequent in the immediate Cottonwood area. Earthquakes can result in damage to and loss of municipal and private utilities such as water, power, and natural gas pipelines.

Dewey-Humboldt – Although, there are no known fault zones associated with Dewey Humboldt. Dewey Humboldt is at risk for a regional event of large magnitude. Fault lines associated with the "Little Chino and Verde Valley" seismic zones, as well as the "Chino and Aubrey" faults could potentially affect the residents and town. State Highway 169 and 69 intersect our community and are major transportation routes into Yavapai County. Residential areas of Dewey Humboldt may experience utility power outage, interruption in transportation, gas line breakage, or water interruption. A majority of residential areas are on private wells, which may become impacted due to a major seismic event.

Jerome - Jerome's vulnerability of individual households contribute to our communities' vulnerability to earthquakes. Existing social and cultural structures within any community determines the resilience of that community to the disaster. Jerome has an extended family of neighbor's community organizations and interdependence within the Town to provide strength during a disaster. Any destruction of network for example by relocation during the reconstruction phase of an earthquake can cause a community to become vulnerable as well as traditional values that can be disturbed. The coping mechanism is no longer capable of resiliency to disasters at this point and individual and collective preparedness towards earthquakes are necessary. Earthquakes can be a difficult societal problem because they have low annual probability of occurrence, but a high probability of causing adverse societal consequences. Continuing preparedness and making it a culture of community life makes Jerome's community resilient towards earthquakes and a lack of it makes our community vulnerable.

Prescott – The City of Prescott is located among many active and inactive seismic zones. Although there is no recent history as it relates to damaging earthquakes within the city it remains a possibility. Being there are no definitive boundaries of an earthquake, and the magnitude or intensity of an earthquake will determine the levels of impact to people, residential areas and structures, critical infrastructure, (including but not limited to transportation routes, government offices, medical facilities, food supply industry, potable water supply and distribution points), operations of government, private enterprise, and utilities. Earthquakes can occur anytime and have occurred in the City of Prescott since recorded history.

Prescott Valley – Prescott Valley resides in proximity to larger Yavapai County faults, as well as, sits at the south end of the Little Chino fault and is at a moderate risk. On February 4, 1976 a 4.9 magnitude earthquake with an epicenter in Chino Valley occurred. The seismic transmission of energy was to the southeast. Prescott Valley had little development, however, today; it would affect over 65,000 people.

Sedona – Sedona has a moderate earthquake risk, with seven earthquakes since 1931. The USGS database shows that there is a 23.33% chance of a 5.0 Magnitude earthquake within 50km of Sedona, AZ within the next 50 years and a 4.25% chance of a 6.0 Magnitude earthquake within 50km of Sedona, AZ within the next 50 years. Since 1931, the largest earthquake within 30 miles of Sedona, AZ was a 4.7 Magnitude in November 2014. No major damage or injuries were reported because of the 2014 earthquake.

Yavapai-Prescott Indian Tribe – Yavapai Prescott Indian Tribal lands reside in proximity to larger Yavapai County faults, and is in an area surrounded by normal faulting identified by a series of Graben, as identified by Northern Arizona Geology Department. The area also is identified by the USGS as series of micro faults extending primarily east to west across the Prescott Basin. All of the Yavapai Prescott Indian Tribe's land, as well as infrastructure is within this seismic zone.

Vulnerability – Development Trends

The continued growth of tourist visitations will increase the risks when earthquakes occur. Earthquakes have been recorded in Yavapai County from the early 70's and have been occurring from the early 1900's. The figure below shows earthquakes that affected Yavapai County where at least aftershocks or tremors were felt.

Figure 4-4: Historical Earthquakes Countywide

4.4.2 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, usually bringing 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*: The annual monsoon season brings flooding to Arizona in mid to late summer. Heating triggers afternoon and evening thunderstorms that can produce extremely intense, short duration bursts of rainfall. This causes 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.

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 is 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 Natural Resource Conservation Service 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 with several disaster declarations. The following incidents represent examples of major flooding that have affected Yavapai County:

- In September 2013, a thunderstorm in the Williamson Valley area produced flooding that trapped a 71-year-old woman in her vehicle at Williamson Valley Road and McIntosh Drive. First responders rescued the woman safely.
- In August 2014, Black Canyon City was flooded when approximately 5.5 inches of rain fell between 3 am and noon. The Agua Fria River and the Squaw Creek Tributary both flooded causing several evacuations and damage to several trailer homes.
- In July 2015, runoff from Bull Pen Wash flooded approximately 25 parcels in the Verde Lakes Subdivision in Camp Verde. Of the 25 parcels, 7 received silted mud from a couple of inches to a couple

of feet deep, interior damage beyond immediate repair occurred in 2 homes, and 8 total effected structures.

- In August 2016, the Community of Yarnell was inundated with two significant rain events of about 2 inches/hour within a 10-day span. Several residences and businesses were flooded east of Highway 89. Despite mitigation efforts by the County, the sediment runoff was significant due to the Tenderfoot Fire, which occurred the prior month.
- In July 2017, Yavapai County experienced a period of strong monsoonal storms. Most gages in the central portion of the County received between 4" to 5" of precipitation during the month of July. However, the area hit hardest was the recent Goodwin Fire scar. Rainfall on the scar resulted in 20 individual flow events at the gage located in Mayer. The greatest event occurred on the evening of July 19, 2017. An intense, slow moving storm drifted into the Grapevine Canyon watershed. The Grapevine Canyon gage located in the middle of the watershed received 2.01"/ 26 minutes. The Big Bug Mesa gage at the top of the watershed and west side of the storm received 1.26"/31 minutes. The intense rain, burnt vegetation, and steep slopes created an evulsion of water/sediment/rock/trees/debris through Grapevine Canyon and into Big Bug Creek. Water passed through Mayer where the Big Bug Creek @ SR 69 gage recorded a depth of 9.8 feet. The flood wave continued through Spring Valley and Cordes Junction and entered the Agua Fria River where it was recorded down to Black Canyon City. Despite outreach to the residents and mitigation measures in the watershed, flood damage was incurred in Mayer, as well as the Spring Valley subdivision. No lives were lost.

2010 Sedona Flood Damages

35 Little Elf Drive, Sedona

Sunshine Lane, Sedona

Yavapai Prescott Indian Tribe

The above picture illustrates erosion along Granite Creek on the Yavapai Prescott Indian Tribe lands. The Tribal lands are bifurcated by Granite Creek during times of heavy flow the tribe is cut off from responding resources and parts of tribal lands are isolated.

Probability and Magnitude

Yavapai County is prone to two types of flooding Riverine and Flash Flooding. Riverine flooding occurs over periods of extended precipitation and primary watercourses are affected: Oak Creek, Verde River, Black Canyon River, and Agua Fria River. Probability increases with future development and will occur again. Flash flooding is our most dangerous type of flood event. Over the summer of 2017, the community of Mayer experienced a 100-year event, which occurred in a matter of 30 minutes. Within 3 minutes, the Bug Creek rose from 26 inches to over 9 feet topping local bridges affecting 133 homes. The problem of flash flooding increases in conjunction with post wildfire rain events. The potential of flash flooding is 100 percent for Yavapai County due to the mountainous terrain and wildfire potential. Flash flooding most likely occurs during the summer monsoon season.

Secondary or Cascading Effects

The type or range of cascading events are largely determined by the magnitude and location of the event, and

various other factors including burn scars from previous wildland fires and landslides from those previous fires preventing proper drainage. Additional cascading events may include ruptured gas and water lines, and collapsed bridges along the previously mentioned transportation routes. Breached dams, landslides, rock falls, and communications failures are possibilities. The majority of Sycamore Canyon Road is gravel or dirt, which can be compromised when flooding along the Verde River is due to rain events. During this type of event, Sycamore Canyon Road may be closed due to flooded low water crossings, road washouts or mud. Sycamore Canyon Road is the only evacuation route with no alternative route or detour available.

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 4-5: NFIP Statistics as of Oct 2017

Jurisdiction	Effective Map Date	Number of Policies	Amount of Coverage (x $1,000)	Floodplain Management Role
Yavapai County	10/16/2015	1,033	$227,843	Provides floodplain management for the Unincorporated County, Camp Verde, Clarkdale, Dewey-Humboldt, and Sedona
Camp Verde	10/16/15	275	$59,888	Town will do an initial review with ultimate floodplain management provided by Yavapai County
Chino Valley	9/3/2010	26	$5,965	Floodplain management provided by Town staff.
Clarkdale	10/16/2015	17	$3,530	Town will do an initial review with ultimate floodplain management provided by Yavapai County
Cottonwood	10/16/2015	106	$25,344	Floodplain management provided by City staff.
Dewey-Humboldt	03/02/2015	14	$3,109	Town will do an initial review with ultimate floodplain management provided by Yavapai County
Jerome	NSFHA	2	$630	
Prescott	9/3/2010	468	$108,924	Floodplain management provided by City staff.
Prescott Valley	9/3/2010	94	$25,476	Floodplain management provided by Town staff.
Sedona	9/3/2010	193	$48,735	City will do an initial review with ultimate floodplain management provided by Yavapai County

Note: The Yavapai Prescott Indian Tribe does not participate in the NFIP.

Vulnerability

Table 4-6: Flooding CPRI Rating					
Jurisdiction	Probability	Magnitude/ Severity	Warning Time	Duration	Rating
Camp Verde	Likely	Catastrophic	<6 hours	< 1 week	3.45
Chino Valley	Highly Likely	Limited	< 6 hours	< 6 hours	3.10
Clarkdale	Highly Likely	Limited	< 6 hours	< 1 week	3.30
Cottonwood	Likely	Limited	12-24 hours	< 1 week	2.55
Dewey-Humboldt	Likely	Critical	6-12 hours	< 24 hours	2.90
Jerome	Highly Likely	Critical	< 6 hours	< 1 week	3.60
Prescott	Possibly	Limited	12-24 hours	< 1 week	2.10
Prescott Valley	Highly Likely	Critical	< 6 hours	< 1 week	3.60
Sedona	Highly Likely	Limited	< 6 hours	< 1 week	3.30
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

Based on information in the previous Plan, $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 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 would 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.

Unincorporated County – Although Yavapai County is the third largest County in Arizona by population it is 8,126 square miles with a majority of the county classified as rural. The county has 8 distinct mountain ranges with elevation ranging from 1,000 to nearly 8,000 feet. This huge elevation differential contributes to flash flooding. Typical Monsoon patterns traverse from Southwest to Northeast developing over the low laying Sonora desert. As these storms intersect the mountainous regions of North Central Arizona, uplift creating shear and copious amounts of precipitation occurs. Other scenarios include the rapid condensing of moisture over higher elevation creating monsoons with rapid onset increasing the potential of dangerous flash flooding.

Winter storms, which create riverine flooding, are Pacific sub topical frontal systems, which create rain snow events. These events are most pronounced when higher elevation has been impacted by heavy snowfall, followed by rapid warming and a rain event. The winter storm of 2010 created a flood event along the Oak Creek and Verde Rivers in 2010 due to this phenomenon. The flood exceeded the 100-year event threshold.

Camp Verde – Camp Verde has experienced flooding through summer rains, tropical depressions, and winter rains on snow packs. With Clear Creek flowing through municipal boundaries and connecting with the Verde River, it has brought almost annual loss to roadways constructed across the river course in the Verde Lakes area. Often times there have to be repair to the asphalt and rights of way. The 17 miles of the Verde River coursing through the municipal boundaries provides the potential for loss during higher than normal flood events. The advent of FEMA's flood plain maps and the resulting restrictions on where and how structures may be built within flood zones has reduced the possible exposure to flood events and thereby reducing losses. There are some areas where excessive amounts of rainfall i.e. 5" within an hour has caused severe flooding in areas flowing off forest lands and

encroaching into some populated areas in other than the historical and traditional drainages. Changes in those course ways has been the result of the municipality's inability to enter those drainages without costly studies with no guarantee of access or permit to repair drainages by removing the accumulated sediment. This accumulation has created alluvial fans thereby forcing floodwaters to seek alternative drainages into populated areas, which has caused repeated damage to homeowners and businesses.

Chino Valley – Sits North of the Prescott Basin and South of the Western Mogollon Rim. It is surrounded by higher terrain. The streams and creeks bisect the community and have alluvial qualities. Chino Valley also sits just south of the headwaters of the Verde River. The area is prone to shallow inundation, as well as, flash flooding.

Clarkdale – The Verde River and feeder washes bisect a corner of the Town of Clarkdale forming a major riparian corridor lined with large Cottonwood trees. There are Town roads and residential properties along the river that would be affected during flood stage of the Verde River. Some of those properties lie outside the Town limits in Yavapai County, but are the responsibility of the Town Clarkdale during an event. Sycamore Canyon Road and Broadway (Bitter Creek Bridge) would be evacuation routes for those residences, and if compromised, would be a deterrent for evacuation. Clarkdale is susceptible to debris flows that can occur along steep mountain slopes, canyons, and along road cuts from the Town of Jerome. The Town of Clarkdale also has area washes that flood, closing some intersections along with residential properties in the area.

Cottonwood – Due to the proximity of the Verde River, the City of Cottonwood has the potential for damaging flood events to occur. However, there are relatively few structures within the floodplain of the Verde River so the likelihood of substantial property loss is limited.

Dewey-Humboldt – This community is naturally bifurcated by the Agua Fria River. The Agua Fria being an intermittent river has never been effectively mitigated. An event greater than 10 years effectively bifurcates the community. Historically, the river is highly susceptible to rapid flash flood rise due to monsoonal activity, and quickly recedes when the rain passes. However, the greatest impacts have been observed in 2017, 2016, 2015, 2010, and 2009 when the river demonstrated riverine flooding characteristics over multiple days and multiple events. Impacted tributaries during a regional event greatly enhance flow and output to Dewey Humboldt essentially cutting off the community from emergency services and residential ingress and egress.

A majority of damage caused by these events have been to public infrastructure as a repetitive loss. Dewey Humboldt has worked to mitigate public infrastructure; roads, culverts, and crossing over the last 6 years using local flood control and town funds.

Jerome – Storm water runoff management was given very little consideration during the early years of Jerome's development. An extensive array of spillways, catch basins and culverts have been constructed and modified over the years to convey runoff through the community. The majority of the Town's drainage system consists of obsolete or non-working structures that have been abandoned damaged or not maintained and are no longer functioning. The primary drainage conveyance structure is a deteriorating concrete flume that conveys excess spring water from the Cleopatra Hill water tanks through Town and outfalls into Bitter Creek Wash. The flume captures a large amount of runoff from Cleopatra Hill and intercepts flows from a significant portion of the downtown area.

The neglected drainage infrastructure and Town budget limitations have resulted in many residents, commercial properties and roadways being adversely affected by storm water runoff. Historical drainage patterns have been changed by private runoff diversionary improvements and other projects have been completed without adequate drainage planning.

Jerome received funding from Yavapai County Flood Control District (YCFCD) to evaluate the existing drainage facilities within the Town for adequacy of the overall drainage system and to provide recommendations for areas of improvement. The project included: existing drainage structure inventory, drainage basin delineations based on existing structures, channels, roadway configurations and site evaluations, modeling of the drainage basins for current runoff data, floodplain delineation for Bitter Creek Wash adjacent to the Jerome Waste Water Treatment Plant (WWTP), hydraulic analysis on the capacity of the existing major drainage structures and to provide recommendations for improvements to mitigate damage from storm water runoff experienced by the community.

The watersheds affecting the Town were subdivided into 12 major drainage basins. The majority of the basins contribute to two major washes that flow through Jerome, Bitter Creek Wash and Deception Gulch. The basin located west of the visitors parking area has no outlet and was not included in the calculations. The north side of Town drains to Bitter Creek Wash and the south side drains into Deception Gulch Wash. Deception Gulch, which is the larger of the two, commences on top of Woodchute Mountain approximately 3.6 miles west of Town limits. The wash flows through Town and continues downstream until it converges with the Verde River. Bitter Creek Wash originates on Cleopatra Hill adjacent to the westerly Town limits. The wash is routed through Town within existing drainage structures and flows downstream to the WWTP. Bitter Creek continues to the east through Clarkdale and converges with the Verde River.

In Sept 2014, SWI coordinated with Jerome and issued a Project Notification and Request for Information (RFI) form to the residents of the Town. The RFI asked residents to indicate if they have ever experienced storm water drainage issues on their property. SWI received 22 responses from residents that had experienced runoff related issues. Many attached photos and written descriptions of the problems they observed. The reported problems ranged from minor landscape issues to more severe drainage issues including earth subsidence, severe erosion, flooded garages and homes, road damage, and damage to retaining walls. From these responses, site visits, discussions with homeowners, field reconnaissance, access to businesses, critical crossings, life safety issues, Town Council concerns, and the results of the drainage analysis of the existing infrastructure, SWI identified 10 drainage improvement priorities. A decision matrix was also developed for the projects to assist in the prioritizatio. There are a significant number of drainage problem areas within Jerome that would benefit from drainage improvements. The drainage issues encountered by the residents include lack of drainage easements, erosion, inadequate planning for storm water runoff management during the early development of the Town, undersized existing drainage facilities, very few defined drainage channel improvements, roadways constructed without curb and gutter, unmaintained roadway ditches, catch basins and culverts. A substantial number of residences are constructed well below the level of adjacent roadways. The lack of curbed streets within the Town results in many of the homes at lower elevations to receive runoff directly from the roadway surface. The goal is to mitigate the frequency and severity of the storm water impacts on the residences and the community.

Prescott – Flooding events are very seasonal however whether they occur as part of the Monsoon (July-early Oct) or in conjunction with winter (Nov-April) they remain a risk to the City of Prescott community at-large. Real and fixed property along with undermining of utilities and excessive capacity to channels for run-off place the community at risk. Loss estimations could reach into the millions of dollars. With its high curbs much of the historic downtown area of the city to include the infamous “Whiskey Row” have been able to stave off any significant event however Granite Creek immediately to the west has flooded in the past and may be expected to flood in the future. The other significant area of concerning is at the bottom of Willow Creek as it enters a plateau prior to entering Willow Lake. A significant amount of affordable housing is located within the flood plain there as well as some minor commercial outlets too.

Prescott Valley – In 2017 a series of heavy monsoons, West and North of Prescott Valley affected the Lynx Creek basin. The ensuing event created heavy flows impact the local park. Flood control devices along the watercourse worked as designed, but left heavy debris flows. Other areas with in Prescott Valley experienced extremely heavy flows along the tributaries of the Agua Fria. These flow closed roads, impacted residential areas, and created dangerous fast moving flows in residential areas. The potential for loss of life exist during these events.

Sedona – Sedona has approximately 105 FEMA floodplain properties with structures along Oak Creek and its tributaries. While some of these structures are outside of the Special Flood Hazard Area, many are not. Property damage typically occurs in the larger runoff events that involve rain on snow in the higher elevations. Sedona has floodplains that were mapped as part of a Soil Conservation Service Floodplain Management Plan in 1994. These local floodplains typically flood during the more intense summer monsoon rain events. Many structures are located in the local floodplains; however, lowest finished floor elevation of BFE +1’ is required for new homes. Sedona continues to leverage county flood control funds to design and build capital improvement drainage projects that mitigate and reduce losses.

Yavapai-Prescott Indian Tribe - The Tribe has the largest/longest portion of Granite Creek that bisects the Reservation, should Granite Creek flood this would severely affect our Maintenance yard. The Tribe has a number

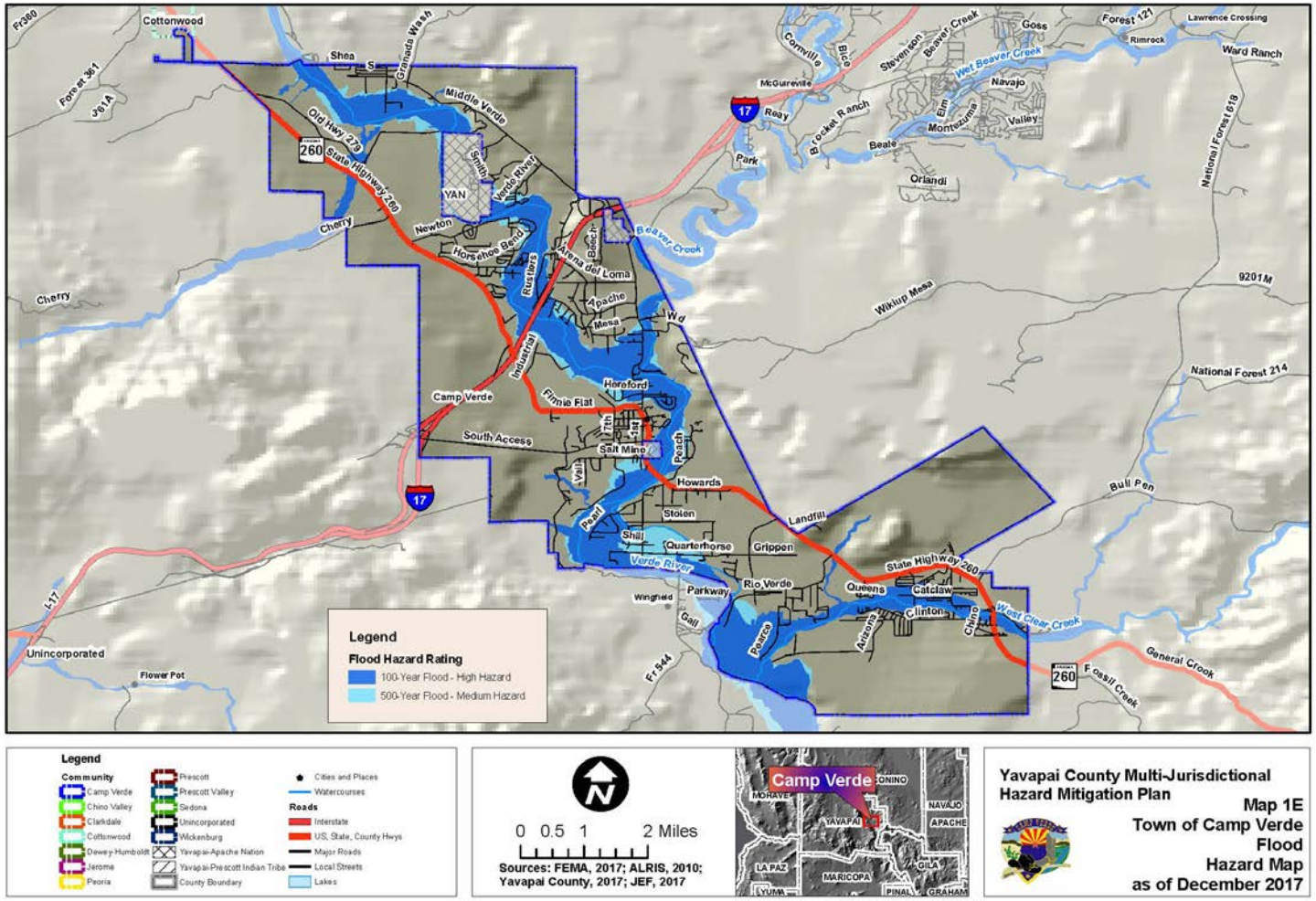
of tributaries that bisect ingress and egress on to the Residential portion of the Reservation.

Repetitive Loss Properties

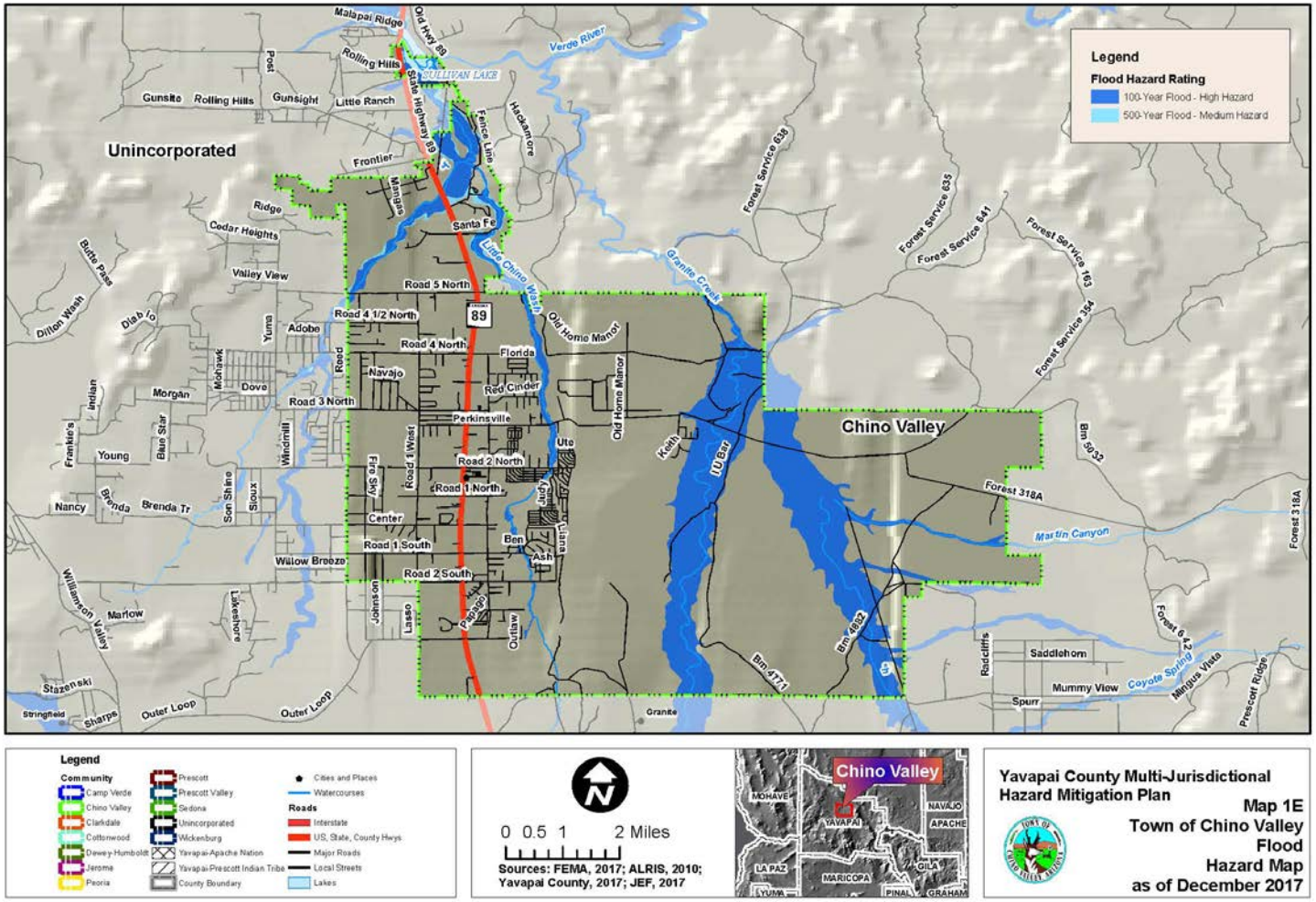
Repetitive Loss (RL) properties are those NFIP-insured properties that since 1978 have experienced multiple flood losses. FEMA tracks RL property statistics, and in particular to identify Severe RL (SRL) properties. RL properties demonstrate a track record of repeated flooding for a certain location 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. The table below summarizes the RL property characteristics by jurisdiction.

Table 4-7: Repetitive Loss Statistics as of Feb 2017

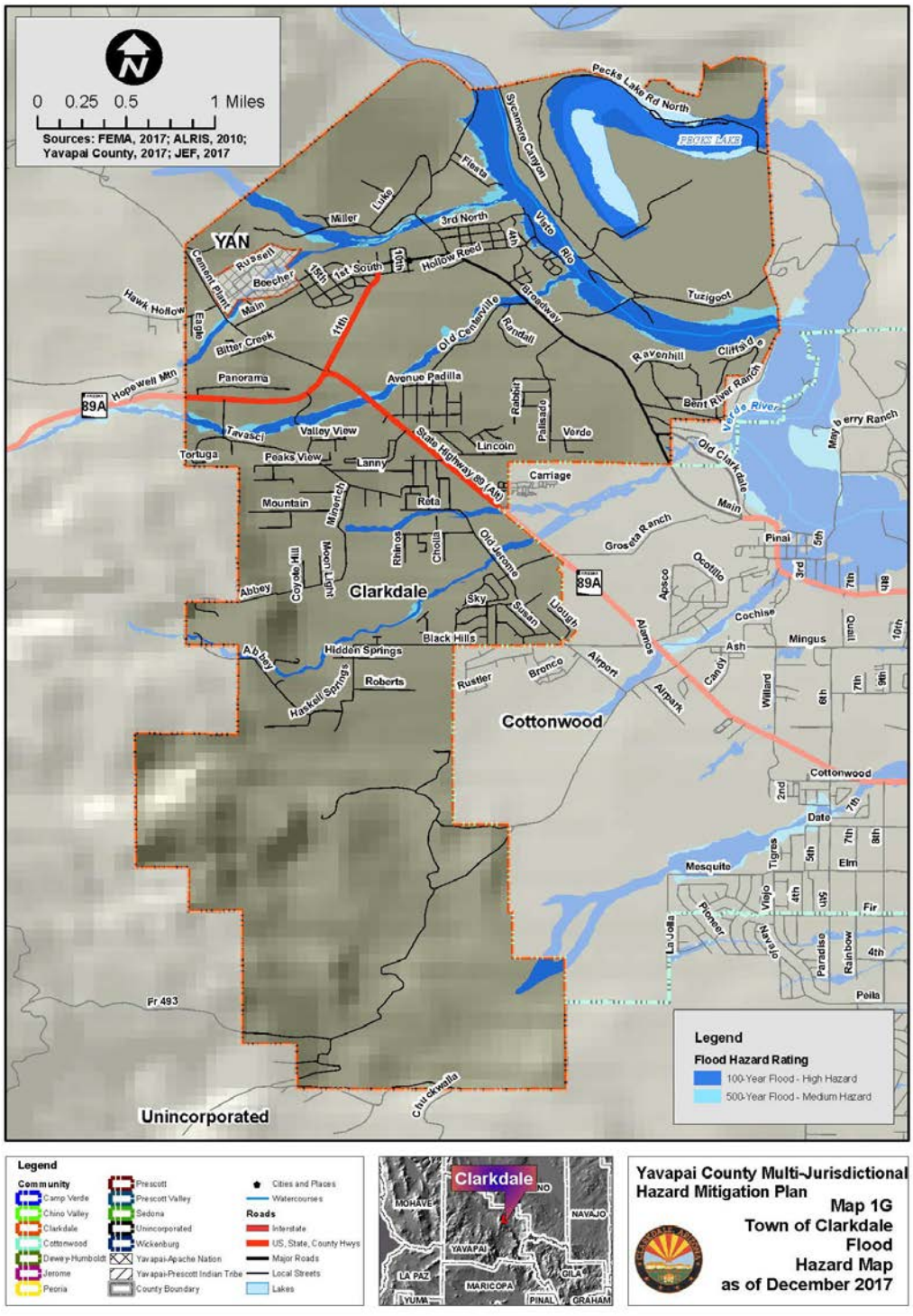
Jurisdiction	No. of Properties	Number of Losses
Camp Verde	2	4
Cornville	1	2
Source: FEMA R9		



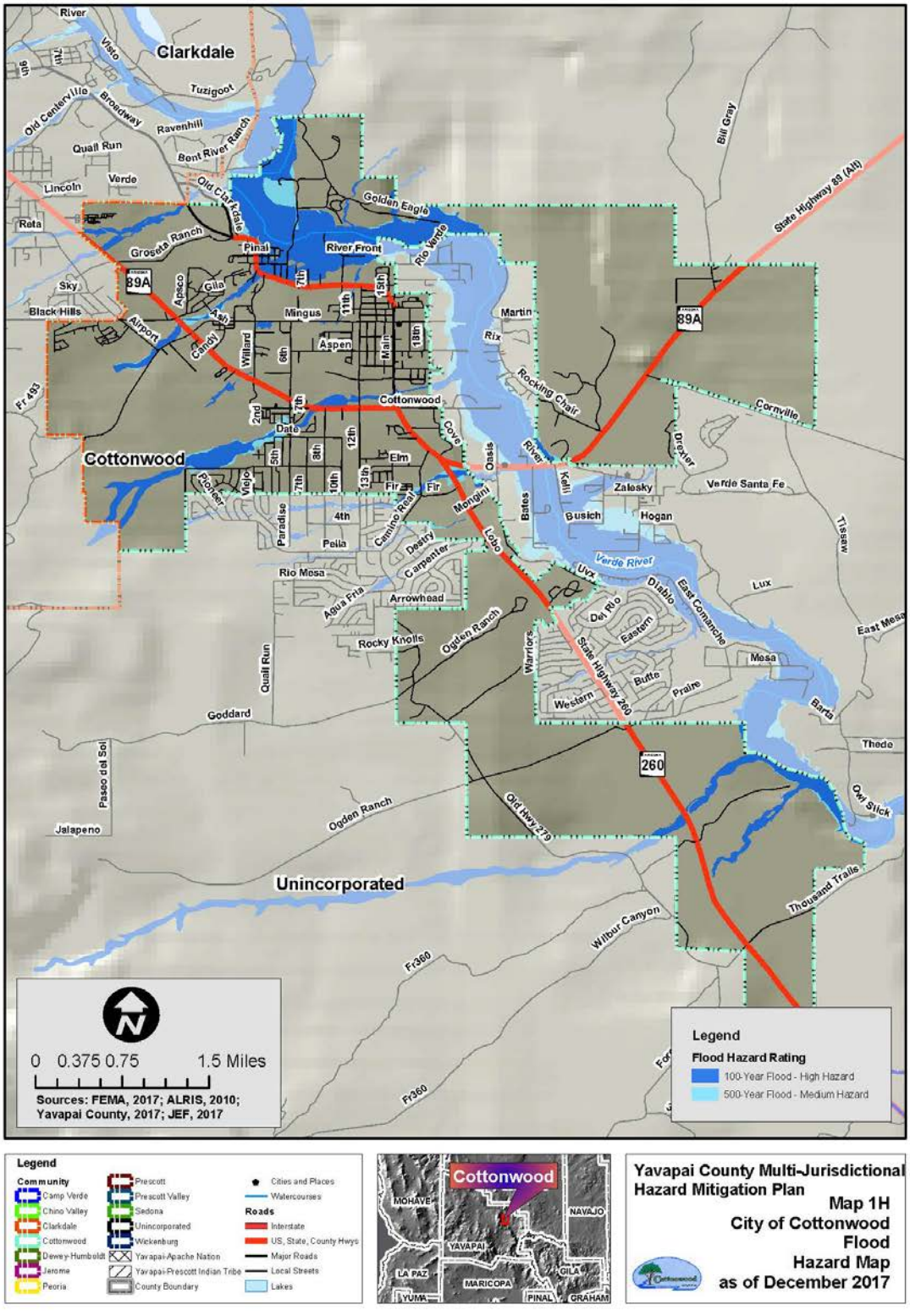
Map 4-2: Camp Verde Flood Map



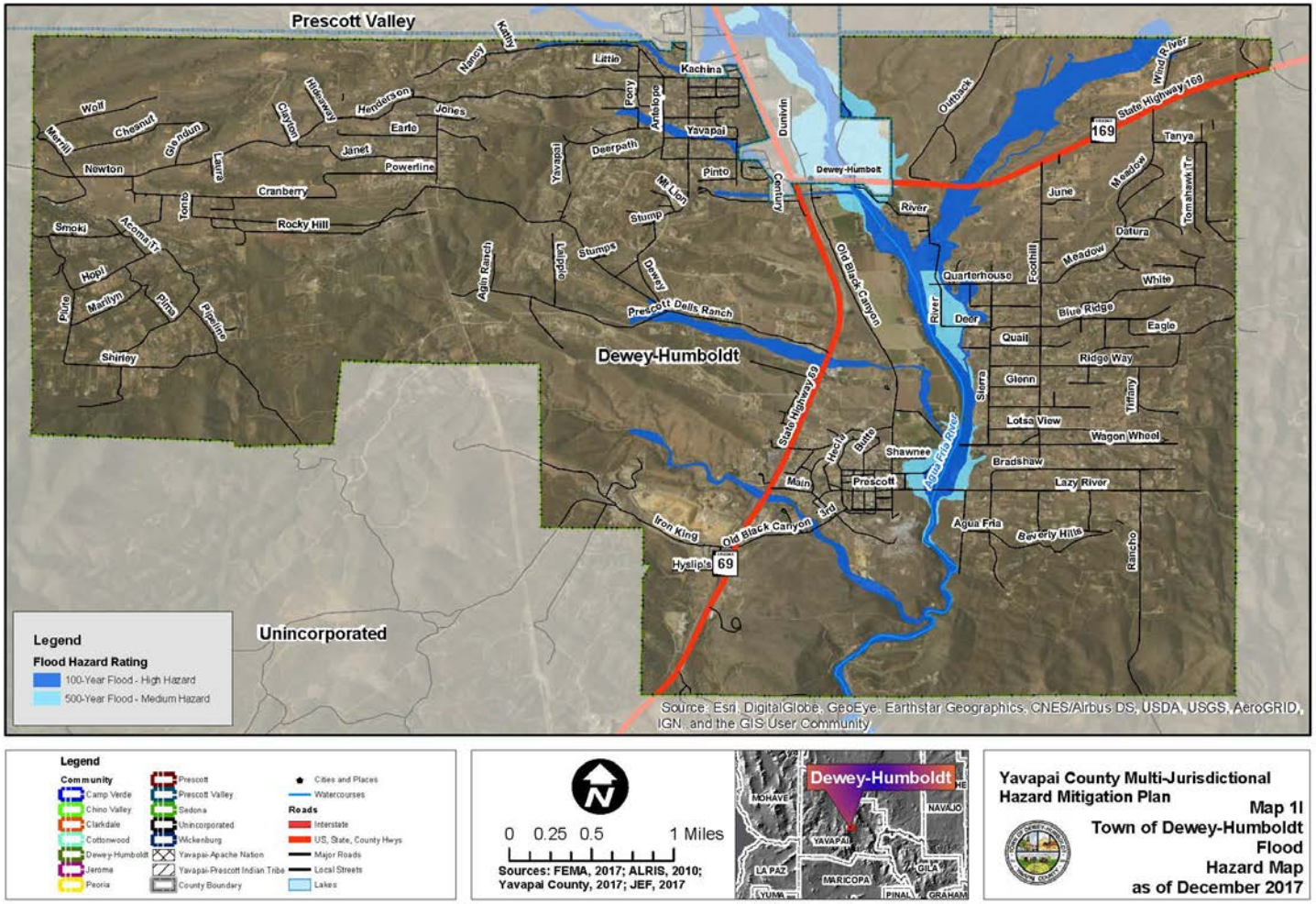
Map 4-3: Chino Valley Flood Map



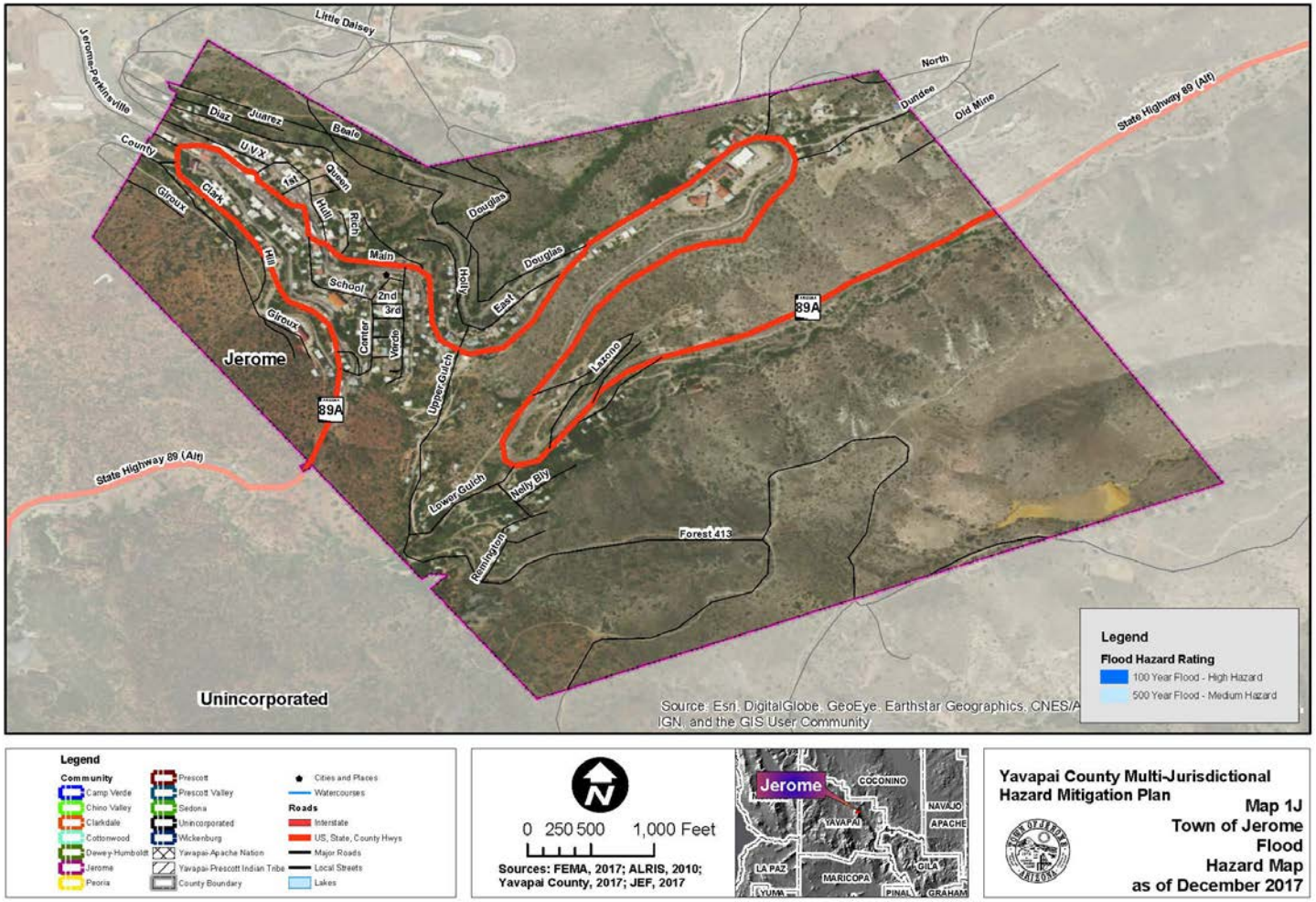
Map 4-4: Clarkdale Flood Map



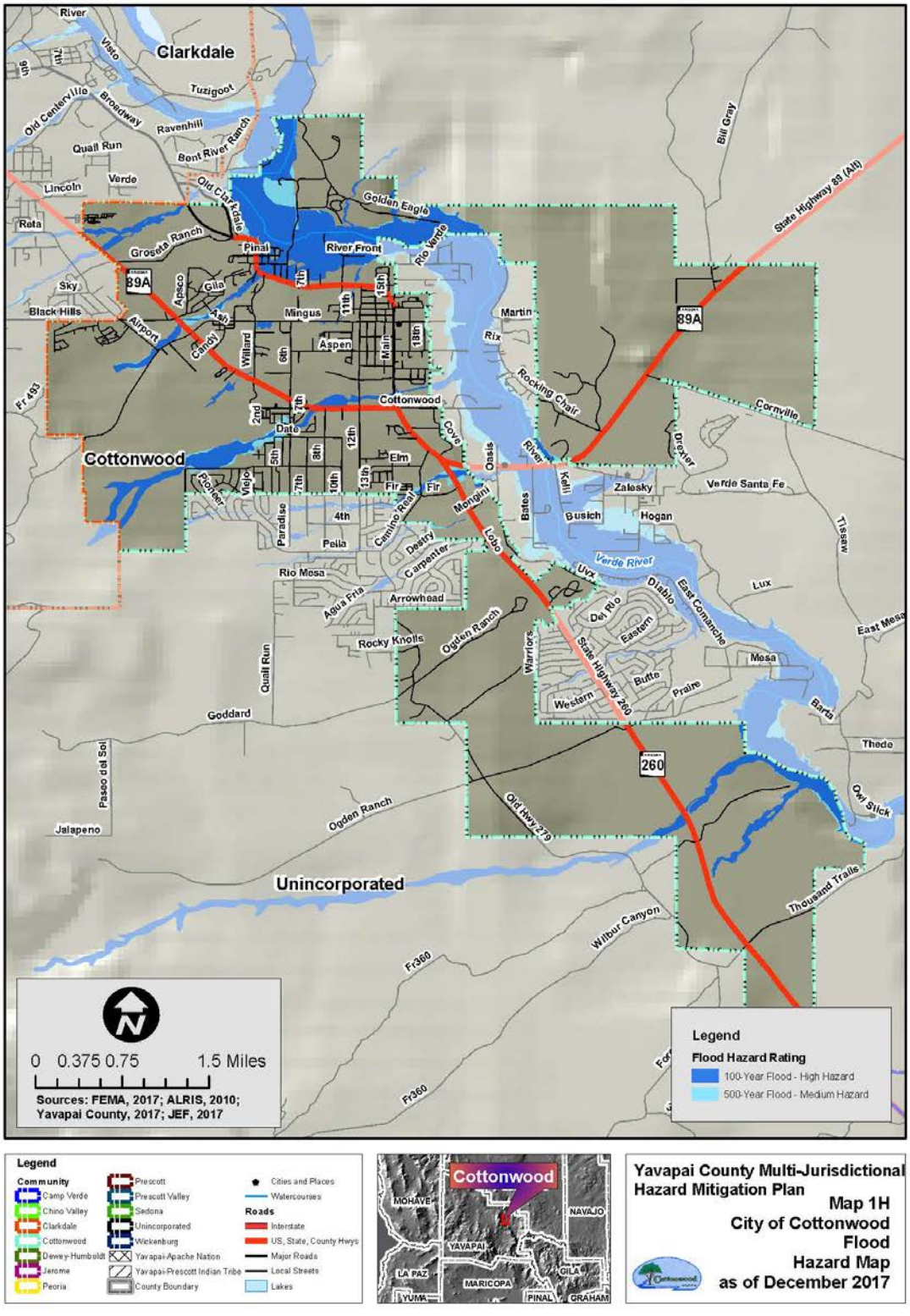
Map 4-5: Cottonwood Flood Map



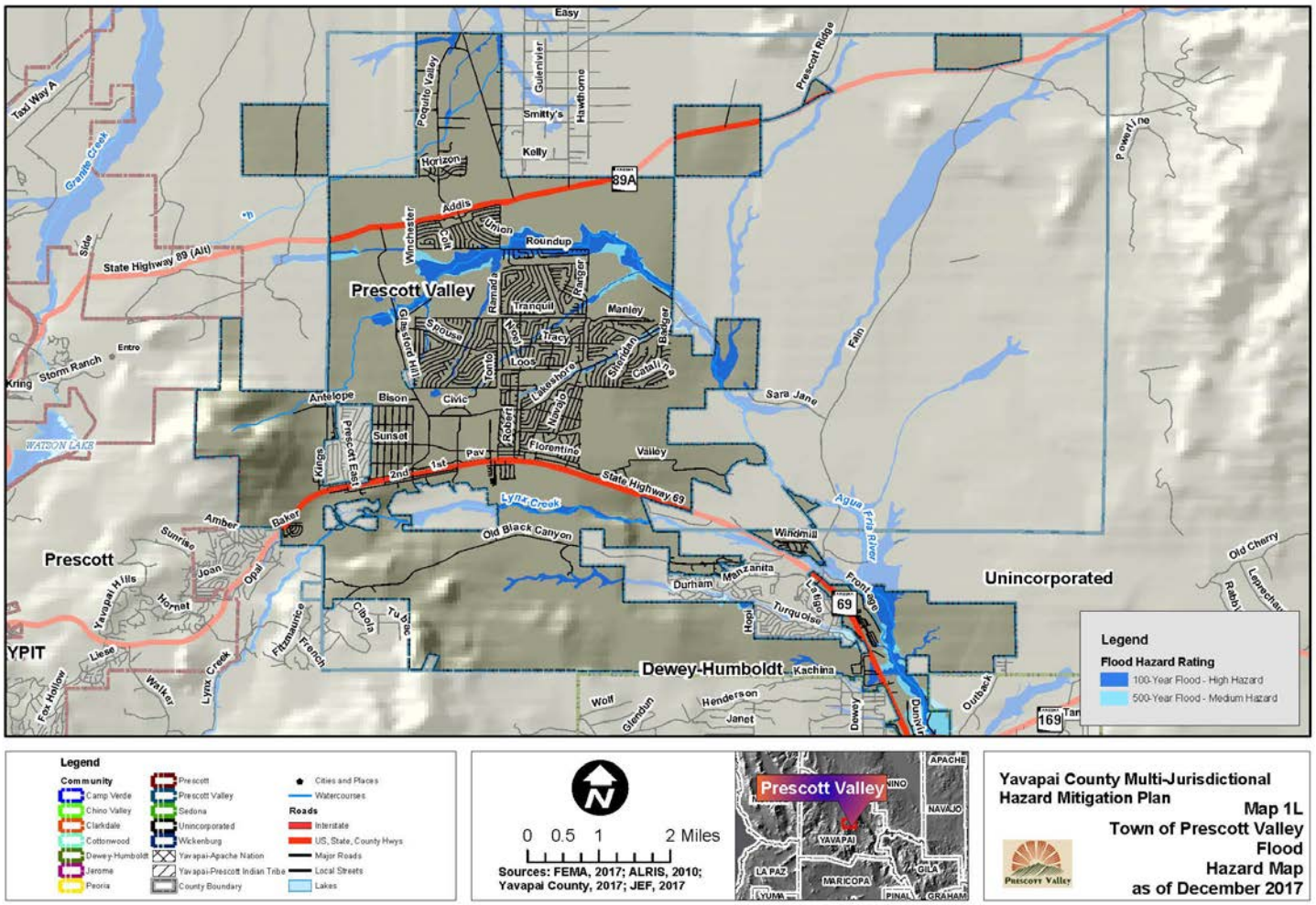
Map 4-6: Dewey-Humboldt Flood Map



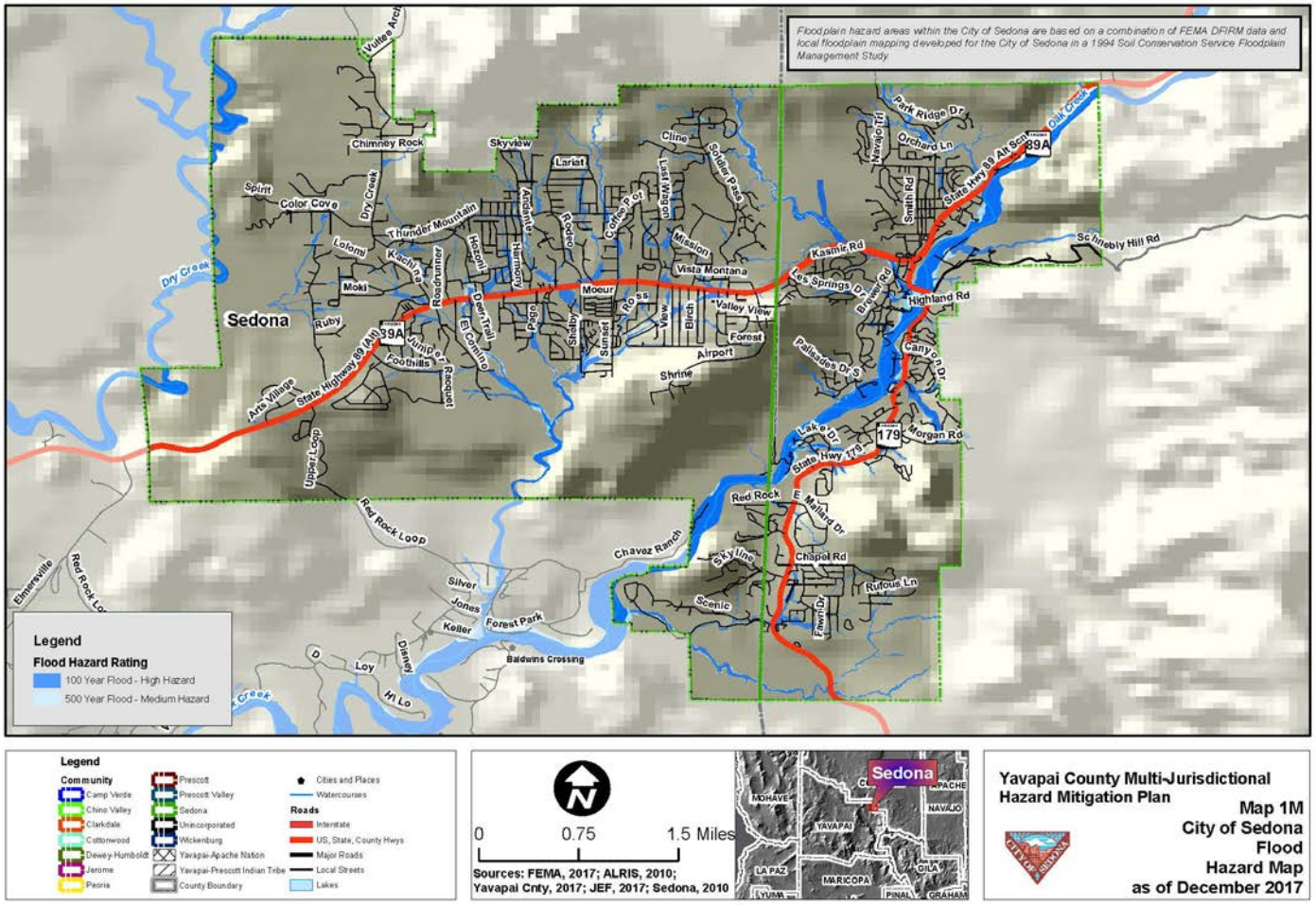
Map 4-7: Jerome Flood Map



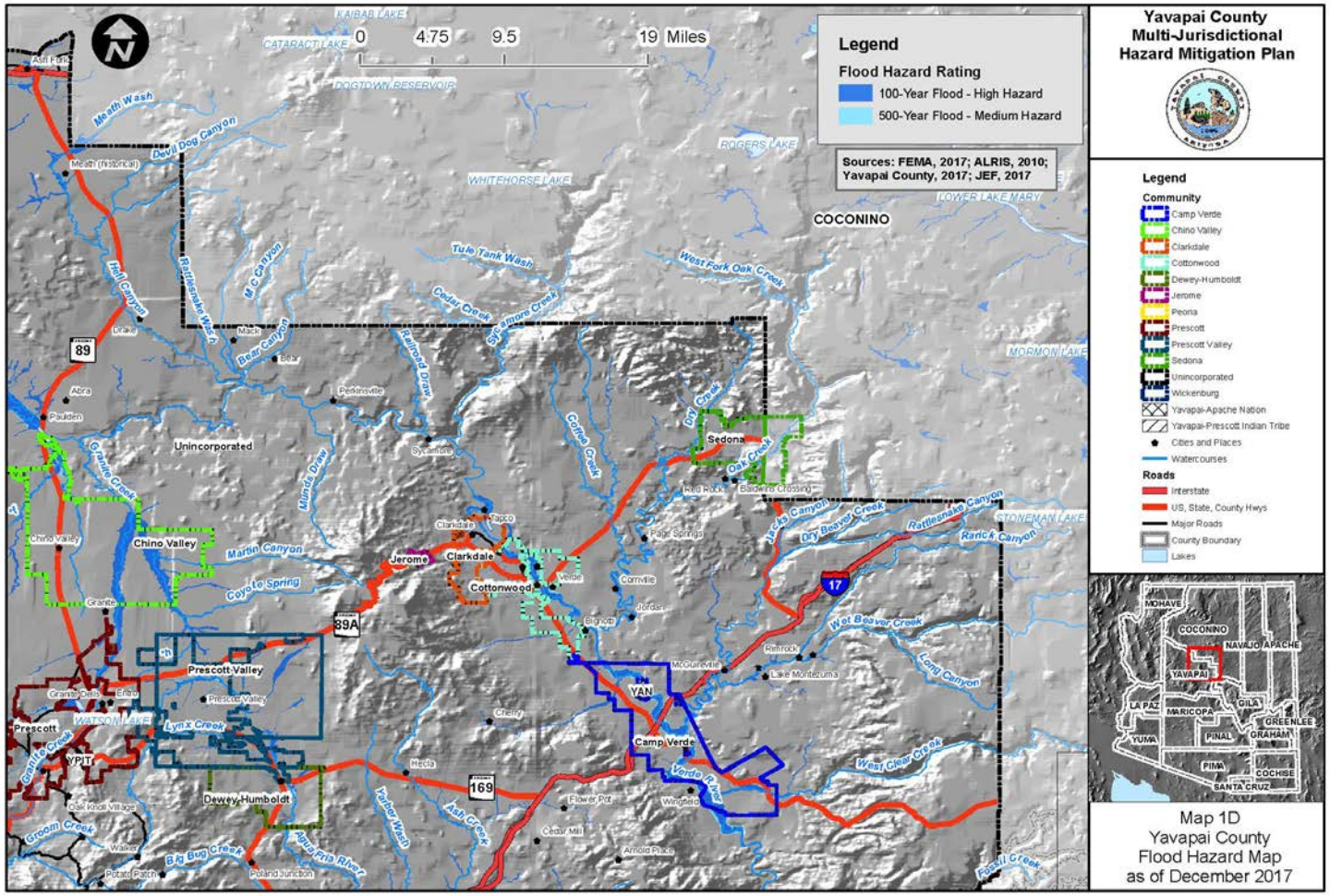
Map 4-8: Prescott Flood Map



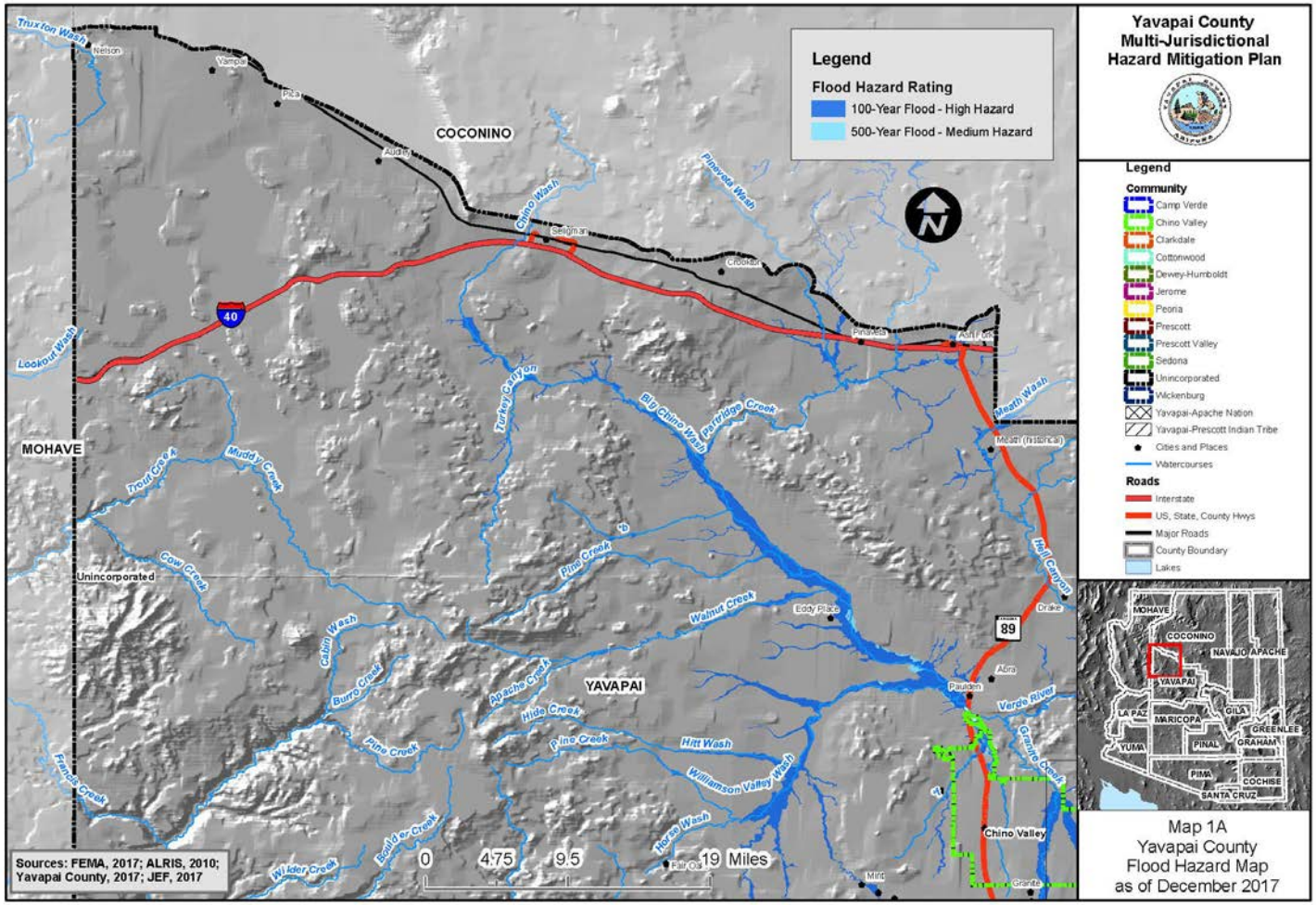
Map 4-9: Prescott Valley Flood Map



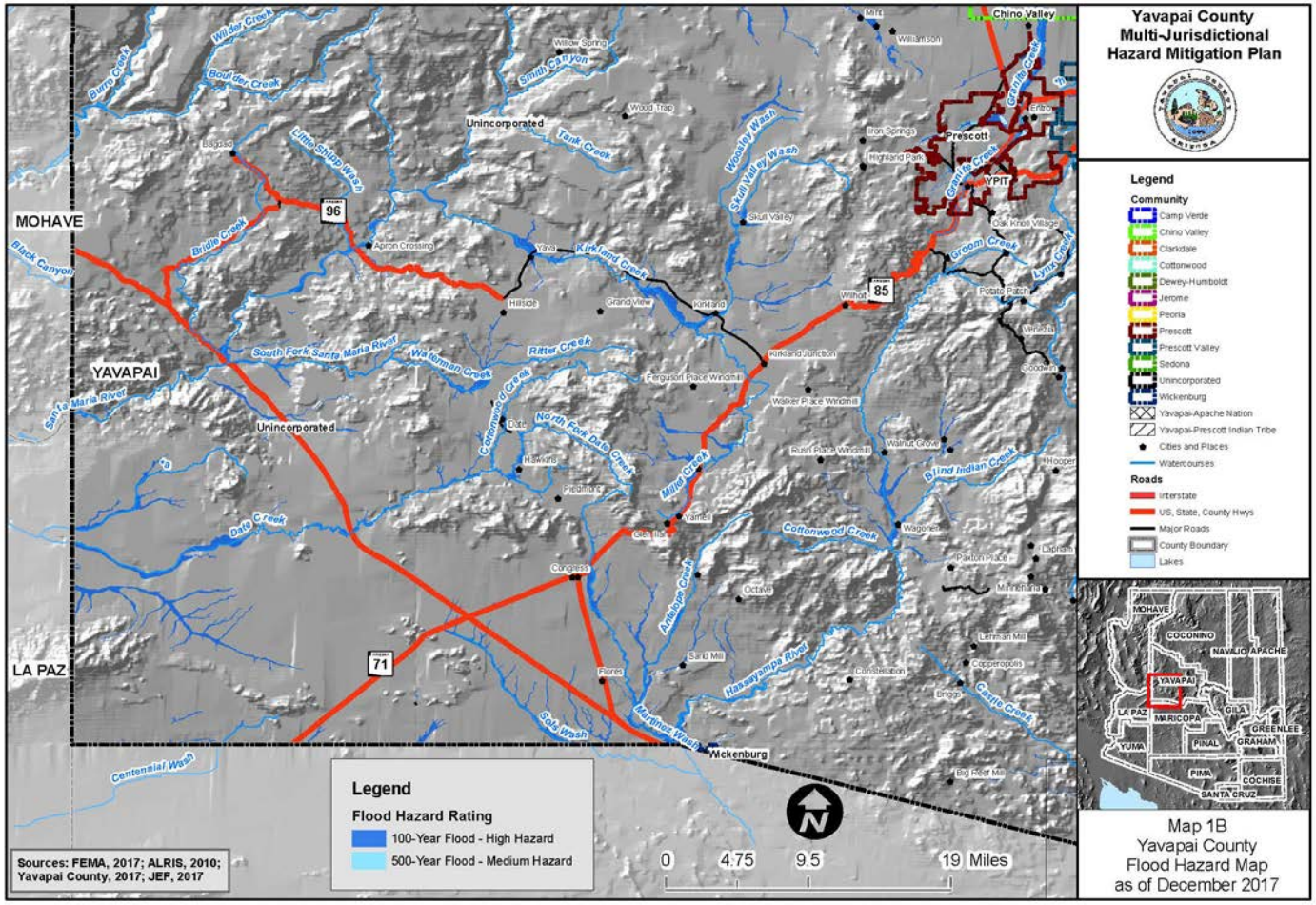
Map 4-10: Sedona Flood Map



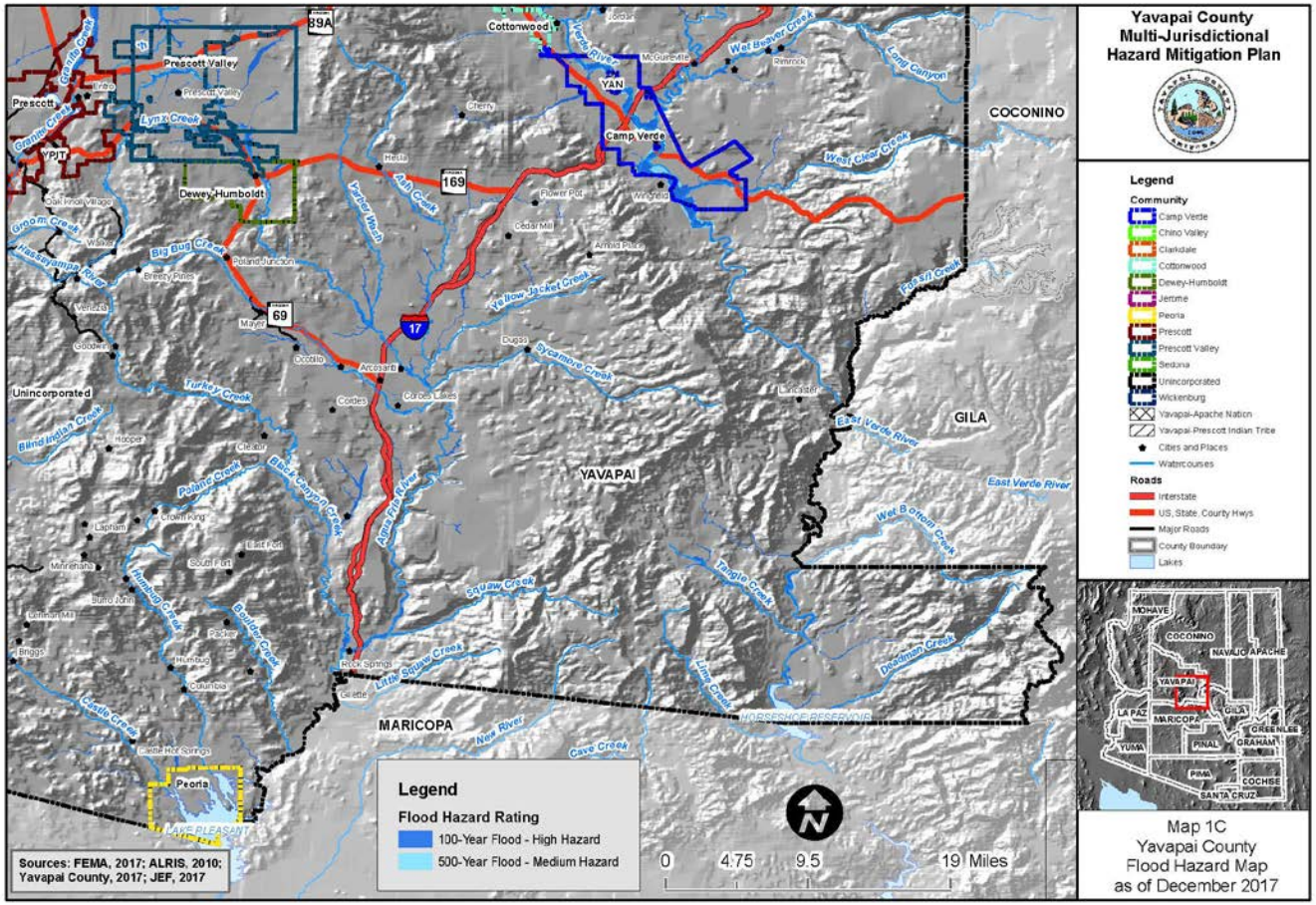
Map 4-11a: Yavapai County Flood Map – NE



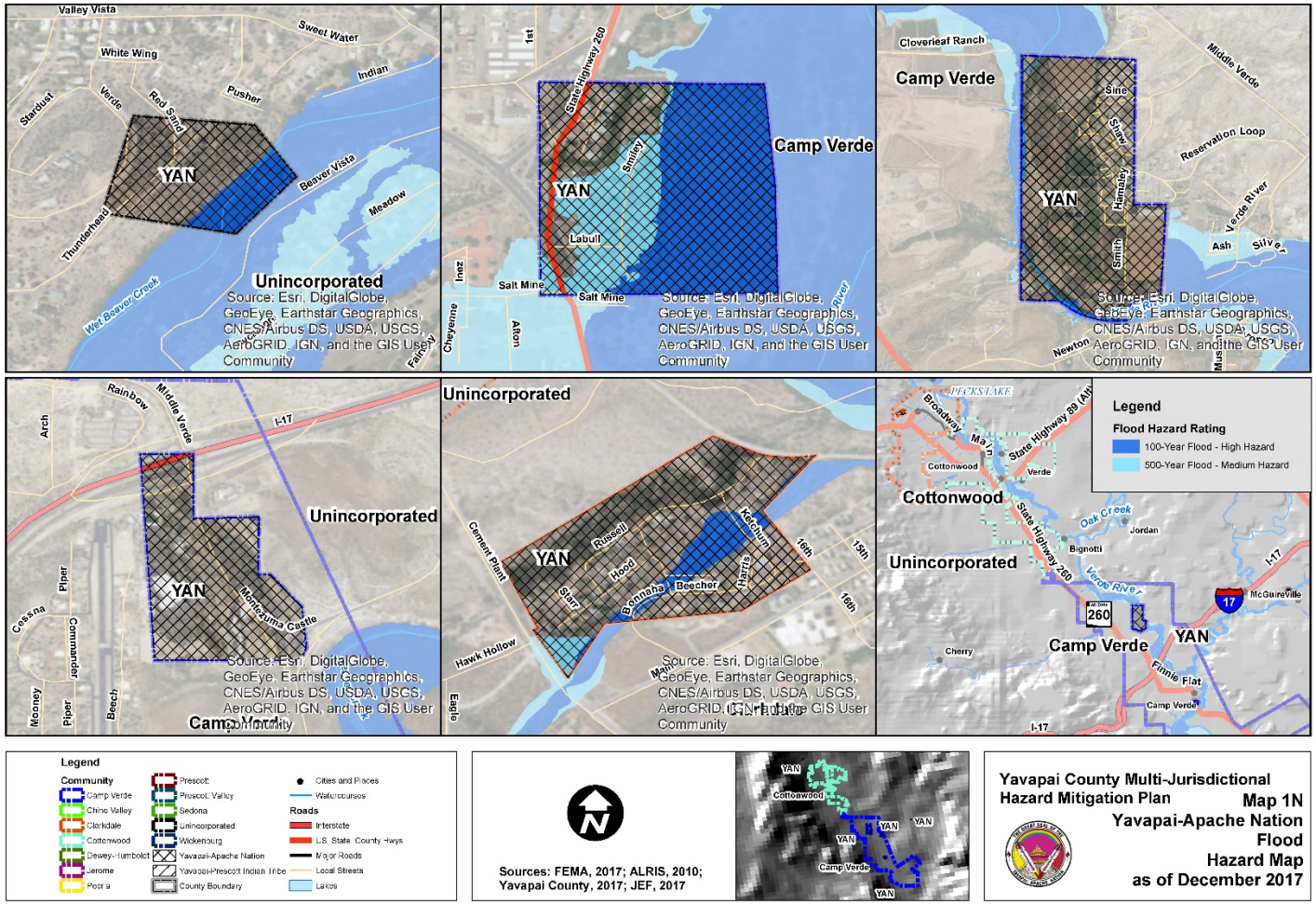
Map 4-11b: Yavapai County Flood Map – NW



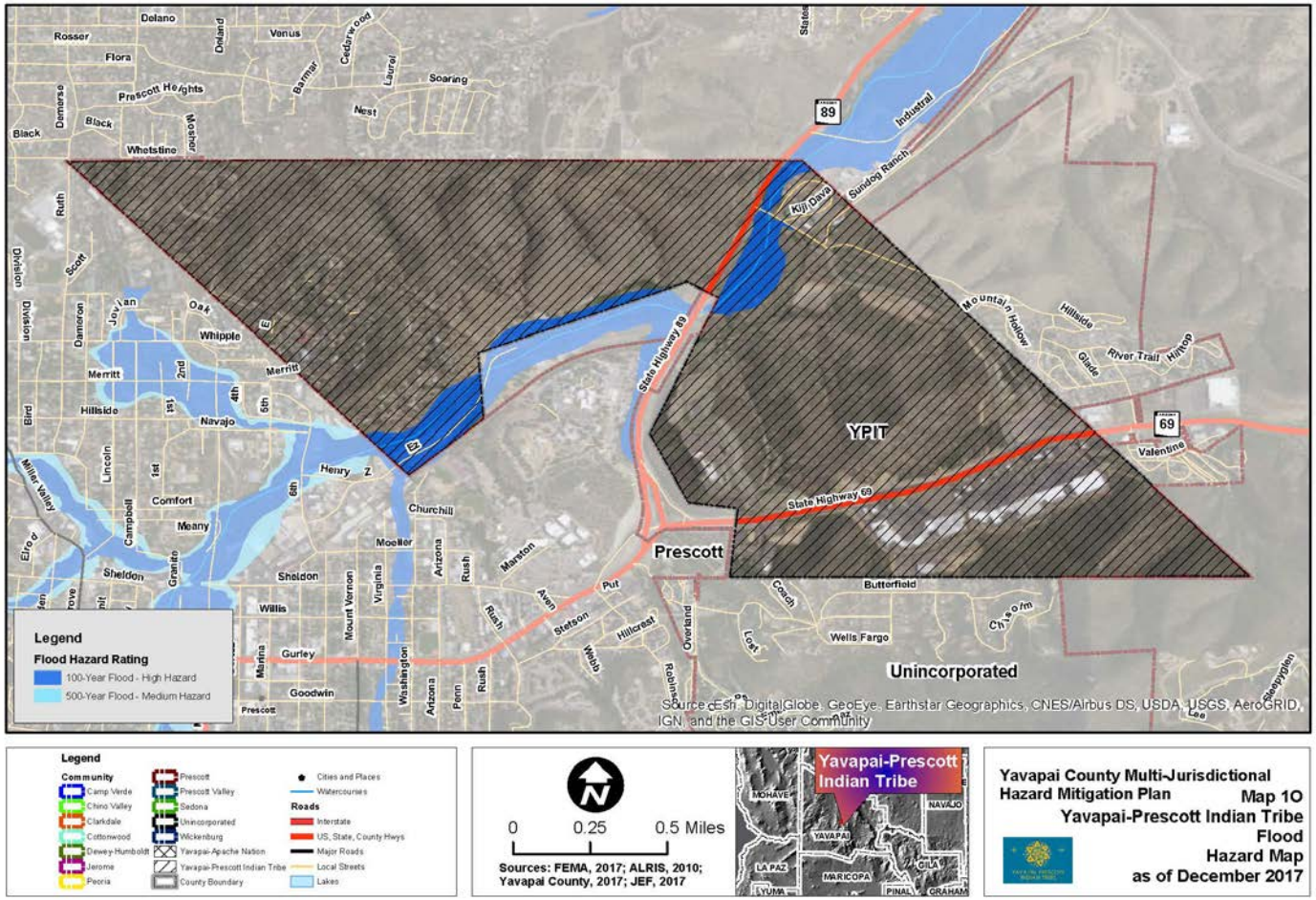
Map 4-11c: Yavapai County Flood Map – SW



Map 4-11d: Yavapai County Flood Map – SE



Map 4-12: Yavapai-Apache Nation



Map 4-13: Yavapai-Prescott Indian Tribe Flood Map

Sources

NOAA, National Weather Service Forecast Office – Tucson, 2011, http://www.wrh.noaa.gov/twc/hydro/floodhis.php

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

U.S. Army Corps of Engineers, Los Angeles District, 1994, Flood Damage Report, State of AZ, Floods of 1993.

4.4.3 Landslide/Mudslide

Description

Landslide is the generic term used to describe the down slope 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 below. 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 but post wildfire conditions also significantly increase the risk of debris flows and slope failures.

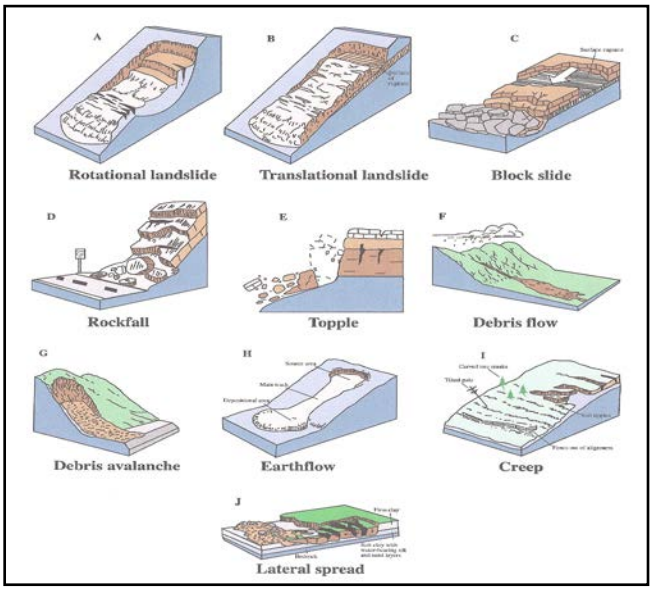


Figure 4-1 Landslide Types

Historical Hazard Information

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, businesses, and residences on the hill slopes, several of which were constructed before UVX started

operations [in 1914]. They would not 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 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.

Before *After*

Many times, the human error element relates to engineering and engineering systems that are important in determining human-caused disasters. The lower parking lot in Jerome subsided 2 years ago due to human error in development of this parcel of land as fill was placed on top of the existing land without being compacted. Although this is not a natural occurrence, the landslide was a direct result of human error and should be a consideration when developing areas with extreme slope. To identify potential human errors that may be overlooked by the more traditional hazard evaluation techniques, a process hazard evaluation technique for procedures is clearly needed. We have found that a what-if analysis structured to address procedures can be used effectively for this purpose. The current situation is being addressed with proper grading and fill to correct the problem with the lower parking lot.

Before *After*

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

History of Events

- July 30, 2016, A small landslide came down onto the Old Jerome Highway due to heavy rainfall. The road in this area would wash out frequently, but past mitigation efforts cemented the crossing area to prevent this. In the event of a slide, it is blocked until the City of Clarkdale can remove the debris. The road was also closed the following two days due to heavy rains.
- January 2014, moisture due to heavy precipitation along a rock outcropping on Senator Highway froze expanding the rock face creating a landslide, which cut off residents' south of the landslide. High explosives were used to clear the fallen rocks and open the road.

- July 2013, post fire flooding on the Gladiator burn scar removed millions of tons of material off Lincoln Ridge creating landslides of granular granite material closing Crown King Road. In addition, the scouring effect dislodged huge boulders that bifurcated Crown King Rd effectively cutting off the only access to the mountain community of Crown King. One family was trapped in their automobile, which was extricated from the debris flow.

- September 1936, the rate of movement accelerated, a sidewalk suddenly parted company with the building it paralleled, 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% diagonal, and it was necessary for authorities to condemn them and tear them down. (AZ Republic, Dec 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 JC 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 $2.1M in 2010 dollars).
- 1926, the first significant slide happened 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.
- 1924, the first noticeable ground movement on Main and Hull Streets began. 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.

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, rock falls) 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

Table 4-8: Landslide/Mudslide CPRI Rating					
Jurisdiction	Probability	Magnitude/ Severity	Warning Time	Duration	Rating
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	2.35
Cottonwood	Unlikely	Negligible	12-24 hours	< 24 hours	1.25
Dewey-Humboldt	Likely	Limited	< 6 hours	< 6 hours	2.65
Jerome	Likely	Critical	< 6 hours	< 6 hours	2.95
Prescott	Possible	Negligible	12-24 hours	< 24 hours	1.70
Prescott Valley	Possible	Limited	< 6 hours	< 6 hours	2.20
Sedona	Possible	Negligible	< 6 hours	< 24 hours	2.00
Unincorporated Yavapai County	Possible	Negligible	< 6 hours	< 1 week	2.10
Yavapai-Prescott Indian Tribe	Possible	Negligible	< 6 hours	< 1 week	2.10

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 especially following heavy precipitation events and post-wildfire debris flows. For the period of 1978-1985, 16 landslide incidents have been cataloged by the Arizona Department of Transportation with repair costs ranging from $1,000-$150,000. Thirteen of these events are considered 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 $2.1M in 2010 dollars. Accordingly, losses associated with landslides/mudslides are highly variable and difficult to predict.

Unincorporated County – Landslides occur frequently in Yavapai County due to the radical inclines in elevation. Primary routes and mountain passes are susceptible to closure due to landslides. Impacts include transportation routes used for emergency services, local residential access, and commerce along State Highway 89, 89A, and County maintained roads of Crown King Rd, Senator Highway, County Roads 10, 15, Copper Basin, Iron Springs, and numerous Prescott National Forest Roads.

In 2012, post Gladiator Wildfire, heavy localized rain led to flash flooding and landslides along Lincoln Ridge along Crown King Road. The road was cut in four locations effectively isolating the mountain community of Crown King. In the winter of 2013, Senator Highway was cut off due to a landslide along the Hassayampa.

Camp Verde – There is some potential for disruption to travel within the boundaries of the municipality of Camp Verde. However, there are very limited spots where this event could actually occur due to the topographical nature of the location of roadways. There is perhaps a higher potential for impact with the possibility of major events occurring on Hwy 260 to the east and to Hwy 17 south. The topography lends itself to slides as you travel east and south on the access roadways to the Verde Valley. Major slides could potentially restrict and/or delay the delivery of goods and services to the municipalities within the Verde Valley.

Chino Valley – There is really nothing that creates landslide/mudslide vulnerability to this jurisdiction.

Clarkdale – Many areas of Clarkdale are susceptible to various types of rock falls, landslides, and debris flows that can occur along steep mountain slopes, canyons, and along road cuts coming from Jerome. Extreme precipitation and snowmelt are the primary triggers. Although landslides possible in Clarkdale, property damage would probably be negligible as the majority of damage would be due to inundated washes, culverts and road cut infrastructure.

Cottonwood – Due to our topography, Cottonwood has very limited exposure to these events.

Dewey-Humboldt – The community would only be susceptible to this during post wildland fire flooding. Residential areas adjacent to the town are in the wildland urban interface and are on slopes conducive to moderate landslide activity. This hazard would be enhanced through increased hydrological flows as a transport media. The areas associated with slope and potential landslides are along Hwy 169, and outlying residential areas.

Jerome – Many landslides have occurred in the past cutting off SR 89A, which has put Jerome in a state of isolation for lengthy periods. The Town's utilities are also at stake; the water tanks are the only water supply and in the event of telephone system failure, Jerome's backup communications capability is nearly nonexistent. Power failure could also be a result of landslides placing the Town in extreme peril considering our location and possible transportation/ evacuation routes being blocked. Given the extensive mining operations that have taken place here, landslides are highly probable and could cause disastrous results.

Prescott – The City has a varied and unique topography that renders it susceptible to a landslide/mudslide event. There are a number of million dollar homes scattered throughout the community that are built on and into the hillsides overlooking the Town. Although there is limited history as it relates to such events occurring the do at times. Commercial properties are better insulated against such events however; there are some businesses that may still be susceptible.

Prescott Valley - There is really nothing that creates landslide/mudslide vulnerability to this jurisdiction.

Sedona – Sedona has some steep terrain, but the bedrock and soil types are not very conducive to landslides and mudslides. When they do occur, the most likely area is in Oak Creek Canyon. Burn areas increase the likelihood of mudslides in the Sedona region.

Yavapai-Prescott Indian Tribe – The Tribe recently had to do a repair/stabilization on a portion of our commercial buildings so that the building does not fall off the side of the hill. If this were to happen this would severely affect our business ventures.

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, creation of large hillside cuts, or both.

Sources

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4.4.4 Severe Wind

Description

The hazard of severe wind encompasses all climatic events that produce damaging winds. For Yavapai County, severe winds typically result either from 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

Yavapai County has been subject to over 100 severe wind events with a combined economic loss of over $18M damages to structures and agriculture in the last 50 years. There has also been one recorded fatality and several injuries associated with wind events, most of which related to an F1 tornado that touched down in 1977. Severe wind events occur on a significantly more frequent basis throughout the County, but do not always have reported damage. The following are examples of significant past events:

- September 27, 2014, an EF0 to EF1 tornado impacting the community of Groom Creek. The tornado damaged homes, power poles, and cut access to the area due to debris. The National Weather Service in Flagstaff conducted a damage survey southeast of the City of Prescott.
- June 30, 2013, a dissipating monsoon created straight-line winds, which led to extreme fire behavior during the Yarnell Wildfire leading to the death of 19 wildland firefighters. Additional, consequences of the event were the loss of 134 structures, which severely impacted the community of 649 people.
- The winter storm of 2010 destroyed approximately 60 road signs. There are occasional reports of roof damage associated to this weather event. The Blue Hills have lost utility power due to winter storms in 2017 and 2010 effecting approximately 1,500 residents.
- December 2009, very strong winds knocked over a 70-foot tall-two-foot 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)

- October 2009, high winds knocked down tree limbs and power lines in Prescott, Groom Creek, and Walker. Approx 6,300 customers lost power 5-6 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)
- 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, and blowing sand to northern portions of the state. (NCDC, 2010)
- 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 2:00 PM. There was a 15-car pileup near milepost 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)
- 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)

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 90-110 minutes and is among the longest in the nation (DEMA, 2004).

Despite the long duration time, the actual number of thunderstorms on average varies from 40-80 per year across the county. The highest number of storms occurs 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 two to eight 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. In this zone, a design wind speed of 130 mph is recommended for the design and construction of community shelters.

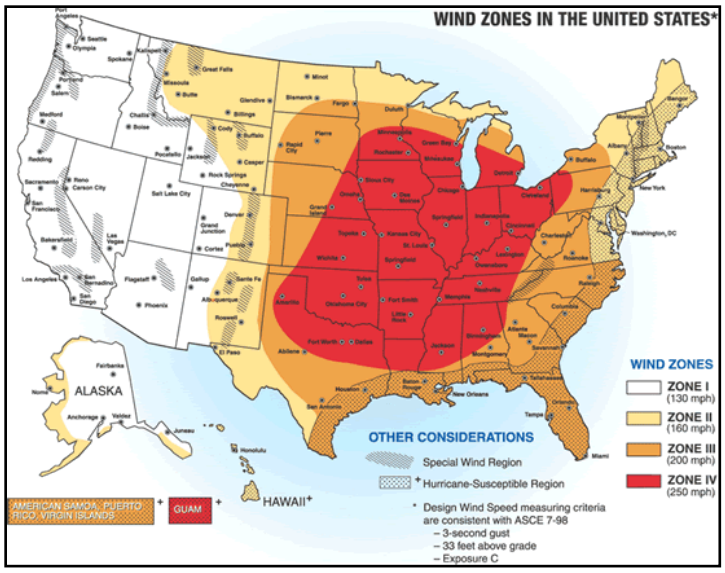

Figure 4-5: FEMA Wind Zones

Based on 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 0-5 based on wind speeds. 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.

Vulnerability

Table 4-10: Severe Wind CPRI Rating

Jurisdiction	Probability	Magnitude/ Severity	Warning Time	Duration	Rating
Camp Verde	Likely	Limited	12-24 hours	> 6 hours	2.80
Chino Valley	Highly Likely	Limited	12-24 hours	< 24 hours	2.60
Clarkdale	Likely	Limited	6-12 hours	< 24 hours	2.60
Cottonwood	Possible	Limited	12–24 hours	< 6 hours	1.90
Dewey-Humboldt	Likely	Critical	6–12 hours	< 1 week	2.10
Jerome	Highly Likely	Limited	6-12 hours	< 6 hours	2.95
Prescott	Likely	Limited	12–24 hours	< 24 hours	2.45
Prescott Valley	Likely	Critical	6-12 hours	< 24 hours	2.90
Sedona	Highly Likely	Limited	12-24 hours	< 6 hours	2.80
Unincorporated Yavapai County	Highly Likely	Limited	6-12 hours	< 1 week	3.15
Yavapai-Prescott Indian Tribe	Highly Likely	Limited	> 24 hours	< 6 hours	2.65

The entire County is assumed 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 (countywide). It is difficult to estimate losses for individual jurisdictions within the County due to the lack of discrete data.

Unincorporated County – Yavapai County is susceptible to localized severe wind events some of which have led to death. Straight-line winds have also caused damage to structures due to dissipating monsoons. Typical impacts to severe wind events in Yavapai County are loss of utility power, accidents, and structural damage.

Camp Verde – The Town's potential loss from severe wind events is comparatively small. There have been

historical instances where there has been loss to roofs, downed power lines involving trees and/or branches. There has been increased mitigation by APS in their tree trimming efforts to reduce the incidents of power outages due to branches falling as the results of severe wind. Mobile homes have been the most often incident involving loss in the historical recollections/documentations of loss. However, with more recent code requirements of having those homes anchored to prevent loss from severe wind events has reduced the recorded losses.

Chino Valley – Most severe winds in Chino Valley are associated with severe thunderstorms. From June to August Chino Valley is at risk for microburst, straight-line winds, and low intensity tornadic activity. Weather warnings from NOAA provide minimal warning as Monsoons can develop and dissipate quickly over higher elevations.

Clarkdale – Most of the severe winds in Clarkdale are associated with thunderstorms. The National Weather Service issues a severe thunderstorm watch when conditions are favorable for development of severe thunderstorms, which produce severe winds. In Clarkdale, weather fronts can sometimes be accompanied by high winds coming through Sycamore Canyon. The probability of a severe thunderstorm occurring with high velocity is likely with limited damage with the most vulnerability coming from downed trees and road blockages. The community does have a number of mobile and manufactured homes, which are more vulnerable to severe weather than other structures.

Cottonwood – While Cottonwood has the potential for severe wind events, historically there have been few such events and limited property loss from severe wind.

Dewey-Humboldt – Severe wind is an occasional event normally associated with winter storms and monsoonal weather. The community is vulnerable to moderate residential, public utility, and public infrastructure loss due to straight-line winds associated with winter storms and monsoons.

Jerome – Jerome is built on a side of a hill that provides an excellent conduit for wind. It often sweeps down the hill in energetic bursts. It can be windy year round but spring and fall are generally the strongest. The National Weather Service statistics prove that tornadoes can occur in association with any severe thunderstorm activity. Tornadoes only occurring on flat terrain are a myth and Jerome is subject to numerous severe mountain storms each year, which could include tornadoes, “straight line” or high winds. In association with heavy rains, these could produce landslides as well as devastation to residential and public commercial structures. Constructed on the steep slopes of Woodchute Mountain, Jerome is susceptible to more than just damaged roofs. Many of these structures are built on stilts are poorly built or have sustained damage from age or blasting and other mining operations. Most recently, a historic structure here in Jerome was lost due to both age and the high line winds that struck Jerome on March 5, 2017. The entire SW facing wall was blown over separating it from the rest of the building creating damage to the remaining walls. Structures like this one simply cannot handle high winds and are in danger of being damaged by severe wind.

Prescott – The City can expect some degree of seasonal severe winds. Historically these events have been known to interrupt utility services, primarily electricity, as well as down trees onto fixed structures and in the public rights of way. The impact of such events is somewhat limited and rarely has it been overly problematic to any significant sites within the city limits. However, when high winds and red flag conditions are prevalent during a wildfire as part of a winter storm, such events may be catastrophic and affect wide segments of infrastructure and community members.

Prescott Valley - Most severe winds in Prescott Valley are associated with severe thunderstorms. From June to August Chino Valley is at risk for microburst, straight-line winds, and low intensity tornadic activity. Weather warnings from NOAA provide minimal warning as Monsoons can develop and dissipate quickly over higher elevations. Annually, Prescott Valley residents file multiple claims for Monsoon related wind damage.

Sedona – The City has had few wind related events that have resulted in property damage. Downed trees and road blockages from high wind present the greatest threat.

Yavapai-Prescott Indian Tribe – Because the Reservation is so small, many natural disasters can severely affect commerce and life on the Reservation. Severe wind affects all areas in the Prescott basin. There have been a number of tornados sighted in our area.

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Changnon, Jr. S., 1988, *Climatology of Thunder Events in the Conterminous U.S., Part I: Temporal Aspects* and *Part II: Spatial Aspects*, Journal of Climate, Vol. 1, No. 4, pp. 389-405.

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4.4.5 Wildfires

Description

A wildfire is an uncontrolled fire spreading through wildland vegetative fuels, urban interface areas, or both, 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 2013 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:

- June 2017, The Goodwin Fire started outside of the community of Pine Flats just north of the Gladiator burn scar. The fire transitioned East and North affecting the community of Pine Flats burning down two homes and continued in a Northeasterly direction threatening the community of Mayer. In Mayer, the fire burnt two residences. On the third day, the fire pushed north threatening the communities of Poland Junction, Breezy Pines, and Dewey Humboldt; one home was lost outside of Breezy Pines. The fire continued to push to the North threatening four additional communities. In all over 28,000 acres burned and forced the evacuation of over 7500 families.
- July 2016, the Bug Creek Fire started south of Cordes Junction off I-17. The fire started on June 28, 2016 and burned a total of 1,080 acres. The fire was contained July 4, 2016 and no homes were destroyed.
- June 2016, the Tenderfoot fire was human-caused and originated NE of Yarnell. The fire started June 8, 2016 and was turned over to local resources on June 19, 2016. A total of 4,087 acres were burned. Two out buildings were burned.
- June 2013, the Doce fire was human caused and originated approximately 8 miles northwest of Prescott, near Granite Mountain recreation area. The fire started on June 18, 2013 and burned 6,732 acres surrounding Prescott. This fire was contained June 26, 2013 and suppression costs were approximately $1,000,000. No homes were lost.
- June 2013, the Yarnell Hill fire was lightning caused and burned the area surrounding and through the town of Yarnell. The fire started June 28, 2013 and was 100% contained on July 10, 2013. Nineteen firefighter deaths occurred and127 buildings in Yarnell and two in Peeples Valley had been destroyed. A total of 8,400 acres was burned, resulting in 134 structures loss of which 122 were residences. According to the National Fire Protection Association, it was the greatest loss of life for firefighters in a wildfire since 1933, the deadliest wildfire of any kind since 1991, and the greatest loss of firefighters in the United States since the September 11 attacks.[20]
- May 2012, the Gladiator Fire was human caused and burned 16,240 acres around the community of Crown King. The fire started May 13, 2012, originated from a structure fire on private property, and moved into the Prescott National Forest. This fire was released from the type 1 incident management team to a smaller type 3 organization on May 27, 2012.

- June 2008, the Lane 2 Fire was human-caused 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.
- July 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.
- July 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.
- 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.

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.

Vulnerability

Table 4-11: Wildfire CPRI Rating

Jurisdiction	Probability	Magnitude/ Severity	Warning Time	Duration	Rating
Camp Verde	Highly Likely	Catastrophic	< 6 hours	< 1 week	3.90
Chino Valley	Unlikely	Negligible	> 24 hours	< 6 hours	1.45
Clarkdale	Possible	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 Co	Highly Likely	Catastrophic	< 6 hours	> 1 week	4.00
Yavapai-Prescott Indian Tribe	Likely	Critical	6-12 hours	> 1 week	3.10

Based on the previous Plan, $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 countywide 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, injury, or both, 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 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.

Unincorporated County – The largest impacts from wildland fire are in the wildland urban interface. That transitional area is where the wildland meets civilization. Community development in the wildland urban interface increases the risk to life and property. Fire is a good tool for managing hazardous fuels in the wildlands, however, mitigation efforts need to focus on healthy forest, sound fire regiments, and building defensible space. Most at risk are the communities in the wildland interface and adjacent to the transitional vegetation zones: Wilhoit, Dewey-Humboldt, Groom Creek, Camp Wood, Crown King, Mayer, Ruger Ranch, Peeples Valley, Potato Patch, Walker, Mount Union Communities, Jerome, and Breezy Pines.

Camp Verde – Camp Verde's historical profile for wildfire loss is relatively small. Forest and State lands along with some private lands do however provide a potential for damage to populated areas located adjacent to those specific landmasses. There is little threat posed by large growth trees with the exception of along the Verde River corridor of 17 miles located within the Town's municipal boundaries. Likewise, there is a small section of large tree growth and deadfall flood debris, which is located on private, and forestlands within the Clear Creek corridor within the Town's municipal boundaries. The most likely potential for loss and threat is from grass fires burning into populated areas from other than private lands.

Chino Valley – The vegetation type around the town of Chino Valley is primarily grass or prairie. Although a range fire is very probable, the impacts are minimal.

Clarkdale – The historical and potential damage to the small community of Clarkdale due to wildfire events has been relatively minor. Clarkdale does have the possibility of wildfire due to the large amount of undeveloped land along Sycamore Canyon Road and portions of the Verde River where people recreate, which could inadvertently start a wildfire. Overgrown washes and vegetation along the Verde River would also be avenues of wildfire throughout the Town of Clarkdale.

Cottonwood – The City of Cottonwood is primarily surrounded by wildland fuel types that minimize the potential for wildland-urban interface fire situations. The greatest risk for wildland fire is along the Verde River corridor that runs through the northern portion of the city. There has been a project undertaken by non-governmental groups during the last two years to remove invasive species of plants along this corridor lessening the potential of fire. Fortunately, there are few structures located in proximity to the Verde River corridor limiting the potential for substantial property loss.

Dewey-Humboldt – The community sits in the transitional zone between the low laying deserts and the alpine forest at 4300 feet above sea level. Chaparral is the predominate vegetation which encapsulates the community. Within the Town, residents have worked to effectively mitigate the propagation of wildland fire through Firewise mitigation strategies. However, there remain outlying areas, which require additional attention. Historically, Dewey Humboldt has been threatened by wildfire. The 2012 Cherry Hill Fire started southeast of town and burned towards the Orme community. In 2014, the White Horse community had a wildland start associated with a structure fire, which burned into the Prescott National Forest. Dewey Humboldt has promoted a Community Firewise Program to enhance defensible space and worked with stakeholders in hazardous fuels mitigation. Emphasis currently is those properties on the west and southwest side of Town.

Jerome – The town of Jerome sits at an elevation of 5100 feet and is in the transitional zone of the Prescott National forest. The community is on the Northeast side of the Woodchute Mountain Range and is in the Wildland Urban Interface. The community has mixed vegetation of chaparral and conifer. The topography is steep and promotes the rapid spread of wildfire. The community has a very high visitor population and with its historic building at a high risk for wildfire. The highest potential and impacts for wildfire is from May to August during the driest months with highest tourist traffic.

Prescott – Wildfire is the premier hazard within the incorporated boundaries of the City of Prescott along with the communities surrounding it. Unseasonably warm temperatures, low humidity, and red-flag conditions can turn a seemingly benign event into a career fire suppression campaign in just a few hours. Loss estimations could reach

the billions of dollars and loss of life could result. Successful coordinated mitigations efforts have been undertaken over many years but with a roughly 7-year re-growth in is nearly impossible to "keep up". Virtually all segments of the community are vulnerable. This includes million dollar residential properties, multi-family dwellings, the historic downtown area, schools, hospital, and vast areas of commercial development. Without reservations, this is the greatest risk to the City of Prescott and historically has experienced many negative outcomes from this risk.

Prescott Valley – Minimal risk.

Sedona – While Sedona is vulnerable, and has a large wildland-urban interface exposure around its entire perimeter, losses in the greater Sedona area have been rare. Two large fires have occurred in and along Oak Creek in the past 10 years (the Brins Fire and the Slide Fire). Structural and personal losses from these fires were fortunately minimal.

Yavapai-Prescott Indian Tribe – The Tribe has a lot of open land that consists of mostly shrub oak. While the Tribe has pushed to be Firewise wildfires are extremely likely to occur on our Reservation. Any wildfire of any size would severely affect Reservation life.

Sources

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

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National Wildfire Coordination Group, 2010, Historical ICS 209 reports at: http://fam.nwcg.gov/fam-web/hist_209/report_list_209

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4.4.6 Winter Storm

Description

Severe snowstorms 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 snowstorms 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 snowstorms 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 snowstorms.

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 meets 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 a 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 do not 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 power lines.

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 power lines; 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, winter storms are also one of the most deadly hazards to affect the County. The following are highlights of the more prominent snowstorm events affecting Yavapai County:

- February 2017, a severe winter storm dropped up to 30 inches of snow above 6,000 feet. The resulting storm toppled power lines, closed roads, and impacted transportation to residents. Approximately 3,000 residents were without power for nearly a week. The 911-dispatch repeater (7,800 feet) was within 2 hours of running out of fuel due to the extended power outage.
- December 31, 2014, the Town of Clarkdale received 5-6 inches of snow, bringing the Town to almost a standstill. Town offices closed early so that employees could get home and the Police Department and Public Works Department were helping motorists. Since the Town had no snow removal equipment, backhoes, skid loaders and graders were borrowed from a landscaping company in Clarkdale in order to help keep the main street open. Due to the steepness of terrain, the main road in or out of Town was difficult.
- December 2011, a winter storm overnight dropped 18 inches of snow on the southern portions of Prescott. The event caused widespread power outages in outlying areas. Heavy snow closed all roads south of Prescott limiting travel for emergency services, and put the population at risk. There were over5,000 people affected by this event.
- January 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 6,700 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 as 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 (DEMA, 2010; FEMA, 2010)

- December 2008, snow began falling over the area during the afternoon of December 15. By the morning of December 18, there was about two feet of new snow on the ground at the 7,000-foot level. The snow caused many traffic accidents, power outages, and business/school closures and delayed openings. A spotter near 9,000 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 the event, the Department of Public Safety for northern Arizona responded to 188 slides off on highways in the northern region. Officers also responded to 65 collisions, 12 of which involved injuries. Two people were transported to Flagstaff Medical Center to be treated for their injuries. (NCDC, 2010)
- March 2006, a major winter storm affected all of northern Arizona from Friday (3/10) through 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 include (in inches): 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)
- October 23, 2005, DPS reported five wrecks due to hail covering the road on I-17 near Highway 69. There was one fatality in a wreck on Highway 69 between I-17 and Mayer. (NCDC, 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.

Vulnerability

Table 4-12: Winter storm CPRI Rating

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	Possible	Negligible	> 24 hours	< 1 week	1.65
Dewey-Humboldt	Likely	Limited	6–12 hours	< 1 week	2.70
Jerome	Highly Likely	Critical	6-12 hours	< 1 week	3.45
Prescott	Likely	Critical	12–24 hours	< 1 week	2.85
Prescott Valley	Likely	Limited	12-24 hours	< 1 week	2.55
Sedona	Likely	Limited	12–24 hours	< 1 week	2.55
Unincorporated Yavapai County	Likely	Critical	12-24 hours	> 1 week	2.95

Table 4-12: Winter storm CPRI Rating					
Participating Jurisdiction	Probability	Magnitude/ Severity	Warning Time	Duration	CPRI Score
Yavapai-Prescott Indian Tribe	Possible	Negligible	> 24 hours	< 1 week	1.65

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 and losses of both life and property makes this probable.

Unincorporated County – Vertical elevation in Yavapai County extends from 1,000 above sea level (ASL) in the southern regions to nearly 8,000 feet ASL in the Central Highlands (Mt Union). Winter storms regularly affect up to 85% of the 8,126 square miles of Yavapai County. I-17 and I-40 are frequently impacted due to heavy snow closing these major commercial transportation routes. Impacts to rural Yavapai County are more severe with the potential of limiting access to emergency services. Utility power is often vulnerable with costly repairs and extended outage.

Camp Verde – With an elevation of 3160 ft, Camp Verde's vulnerability to actual snow loss is relatively small. Homes are designed for adequate snow loads and other normal protections related to freezing at this elevation of exposure. Increased exposure to flooding happens with more than normal snow accumulation's at higher elevations followed either by additional precipitation in the form of warm rains, or by warmer than normal weather accelerating the melting of the snowfall. There has been some loss recorded to older buildings, which were primarily flat roof sheds, or out buildings, which were not designed with snow load provisions. Longer termed presence of snow accumulation provides some disruption with travel on lesser-used roads and without municipal snow removal resources, which is usually supplied by local heavy equipment contractors or as in most cases, the weather changes in time for most roads to be passable in 2 to 3 days.

Chino Valley – Historically Chino Valley has received heavy snow. The community is along State Route 89, which is the principle route for commercial traffic to I-40. Heavy snow has the potential to close this artillerial route. The impacts are otherwise minimal.

Clarkdale – The elevation of Clarkdale normally sets the risk for winter storms as a possibility, with a limited impact. Normally, if the Town does receive snow, freezing rain, etc. it is only for a short time and has relatively minor impacts, except for travel during the event, which clears quickly. When the snow does not melt quickly, travel is impeded due to lack of snow removal equipment and the steep terrain of the community. Freezing temperatures over long periods will cause municipal water pipes and meters to freeze along with residential homes and businesses.

Cottonwood – While the City of Cottonwood has the potential for winter storm events, our lower elevation makes major snow events very rare. Historically, there has been limited property loss from winter storms.

Dewey-Humboldt – The community experiences little to no winter storm and currently has requisite equipment and personnel to address the needs associated with the hazard. Additionally, mutual aid, emergency contracts, and intergovernmental agreements fill the gap where needed.

Jerome – Recent climatological conditions have blessed Jerome with mild conditions. The not so distant past paints another picture as snowfall statistics in Jerome have exceeded 20" in a day. Such occurrences with that kind of heavy snow can happen on any given year between the months of November and March. Jerome is ill equipped to handle such storms. Minimal equipment is available and would not be able to support these kinds of storms. This exposes the town's population and visitors to an immediate emergency scenario. Any snow sleet or even rain that freezes overnight generates additional risk in Jerome that would be routine elsewhere. The steep grade of many of Jerome's streets would make vehicular travel over them impossible. Attempting access to some areas would be dangerous and cause possible crashes into other vehicles and into residences all too easily. The equipment necessary to effect mitigation in this area is impossible for the town to purchase. As many measures as possible have been adopted; however none of these would help in a major winter storm. There is only one road in and out of Jerome. State Route 89A over Mingus Mountain is one access point and the same road leading down the mountain to Clarkdale is the other. Other roads such as FR 318, otherwise known as Perkinsville Road would be

impassible in these situations. This puts Jerome in an immediate isolation configuration and those risks would put Jerome in a perilous state.

Prescott – Winter storms routinely have an annual impact within the city. Although the most devastating of these storms seem to be on a decade cycle, they can occur many times in succession. Qualification of storms is very dependent upon time of day, day of week, and advance awareness. Primary loss associated directly to catastrophic storm events are routinely related to commerce, the communities' economic vitality, and loss of essential utility services. On occasion, there are secondary and tertiary issues to structures caused by weight of snow and falling limbs from trees but these are rare.

Prescott Valley – This community sits at approximately 5,000 feet and historically has had significant snowfall. The community now has a population of nearly 65,000 and sits along the Highway 69 corridor, which connects central Yavapai County with I-17. Vulnerable populations include a large number of retirement-aged people, a regional hospital, as well as, assisted living housing. The town has the ability to clear major roads, however, copious amounts of snow in a single or series of storms would adversely affect the town, as well as delivered emergency services.

Sedona – The City of Sedona generally receives no more than 12" of snow in a severe snowstorm event. While this is inconvenient in the short term, property damage is minimal. The biggest issue is weather related car accidents.

Yavapai-Prescott Indian Tribe - If the Prescott basin were to get substantial snowfall affecting the entire area, the Reservation would as well be heavily impacted. On the Reservation for our residential area, there is only 1 ingress/egress if this is impacted by snowfall our residents cannot get off the Reservation for supplies.

Sources

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

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

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Risk Assessment Summary

The jurisdictional variability of risk associated with each profiled hazard 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. The table below summarizes the hazards selected for mitigation by each jurisdiction and will be the basis for each jurisdictions' mitigation strategy.

Table 4-13: Hazards Mitigated by Jurisdiction

	Earthquake	Flood	Landslide / Mudslide	Severe Wind	Wildfire	Winter Storm
County	X	X	X	X	X	X
Camp Verde		X		X	X	X
Chino Valley	X	X	X	X	X	X
Clarkdale		X		X		
Cottonwood		X				
Dewey-Humboldt		X	X		X	X
Jerome	X	X	X	X	X	X
Prescott	X	X			X	X
Prescott Valley	X	X		X	X	
Sedona		X		X	X	X
YPIT		X	X	X	X	X

SECTION 5: MITIGATION STRATEGY

5-1 Section Changes

The mitigation strategy provides the "what, when, and how" of actions that will reduce or possibly remove the community's exposure to hazard risks. This information is presented in the following areas:

Goals and Objectives

Capability Assessment

Mitigation Actions

5-2 Goals and Objectives

An assessment of the goals and objectives was made and after discussion and comparison of the 2011 Plan goals and objectives to the 2013 State Plan, it was decided they would be revised. The goals and objectives in the previous plans were complex and redundant. The following is the resulting updated goal and objectives for this Plan.

Goal

Reduce the potential level of loss of life, damage to structures, existing and future critical facilities/ infrastructure, and other community assets due to hazards.

Objectives

- Maintain and support general plans, ordinances, and codes in accordance with state/federal regulations, to limit development in hazard areas and to build to standards that will prevent or reduce damage.
- Educate the public to increase awareness of hazards and opportunities for mitigation actions.
- Promote hazard mitigation in the business, residential, and agricultural communities.
- Maintain compliance with the National Flood Insurance Program (NFIP) requirements.
- Monitor and publicize the effectiveness of mitigation activities implemented.
- Establish/maintain intergovernmental agreements with neighboring communities and tribal governments.
- Promote changes in current regulations to facilitate hazard mitigation.

5-3 Capability Assessment

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, Technical Staff and Personnel, and Fiscal Resources.

Table 5-3-1: Yavapai County Capability Assessment

Tool	Description	Responsible Department/Agency
Codes	• International Building Code and related codes adopted Jan 1, 2015, Ordinance 2012-1.	Development Services
Ordinances	• Planning & Zoning Ord for the Unincorporated areas of Yavapai Co, adopted Feb 1968 updates thru Nov 2016. • Road Ordinance 2013-1 • Yavapai Subdivision Regulations adopted Aug 6, 2012. • Yavapai Co Flood Control District Ordinance 2010-1 Flood Damage Prevention Ordinance, adopted Oct 2010.	Development Services, Flood Control District, and Public Works

Table 5-3-1: Yavapai County Capability Assessment		
Tool	**Description**	**Responsible Department/Agency**
Plans, Manuals, Guidelines	• Community Plans - Community Plans are part of the County general Plan • General Plan 2016- Includes related to Land use, Transportation, Water Resources, Open Space • Yavapai County – Drainage Design Manual (Jul 2015) • Yavapai County - Emergency Operations Plan (Jan 2015) • Yavapai County - Recovery Plan (Jan 2017)	Development Services, Flood Control District, and Public Works
Studies	• Flood Plain Analysis Upper Verde - Yavapai County (2015) • Flood Plain Studies – Flood Insurance Rate Mapping • Mobility Management Plan (2016) • Transportation Study (2014) - Central Yavapai • Transportation Study (2016) - Verde Valley Regional • Special Study (1998) - Yavapai Co Master Trails for Non-Motorized Multi-Use • Special Study (2000) - Yavapai Co Wireless Communication. • Various Area Drainage Master Studies for various unincorporated communities • Yavapai Co Resol 1036 – Minimum Standards for Design & Construction	Development Services, Flood Control District, and Public Works

Yavapai County Technical Staff & Personnel Capabilities	
Resource	**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, infrastructure, or both	**Development Services:** Professionals **Flood Control District:** Engineers **Public Works:** Engineers, Inspectors
Planner(s) or engineer(s) with an understanding of natural, human-caused hazards, or both	**Development Services:** Planners & Professionals **Flood Control District:** Engineers and Professionals **Public Works:** Emergency Managers, Engineers, and Professionals
Floodplain Manager	Flood Control District
Surveyors	Public Works
Staff with education or expertise to assess the community's vulnerability to hazards	**Development Services:** Planners & Professionals **Flood Control District:** Engineers and Professionals **Public Works:** Emergency Managers, Engineers, and Professionals
Personnel skilled in GIS, HAZUS, or both	**Flood Control District:** Engineers and Professionals **GIS:** Professionals **Public Works:** Emergency Managers, and Engineers
Scientists familiar with the hazards of the community	**Flood Control District:** Engineers and Professionals **Public Works:** Emergency Managers, and Engineers
Emergency manager	**Public Works:** Emergency Management
Grant writer(s)	**Flood Control:** Professionals **Public Works:** Emergency Manager
Others	Certified Floodplain Managers

Yavapai County Fiscal Capabilities		
Resource	**Accessible or Eligible to Use**	**Comments**
Community Development Block Grants	Yes	Yes
Capital Improvements Project funding	Yes	Yes
Authority to levy 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.

Table 5-3-2: Camp Verde Capability Assessment		
Tool	**Description**	**Responsible Department/Agency**
Codes	• 2012 International Building Code, incl App J – Grading • 2012 International Residential Code • 2011 National Electric Code • 2012 International Plumbing, Mechanical, Fuel Gas, Energy Conservation, Fire, and Existing Building Codes • Technical Code Amendments, Town Code Chap 7, Art 7- • 1, Sect 7-1-100 • Administrative Building Code, Town Code Chap 7, Art 7- 2, Sect 7-2-101-111	Community Development; Building Safety; Camp Verde Fire Dept; Planning & Zoning Public Works
Ordinances & Resolutions	• Ordinance 2009-A359, Building Codes • Ordinance 2016-A361, Fees/Administrative (Annually) • Ordinance 2005-A310, Storm water • Ordinance 2006A-335, NFIP • IGA, Town/Copper Canyon Fire & Medical Authority. (2010) • IGA, Town/Yavapai Co Unified Emergency Management (2017) • IGA Emergency Management with Yavapai Co (2017)	Community Development; Building Safety; Public Works; Camp Verde Fire Dept; Planning and Zoning Yavapai Co
Plans, Manuals, Guidelines	• General Plan (2016) - Growing Smarter Mandated. • Disaster Mitigation Plan (2017) - Disaster Preparedness Plan. • Focus Future II (2016) - Economic Development Plan. • River Recreation Master Plan (2016) • Capital Improvement Plan (2016) • Town of Camp Verde Hazard Mitigation Plan (2017) • 2017 Storm Water Management Plan • Cliffs Parkway/Finnie Flat Road Drainage Improvement Plans 2006-2010 (Complete as of 2/2017) • Yavapai Drainage Criteria Manual • Town of Camp Verde Engineering Standards (To be completed 2017)	Community Development; Building Safety; Planning and Zoning; Public Works; Camp Verde Fire Dept; Camp Verde Sanitary District; Yavapai Co Camp Verde Marshal's Office
Studies	• Small Area Transportation Plan 2017 NACOG • Town of Camp Verde Area Master Drainage Study 1992 • Middle Verde Area Drainage Evaluation 2002	Public Works; Yavapai Co USFS, NACOG

Camp Verde Technical Staff & Personnel Capabilities	
Resource	**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, Public Works Director/Engineer
Engineer(s) or professional(s) trained in construction practices related to buildings, infrastructure, or both	Building Official, Building Permit Technician, Town of Camp Verde Public Works Director/Town Engineer
Planner(s) or engineer(s) with understanding of natural, human-caused hazards, or both	Copper Canyon Fire & Medical Authority, Public Works Director/Town Engineer, Deputy Public Works Director/Engineer, Community Development Director, Camp Verde Marshal's Office
Floodplain Manager	Public Works Director/Engineer, Yavapai Co Flood Control District
Surveyors	Heritage Survey, Hammes Surveying and Geometrics (on-call Consultants) S.E.C.
Staff with education or expertise to assess the community's vulnerability to hazards	Copper Canyon Fire & Medical Authority, Public Works Director/Town Engineer, Camp Verde Streets Dept, Camp Verde Marshal's Office
Personnel skilled in GIS, HAZUS, or both	GIS Senior Planner, Administrative staff
Emergency Manager	Town Public Works Director/Engineer/Deputy Public Works Director Engineer
Grant writer(s)	Town of Camp Verde Public Works Director/Engineer

Camp Verde Fiscal Capabilities		
Resource	**Accessible or Eligible to Use**	**Comments**
Community Development Block Grants	Yes	
Capital Improvements Project funding	Yes	
Authority to levy 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	
Other		

Table 5-3-3: Chino Valley Capability Assessment		
Tool	**Description**	**Responsible Department/Agency**
Codes	• 2003 Fire Dept. • 2006, IBC, IRC, IFGC, IMC, IPC • 2005 NEC	Development Services; Building Dept 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, Guidelines	• General Plan (2015), ensures the Town's future and maintains the vision of its citizens. • Master Community Center Park Project	Development Services; Planning Parks and Recreation; Engineering

Table 5-3-3: Chino Valley Capability Assessment		
Tool	**Description**	**Responsible Department/Agency**
Studies	• Chino Valley Extension Corridor Def. Study • Central Yavapai Metropolitan Planning Organization Small Area Transportation Plan. • SR 89 Widening Between Road 4 South to Pioneer Parkway	Public Works; Engineering; Development Services

Chino Valley Technical Staff & Personnel Capabilities	
Resource	**Department/Agency - Position**
Planner(s) or engineer(s) with knowledge of land development and land management practices	Ruth Mayday – Planner Michael Lopez, P.E. - Engineer
Engineer(s) or professional(s) trained in construction practices related to buildings, infrastructure, or both	Michael Lopez, P.E. – Engineer Kurt Morrill – Public Works Technician Jim Shinost – Acting Building Official
Planner(s) or engineer(s) with and understanding of natural, human-caused hazards, or both	
Floodplain Manager	Jim Shinost – Acting Building Official Michael Lopez, P.E. – Engineer
Staff with education or expertise to assess the community's vulnerability to hazards	
Personnel skilled in GIS, HAZUS, or both	Jan Mazy, GIS/CAD Technician
Emergency Manager	Michael Lopez, P.E. - Public Works Director

Chino Valley Fiscal Capabilities		
Resources	**Accessible or Eligible to Use**	**Comments**
Community Development Block Grants	Yes	
Capital Improvements Project funding	Yes	
Authority to levy 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	

Table 5-3-4: Clarkdale Capability Assessment		
Tools	**Description**	**Responsible Department/Agency**
Codes	• 2012 International Building, Residential, Plumbing, Mechanical, Fuel Gas, Fire, and Property Maintenance Codes • 2011 National Electric Code • Town Code of Clarkdale • Town Zoning Code	Community Development; Clarkdale Fire District; Town Clerk
Ordinances	• Minor Land Division Ordinance • Flood Damage Prevention Ordinance (2016)	Community Development; Town Clerk

Table 5-3-4: Clarkdale Capability Assessment		
Tools	**Description**	**Responsible Department/Agency**
Plans, Manuals, Guidelines	• Town of Clarkdale Disaster Plan & Recovery Guide (2014), Comprehensive, systematic plan that provides protocol for dealing with specific disasters. • General Plan (2012), Statement of Clarkdale's vision for growth and development • 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 – (Through 2020) • IGA with ADOT for Bridge/Culvert Inspection - Perpetual	Water & Sewer Utility; Community Development; Public Works Town Clerk
Studies	• Flood Insurance Study – 2015 • Town Area Master drainage Study – 1994 • Town Area Master Drainage Study – 1996 • Lampliter Village & Blackhills Estates Drainage Design Report – 2004 • PARA Transportation Study - 2016	Community Development; Utilities Public Works

Clarkdale Technical Staff & Personnel Capabilities	
Resource	**Department/Agency - Position**
Planner(s) or engineer(s) with knowledge of land development and land management practices	Community Development Director, GIS Technician, Senior Planner, Public Works Director, Town Manager
Engineer(s) or professional(s) trained in construction practices related to buildings, infrastructure, or both	Community Development Director, Building Inspector, Public Works Director
Planner(s) or engineer(s) with and understanding of natural, human-caused hazards, or both	Community Development Director, Building Inspector, Public Works Director, Town Manager
Floodplain Manager	Yavapai County: Jim Young
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, HAZUS, or both	Community Development Director, GIS Technician
Emergency Manager - Coordinator	Town Clerk-Finance Director
Grant writer(s)	Town Staff
Others	

Clarkdale Fiscal Capabilities		
Resource	**Accessible or Eligible to Use**	**Comments**
Community Development Block Grants	Yes	Apply for CDBG on rotation
Capital Improvements Project funding	Yes	
Authority to levy taxes for specific purposes	Yes	

Fees for water, sewer, gas, or electric service	Yes	Sewer & Water
Impact fees for homebuyers or new developments/homes	No	
Incur debt through general obligation bonds	Yes	
Incur debt through special tax bonds	Yes	
Other	Yes	IGAs with County, State, ADOT, Grants

Table 5-3-5: Cottonwood Capability Assessment		
Tool	**Description**	**Responsible Department/Agency**
Codes	• 2009 International Building, Residential, Plumbing, and Mechanical Codes • 2012 International Fire Code • 2008 National Electric Code • Cottonwood Municipal Code	Community Development; Code /Zoning Enforcement; Fire Dept
Ordinances	• Storm Water Management • Fire Code • Zoning Ordinance • Building Code • Cottonwood Subdivision Regulations	Engineering; Fire Dept; Community Development; Public Works
Plans, Manuals, Guidelines	• General Plan (2014) - Land Use Plan for the City • Emergency Response Plan (2016) - 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 (2013) – HazMat Response Plan for Yavapai Co.	Community Development; Fire/Police Depts
Studies	• 2008 Verde Village Flood Study • 2009/2010 Mescal Gulch Flood Study • 2011 Verde River Flood Study • 1985 City of Cottonwood Drainage report • 2009 LOMR Silver Springs Gulch Flood Study • 2010 FEMA FIRM Map	Engineering

Cottonwood Technical Staff & Personnel Capabilities	
Resource	**Department/Agency - Position**
Planner(s) or engineer(s) with knowledge of land development and land management practices	Community Development – Manager, Public Works Dept – City Engineer, City Administration – City Manager
Engineer(s) or professional(s) trained in construction practices related to buildings, infrastructure, or both	Community Development – Building Official, Public Works Dept – City Engineer & Asst.
Planner(s) or engineer(s) with and understanding of natural, human-caused hazards, or both	Fire Dept. – Fire Chief, Public Works Dept. – City Engineer, Police Dept. – Police Chief
Floodplain Manager	Engineering – City Engineer
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,	IT Department-GIS Tech, Fire Department.- GIS/Addressing

Cottonwood Technical Staff & Personnel Capabilities	
Resource	**Department/Agency - Position**
	Lieutenant
Emergency Manager	Fire Dept. – Fire Chief

Cottonwood Fiscal Capabilities		
Resource	**Accessible or Eligible to Use**	**Comments**
Community Development Block Grants	Yes	
Capital Improvements Project funding	Yes	Five Year CIP Plan
Authority to levy taxes for specific purposes	Yes	Sales Tax
Fees for water and sewer	Yes	Fees
Impact fees for homebuyers or new developments/homes	No	
Incur debt through general obligation bonds	Yes	
Incur debt through special tax bonds	Yes	
Other		

Table 5-3-6: Dewey-Humboldt Capability Assessment		
Tool	**Description**	**Responsible Department/Agency**
Codes	• 2012 ICC Codes • 2011 National Electric Code	Community Development / Building Official
Ordinances	• Update Dewey-Humboldt Regulations	Community Development
Plans, Manuals, Guidelines	• Dewey-Humboldt 2009 General Plan update (due in May 2019) • Dewey-Humboldt Capital Improvement Plan	Community Development; Engineering

Dewey-Humboldt Technical Staff & Personnel Capabilities	
Resource	**Department/Agency - Position**
Planner(s) or engineer(s) with knowledge of land development and land management practices	Certified Planner, Town Public Works Director
Engineer(s) or professional(s) trained in construction practices related to buildings, infrastructure, or both	Building Official,
Planner(s) or engineer(s) with and understanding of natural, human-caused hazards, or both	Certified Planner, Town Public Works Director, Building Official
Floodplain Manager	Yavapai County
Surveyors	Contracting service for Town Public Works Department
Staff with education or expertise to assess the community's vulnerability to hazards	Town Public Works Director, Building Official
Personnel skilled in GIS, HAZUS, or both	Certified Planner
Emergency Manager	Town Manager
Grant writer(s)	Certified Planner, Town Manager

Dewey-Humboldt Fiscal Capabilities

Resource	Accessible or Eligible to Use	Comments
Community Development Block Grants	Yes	Apply for CDBG on an annual basis
Capital Improvements Project funding	don't know	CIP is now a working document due to no sustainable funding.
Authority to levy 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	Currently no impact fees implemented; town has the authority to impose impact fee at any time.
Incur debt through general obligation bonds	Yes	
Incur debt through special tax bonds	Yes	

Table 5-3-7: Jerome Capability Assessment		
Tool	**Description**	**Responsible Department/Agency**
Codes	Jerome Town Code - includes by reference: • 2003 International Building Code • 1988 Uniform Code for the Abatement of Dangerous Buildings • 2003 International Residential, Plumbing, Mechanical, Fuel Gas, Property Maintenance, and One- and Two-Family International Dwelling Codes • 2012 International Fire Code • 2002 National Electrical Code • 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.	
Studies	Area Drainage Study	Yavapai County

Jerome Technical Staff & Personnel	
Resource	**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, infrastructure, or both	Building Inspector
Planner(s) or engineer(s) with and understanding of natural, human-caused hazards, or both	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, HAZUS, or both	Jerome Fire Department, Town Engineer
Scientists familiar with the hazards of the	Yavapai County

Jerome Technical Staff & Personnel	
Resource	**Department/Agency - Position**
community	
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

Jerome Fiscal Capabilities		
Resource	**Accessible or Eligible to Use**	**Comments**
Community Development Block Grants	Yes	By application
Capital Improvements Project funding	Yes	
Authority to levy taxes for specific purposes	Yes	
Fees for water, sewer, gas, or electric service	Yes	Water/Sewer – Town of Jerome
Incur debt through general obligation bonds	Yes	
Incur debt through special tax bonds	Yes	

Table 5-3-8: Prescott Capability Assessment		
Tool	**Description**	**Responsible Department/Agency**
Codes	• 2012 International Building, Fire, Plumbing, and Electrical Codes • 2012 ICC Wildland Urban Interface Code	Community Development; Fire Dept
Ordinances	• Zoning Ordinance 2016 General Plan • Subdivision Regulations • Site Plan reviews • General Plan 2015	Community Development
Plans, Manuals, Guidelines	• Conceptual Community Vegetation Management Plan (2001) Wildfire Risk Assessment. • 2003 Prescott General Plan - Growing Smarter/Growing Smarter Plus – Mandated • Capital Improvement Plan • CWPP • Economic Development Plan • Emergency Operations Plan • Post Disaster Recovery Plan	Fire Dept; Community Development

Prescott Technical Staff & Personnel Capabilities	
Resource	**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, infrastructure, or both	Public Works
Planner(s) or engineer(s) with and understanding of natural, human-caused hazards, or both	Public Works

Prescott Technical Staff & Personnel Capabilities	
Resource	**Department/Agency - Position**
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, HAZUS, or both	Information Technology
Emergency Manager	Fire Chief
Grant writer(s)	Fire/Police/Public Works/Fields & Facilities/Recreation Svs.

Prescott Fiscal Capabilities		
Resource	**Accessible or Eligible to Use**	**Comments**
Community Development Block Grants	Yes	
Capital Improvements Project funding	Yes	
Authority to levy 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	

Table 5-3-9: Prescott Valley Capability Assessment		
Tool	**Description**	**Responsible Department/Agency**
Codes	• 2012 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. In addition, state buildings are exempt from local building codes per ARS §34-461. Central Arizona Fire & Medical Authority (which includes all of Prescott Valley) adopts and enforces applicable fire code regulations).	Community Development Dept
Ordinances	• Zoning Ordinance • Subdivision Ordinance • Special Purpose Ordinance • Growth Management Ordinance • Post-Disaster Recovery Ordinance	Community Development Dept Police Dept

Table 5-3-9: Prescott Valley Capability Assessment		
Tool	**Description**	**Responsible Department/Agency**
Plans, Manuals, 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 2025 - 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 • Public Works Dept • Management Dept • Management Dept • Police Dept • Public Works Dept

Prescott Valley Technical Staff & Personnel Capabilities	
Resource	**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, infrastructure, or both	Woodrow Lewis, Building Official Dava & Associates, Town Engineer
Planner(s) or engineer(s) with and understanding of natural, human-caused hazards, or both	Neil Wadsworth, Utilities Division Manager Ron Pine, Civil Engineer Dava & Associates, Town Engineer Richard Parker, Community Development Director
Floodplain Manager	Ron Pine, 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 Alex Romero, Operations Manager

Prescott Valley Technical Staff & Personnel Capabilities	
Resource	**Department/Agency - Position**
	Bryan Jarrell, Police Chief
Personnel skilled in GIS, HAZUS, or both	Larry Prentice, GIS Manager
Emergency Manager	Larry Tarkowski, Town Manager
Grant writer(s)	Richard Parker, Community Development Director Ryan Judy, Deputy Town Manager
Others	Diane Russell, Town Clerk (Risk Manager), Ivan Legler, Town Attorney

Prescott Valley Fiscal Capabilities		
Resource	**Accessible or Eligible to Use**	**Comments**
Community Development Block Grants	Yes	
Capital Improvements Project funding	Yes	
Authority to levy 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 improvements that benefit 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, Public Safety Fee, Recreation, Parks & Open Space Fee, Civic Fee, and Cultural Fee. Related are one-time utility charges against new development namely the Water and Waste Water 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

Table 5-3-10: Sedona Capability Assessment		
Tool	**Description**	**Responsible Department/Agency**
Codes	• 2006 International Building, Residential, Mechanical, Plumbing, and Fuel Gas Codes • 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 Ord and Land Development Code from Community Development. • 2010 City of Sedona Floodplain Ordinance • 2006 Yavapai Co Flood Control District Ordinance • 1981 Floodplain Management Regulations for Coconino Co (amended in 2000)	City Community Development; City Public Works Dept; City Planning; Yavapai County; Coconino County
Plans, Manuals, Guidelines	• 1988 Wastewater Master Plan – Identifies prioritizes, and phases 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 - a procedure for identifying and prioritizing storm water improvements for the City; provides a watershed hydrology model for the City. • 2005 Sedona Hazard Mitigation Plan • 2005 Yavapai Co Drainage Manual (with updates) • ADOT Transportation Manual • Nov 2003 Storm Water Management Program - 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. A system of trails for pedestrian, equestrian, and non-motorized biking.	City Community Development; City Planning; City Public Works Dept; City Parks and Recreation; DEMA; 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 Co Flood Control; Coconino Co Flood Control; ADWR; FEMA

Sedona Technical Staff & Personnel Capabilities	
Resource	**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, infrastructure, or both	Public Works, Community Development, City Engineer and staff, Building Official, Plans Reviewer, Building Inspector, Fire Marshal

Sedona Technical Staff & Personnel Capabilities	
Resource	**Department/Agency - Position**
Planner(s) or engineer(s) with and understanding of natural, human-caused hazards, or both	Public Works, City Engineer and staff
Floodplain Manager	Public Works, City Engineer and staff
Surveyors	One Associate Engineer is a licensed surveyor
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, HAZUS, or both	IS Division, GIS Analyst, Public Works – Civil Engineers
Emergency Manager	Police Chief, Sedona Fire District

Sedona Fiscal Capabilities		
Resource	**Accessible or Eligible to Use**	**Comments**
Community Development Block Grants	Yes	Apply for CDBG every three years
Capital Improvements Project funding	Yes	Five year CIP Program
Authority to levy 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	

Table 5-3-11: Yavapai Prescott Indian Tribe Capability Assessment		
Tool	**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, Guidelines	• Land Use Master Plan (1999) • Multi-year Capital Improvement budget (annual) • Emergency Response Plan • Emergency Operations Plan Tribe (2002) • Water Management Plan (1999) • Wildland Fire Management Plan (2003)	Board of Directors; Planning Emergency Management; Environmental Protection Specialist
Studies	• Evacuation Route (2002) • Hazardous Materials Sources on the Yavapai-Prescott Indian Tribe Reservation (1998)	Board of Directors; Planning, Emergency Management, Tribal Police Dept

Yavapai-Prescott Indian Tribe Technical Staff & Personnel Capabilities	
Resource	**Department/Agency - Position**
Planner(s) or engineer(s) with knowledge of land development and land management practices	Planning Dept – Planner, Emergency Manager/Environmental Protection Specialist Housing Manager Real Estate Dept Manager

Yavapai-Prescott Indian Tribe Technical Staff & Personnel Capabilities	
Resource	**Department/Agency - Position**
Engineer(s) or professional(s) trained in construction practices related to buildings, infrastructure, or both	Planning Dept – Planner, Assistant Planner, Construction Project Manager Facilities – Facilities, Construction and Maintenance Mgrs
Planner(s) or engineer(s) with and understanding of natural, human-caused hazards, or both	Planning Dept – Planner, Emergency Manager/Environmental Protection Specialist Police Chief Environmental Health Department Specialist
Floodplain Manager	Environmental Protection Specialist/Emergency Manager
Staff with education or expertise to assess the community's vulnerability to hazards	Planning Dept – Planner, Emergency Manager/Environmental Protection Specialist Police Chief Environmental Health Dept Specialist Cultural Dept Director
Personnel skilled in GIS, HAZUS, or both	Planning Dept – Planner Environmental Protection Program – Emergency Manager/Environmental Protection Specialist/ Technician
Scientists familiar with the hazards of the community	Planning Dept – Planner, Emergency Manager/Environmental Protection Specialist Environmental Health Dept Specialist Cultural Dept Director
Emergency Manager	Emergency Manager/Environmental Protection Specialist
Grant writer(s)	Grant Writer

Yavapai-Prescott Indian Tribe Fiscal Capabilities		
Resource	**Accessible or Eligible to Use**	**Comments**
Community Development Block Grants	Yes	
Capital Improvements Project funding	Yes	
Authority to levy taxes for specific purposes	Yes	
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 funding may include the US Department of Interior (Bureau of Reclamation, Bureau of Indian Affairs, US Geological Survey, and 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).

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.

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 focus Tribal resources on the importance of hazard management and mitigation planning.

5.4 Mitigation Strategy

The process for defining the list of mitigation measures for this Plan was accomplished by an assessment of the measures specified in the previous. A new list of measures was developed by combining the carry forward results from the assessment with new measures when applicable.

During the assessment of the previous mitigation measures, a classification of “Keep” or “Revise” was carried forward to become part of the mitigation strategy for this Plan. All measures identified for deletion were removed and are not included in this Plan. The results of the assessment can be found in this Plan’s Appendices.

Current Mitigation Strategy

Upon completion of the assessment, each jurisdiction developed a mitigation strategy for this Plan. The strategy was based on the goal and objectives, results of the vulnerability analysis and capability assessment, and the planning team’s institutional knowledge of hazard mitigation needs in the community. For each A/P, the following elements were identified: Project Name & Description, Hazard(s) Mitigated, Estimated Cost, Anticipated Completion Date, Primary Agency, and Potential Funding Source(s).

Priority Ranking – each measure was assigned a priority ranking of “High”, “Medium”, or “Low”. The assignments were subjectively made using a simple process that assessed how well the measure 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, property, or both, from hazards.
- A mitigation solution with a long-term effectiveness.

Table 5-4-1: Yavapai County Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost/ Completion	Project Lead	Potential Funding Source(s)	Status	Comments
L	Severe weather education. Development of severe weather education with the National Weather Service.	Wind	$1,500.00 May 2019	Emergency Mgmt	General Fund	Start	Emergency management conducts a considerable number of presentations annually. This program will be incorporated into our defensible space program.
L	Earthquake education. Development of earthquake education with the United States Geological Survey.	Earth-quake	$1,500.00 May 2019	Emergency Mgmt	General Fund	Start	Emergency management conducts a considerable number of presentations annually. This program will be incorporated into our public information program.
M	Use agreements. The number one issue jurisdictions have is a lack of snow removal equipment and trained personnel. The project will look at the feasibility of establishing IGA's with all jurisdiction for the sharing of equipments and personnel during a snow emergency	Winter Storm	0 November, 2019	Emergency Mgmt	Hurf/Gen. Fund	Start	Development of this program will depend upon feasibility of policy of the local and county public works departments.
L	Beaver Creek Channel Restoration. Channel bank restoration to prevent ongoing erosion hazard to protect existing and future buildings and infrastructure.	Flood	$100K June 2020	Flood Control District	Flood Control District	No Progress	Priorities have shifted. Considering options for future.
H	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	$1.5M On Going	Flood Control District	Flood Control District	In Progress	The Flood Control District has accepted a $1.2M grant for the FY 2016-2018 to study Oak Creek in its entirety. Project is underway. In addition, 2 studies are in the PMR process – "Mint, American, Zone A, Yarnell" is past the public comment period, and Zone A Phase 2 has been submitted to FEMA but is not yet at the preliminary mapping phase.
M	Flood Warning System. Install additional in stream, weather, and precipitation gauges in watersheds impacting Yavapai Co. To include website development and remote dial-up for public agencies.	Flood	$500K On Going	Flood Control District	Flood Control District	In Progress	Every year the Flood Control District permits and installs stream, weather, and precipitation gauges in order to monitor weather and assist with disaster preparedness. The District is in the process of converting to more updated technology with the ALERT II system.

Table 5-4-1: Yavapai County Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost/ Completion	Project Lead	Potential Funding Source(s)	Status	Comments
H	Flood Damage Prevention, Drainage Criteria Ordinance and Storm water Management Plan. Amend ordinances to prevent flood damage and water quality degradation and to protect existing and future buildings and infrastructure.	Flood	$100K Comp Date?	Flood Control District	Flood Control District	In Progress	Awaiting new State Model Ordinance updates.
H	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	$500K On Going	Yavapai Co Firewise & Yavapai Co OWM	Self Funded	In Progress	Work is being accomplished through a collaborative effort of all stakeholders. Ongoing assessments
H	Regional Wildland Fuels Crews. Develop two full-time crews dedicated to hazard fuel reduction in the wildland urban interface, and public education in the Prescott Basin and surrounding areas. The focus of the crew is wildland fire risk reduction in the wildland urban interface.	Wildfire	$3M On Going	Prescott Fire & Central Yavapai Fire	USDA/FS Grants	In Progress	Hazard Fuels Mitigation Crew Established in Prescott
M	Develop a County Wildland Fuels Mitigation Crew to support reduction in hazardous wildland fire fuels along roadways and riparian areas. Focus is to reduce the probability of roadside ignitions in the wildland urban interface	Wildfire	$300K On Going	Public Works	Self - Funding, and USDA/FS Grants	Some Progress	Currently being addressed through the Yavapai County Wildland Fuels Workshop and YCCWPP
H	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	$15K On Going	HOA's, Community Groups	Self - Funding, and USDA/FS Grants	In Progress	Successful Firewise Strategy, which has increased Firewise participation 119%. In 2011, there were 16 Firewise communities in Yavapai Co now there are 35. Firewise is a community-based program, which identifies wildland fire risk and applies NFPA strategy to reduce the risk through various fuel mitigation strategies.

Table 5-4-1: Yavapai County Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost/ Completion	Project Lead	Potential Funding Source(s)	Status	Comments
H	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 10 years.	Wildfire	$100K On Going	PAWUIC	Self-Funding USDA/FS Grants	In Progress	Education is the cornerstone to effective wildland fire mitigation program. This activity never ends and is continuous. Yavapai Co performs 30-50 meetings a year to promote Firewise behavior. The engagement of social media effectively engages 10% of our total population in Yavapai County.
H	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	$25K 2020	County GIS	General Fund	In Progress	Yavapai Co host wildland fuels workshops which coordinate fuels projects for Federal, State, and Local stakeholders to more effectively use scarce financial resources. A deliverable of this project is the mapping of historical, current, and future projects used in coordination and gap analysis. We have had four coordination meeting to date with more accurate and coordinated fuels mitigation projects.
	Boundary Project. Develop a 270-degree defensible wildfire boundary around interface immediately to the south of Prescott.	Wildfire	$3M 2020	PAWUIC/ USFS	USDA/FS Grants	In Progress	Currently being addressed through the Yavapai Co Wildland Fuels Workshop and YCCWPP. 2017 accomplishment is 39,000 acres mitigated
M	Repetitive Flood Loss Properties. Inform and coordinate property owners to flood mitigation programs such as retrofit and/or property acquisition. Per the requirements of the Community Rating System, the District sends out annual outreach material to residents with similar risks as the repetitive loss property outlining options for mitigation.	Flood	$5M On Going	Flood Control District	Flood Control District	In Progress	Primarily an outreach program at this time. The District investigates repetitive loss properties when they are on the market to see if a purchase/demolition is possible.

Table 5-4-1: Yavapai County Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost/ Completion	Project Lead	Potential Funding Source(s)	Status	Comments
M	Purchase and Store Rain Gages for use after a forest fire to assist in mitigating flood and mudslide losses. During the event, the area is surveyed for a gauge location that not only will help with post-fire flooding in the immediate future, but will also fit into the District's overall gauging plans.	Flood and Mudslide	$50K	Flood Control District	Flood Control District	In progress	Rain gauges are being installed post fire on all fires since 2012 Gauges were installed after the Brins, Cave Creek Complex, Gladiator, Doce, Yarnell Hill, and Slide Fires.
M	Lake Montezuma Area-Wide Drainage Plan. Area-wide planning project to determine hazard and mitigation projects for construction. The purpose of the project is to identify causes of flooding issues and to identify and prioritize mitigation projects.	Flood	$300K June 2020	Flood Control District	Flood Control District	In Progress	Extend timeline. The first priority project identified is a channelization of the Rimrock and Beaver Creek School Washes north of the confluence with Wet Beaver Creek.
M	Village of Oak Creek Area-Wide Construction Projects. Five of eight various flood mitigation projects as determined in the area-wide planning study. The purpose of the project is to identify causes of flooding issues and to identify and prioritize mitigation projects.	Flood	$250K June 2021	Flood Control District	Flood Control District	In Progress	Extend timeline. The report is complete and 60% plans have been generated for the first 6 projects: Bell Rock Boulevard channelization project; Blue Canyon Circle channelization project; Box Canyon Road culvert crossing project; Fairway Oaks Drive East channelization project; Fairway Oaks Drive West culvert crossing project; Vultee Road channelization project.
M	Ho Kay Gan Subdivision Drainage Improvements. Area-wide construction projects identified in ADMS. The purpose of the project is to identify causes of flooding issues and to identify and prioritize mitigation projects.	Flood	$2.4M June 2022	Flood Control District	Flood Control District		The report is complete and the first three projects have been prioritized. Final construction plans are completed for a culvert crossing. 30% plans are completed for a storm drain project. Negotiations have started with the State Land Dept for a detention pond project.
M	Install Water Quality BMPs and control measures to address contamination and flood mitigation in critical areas.	Flood	$150K June 2020	Flood Control District	Flood Control District		This task is generally emergency-driven. For example, after a fire we will construct a sediment basin and include sediment-reducing measures such as wattles to prevent sediment runoff into developed areas.

Table 5-4-1: Yavapai County Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost/ Completion	Project Lead	Potential Funding Source(s)	Status	Comments
M	Ash Fork Drainage Improvements. Area-wide construction projects identified in ADMS.he purpose of the project is to identify causes of flooding issues and to identify and prioritize mitigation projects.	Flood	$500K June 2020	Flood Control District	Flood Control District		The first project identified is the Railroad wash channelization. The project has been bid out and construction is expected to start in June of 2017.
M	Prescott Country Club Drainage Improvements. Area-wide construction projects identified in ADMS. The purpose of the project is to identify causes of flooding issues and to identify and prioritize mitigation projects.	Flood	$800K June 2020	Flood Control District	Flood Control District		Several projects were identified in the prioritization schedule. The first three have been completed and the remaining has developed concept plans. Remaining high-priority projects are removing basins north of the country club and channelizing the runoff into appropriate facilities, and addressing residential flooding north of Manzanita Trail by increasing the capacity of existing channels and upsizing culverts.

Table 5-4-2: Camp Verde Mitigation Strategy							
Priority	**Project Name Description**	**Hazard (s) Mitigated**	**Estimated Cost/ Completion**	**Project Lead**	**Potential Funding Source(s)**	**Status**	**Comments**
L	Enforce Adopted Building & Fire Codes. Continue to enforce Fire Code requirements for Adequate Fire Flow and Fire Access Lanes. Plan reviews, Building Inspections, and Fire Inspections.	Wildfire	Ongoing Staff time required	Copper Canyon Fire & Medical Authority (Fire Marshal) Camp Verde Building Official	General Fund	In Progress	Received Fire Code Verifications from State Fire Marshal & Town Codes/Ordinances and policies.
H	Create and continue to enforce Nuisance Codes for Abatement of weeds garbage and debris to create defensible spaces around existing homes and buildings.	Wildfire	Ongoing Staff time required	Community Dev Director	General Fund	In Progress	Created nuisance abatement process in Town Code. Implemented since 2010 as the result of the Town Council action.
H	Implement Storm Water Master Plan. Storm water and Sewer improvement projects within the Historical Town Site: Including installation of culverts, drainages, culvert extensions and constructing appropriately placed drainages at road crossings. Maintenance of roadside drainages. Identification of critical road crossing outside the Historical Town Site Quarter Lane, Glenrose, Verde Lakes and Diamond "S" sub division drainage improvements. Not all areas of concern are listed at this time.	Flooding	Staff time, 100K February 2023	Public Works/Proj Mgr.	General Fund	In Progress	Continue the development, implementing & review of Storm Water Master Plan. Storm water engineer has been hired. Developing and reviewing components of the storm water Master Plan.
H	Flood Prone Property Acquisition in Verde Lakes area including Verde Lakes Drive/Clear Creek Restoration area, and Ward Ranch Gully Flood plain restoration area. In order to accommodate Verde Lakes, West Clear Creek and Ward Ranch Gully habitat and Flood Plain restoration/remediation.	Flooding, Fire	Staff time, $100K Ongoing.	Public Works Dir/Dep Dir	General Fund, County Funds FEMA HMGP	In Progress	Large Acquisition. Continue to make Property Owner contact for possible purchase or donation to Town. Purchase 22.91 acres @ $50K completed 10/2016. Town has requested assistance from U.S. Army Corps of Engineers to determine eligibility for 206 grant funding for the Habitat and Restoration of the Waterways. Town must be in ownership of property to include within project area.

Table 5-4-2: Camp Verde Mitigation Strategy							
Priority	**Project Name Description**	**Hazard (s) Mitigated**	**Estimated Cost/ Completion**	**Project Lead**	**Potential Funding Source(s)**	**Status**	**Comments**
H	Verde Lakes, Ward ranch Gully, and West Clear Creek Habitat, Floodplain Remediation and restoration to include clearing of overgrowth, and removal of deadfall, Channel and bank reconstruction and stabilization, road crossing improvements and cleaning of impingent areas within roadside drainages. Constructing of safety barriers and access restrictions to be utilized during unsafe conditions of other hazards.	Flooding Wildfire	$1.5M Continued	Public Works Dir	General Fund match, FEMA HMGP	In Progress	Purchase of 2100 feet was completed in 10/2015 as partial remediation with assistance from NRCS and Town matching funds at Ward Ranch Gully. Purchase of 22.9 acres has been secured @ $50K and along Ward Ranch Gully and Clear Creek Floodway. Continued property owner contact for possible purchase or donation.
H	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	Staff time Continued Annual Review July 1, 2018	Public Works Dir	General Fund	In Progress	Send to County all applications on all commercial and residential proposals. County acts as Flood Plain Administrator for Camp Verde. They are the current review agency for Camp Verde for Flood Control.
H	Partner with the Forest Service and Hopi Tribe to gain permission and funding to mitigate storm water impact from Forest Service properties surrounding our community in (7) identifiable sites. There are 7 identifiable sites within incorporated Boundaries where the USFS Coconino watershed historical drainages affect residential areas. There are 3 sites located at Verde lakes, one on McCracken Lane, 2 in middle Verdes Overlook areas and Coughlan Ranch. The actions necessary are to clean and rehabilitate existing historical drainages in an ongoing basis and as needed.	Flooding	$4.5M Continued July 1, 2022	Public Works Dir	General Fund match, FEMA HMGP	In Progress	In process of developing a plan for the Hopi Tribe to identify, the culturally sensitive sites which maybe within the identified USFS Coconino parcels under consideration for mitigation. Secondly once parameters are identified by Hopi Tribe as to how artifacts are to be handled as well as other considerations, this will allow the Town the opportunity to be specific in the mitigation actions necessary in mitigation and as needed.

Table 5-4-2: Camp Verde Mitigation Strategy

Priority	Project Name Description	Hazard (s) Mitigated	Estimated Cost/ Completion	Project Lead	Potential Funding Source(s)	Status	Comments
H	Construct road crossings and drainage channels at Quarterhorse Dr. and Glenrose Dr. areas that drain the Camp Verde School District property, private properties and Forest Service properties North of Quarterhorse Dr. to the Diamond "S" ditch.	Flooding	$400K Continued July 1, 2025.	Public Works Dir	General Fund match, FEMA HMGP	In Progress	Ongoing
H	Continuation of the above listed project.	Flooding	$2M Continued January 2025	Public Works Dir	FEMA HMGP / General Fund match	No Progress, Study Complete	Budgetary process will determine priority. USF & NEPA studies are going to be required to accomplish a project of this scale.
M	For Local use only in Hazard Mitigation Plan.	Hazmat	$6K Continued	Marshal's Office	General Fund match, FEMA	In Progress	Ongoing. Acquisition of 50-N95 Disposable Particulate Respirators and 30-Tyvek Coveralls for 1st responders to hazmat incidents.
M	For Local use only in Hazard Mitigation Plan.	Equipment Operation	$3K Continued	Marshal's Office	General Fund match, FEMA	In Progress	Ongoing. Generator to Operate Lights and Equipment at Scenes.
M	For Local use only in Hazard Mitigation Plan.	Scene security and Traffic Control	$5K Continued	Marshal's Office	General Fund match, FEMA	In Progress	Ongoing. Acquisition of 100 traffic cones and 100 rolls of caution tape.
L	Maintain communication with County and other agencies which are primarily assigned Earthquake Responsibilities and monitoring.	Earthquake	$20K Continued	Public Works Director	General Fund match, FEMA	In Progress	Continue to build support equipment, which could assist in the event of an Earthquake as well as the possibilities of other hazard events.

Table 5-4-2: Camp Verde Mitigation Strategy							
Priority	**Project Name Description**	**Hazard (s) Mitigated**	**Estimated Cost/ Completion**	**Project Lead**	**Potential Funding Source(s)**	**Status**	**Comments**
L	Continue monitoring of landslide/mudslide areas of which there are actually few in existence. Salt Mine Road at Windy Point has a significant possibility of mudslide due to composition of soils and excessive moisture during winter/summer rains. There is one area along Hwy I-17 within incorporated boundaries, which if a major slide occurs it could have a major impact on traffic. It is along the southern border of Hwy I-17 and Cliff Castle Casino. ADOT would be primary agency.	Landslide/ Mudslide	$15K Ongoing	Public Works Director	General Fund match, FEMA	In Progress	Windy Point is a pinch point, which if a major slide were to occur it would isolate in excess of 200 homes within the town boundaries as well as the Yavapai County outside the southernmost boundary of Camp Verde. That area is served by Salt Mine Road, which is the only ingress and egress access. Hwy I-17 and Cliff Castle Casino poses some potential threat of mud/landslides. The consistency of the soils is of concern and is prone to saturation due to winter/summer rains.
M	Continued communication with the Forestry division of APS to assist in prevention of downed power lines due to severe winds. There are a number of identified areas where roadways are adjacent to larger trees especially Pecans and Cottonwoods.	Severe Wind	$18 K Ongoing	Public Works Director/ Building Official and Copper Canyon Fire & Medical	General Fund/other agencies and FEMA	In Progress	Depending on where the severe wind damages may occur could involve different primary agencies, i.e. APS and downed power lines.
L	Continued enforcement of building codes related to snow loads and continued problems created by lack of drainage on flat rooftops especially for those of commercial buildings.	Winter Storm	$20K Ongoing	Public Works Director	General Fund/FEMA	In Progress	Obviously, a major concern would be the consequences of a heavy snowfall, which would affect travel for citizens as well as for emergency vehicles. The additional threat would be rapid snowmelt locally as well as warmer temperatures at higher elevations and accompanied by warm rains on the snow pack. History has demonstrated that occurrence.

Table 5-4-3: Chino Valley Mitigation Strategy							
Priority	**Description**	**Hazard(s) Mitigated**	**Estimated Cost / Completion**	**Project Lead**	**Potential Funding Sources**	**Status**	**Comment**
H	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	$750,000 2025	Public Works Director	CIP Program	No Progress	
M	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.	All	$75,000 5 year cost. Ongoing	Community Development, Legal, and Public Works, Chino Valley Fire District	General Funds	In Progress	
M	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	None Ongoing	Community Development, Legal, and Public Works	General Fund	In Progress	
M	Road 4 North Improvements. Construct an all weather crossing at Road 4 North and Jerome Junction to provide an alternative access across the Santa Cruz Wash.	Flood	$800,000 2020	Public Works Director	Federal Grant Funds from US Dept of Comm	In Progress	
H	Road 1 East to Santa Cruz Wash. Install a retention/detention pond with drywells and a controlled outlet structure and convey storm water east through a new large culvert in Road 1 South to an additional regional retention/detention pond on County-owned land.	Flood	$2.480,225 2020	Public Works Director	County and/or Local Funds	New	

Table 5-4-4: Clarkdale Mitigation Strategy							
Priority	**Project Name Description**	**Hazard(s) Mitigated**	**Estimated Cost/ Completion**	**Project Lead**	**Potential Funding Source(s)**	**Status**	**Comments**
H	Improve Flood Warning System on Verde River by installing additional gage and equipment for flood warning system on the Verde River prior to waters reaching Clarkdale in order to have better water level and flood information for evacuations for personal and property safety.	Flood	$10,000 2020	Yavapai Co Flood Control District	Yavapai County	No Progress	Nothing has been done to date due to lack of funding.
M	Tuzigoot Bridge. Enlarge or replace Tuzigoot Bridge to alleviate traffic and accommodate emergency response vehicles during flooding events on the Verde River.	Flood	$28M 2025	ADOT	ADOT	No progress	Only bridge inspections have been completed at this time.
M	Review and modify International Construction Code Appendix - Property Maintenance Code to have the most up to date standards for building in order to help maintain building integrity and prevent injury or loss of life and to mitigate damage to existing and future structures resulting from severe winds and flooding.	Severe Wind Flooding Landslide Mudslide	$5,000 +Staff Time Ongoing	Clarkdale Community Development Dept	General Fund	In Progress	Adopted 2012 International Building Codes in April of 2014 Updated Land Use Ordinances in 2016 Updated Subdivision Regulations in 2016 Updated Grading Ordinance in 2016
H	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	$25,000 2020	Verde Valley Fire District	Fire District, County, State/ Federal Grants	No Progress	No progress due to lack of funding and private property issues demanding access and indemnity “hold harmless” agreements. .
H	Wildfire Fuel Reduction. Conduct wildfire hazard fuel reduction within and surrounding Clarkdale to reduce the risk to existing and new structures.	Wildfire	$20,000 2020	Verde Valley Fire District	Fire District, County, State/ Federal Grants	No Progress	No progress due to lack of funding and private property issues demanding access and indemnity “hold harmless” agreements.

Table 5-4-4: Clarkdale Mitigation Strategy							
Priority	**Project Name Description**	**Hazard(s) Mitigated**	**Estimated Cost/ Completion**	**Project Lead**	**Potential Funding Source(s)**	**Status**	**Comments**
H	Education and awareness programs to inform and educate citizens, elected officials and property owners about hazards and potential ways to mitigate them by pre-planning.	Flood Wildfire Severe Wind Landslide Mudslide Winter Storm		Town of Clarkdale Employees	Town	On going	Social Media Information Blasts, Pamphlets for distribution, Door Hangers, Newsletters Information booth at community events Website, County Code Red emergency notification system, The Town of Clarkdale, Clarkdale Police Dept and Fire District co-hosted a Community Meeting on Jan 26, 2016 with the Yavapai Co Emergency Mgmt Dept and the Yavapai Co Sheriff's Office on Community Emergency Preparedness and Flood Preparedness. Approx 40 community members attended and this video include the PPT presentation as well as a recording of the information presented at the meeting.
H	Blacktopping of Sycamore Canyon Road	Flood Landslide Mudslide Winter Storm	2020	Yavapai County	County		Grading and black top of portion of Sycamore Canyon Road, which is currently dirt/gravel, and consistently muddy and washed out making hard to travel during storm events.

Table 5-4-4: Clarkdale Mitigation Strategy							
Priority	**Project Name Description**	**Hazard(s) Mitigated**	**Estimated Cost/ Completion**	**Project Lead**	**Potential Funding Source(s)**	**Status**	**Comments**
H	Develop IGA with Yavapai County Flood Control District for establishing procedural guidelines for the implementation and enforcement of the NFIP floodplain management Yavapai County Flood Mitigation Projects. Major projects are driven by historical events and minor projects are driven by local issues. Flood mitigation projects approved by Yavapai County after presentation from the Town prioritizing projects	Flood Landslide Mudslide	2016 – $43,292 2013 - $24,200 2012 - $56,750 2013 - $30,000 2015 - $78,000 2014 - $14,442 2014 - $27,000	Clarkdale Public Works Dept	Yavapai Co Grants	On Going	Old Jerome & Peaks View Flood Control Project 2016 (43,292.00) Installation of drainage structures for school driveway - 2013 ($24,200) Downtown Area Drainage Improvement Project – 2012 ($56,750) Broadway Avenue Drainage Improvements – 2013 ($30,000) Lisa Street Curb and Gutter flood improvement – 2015 ($78,000) Grading and paving Old Jerome Highway & Minerich Road – 2014 (14,442) Lanny Lane curb & gutter, patching & grading – 23014 (27,000)
M	Mescal Well Project. Will provide additional future water supply for the community as shallower wells run dry	Drought	$1.2M 2021	Clarkdale Utility Dept	Water Fund HUD	In progress	Completed a booster/pumping station with inter municipal transfer abilities in order to transfer water back and forth from shallow wells at risk using $186,000 of Central AZ Water Conservation District “CAP” funds .

Table 5-4-5: Cottonwood Mitigation Strategy							
Priority	**Description**	**Hazard(s) Mitigated**	**Estimated Cost / Completion**	**Project Lead**	**Potential Funding Sources**	**Status**	**Comments**
H	Complete Railroad Wash Channelization Project. Complete channelization of Railroad Wash between State Route 89A and 10th Street to remove residential properties from the floodplain.	Flood	$400,000 ?	Public Works Utilities	General Fund & Grants	In Progress	90% complete, 2 properties left to remove from floodplain
L	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.	Flood	$5,000 12/2018	Developmental Services/Public Works	General Fund	In Progress	City has held meetings to update residents on flood control issues and have scheduled future meetings as part of citywide drainage study
M	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	$150,000 2020	Public Works	General Fund/Capital Purchase	In Progress	Willard street extension project eliminates the 6th crossing access issue. Wet crossings still exist on Camino Real and Aspen Street awaiting capital funding
M	Complete Old Town District Flood Hazard Mitigation Project	Flood	$3,000,000 2025	Public Works	General Fund/Capital Purchase	In Progress	Citywide drainage study to be completed 7/2018. Study will prioritize flood hazard project objectives to establish timeline for inclusion in city capital improvement plan
H	Wildfire Fuel Reduction Program. Identify and remove excess wildfire fuels from targeted wildland/urban interface areas along Verde River corridor	Wildfire	$200,000 2020	Fire Dept./Public Works	General Fund	In Progress	Conservation group has removed some invasive vegetation fuels from interface areas along Verde River in 2016. Additional fuels reduction to performed annually (pre-fire season).

Table 5-4-6: Dewey-Humboldt Mitigation Strategy							
Priority	**Project Name Description**	**Hazard(s) Mitigated**	**Estimated Cost / Completion**	**Project Lead**	**Potential Funding Sources**	**Status**	**Comments**
L	All Weather Crossing of the Agua Fria River at Prescott Street. An all weather crossing is recommended at the location of the exiting low-flow at-grade crossing along Prescott St. to improve circulation and emergency vehicle access. In addition to local studies, a 2012 Arizona Dept. of Transportation study identified the need. The Town is considering either a Bridge or Box Culverts.	Fire, Flood	$3,500,000 to $900,000 depending on solution (either a bridge or a box culvert) 2025	Dewey-Humboldt Public Works Dept.	IGA, General Fund, or HURF, Possible Grants	No progress since the ADOT study.	No funds. Annual review will determine funding availability. Once funding is established project will proceed.
M	Implement and Enforce building Codes. Implement and enforce council directed building codes and adopt new international codes as they become available and/or are applicable. Codes will be enforced through building inspections, permits and code enforcement portion of the Planning and Zoning office.	All Hazards	$0 As published	Dewey-Humboldt Community Develop and Bldg Dept	N/A	Complete	Town has adopted the 2012 Building Code and will adopt future updates as needed. Town enforces 2012 Building Code through the code enforcement process.
M	Public Outreach. Educate the public on the risks resulting from fire, severe weather, and associated hazards; including recommendations on how to protect themselves and their property from damages due to natural and human-caused hazards events. This is accomplished in the monthly town newsletters and through the FireWise groups in town.	Wildfire, Drought	$5,000 Semi-annual basis	Dewey-Humboldt Community Develop	General Fund	In progress	Implemented and received “FireWise USA” certification. Supported by Town Council, 2 communities in DH have undergone efforts to become “FireWise”. The communities formed a Board to work together Prescott Wildland Urban Interface Committee & Central Yavapai Fire/Medical Authority to implement defensible space imitative through grant & Town local funding sources. These groups are planning to expand throughout the Town by presenting material/information at various meetings and locations throughout town. This will help reduce the fuel and fire hazard during times of drought.

Table 5-4-6: Dewey-Humboldt Mitigation Strategy							
Priority	**Project Name Description**	**Hazard(s) Mitigated**	**Estimated Cost / Completion**	**Project Lead**	**Potential Funding Sources**	**Status**	**Comments**
M	FireWise Community Certification. In 2016/2017 two areas of the Town became FireWise community certified. In these areas, the residents are now working to maintain defensible space for fire hazards.	Wildfire, Flooding, landslides	Staff Time 2017	Dewey-Humboldt Community Develop with resident's participation and then taking over the lead after start up	Grant from Prescott area wildland urban interface commissio n	Complete and in progress for other areas of the Town.	The Blue Hills area is completed. This area lies on the west side of Town adjacent to National Forest Ground and the foothills are on the east side of town adjacent to State Trust Land is also complete. The groups are working on the other areas in Town.
L	Winter Storm Public Outreach. The Town supplies information on the website as well as informational articles in the Town Newsletter during the winter months. In preparation of winter storms, the Town has also purchased a Snowplow to be used when need to clear roads. When winter weather is expected staff prepares equipment for use.	Winter storm	Staff Time Completed as needed through the Winter months.	Town of Dewey-Humboldt	General Fund	In progress when needed	Inform residents of impending storm website, preparation for storms is done through the newsletter and website during the winter months. Staff prepares removal equipment for use as needed through the winter months.
M	Annual Cleanup Program. This Program enables residents to dispose of excess brush, rubbish, etc from their properties twice a year service provided by the town. This helps residents get rid of vegetation and rubbish enabling them to create a defensible space and reduce potential fuel for fires.	Fire	$10,000 Annually	Dewey-Humboldt Public Works Dept	General Funds	In Progress	It is open to all Town Residents that want to participate. On average 80Tons of brush and rubbish are disposed of.
M	Ditch and Channel Cleanup and Repair. Annually clean and repair drainage ditches and channels throughout Town. This helps keep drainage ways open for water drainage and runoff, with annual inspections if any areas are in need of extra erosion protection it can be placed. The mitigation against long-term risk is an annual inspection of the areas, maintaining areas that may have problems arising.	Flooding, Landslide, Erosion Control	$35,000 Annually	Dewey-Humboldt Public Works Dept	General Funds/ Hurf Funds/ Flood Control	In Progress	This is completed along with the Multi-Year Road Maintenance Plan. Any areas that are in need of erosion control are evaluated and addressed at that time.

Table 5-4-7: Jerome Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost / Completion	Project Lead	Potential Funding Source(s)	Status	Comments
H	Storm Sewer And Utility Master Plan. Prepare a storm sewer and utility master plan to identify storm drain problems and prioritize infrastructure improvements for implementation. Implementation includes Hull and 1st Ave. – Work is assisted by ADOT - Traced drainage - currently re-routing and installing a catchbox.	Flood, Landslide/ Mudslide	$159,000 for Study - Ongoing	Town Manager, Fire Chief, Public Works Director	Grants (CDBG, FEMA, USDA, others) plus town budget	In Progress	Area drainage study funded by a $159,000 Grant from Yavapai Co & completed by Town Engineer. The problems have been identified and a plan has been created on those findings. Construction has started so that current and future problems related to the infrastructure issues are addressed. Master plan was completed June 30, 2015 Mitigation is ongoing due to new arising issues.
L	The Cleopatra Hill Flume overflow issues This flume was originally installed for the mining company and is now utilized for overflow from the water tanks. The flume is ineffective in areas and Public Works has installed 400’ of piping to assist the flume.	Flood, Landslide/ Mudslide	$1100 2019	Town Manager, Fire Chief, Public Works Director	Grants (CDBG, FEMA, USDA, others) plus town budget	In progress	Construction took place so that current and future problems related to the infrastructure issues would be addressed
H	Drainage pipe replacement on Diaz St. Pipe is rotted and is will be replaced with new pipe. Replacement will prevent flooding and water loss from a burst pipe.	Flood, Landslide/ Mudslide	Unknown cost until work commences to see how extensive the damage really is – July 2018	Town Manager, Fire Chief, Public Works Director	Grants (CDBG, FEMA, USDA, others) plus town budget	Planning process has begun for work to start	Construction will start soon so that current and future problems related to the infrastructure issues are addressed.
L	Gulch Rd Re-grading Re-grading will control access water flow and prevent flooding.	Flood, Landslide/ Mudslide	Staff time – on going when necessary	Town Manager, Fire Chief, Public Works Director	Grants (CDBG, FEMA, USDA, others) plus town budget	On-going project when necessary	Construction has taken place – The need for re-grading the road will continue due to extenuating circumstances.

Table 5-4-7: Jerome Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost / Completion	Project Lead	Potential Funding Source(s)	Status	Comments
M	Drainage at the end of the Gulch At the point where the wash meets the road, piping had been installed improperly and will be corrected with a new headwall installation.	Flood, Landslide/ Mudslide	Unknown cost until work starts October 2018	Town Manager, Fire Chief, Public Works Director	Grants (CDBG, FEMA, USDA, others) plus town budget	In Progress	Construction will start soon so that current and future problems related to the infrastructure issues are addressed.
M	Allen Springs Rd and Gulch Rd Culvert Repair This repair includes reinforcement where traffic flows over the top of the culvert to prevent flooding on the roads.	Flood, Landslide/ Mudslide	$100 2018	Town Manager, Fire Chief, Public Works Director	Grants (CDBG, FEMA, USDA, others) plus town budget	Complete – Watch is in progress	Construction was completed; however, Public Works is monitoring the situation to ensure that the fix works.
H	Replacement of broken pressure relief valves. Broken pressure relief valves are being replaced at 600 Clark St. and by the warehouse on County Rd. The valves protect pipes from extremely high pressures building within. Without the valves in place and functioning properly, residents could experience flooding from ruptured pipes in their homes. The pressure relief valves and regulators control the flow of water down the mountain.	Flood, Landslide/ Mudslide	$ 9000 October 2018	Town Manager, Fire Chief, Public Works Director	Grants (CDBG, FEMA, USDA, others) plus town budget	Currently ongoing – dependant on situation with certain valves	Replacement has started and is a continuing. The relief valves are being looked at for age and damage and are being replaced when necessary.
M	Repair and potential replacement of storm drain on 89A. A storm drain on 1st and 89A in front of Bobby D's Restaurant is plugged and damaged – Working with ADOT.	Flood, Landslide/ Mudslide	ADOT covers their section / town cost = unknown until ADOT covers their cost. / 2018	Town Manager, Fire Chief, Public Works Director	Grants (CDBG, FEMA, USDA, others) plus town budget	In Progress	Construction has started and the Town is working with ADOT to complete the project

Table 5-4-7: Jerome Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost / Completion	Project Lead	Potential Funding Source(s)	Status	Comments
H	Wildfire Fuel Reduction. Perform wildfire hazard fuel reduction for prevention and to protect existing and future buildings and infrastructure. The Town of Jerome has been divided into 7 sections with an audit being done by the Jerome Fire Department of the target hazards in each section – Topography and proximity to neighboring properties and construction type were all taken into consideration. Brush clearing, and prescribed burns has been completed in these listed areas, but ongoing efforts will continue throughout town. 80 residents were affected by clearing and prescribed burns.	Wildfire, Landslide/ Mudslide	$25,000 (5 yr cost) Ongoing	Fire Chief and Chief Building Official.	Wildland fees FireWise Grant	In Progress	Part time Wildland Fire Part time crew has performed wildfire hazard fuel reduction in cooperation with the Forest Service, Mining Companies and private property owners. Jerome received a Forest Service grant, which aided us in the ability to hire help with the fuel abatement procedures. 66 acres have been treated. Extensive brush clearing and tree-thinning efforts have been exercised In the Gulch along with “burn in place” & prescribed burns. These efforts are being completed throughout town, but main areas of concentration include UVX Rd and Beale St. as well as Douglas Rd., Verde Central and Hampshire Ave. Access clearing to more water infrastructure at Walnut Springs, this is a 20’ easement which runs to our intermittent springs. Existing roadway clearing of FR338 in Mescal Canyon, 5’ on each side. Also widened that road by approximately 20’, this area is 20 acres
M	HAZMAT Public Outreach. Educate the public about hazardous materials safety by including information in Town newsletter and distributing flyers at Town events.	HAZMAT	$500 Ongoing	Town Manager and Fire Chief.	Town budget – general fund.	In Progress	Fire department has done outreach through Town Newsletter, Firewise Community Day as well as through our website and Facebook page.

Table 5-4-7: Jerome Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost / Completion	Project Lead	Potential Funding Source(s)	Status	Comments
H	Adopt and enforce new building codes. To protect existing and future buildings and infrastructure from hazards, adoption of new building codes and enforcement will include compliance with regular annual inspections performed on existing buildings as well as initial inspections and follow up annual inspections for new construction.	All	$3,000 2019	Fire Chief, Chief Building Official, Police Chief	Town budget	In Progress	Adopted 2012 IFC, working on the adoption of the 2012 IBC and other Codes. New building codes have been adopted - Inspections have started.
H	Winter Storm Mitigation. Jerome's first responders are the Public Works Crew. Due to Jerome's historic cobblestone streets, our snowplow is ineffective. They do use rock salt in the areas where the plow cannot perform properly. The remaining areas get snow plowed. Volunteers help on pedestrian walkways with rock salt applications.	Winter storm	$400 / annually – additionally staff time is involved. Seasonally ongoing	Public Works	Town budget / general fund	Seasonally ongoing	Getting these measures handled quickly is vital to Jerome's steep road and walkway safety; this mitigates against accidents and injuries from snow and icy conditions.
M	Promote preparedness to winter storm hazards. Different areas have different risks associated with winter storms in Jerome. Steep slope topography and historic cobblestone streets prevent snowplows from running through those areas. Creating a plan to warn residential areas of incoming storms will help specific at-risk populations throughout town. This will also help with getting residents to park off street when possible to help with salt trucks to get through those areas.	Winter storm	Staff Time - Seasonally ongoing	Public Works	General fund / Town Budget	Seasonally ongoing	Will provide residents with ahead of time knowledge to park off street when possible.
H	Severe Wind mitigation Assess vulnerability to severe wind using GIS to map areas that are at risk to a wind hazard identifying concentrations of at-risk structures throughout town. Jerome is a Historic site. There are many structures that are dilapidated enough that would place them in a hazardous category. The map would allow us to quickly identify structures that are in danger from severe wind.	Severe Wind	Staff Time – Using GIS 2019	Planning / Zoning	Easement Grants are possible for this project	In Progress	Collecting all the data needed for the map will take the most time. Arranging site inspections, etc. and then uploading the data into a GIS. The collapse of structures has happened in the past, knowing in advance that these structures need to be secured structurally would be vital to our town's historic nature.

Table 5-4-7: Jerome Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost / Completion	Project Lead	Potential Funding Source(s)	Status	Comments
M	Retrofit buildings As our buildings get modified, utilize new technology to help create structural stability and prevent collapse	Severe Wind	Average cost $4,051 per project – Suggested	Planning / Zoning / building official	Grants / Jerome Historical Society / Volunteer Groups for Labor	In Progress	Requiring or encouraging wind engineering measures and construction techniques that may include structural bracing, straps and clips, anchor bolts, laminated or impact-resistant glass, reinforced pedestrian and garage doors, waterproof adhesive sealing strips, or interlocking roof shingles. Requiring structures on temporary foundations to be securely anchored to permanent foundations.
L	Earthquake Preparedness. Map and assess Community Vulnerability to Seismic Hazards.	Earthquake	Staff Time - 2019	Planning / Zoning	Town budget	In Progress	Creating an earthquake scenario to estimate potential loss of life and injuries, the types of potential damage, and existing vulnerabilities within Jerome's community to develop earthquake mitigation priorities.
L	Earthquake Preparedness • Increase risk awareness • Promote workshops • Informational flyers and website knowledge	Earthquake	Staff Time - 2018	Planning / Zoning	Information on Website – Town budget	In Progress	This will improve public awareness of the severity of an earthquake on a community and what residents can do to prepare.

Table 5-4-8: Prescott Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost / Completion	Project Lead	Potential Funding Source(s)	Status	Comments
H	Wildfire Fuel Reduction. Continue wildfire fuel reduction on private/public property to protect existing and future buildings and infrastructure. 5 year cost.	Wildfire	$600,000 Annually On-going	Fire Dept	GF/Grants	In-progress	Annual work being performed in line with grant monies received.
M	Improve Emergency Operations Center. Purchase and install computer, audio/visual, communications, and reverse 911 equipment.	All	$200,000 2019	Fire Dept	Grants	No Progress	Lacked funding
M	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	$75,000 On-going	Fire Dept	Grants	In progress	This effort moved from fixed date conclusion to on going to ensure institutionalization.
L	Urban Search and Rescue Team Project. Improve urban search and technical rescue capability in the City through training and procurement of specialized equipment.	All	$200,000 On-going	Fire Dept	Grants	In progress	This effort moved from fixed date conclusion to on going to ensure institutionalization.
H	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	$75,000 Annually On-going	Community Develop	GF/Grants	In-progress	Codes brought to most current version in Spring 2016. Effort to comply is on going.
H	Wildfire Code Enforcement. Continue enforcement of wildland urban interface code. 5 year cost.	Wildfire	$75,000 annually On-going	Fire Dept	GF/Grants	In-progress	On-going need to institutionalize efforts
H	Improve drainage infrastructure at various channel crossings and off-channel site locations.	Flooding	$2,757,000 On-going	Public Works	GF/Grants	In-progress	On-going assessment conducted with every public works project.
H	Replacement and protecting of existing sewer and water mains within FEMA Floodplains, which are subject to runoff. See above.	Flooding	$9,772,611 2010	Public Works	GF/Grants	In-progress	On-going assessment conducted with every public works project.

Table 5-4-9: Prescott Valley Mitigation Strategy							
Priority	**Description**	**Hazard(s) Mitigated**	**Estimated Cost / Anticipated Completion**	**Project Lead**	**Funding Sources**	**Status**	**Comments**
L	Severe weather education. Development of severe weather education with the National Weather Service.	Wind	$1,500.00 May 2019	Emergency Mgmt	General Fund	Start	Emergency management conducts a considerable number of presentations annually. This program will be incorporated into the defensible space program.
L	Earthquake education. Development of earthquake education with the United States Geological Survey.	Earth-quake	$1,500.00 May 2019	Emergency Mgmt	General Fund	Start	This program will be incorporated into our public information program with Emergency Mangement
M	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	$150,000 Ongoing	Public Works (PW)	General Fund	In progress	Town continues to maintain roadside/ROW mowing through annual contracts to reduce risk.
H	Construct Agua Fria Channel flood control facilities to protect residential areas from flood damages.	Flooding	$10M 2020	PW	Flood Control District	In progress	Design is complete. Continue to search for ways to fund this project.
H	Construct Spouse Drainage flood control facilities to protect residential areas from flood damages.	Flooding	$1.8M 2020	PW	Flood Control District	In progress	Design complete for Spouse/Viewpoint intersection. Construction scheduled for 2017. Other crossings to be addressed in the future.
L	Source Water Assessment Program for the North Well Field, Big Chino Water System and the Agua Fria Recharge Facilities.	Drought	$100,000 2020	Utilities & Water Resources	Impact Fees	In progress	North Well Field Completed. Big Chino at about 5%. Recharge facilities at about 50%.
H	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 Disturban ce	$230,000 2021	PD, PW	Grant, Bond, General Fund	In progress	PD parking lot wall will be raised by several feet for added security. It has a secondary exit. PD lobby still needs bulletproof glass. Generator was upgraded. Additional cameras still needed. Council Chambers, Library and Town Hall portions complete.

Table 5-4-9: Prescott Valley Mitigation Strategy							
Priority	**Description**	**Hazard(s) Mitigated**	**Estimated Cost / Anticipated Completion**	**Project Lead**	**Funding Sources**	**Status**	**Comments**
H	Community Secondary Routes. Plan, design, and construct secondary access routes for emergency vehicles.	All	$5M On-going	PD, CYFD	Grants, Bonds & General Fund	In progress	Each new subdivision and phase is reviewed for primary and secondary ingress/egress.
H	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	Staff time On-going	PW / Engineering Division Mgr	General Fund	In progress	This is an annual project that is mandated through the Federal Government. Will continue to monitor and report as required.

Table 5-4-10: Sedona Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost/ Completion	Project Lead	Potential Funding Source(s)	Status	Comments
H	Flood Response Training Train all Operational Personnel to the Operations level, Technical Rescue Team to Technician Level, and Helicopter Rescue Teams in Water Rescue. This training will position us to minimize loss of life.	Flood	$92,000 Ongoing	Sedona Fire District	Sedona Fire District /Sedona Special Operations Budget	In Progress	Collectively this effort and the associated equipment and recertification constitute our flooding/flash flooding response commitment. Historically, the largest flooding events in the Sedona Fire District have occurred Secondary to Rain on snow events.
H	Provide wildland fire property assessments to home and business owners in the 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.	Wildfire	Staff Time Ongoing	Sedona Fire District	Sedona Fire District/ Wildland Budget	In Progress	Through raising homeowner awareness to the role they play in preventing loss of life/property during a wildland fire and providing local, cost free hazardous fuels disposal program, the Sedona Fire District has taken substantive measures to reduce property damage and loss of life during wildfires. This is evidenced by the large difference between homes threatened & destroyed during the 3 fires of national significance that have occurred in the District.
H	Wildland Fuels Reduction Continue with the practice of hosting annual fuels reduction events in order to facilitate the removal of flammable vegetation.	Wildfire	Staff Time	Sedona Fire District	Sedona Fire District/ Wildland Budget	In Progress	
H	Wildland Urban Interface (WUI) Response Training. Training designed to enable Sedona Fire District to take effective actions during initial stages of incidents that increase the likelihood that pre-fire mitigation will be effective. Also, WUI specific training, continue to train and certify all Sedona Fire District firefighters as wildland firefighters and red card them. This includes the pack test, annual refresher, and necessary PPE to integrate effectively with federal resources	Wildfire	$50,000/yr	Sedona Fire District	Sedona Fire Wildland Budget	In Progress	This training creates the highest probability our actions will be effective in reducing the loss of life and property. These actions also allow for pre-defined strategies to be implemented that reduce the potential for untoward fire effects that can lead to significant and more costly post fire effects, such as flooding and debris flows.

Table 5-4-10: Sedona Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost/ Completion	Project Lead	Potential Funding Source(s)	Status	Comments
H	Issue Burn Permits Through the issuance of burn permits, we are able to interact with the public and educate them on safe burning practices while conducting a site assessment.	Wildfire	$0	Sedona Fire District	N/A	In Progress	Permit holders are required to activate their permit each day prior to burning allowing the City of Sedona to educate them on the latest status report and to inform them when burning is not allowed due to high fire danger.
H	Adopt Code Amendments Sedona Fire District will adopt fire code amendments, which require fire sprinklers in all new construction that occurs in the Wildland Urban Interface (WUI). These requirements decrease the possibility that a fire from a structure will spread to the WUI.	Wildfire	$0	Sedona Fire District	N/A	In Progress	
H	Coffee Pot Drainage Basin Improvements Project. Design and construction of 3,300 lineal feet of 72" diameter storm drain from the NW corner of the Bashas' Shopping Center to the north end of Little Elf Drive.	Flood	$4,699,441 June 2019	City Public Works Dept.	70% City Capital Reserves and 30% Yavapai Co Flood Control Dist.	In Progress	This project is identified as a priority in the City's current Storm water Master Plan. The Coffee Pot Drainage Basin experienced severe flooding in September 2009. This system will convey the 25-year design storm event of 495 cubic feet per second.
H	Brewer Road/Tlaquepaque Drainage Improvements Project. Design and construction of 1,400 lineal feet of 22' wide by 8.5' deep Redi-Rock lined channel within Soldier Wash. Includes replacement of the Portal Lane bridge and a pedestrian bridge.	Flood	$3,623,896 June 2018	City Public Works Dept.	77% Coconino Co Flood Control Dist. and 23% private partnership	In Progress	This project is identified as a priority in the City's current Storm water Master Plan. The Soldier Wash Drainage Basin experienced severe flooding in Sept 2009 (it made national news). The new channel will convey the 25-year design storm event of 2,200 cfs. Current capacity is 1,084 cubic feet per second.

Table 5-4-10: Sedona Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost/ Completion	Project Lead	Potential Funding Source(s)	Status	Comments
H	Brewer Road Crossing Project. Design and construction of the replacement of the existing Brewer Road Crossing of Soldier Wash.	Flood	$951,850 June 2018	City Public Works Dept.	Coconino Co Flood Control Dist.	In Progress	Currently under design .This project is identified as a priority in the City's current Storm water Master Plan. The Soldier Wash Drainage Basin experienced severe flooding in Sept 2009 (it made national news). The new bridge will convey the 25-year design storm event of 2,200 cfs. The capacity of the existing wash crossing is 1,084 cfs. This project will reduce flooding of the historic Hummingbird House.
M	Juniper Hills Area Drainage Project. Design and installation of storm drainage improvements in the Juniper Lane area.	Flood	$701,000 June 2019	City Public Works Dept.	85% Coconino Co Flood Control Dist. and 15% City Capital Reserves	In Progress	Juniper Lane and the properties along it suffer repeated damage from monsoon storms. This project will be designed to convey the 25-year storm event. Design will be in FY 2018 and const. will be in FY 2019
M	Mystic Hills Sewer Lift Station Access Improvement Project. Design and construction of a new drainage crossing that provides access to a few homes and a City sewer lift station.	Flood	$240,000 June 2020	City Public Works Dept.	Coconino Co Flood Control Dist.	In Progress	The existing drainage crossing is not adequate for access to a City sewer lift station. The new wash crossing will be designed to convey the 25-year storm event. Design and const. will be in FY 2020
M	Back O' Beyond Low Water Crossing Improvement Project. Design and construction of a culvert structure to replace the existing low water crossing.	Flood	$720,000 June 2021	City Public Works Dept.	Yavapai Co Flood Control Dist.	In Progress	This project will improve public road ingress and egress for the Cathedral Rock Trailhead parking area and some private residential parcels. This project is necessary to help keep hikers from being stranded on the other side of this wash crossing and to keep emergency access available. Design will be in FY 2020 and const. will be in FYs 2020 & 2021
H	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.	Flood	Staff time is two hours per week. Ongoing	City Public Works Dept./ Asst Eng	N/A	In Progress	No changes.

Table 5-4-10: Sedona Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost/ Completion	Project Lead	Potential Funding Source(s)	Status	Comments
H	Oak Creek and Tributary Restudy. The Oak Creek Floodplain was originally mapped in the late 1970s. Since then, small reaches have been reviewed, but there has been no study of the entire floodplain. Modeling software has improved and better methods for developing more accurate topography have been developed. This restudy will improve floodplain administration under the NFIP by providing best available community information and will establish base flood elevations for some unnumbered "A Zones" in order to provide more detailed information on the DFIRMs.	Flood	$1,199,990 September 2018	Yavapai County Flood Control District	FEMA CTP Grant	In Progress	ATKINS is under contract with Yavapai County to have the Oak Creek Restudy complete by September 2018. This restudy includes many tributaries.
M	Enforce Current Building Codes. Continue to enforce building codes to protect existing and future buildings and infrastructure from sever wind damage.	Severe Wind	None/Staff Time Ongoing	City Public Works Dept.	N/A	In Progress	
M	Enforce Current Building Codes. Continue to enforce building codes related to snow loads and continued problems created by lack of drainage on flat rooftops, especially for those of commercial buildings.	Winter Storm	None/Staff Time Ongoing	City Public Works Dept.	N/A	In Progress	

Table 5-4-11: Yavapai Prescott Indian Tribe Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost / Completion	Project Lead	Potential Funding Sources	Status	Details/Comments
H	Educate tribal community on the hazards of flooding, severe wind, landslides/mudslides, earthquakes and winter storm hazards through an informational / outreach meeting to be conducted at least once in the next year via community newsletter.	All	$500 Ongoing	YPIT Environ Protection/ EM	GAP	In Progress	We continue to do education through community meetings and EP Newsletters for the entire Reservation (all Tribal/Community member as well as staff on the Reservation).
M	Clearing of overburden and brush and establishing defensible space on tribal properties, specifically the Northern Boundary, Frontier Village and the Tribal Residential areas.	Wildfire	$134,000 Ongoing	YPIT Environ Protection/ EM	BIA	Complete & In Progress	Reservation clearing specifically the Northern boundary, residential area and Frontier Village. Frontier Village was treated in 2008 & 2012; currently needing a retreat. Northern Boundary was completed in 2016. Burning piles Fall 2017. Residential area will be treated /completed Fall 2017
M	Enforce Current Building Codes. Continue to enforce building codes to protect existing and future buildings and infrastructure from severe wind damage and other natural human-caused disasters. This will occur during building inspections after storms.	All	$20,000 Ongoing	YPIT Planning	Planning	In Progress	NEW action
H	Identify flood problem areas within Frontier Village and Slaughterhouse Gulch and develop projects to reduce flooding hazard.	Flood	$1,000,000 Ongoing - 2022	YPIT Planning/ YPIT Real Estate	General Fund/ ADEQ	In Progress	Currently working on engineering for the basin. Looking to reapply for ADEQ grant project in Sept 2017. The original grant funded in 2016 was recalled and canceled. The Tribe chose to move forward with engineering.
H	*HAZMAT Public Outreach. Educate tribal community about hazardous materials safety through an informational / outreach meeting OR through educational newsletter to be conducted annually.	HAZMAT	$500 Ongoing	YPIT Environ Protection/ EM	GAP	In Progress	NEW action
M	Keep sand and sandbags available to the tribal community (including the residential area and business sector) at the Tribal maintenance 6 EZ Street. 5-year cost.	Flood	$15,000	Ongoing	Emergency Management	Tribal Emergency Management	NEW action

Table 5-4-11: Yavapai Prescott Indian Tribe Mitigation Strategy

Priority	Project Name Description	Hazard(s) Mitigated	Estimated Cost / Completion	Project Lead	Potential Funding Sources	Status	Details/Comments
M	Purchase and install backup generator to provide power to critical infrastructure in the event of a power outage related to severe wind and winter storm events. Generator location Tribal Administration building and Prescott Resort	Severe Wind Winter Storm	$500,000	2019	Planning	General Fund	NEW action
L	Enforce Current Building Codes. Continue to enforce building codes to protect existing and future buildings and infrastructure from severe wind damage and other natural human-caused disasters.	All Hazards	$20,000	Ongoing	Planning	Planning	NEW action
M	Targeted Storm water Drainage Improvements in Frontier Village and Slaughterhouse Gulch. Identify problem areas within Frontier Village and Slaughterhouse Gulch and develop projects to reduce flooding hazard.	Flood	$1,000,000	Ongoing	Planning/ YPIT Real Estate	General Fund/ ADEQ	Slaughterhouse Gulch is a current project and looking into Frontier Village drainage.
L	HAZMAT Public Outreach.73*10 Educate tribal community about hazardous materials safety through an informational / outreach meeting OR through educational newsletter to be conducted annually.	HAZMAT	$500	Ongoing	Environmental Protection/ Emergency Management	GAP	NEW action

SECTION 6: PLAN MAINTENANCE PROCEDURES

Elements of this plan maintenance section include:

Monitoring, Evaluating, and Updating the Plan

Monitoring Progress of Mitigation Activities

Incorporation into Other Planning Mechanisms

Continued Stakeholder & Member Outreach/Involvement

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

6.1 Monitoring, Evaluating, and Updating the Plan

The Plan should be continuously monitored by the participating jurisdictions to ensure the implementation of the identified mitigation measures. The individual/entity identified as the 'Project Lead' should strive to closely oversee and track the progress of their mitigation measures, reporting those results to their respective jurisdictional representatives and the County OEM. More accountability is likely to increase the probability of implementation.

Few formal annual evaluations occurred over the past five years largely due to:

- 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.

Moving forward the Planning Team established the following monitoring and evaluation procedures:

- Schedule – This Plan shall be evaluated annually around the anniversary of its FEMA approval or following a major disaster. The Yavapai County Office of Emergency Management will take the lead by arranging the evaluation, the method to be used, the deadline, and the documentation.
- Review Content – The content and scope of the Plan evaluation should address the following questions:
    - Hazard Identification: Have the risks and hazards changed?
    - Goals and objectives: Do the goals and objectives still address current and expected conditions?
    - Mitigation Projects and Actions: What is the project status?

Each jurisdiction will review the Plan as it relates to their community and document their responses. Final documentation will include a compilation of responses and results from each jurisdiction/Tribe plus any notes on the discussions and/or comments.

This Plan requires updating and approval from FEMA every five years. This plan update will adhere to the following procedure to ensure its continued approval:

- 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.
- Using this Plan's planning process documentation as a guide, the Planning Team will review and update the Plan and produce a new Plan.
- The updated plan will be submitted to DEMA and FEMA for review, comment, and approval.
- The State and FEMA approved Plan will be presented before the respective councils and boards for an official concurrence/adoption.

6.2 Monitoring Progress of Mitigation Activities

This section describes the Yavapai-Prescott Indian Tribe's system for monitoring mitigation measures by reviewing their progress, monitoring progress on achieving goals, and a system for projects closeouts.

Unless otherwise directed or warranted, the goals and objectives' review will coincide with the annual overall Plan review and update schedule. There will be a focus on whether or not the objective and mitigation measures adequately support the goals.

During the Plan's annual reviews and plan updates, the Tribe will coordinate with the individuals/entities identified as 'Project Lead' to assess the implementation status of the identified measures.

The Tribe will regularly monitor the implementation and progress of the measures to ensure greater success by keeping them a high priority. For FEMA supported projects, progress reports will be submitted on a quarterly basis, or as required throughout the project. The degree of quarterly reporting will be dependent upon the type of measure, its funding source, and the associated requirements. At a minimum, the quarterly report should 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 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 project 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.

6.3 Incorporation into Existing Planning Mechanisms

Incorporation of this Plan into other planning mechanisms, by either content or reference, enhances a community's ability to perform hazard mitigation by expanding the scope of this Plan's influence. Ways in which the 2011 Plan have been incorporated or referenced into other planning mechanisms are summarized below.

Table 6-1: Past Plan Incorporation

Yavapai County	• Hazard Gap Analysis • Development of the EOP • Development of the Recovery Plan • Development of Flood Projects • Hazard Identification Risk Vulnerability Analysis
Camp Verde	• Town's General Plan Review • Town's Annual CIP Budgeting process • Town's Flood Control Plan/Projects • All residential & commercial pre plan reviews
Chino Valley	• City General Plan • Flood Control Plan/Projects • Capital Improvement Plan/Projects
Clarkdale	• Flood Control Plan/Projects for Yavapai County Flood Grants • Updating Town Code with grading ordinances, FEMA updated flood mapping, International Building/Property updated to 2012 requirements • Updated mapping for current Verde River property owners subject to flooding • Update the Town Emergency Response Plan mapping and evacuation routes. • Update Floodplain/storm water management ordinance.
Cottonwood	• City General Plan • Flood Control Plan/Projects • Capital Improvement Plan/Projects

Table 6-1: Past Plan Incorporation	
Dewey-Humboldt	• Town annual budgets • Town 2009 General Plan
Jerome	• Town of Jerome Drainage Master Plan • Town of Jerome General Plan • Adopted ordinances and Codes
Prescott	• City General Plan • Flood Control Plan/Projects • Capital Improvement Plan/Projects
Prescott Valley	• General emergency management program development • Development of the community Hazard Gap Analysis • Development of the Town EOP • Reference in the Development of Flood Control Projects • Referenced in development of the Hazard Identification Risk Vulnerability Analysis • Referenced in the Prescott Valley General Plan
Sedona	• Sedona Community Plan (2014) • Flood Control Projects • Capital Improvement Projects
YPIT	• Tribal Land Use Master Plan • Tribal CWA grant efforts

Typical ways the jurisdictions plan to incorporate this Plan over the next five-year planning cycle include:

Table 6-2: Future Plan Incorporation	
Yavapai County	• Hazard Gap Analysis • Emergency Operations Plan • Recovery Plan • Development of Flood Projects • Yavapai County – Community Wildfire Protection Plan • Hazard Identification Risk Vulnerability Analysis • Community Outreach/Risk Reduction Education Projects
Camp Verde	This plan is better utilized in planning, budgeting and execution while informing council as to its impact on the Town. Our increased utilization is improving priorities and projects that might qualify for grants and or other funding opportunitie**s.**
Chino Valley	• Flood Control Plan/Projects • Capital Improvement Plan/Projects
Clarkdale	• Updating Town Code/ordinances to reflect the most current building/ property and grading standards. • Updating the Town Emergency Response Plan mapping and evacuation routes and areas needing mitigation based upon events. • Updating of the Town Transportation Plan for street and alley projects to prevent run off and flooding issues. • Updating of the Town Area Master Drainage Study to identify additional washes, culverts, low water crossings and curb areas needing future mitigation through annual grant funds.
Cottonwood	• Flood Control Plan/Projects • Capital Improvement Plan/Projects
Dewey-Humboldt	• Town annual budgets • Town 2019 General Plan
Jerome	• Capital Improvement Plan / Projects

Table 6-2: Future Plan Incorporation	
	• Community Wildfire Protection Plan • Educational Workshops on Severe Wind and Earthquakes • Obtain Grant for continued drainage work
Prescott	• Capital Improvement Plan / Projects • Community Wildfire Protection Plan • Educational Workshops on defensible space • Wildland Urban Interface grants and continued mitigation of hazard fuels
Prescott Valley	• Hazard Gap Analysis • Town Emergency Operations Plan • Development of Flood Projects • Hazard Identification Risk Vulnerability Analysis • Community Outreach/Risk Reduction Education Projects • Development of the Towns Strategic/General Plan
Sedona	• Flood Control Projects • Capital Improvement Projects • The Yavapai County 2017-2018 Oak Creek Restudy with ATKINS
YPIT	• Update of the 1999 Land Use Master Plan • Range Management Plan – BIA • Tribal CWA grant efforts • Tribal Water Management Plan • Fuels Management Plan – BIA • Long Range Transportation Plan • Emergency Operations Plan • Wildland Fire Management Plan YPI Reservation • Hazardous Materials Sources on the YYPI Reservation

Obstacles to further incorporation of the 2011 Plan for some of the communities were generally tied to:

- A lack of awareness of the 2011 Plan by departments outside the emergency management community
- The relative "newness" of the 2011 Plan with regard to other, more commonplace planning mechanisms such as comprehensive or general plans
- No real opportunity for incorporation of reference of the 2011 Plan (e.g. – very little other planning being done by a community)

It is anticipated that with each passing year, the usage and knowledge of the Plan will grow within a jurisdiction, and so will its use. One of the ways the Planning Team anticipates the knowledge of the Plan will grow is by continuing and growing public and member outreach and involvement activities.

6.4 Continued Stakeholder & Member Outreach/Involvement

The emergency management community in Yavapai County is committed to keeping the public aware of and involved in the mitigation planning to the extent practicable and possible. The 2011 Plan identified the following potential elements for continued public involvement:

- Provide periodic updates of hazard mitigation measures being implemented using local media.
- Conduct annual presentations of hazard mitigation planning discoveries, progress, or proposed 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).

Below are some of the ways the participating jurisdictions/Tribe intend to continue involvement and dissemination of information whenever possible and appropriate.

Table 6-3: Future Public Outreach/Involvement

Jurisdiction	Activities
Yavapai County	• 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 major mitigation related projects to the Board of Supervisors for approval and funding • Develop Firewise and Defensible Space community education program: Expos, community meetings, education programs for civic groups, and town hall meetings. • Work with all stakeholders from Federal, State, and Local Agencies to develop a comprehensive wildland fuel mitigation program with semiannual coordination workshops. • Social media project engagement.
Camp Verde	• Upon approval, the Town of Camp Verde will post the 2016 Hazard Mitigation Plan on the Town's website with public comment process attached. • Participate in local events such as Fort Verde Days, Festivals and community nights out to increase awareness about the area's hazards and risks.
Chino Valley	• Conduct public involvement efforts related to drainage and floodplain to keep public aware of flood hazards and mitigation efforts through website, newsletter articles and social media information blasts • Conduct public involvement efforts related to drainage and floodplain to keep public aware of flood hazards and mitigation efforts.
Clarkdale	• Maintain a website linking the public to the county website location where the Plan was posted. • 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, July 4th, Halloween. • Inform and encourage residents to join the County Code Red emergency notification system through website , newsletter articles and social media information blasts • Conduct public involvement efforts related to drainage and floodplain to keep public aware of flood hazards and mitigation efforts through website, newsletter articles and social media information blasts • Conduct public involvement efforts related to drainage and floodplain to keep public aware of flood hazards and mitigation efforts. • Provide hazard mitigation brochures provided by ADEM at Town Hall and other public venues.
Cottonwood	• 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 Newspapers and public notices will be posted with the development of mitigation activities

Table 6-3: Future Public Outreach/Involvement	
Jurisdiction	**Activities**
Dewey-Humboldt	• The city maintains a website 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. • Newsletter articles will be placed as appropriate to announce hazard mitigation activities.
Jerome	• Public input on Capital Improvement Plan • Community Wildfire Outreach – Annual FireWise Day in which there is public outreach through face-to-face, pamphlets, and flyers. Posted on Town Website and Facebook page • Complete Town of Jerome General Plan by conducting workshops and public meetings • Jerome will present a Volunteer Day to help with Hazard Mitigation activities including assisting homeowners with labor to rehabilitate dilapidated homes and buildings that are in danger of collapse from neglect and threatening hazards like Flood, Wind, and Fire. • Jerome will hold Educational Workshops on Severe Wind and Earthquakes as well as implementing the distribution of Educational Material in relation to Hazard Mitigation • Revise Town website to attract more of the public to get involved.
Prescott	• The City of Prescott has linked with Yavapai County Emergency Management for accepting plan comments via electronic means. • The Fire Department is an active/supporting member of the Prescott Area Wildland Urban Interface Commission (PAWUIC) and utilizes that body for communication of on-going mitigation strategies and undertakings. • The city will continue to remain engaged with the USFS, State Division of Forestry, Bureau of Land Management and other first responder fire entities to ensure a collaborative effort of all parties. • The City of Prescott will continue to maintain a presence at the Annual Home Show in order to provide direct input to our citizens and seek their involvement • Prescott Fire Dept will be conducting a Citizen's Fire Academy in hopes of allowing the public and opportunity to explore what we do and provide input as to means to add efficiencies.
Prescott Valley	• Conduct public involvement efforts related to floodplain delineation studies, as well as all hazards to keep public aware of the various hazards and mitigation efforts. • Maintain a hazard mitigation webpage with a copy of the Plan posted for public review and comment. • Present all major mitigation related projects to the Town Council for approval and funding. • The Town will continue to provide the same public involvement opportunities as is in the past. • Publish all detailed studies for major floodway channels. • Maintain website link to the county's website where the Plan will be posted.

Table 6-3: Future Public Outreach/Involvement	
Jurisdiction	**Activities**
Sedona	• Yavapai County periodically mails flood awareness information to Sedona residents and other residents of the county. • The City of Sedona has an email address of FloodStatus@SedonaAZ.gov for real estate agents and other members of the community to request Flood Status Reports on any parcel within City of Sedona boundaries. This email link is available as a provided service on the City's website. • Residents of Sedona can report drainage issues and other problems to City staff by using Sedona Citizens Connect, a mobile app. • The Sedona Fire District (SFD) continuously conducts outreach on defensible space for wildfire. In May of each year, over a three-day weekend, residents of the SFD can take yard brush and tree cuttings to a specific area 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. • 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. • 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.
Yavapai-Prescott Indian Tribe	The Tribe will conduct public involvement through the following: • LEPG Meetings • YPIT- EOP policy group (conducted on an as-needed basis) • Regular public outreach through Emergency Management events • EP Newsletter Planning efforts

APPENDIX A: PLAN TOOLS

Acronyms

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
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
HAZUS-MH .....Hazards United States Multi-Hazard
IFCI .....International Fire Code Institute
LEPC .....Local Emergency Planning Committee
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
WUI .....Wildland Urban Interface
YCEM .....Yavapai County Emergency Management
YCFCD.....Yavapai County Flood Control District

APPENDIX B: PLANNING DOCUMENTATION

Yavapai County
Hazard Mitigation Plan Update Meeting #1
February 9, 2017 – 08:00am to 12:00pm
Public Works, Conference Rm "B", 1100 Commerce Dr., Prescott

AGENDA

08:00 am Welcome

Introductions

Plan Review & Update

- Missing Assignments
- Hazard Profiles
- Hazard Vulnerability and Loss Tables
- Hazards Prioritization
- Mitigation Actions & Projects

Next Meeting

12:00 pm Adjourn

YAVAPAI COUNTY

EVENT: Mitigation Meeting
DATE: 2/9/17

NOTE: Yavapai County Office of Emergency Management would like to use your participation in this event as match for the Emergency Management Performance Grant. By your signature you authorize Yavapai County Office of Emergency Management to submit your participation as match for a federal grant.

Time in	Time out	Last Name	First Name	Signature	Organization or Address	Email	Phone	Are you a Federal or Grant Funded Employee	
								Yes	No
		GERMAN	Charles		Town of Camp Verde	charles.german@campverde	928-567-7516		X
		Sterling	JOHN		Yavapai Prescott Indian Tribe	jsterling@ypit.com	928 555 7452		
		KUYKENDALL	MIKE		CITY OF COTTONWOOD	mkuykendall@cottonwoodaz.gov	928 639 2741		X
		JUNGEN	PAUL		FCD	Paul.Jungen@yavapai.us			X
		LIGHT	Dennis		PFD	Dennis.Light@prescottaz.gov	928 777 1200		X
		Dabney	Kyle		Town of Jerome	K.dabney@jeromeaz.gov	928-814-7000		X
		ROBERTSON	BOYD		TOWN OF PRESCOTT VALLEY	brobertson@pvaz.net	928-759-3079		X
		Lopez	Michael		Town of Chino	mlopez@chinoaz.net 6336 2646	X1226		
		Chase	Rick		Central Az. Fire	rchase@cazfire.org	928-759-9933		X
		Tyson	Amber		YPIT	atyson@ypit.com	928. 515-7453	✓	
		Hawks	Ed	Edward Hawks	Town of Dewey - Humboldt	ed Hawks @ DHMZ.gov	928 632-5074		X
		Bambridge	Kathy		Town of Clarkdale	Kathy.Bambridge @clarkdale.az.gov	928-639 2445		X
		~~Denny~~ Foulk	Denny		Yavapai	denny.foulk@yavapai.us	(928)713 3020		X
		Austin	Susan		ADEM	Susan.Austin@azdema.gov			X
		Smith	Hollie		DEMA	Hollie.Smith@azdema.gov			X

Yavapai County
Hazard Mitigation Plan Update Meeting #1
September 15, 2016 – 12:30pm-4:30pm
Public Works, Conference Rm "B", 1100 Commerce Dr., Prescott

AGENDA

12:30pm Welcome

Introductions

Overview

- What is Hazard Mitigation?
- Mitigation Plan Purpose
- Plan Benefits
- DMA 2000 (DMA2K) Requirements

Plan Review & Update

- Community Descriptions
- Public Involvement
- Program Integration
- Hazards for Plan
- Hazards Prioritization
- Mitigation Actions & Projects

Next Meeting

4:30pm Adjourn

APPENDIX C: PAST PUBLIC INVOLVEMENT/OUTREACH DOCUMENTATION

Yavapai-Prescott Indian Tribe Begins Work on Hazard Mitigation Plan Update

A planning team of representatives from YPIT and Yavapai County, City of Prescott, Town of Prescott Valely, etc. are participating in a county-wide hazard mitigation planning update process. The purpose of this process is to update the current 2011 County Hazard Mitigation Plan, previously approved by FEMA on 9/12/2011. Local, county, tribal and state governments are required to have a FEMA approved hazard mitigation plan in order to be eligible for federal hazard mitigation grant funds and in some cases, other types of disaster funding. The Plan focuses on the communities' most threatening hazards and establishes a strategy to reduce the impact from those hazards to protect the people and property of YPIT and to create more resilient communities. The Planning Team anticipates having a plan draft in December 2016, at which time public access to the updated plan draft will be provided, with the opportunity to again comment.

You may view the 2011 County Hazard Mitigation Plan at The Tribal Environmental Protection Office For more information or should you have questions regarding the hazard mitigation planning process/plan, please contact Amber Tyson, 928-515-7453 or atyson@ypit.com.

PUBLIC WORKS AZ
YAVAPAI COUNTY GOVERNMENT
(http://www.yavapai.us/publicworks/)

(http://www.yavapai.us/search-results)

DIVISIONS >

Tuesday, November 8, 2016

County Home (http://www.yavapai.us)

EMERGENCY MANAGEMENT (HTTP://WWW.YAVAPAI.US/PUBLICWORKS/EMERGENCY-MANAGEMENT) >

HAZARD MITIGATION PLAN (HTTP://WWW.YAVAPAI.US/PUBLICWORKS/DIVISIONS/EMERGENCY-MANAGEMENT/HAZARD-MITIGATION-PLAN)

Contact Info (http://www.yavapai.us/contact-us)

Departments (http://www.yavapai.us/departments)

Yavapai County Multi-Jurisdictional Hazard Mitigation Plan

Meeting Portal (http://www.yavapai.us/meetings)

Home (http://www.yavapai.us/publicworks/) Divisions

Emergency Evacuation (http://www.yavapai.us/publicworks/emergency-evacuation-instructions)

Transfer Stations Right of Way Permits (http://www.yavapai.us/publicworks/right-of-way)

Programs Ordinances/Resolutions (http://www.yavapai.us/publicworks/ordinances-and-resolutions)

Forms (http://www.yavapai.us/publicworks/forms)

FAQs (http://www.yavapai.us/publicworks/frequently-asked-questions-faqs)

Contact Us (http://www.yavapai.us/publicworks/contact-us)

The Yavapai County Multi-Jurisdictional Hazard Mitigation Plan is a FEMA approved plan which addresses the mitigation strategy for all incorporated and unincorporated regions of Yavapai County. The plan is reviewed annually and rewritten every five years as required by federal guidelines.

Yavapai County Office of Emergency Management is seeking comment on our Multi-Jurisdictional Hazard Mitigation Plan for the 2016/17 rewrite. As a FEMA approved plan it meets the requirements for Hazard Mitigation Grant Program funding, both for the Pre and Post disaster grant funds. Your jurisdiction is a participant in the planning process and is seeking your input.

Please review the plan and provide comments by clicking on the "Send Us Your Comments" button. *Anonymous comments will not be accepted.* You will be asked to provide:

- Your Name
- Your Address
- Reply email address
- Page Number
- Section
- Comments

YAVAPAI COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN (HTTP://WWW.YAVAPAI.US/UPLOADS/YAVAPAI COUNTY MJHMP_MAIN BODY_FINAL DRAFT_2011-12-22.PDF)

SEND US YOUR COMMENTS! (/PUBLICWORKS/DIVISIONS/EMERGENCY-MANAGEMENT/HAZARD-MITIGATION-PLAN/HAZARD-MITIGATION-PLAN-COMMENTS)

TOWN OF CAMP VERDE
HAS BEGUN WORK ON
HAZARD MITIGATION PLAN UPDATE

Hazard mitigation update planning is the process used to identify risks and vulnerabilities associated with natural disasters and to develop long-term strategies for protecting people and property in future hazard events. The process results in a mitigation plan that offers a strategy for breaking the cycle of disaster damage, reconstruction, and repeated damage and a framework for developing feasible and cost-effective mitigation projects. Under the Disaster Mitigation Act of 2000 (Public Law 106-390), state, county, local and tribal governments are required to develop a FEMA approved hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance.

In order to meet the requirements to ensure assistance eligibility, a planning team comprised of representative from:

- The Town of Camp Verde
  - Community Development
  - Public Works Department
  - Waste Water
  - Streets Department
  - Marshal's Office
- Copper Canyon Fire and Medical Authority
- Yavapai Apache Nation

They have been meeting to develop an updated Multi-Hazard Mitigation Plan for the Town of Camp Verde. The planning team anticipates having the updated plan in January 2017, at which time the public will be provided access to the plan and the opportunity to comment prior to submittal to FEMA.

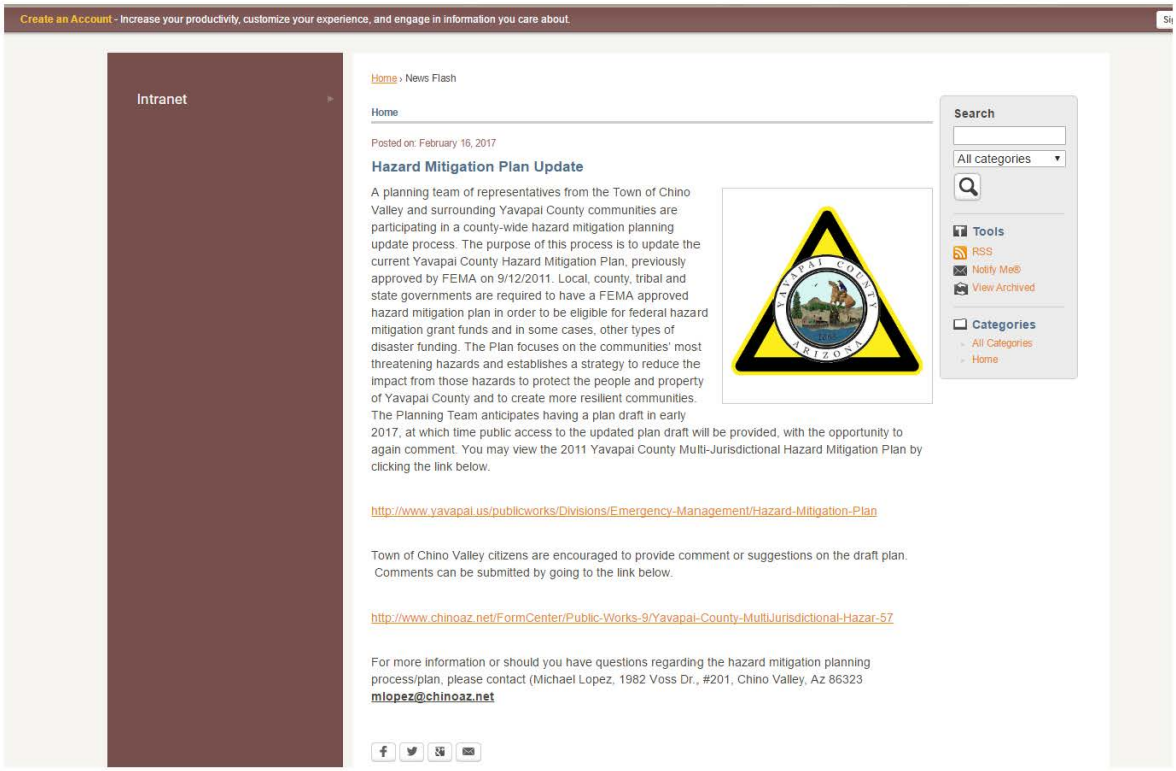
The primary areas of work/focus in the plan development are:

- Identify hazards that may impact or have impacted the community
- Develop a profile of the most relevant hazards
- Assess vulnerability to hazards
- Establish goals and objectives for hazard risk reduction/elimination
- Develop actions/projects to achieve goals and objectives

Additional Information & Questions

Please contact:

Troy O'Dell, P.E.
Deputy Public Works Director/Engineer
395 S Main Street
Camp Verde, AZ 86322
troy.odell@campverde.az.gov


Create an Account - Increase your productivity, customize your experience, and engage in information you care about.
Intranet
Home › News Flash
Home
Posted on: February 16, 2017
Hazard Mitigation Plan Update
A planning team of representatives from the Town of Chino Valley and surrounding Yavapai County communities are participating in a county-wide hazard mitigation planning update process. The purpose of this process is to update the current Yavapai County Hazard Mitigation Plan, previously approved by FEMA on 9/12/2011. Local, county, tribal and state governments are required to have a FEMA approved hazard mitigation plan in order to be eligible for federal hazard mitigation grant funds and in some cases, other types of disaster funding. The Plan focuses on the communities' most threatening hazards and establishes a strategy to reduce the impact from those hazards to protect the people and property of Yavapai County and to create more resilient communities. The Planning Team anticipates having a plan draft in early 2017, at which time public access to the updated plan draft will be provided, with the opportunity to again comment. You may view the 2011 Yavapai County Multi-Jurisdictional Hazard Mitigation Plan by clicking the link below.
http://www.yavapai.us/publicworks/Divisions/Emergency-Management/Hazard-Mitigation-Plan
Town of Chino Valley citizens are encouraged to provide comment or suggestions on the draft plan. Comments can be submitted by going to the link below.
http://www.chinoaz.net/FormCenter/Public-Works-9/Yavapai-County-MultiJurisdictional-Hazar-57
For more information or should you have questions regarding the hazard mitigation planning process/plan, please contact (Michael Lopez, 1982 Voss Dr., #201, Chino Valley, Az 86323 mlopez@chinoaz.net
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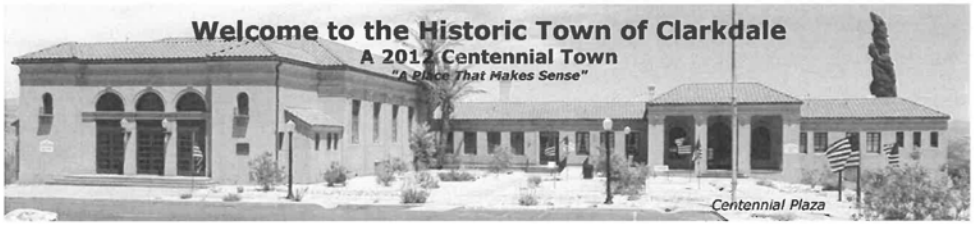

Home
Vision & Mission
Clarkdale's History
Departments
Clarkdale Magistrate Court
Elections
Notices
Town Meetings
Mayor & Council
Board & Commissions
Town & Zoning Codes
General Plan
Media Kit
Community Information
Employment
Volunteer
Forms
Photo Gallery
Small Talk Newsletter
Press Releases
Contacts
Links
Search
Pay Utility Bill
Employee Portal - Not available to the Public

HOURS OF OPERATION:
Monday - Thursday
8:00am - 5:30pm
Friday
8:00am - 12:00pm
Closed Saturday & Sunday

ADDRESS:
P.O. Box 308
39 North Ninth Street
Clarkdale, AZ 86324

PHONE:
(928) 639- 2400
Fax: (928) 639-2409
TTY: **1-800-367-8939**

QUICK LINKS:

Current Clarkdale

COMMUNITY CALENDAR OF EVENTS

3rd Wednesday of the Month	**CLARK MEMORIAL CLUBHOUSE TOURS** 9:45 a.m. FREE TO THE PUBLIC *Hosted by the* ***Clarkdale Historical Society & Museum*** 928-649-1198
December 1	**'TIS THE SEASON TO BE SWINGIN' YC MUSIC INSTRUMENTAL CONCERT** 7:00pm Yavapai College Music Department Yavapai College - Verde Valley Campus M-137 FREE
Dec. 1 - Dec. 4	**MADE IN CLARKDALE DECEMBER ART SHOW** Clark Memorial Clubhouse FREE 928-301-9798
December 3	**SANTA COMES TO CLARKDALE** 12pm-2pm Clark Memorial Clubhouse-Men's Lounge FREE
December 9	**DEADLINE TO SUBMIT INTEREST TO PERFORM IN 2017 CONCERTS IN THE PARK** 8am
December 16	**CAROLING IN THE PARK** 6pm Clarkdale Town Park Gazebo FREE
December 26	Happy Holidays **TOWN OF CLARKDALE OFFICES & CLARK MEMORIAL LIBRARY CLOSED** *In observance of Christmas*
January 2	HAPPY NEW YEAR **TOWN OF CLARKDALE OFFICES & CLARK MEMORIAL LIBRARY CLOSED** *In observance of New Year's Day*

2017 CONCERTS IN THE PARK CALL FOR PERFORMERS

HAZARD MITIGATION PLAN UPDATE

UNITED VERDE SOIL PROGRAM

EMERGENCY PREPAREDNESS

The Town of Clarkdale and the Clarkdale Fire District hosted a Flood Preparedness Community Meeting on Tuesday, January 26th. The meeting reviewed self-preparedness tips and evacuation procedures.

Watch the video:
FLOOD PREPAREDNESS COMMUNITY MEETING VIDEO

Sign up to receive emergency phone messages through CodeRED:

Sign up for... CODE RED Keeping citizens informed.

VERDE RIVER @ CLARKDALE

Verde River @ Clarkdale Memberships NOW AVAILABLE!
Click here for application and additional information

ARIZONA OPENBOOKS

NOTICE OF INTENT TO IMPOSE OR INCREASE FEES OR TAXES

SUSTAINABLE CLARKDALE & ECONOMIC DEVELOPMENT PLAN

NATIONAL WATER INFORMATION SYSTEM REAL TIME WATER DATA VERDE RIVER, CLARKDALE, AZ

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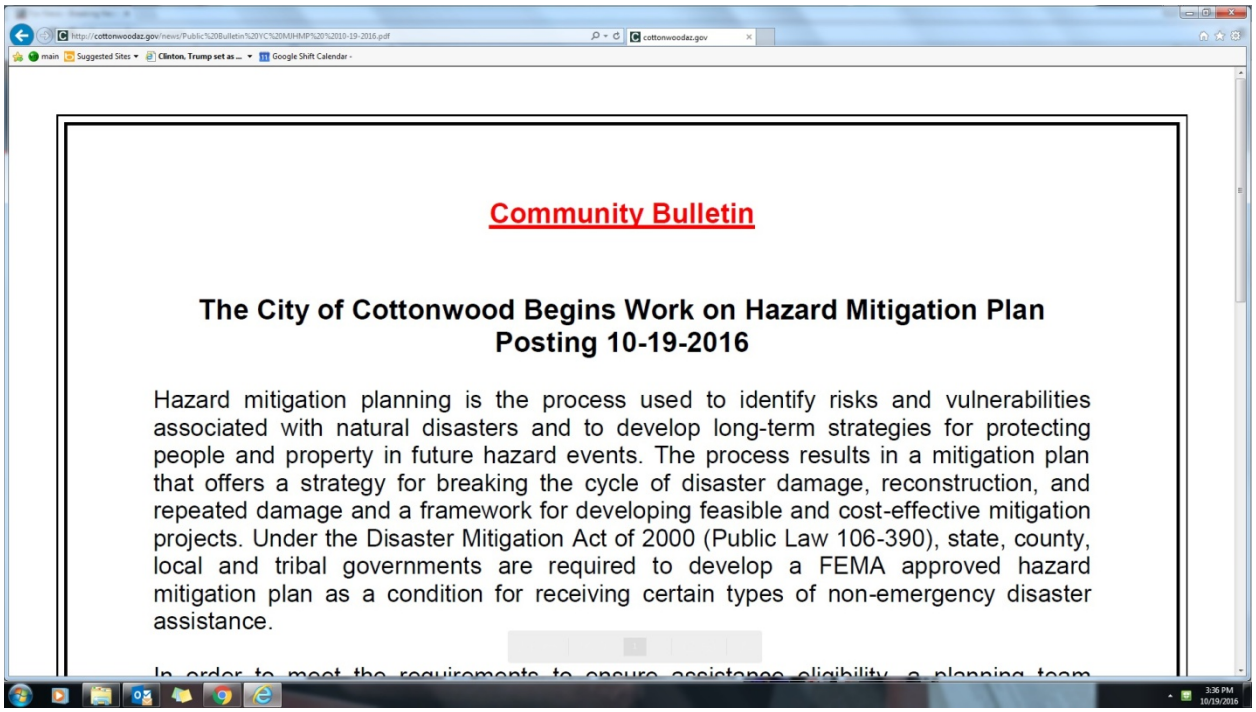
Clarkdale Begins Work on Hazard Mitigation Plan Update

A planning team of representatives of Yavapai County incorporated and unincorporated regions are participating in a county-wide hazard mitigation planning update process. The purpose of this process is to update the current 2011 County Hazard Mitigation Plan, previously approved by FEMA on 9/12/2011. Local, county, tribal and state governments are required to have a FEMA approved hazard mitigation plan in order to be eligible for federal hazard mitigation grant funds and in some cases, other types of disaster funding. The Plan focuses on the communities' most threatening hazards and establishes a strategy to reduce the impact from those hazards to protect the people and property of Yavapai County and to create more resilient communities. The Planning Team anticipates having a plan draft in November 2016, at which time public access to the updated plan draft will be provided, with the opportunity to again comment.

You may view and comment on the 2011 County Hazard Mitigation Plan at http://www.yavapai.us/publicworks/Divisions/Emergency-Management/Hazard-Mitigation-Plan or Clarkdale Town Hall, 39 N. Main Street, Clarkdale, AZ Monday through Thursday 8:00 AM. To 5:30 PM and Friday 8:00 AM to Noon. For more information or should you have questions regarding the hazard mitigation planning process/plan, please contact Kathy Bainbridge, 39 N. Main Street, Clarkdale, AZ or email Kathy.bainbridge@clarkdale.az.gov.



Community Bulletin

The City of Cottonwood Begins Work on Hazard Mitigation Plan
Posting 10-19-2016

Hazard mitigation planning is the process used to identify risks and vulnerabilities associated with natural disasters and to develop long-term strategies for protecting people and property in future hazard events. The process results in a mitigation plan that offers a strategy for breaking the cycle of disaster damage, reconstruction, and repeated damage and a framework for developing feasible and cost-effective mitigation projects. Under the Disaster Mitigation Act of 2000 (Public Law 106-390), state, county, local and tribal governments are required to develop a FEMA approved hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance.

In order to meet the requirements to ensure assistance eligibility, a planning team

TOWN OF CAMP VERDE
BEGINS WORK ON
HAZARD MITIGATION PLAN UPDATE

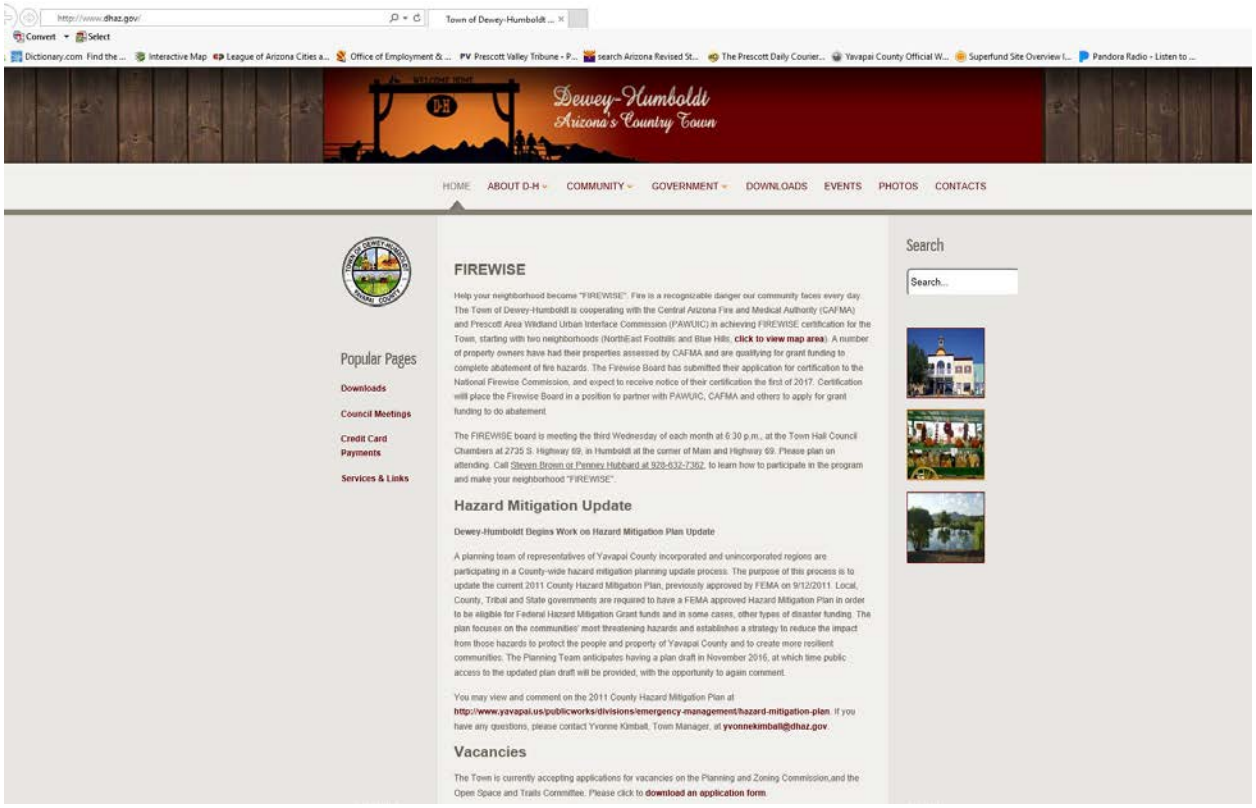
A planning team of representatives from:

- The Town of Camp Verde
  - Community Development
  - Public Works Department
  - Waste Water
  - Streets Department
  - Marshal's Office
- Copper Canyon Fire and Medical Authority
- Yavapai Apache Nation

are participating in a county-wide hazard mitigation planning update process. The purpose of this process is to update the current Yavapai County Hazard Mitigation plan, previously approved by FEMA on September 12, 2011. Local, county, tribal and state governments are required to have a FEMA approved hazard mitigation plan in order to be eligible for federal hazard mitigation grant funds and in some cases, other types of disaster funding. The Plan focuses on the communities' most threatening hazards and establishes a strategy to reduce the impact from those hazards to protect the people and property of Yavapai County and to create more resilient communities. The Planning Team anticipates having a plan draft in January 2017, at which time public access to the updated plan draft will be provided, with opportunity to again comment.

You may view the adopted 2013 Hazard Mitigation Plan at www.campverde.az.gov. (Resolution 2013-882) For more information or should you have questions regarding the hazard mitigation planning process/plan, please contact

Troy O'Dell
Deputy Public Works Director/Engineer
395 S Main Street
Camp Verde, AZ 86322
troy.odell@campverde.az.gov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PHOTOS
CONTACTS
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FIREWISE
Help your neighborhood become "FIREWISE". Fire is a recognizable danger our community faces every day. The Town of Dewey-Humboldt is cooperating with the Central Arizona Fire and Medical Authority (CAFMA) and Prescott Area Wildland Urban Interface Commission (PAWUIC) in achieving FIREWISE certification for the Town, starting with two neighborhoods (NorthEast Foothills and Blue Hills, click to view map area). A number of property owners have had their properties assessed by CAFMA and are qualifying for grant funding to complete abatement of fire hazards. The Firewise Board has submitted their application for certification to the National Firewise Commission, and expect to receive notice of their certification the first of 2017. Certification will place the Firewise Board in a position to partner with PAWUIC, CAFMA and others to apply for grant funding to do abatement.
The FIREWISE board is meeting the third Wednesday of each month at 6:30 p.m., at the Town Hall Council Chambers at 2735 S. Highway 69, in Humboldt at the corner of Main and Highway 69. Please plan on attending. Call Steven Brown or Penney Hubbard at 928-632-7362, to learn how to participate in the program and make your neighborhood "FIREWISE".
Hazard Mitigation Update
Dewey-Humboldt Begins Work on Hazard Mitigation Plan Update
A planning team of representatives of Yavapai County incorporated and unincorporated regions are participating in a County-wide hazard mitigation planning update process. The purpose of this process is to update the current 2011 County Hazard Mitigation Plan, previously approved by FEMA on 9/12/2011. Local, County, Tribal and State governments are required to have a FEMA approved Hazard Mitigation Plan in order to be eligible for Federal Hazard Mitigation Grant funds and in some cases, other types of disaster funding. The plan focuses on the communities' most threatening hazards and establishes a strategy to reduce the impact from those hazards to protect the people and property of Yavapai County and to create more resilient communities. The Planning Team anticipates having a plan draft in November 2016, at which time public access to the updated plan draft will be provided, with the opportunity to again comment.
You may view and comment on the 2011 County Hazard Mitigation Plan at http://www.yavapai.us/publicworks/divisions/emergency-management/hazard-mitigation-plan. If you have any questions, please contact Yvonne Kimball, Town Manager, at yvonnekimball@dhaz.gov.
Vacancies
The Town is currently accepting applications for vacancies on the Planning and Zoning Commission,and the Open Space and Trails Committee. Please click to download an application form.
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For more information, contact Joni Savage at 928-634-7943, or Tom Holland of Westech Recyclers at (602) 432-4046, or go to their website at www.westechrecyclers.com.

TOWN OF JEROME BEGINS WORK ON HAZARD MITIGATION PLAN UPDATE

A planning team of representatives from Town of Jerome is participating in a county-wide hazard mitigation planning update process. The purpose of this process is to update the current 2012 County Hazard Mitigation Plan, previously approved by FEMA on 9/12/2011. Local, county, tribal and state governments are required to have a FEMA approved hazard mitigation plan in order to be eligible for federal hazard mitigation grant funds and in some cases, other types of disaster funding. The Plan focuses on the communities' most threatening hazards and establishes a strategy to reduce the impact from those hazards to protect the people and property of Yavapai County and to create more resilient communities. The Planning Team anticipates having a plan draft in place later this year, at which time public access to the updated plan draft will be provided, with the opportunity to provide comment.

You may view and comment on the 2016 or 2017 County Hazard Mitigation Plan online at http://www.yavapai.us/publicworks/Divisions/EmergencyManagement/HazardMitigationPlan.

For more information or should you have questions regarding the hazard mitigation planning process/plan, please contact Derrik L. Seale, M.S., EMHS, Yavapai County Emergency Manager, at (928) 713-8020.

GOT BEES? Don't kill them!
Contact a beekeeper instead for relocation of the hive.

Here are some local beekeepers:
Stanley 928-300-7540
John 520-971-0583
Dan 928-224-1819

NOTICE TO LANDLORDS OF COMMERCIAL PROPERTY

As of November 1, 2016, landlords of commercial property will be subject to a 2.5% Transaction Privilege Tax. The Model City Tax Code defines "commercial property" as "any real property, or portion of such property, used for any purpose other than lodging or lodging space, including structures built for lodging but used otherwise, such as model homes, apartments used as offices, etc."

If you are a landlord of commercial property, and have not already done so, you will need to register with the Arizona Department of Revenue (ADOR) and obtain a TPT license. If you are already registered and filing sales tax returns, you will need to add a line to your return, beginning with your return covering the month of November. The business class code for commercial rentals is 213, and the region code is "JO."

Also, unless you have done so already, you will need to obtain a business license from the Town of Jerome. Applications are available at Town Hall, and Peggy Tavres can assist you with that.

If you have questions or need assistance regarding transaction privilege taxes, ADOR staff is available weekdays between 8 a.m. and 5 p.m. You can reach them toll-free at 1(844) 698-9176 or by e-mail at AskTPT@azdor.gov. You may also contact Town Manager Candace Gallagher at (928) 634-7943, or at cgallagher@jerome.az.gov.

CITY OF PRESCOTT, ARIZONA

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Public Input Requested for Multi-Jurisdictional Hazard Mitigation Plan

Thursday, November 10, 2016

Yavapai County and other cities within the county are seeking public input on the Multi-Jurisdictional Hazard Mitigation Plan. It can be viewed and comments can be submitted here

Home → News

Public Works

The responsibilities of the Public Works Department include protecting the physical and environmental health of the residents; maintaining existing Town facilities; providing a safe environment in which to conduct official business; maintaining existing storm drainage systems; and enhancing the smooth flow of vehicular traffic.

********** NOTICE **********

The Yavapai County Multi-Jurisdictional Hazard Mitigation Plan is a FEMA approved plan which addresses the mitigation strategy for all incorporated and unincorporated regions of Yavapai County. The plan is reviewed annually and rewritten every five years as required by federal guidelines.

Yavapai County Office of Emergency Management is seeking comment on this Multi-Jurisdictional Hazard Mitigation Plan for the 2016/17 rewrite. As a FEMA approved plan, it meets the requirements for Hazard Mitigation Grant Program funding, both for the Pre and Post disaster grant funds. Your jurisdiction is a participant in the planning process and is seeking your input. Please visit http://www.yavapai.us/publicworks/Divisions/Emergency-Management/Hazard-Mitigation-Plan to review the plan and provide your comments.

Contact Us

Norm Davis, PE
Director

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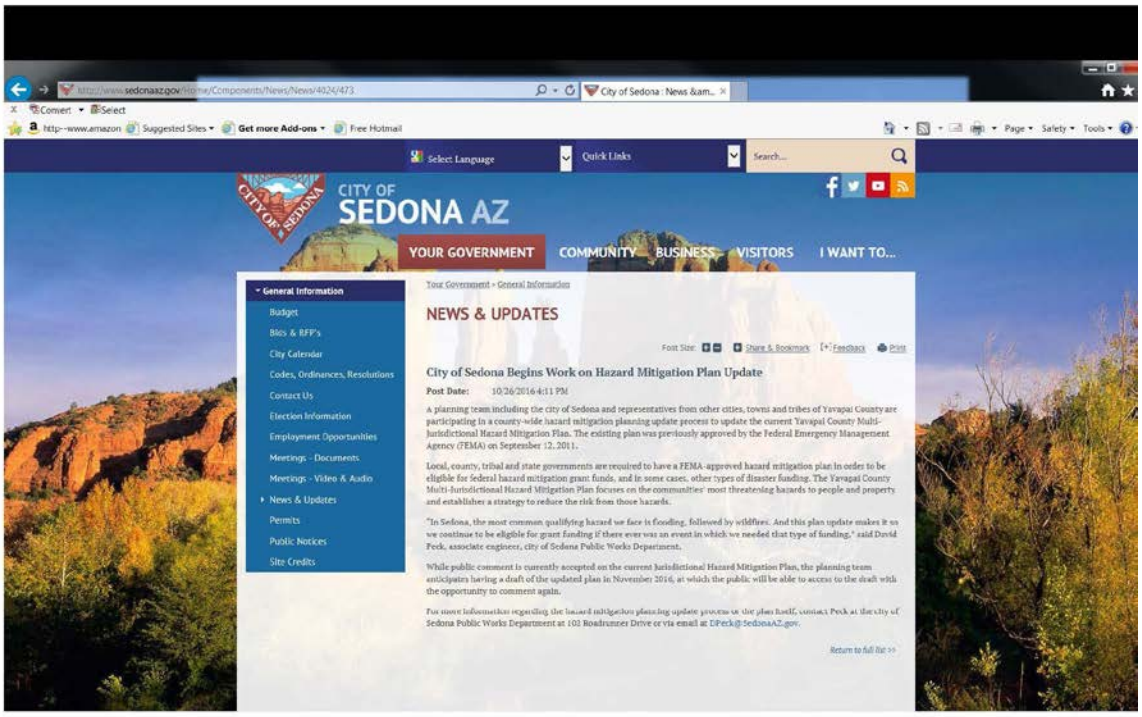
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City of Sedona Begins Work on Hazard Mitigation Plan Update
Post Date: 10/26/2016 4:11 PM
A planning team including the city of Sedona and representatives from other cities, towns and tribes of Yavapai County are participating in a county-wide hazard mitigation planning update process to update the current Yavapai County Multi-Jurisdictional Hazard Mitigation Plan. The existing plan was previously approved by the Federal Emergency Management Agency (FEMA) on September 12, 2011.
Local, county, tribal and state governments are required to have a FEMA-approved hazard mitigation plan in order to be eligible for federal hazard mitigation grant funds, and in some cases, other types of disaster funding. The Yavapai County Multi-Jurisdictional Hazard Mitigation Plan focuses on the communities' most threatening hazards to people and property and establishes a strategy to reduce the risk from those hazards.
"In Sedona, the most common qualifying hazard we face is flooding, followed by wildfires. And this plan update makes it so we continue to be eligible for grant funding if there ever was an event in which we needed that type of funding," said David Peck, associate engineer, city of Sedona Public Works Department.
While public comment is currently accepted on the current Jurisdictional Hazard Mitigation Plan, the planning team anticipates having a draft of the updated plan in November 2016, at which the public will be able to access to the draft with the opportunity to comment again.
For more information regarding the hazard mitigation planning update process or the plan itself, contact Peck at the city of Sedona Public Works Department at 102 Roadrunner Drive or via email at DPeck@SedonaAZ.gov.
Return to full list >>

City of Sedona Government – Facebook Page

October 26 at 5:56pm

HAZARD MITIGATION PLAN UPDATE NEWS

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For more information regarding the hazard mitigation planning update process or the plan itself, contact Peck at the city of Sedona Public Works Department at 102 Roadrunner Drive or via email at DPeck@SedonaAZ.gov.

Sedona Red Rock News, November 4, 2016

County updates its hazard plans

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While public comment is currently accepted on the current Jurisdictional Hazard Mitigation Plan, the planning team anticipates having a draft of the updated plan this month, at which time the public will be able to access to the draft with the opportunity to comment again.

For more information regarding the hazard mitigation planning update process or the plan itself, contact Peck at the city of Sedona Public Works Department at 102 Roadrunner Drive or via email at DPeck@SedonaAZ.gov.

Sedona.biz

City of Sedona Begins Work on Hazard Mitigation Plan Update

By
Sunday, October 30th, 2016

Sedona AZ (October 29, 2016) – A planning team including the city of Sedona and representatives from other cities, towns and tribes of Yavapai County are participating in a county-wide hazard mitigation planning update process to update the current Yavapai County Multi-Jurisdictional Hazard Mitigation Plan. The existing plan was previously approved by the Federal Emergency Management Agency (FEMA) on September 12, 2011.

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For more information regarding the hazard mitigation planning update process or the plan itself, contact Peck at the city of Sedona Public Works Department at 102 Roadrunner Drive or via email at DPeck@SedonaAZ.gov.

APPENDIX D: PAST MITIGATION STRATEGY ASSESSMENT

Previous Mitigation Strategy Assessment for Yavapai County								
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Anticipated Completion Date**	**Project Lead**	**Potential Funding Source(s)**	**Status**	**Disposition**	**Explanation or brief description of work so far or reason for 'no progress'**
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	$2.2M	June 2013	Flood Control District	Flood Control District	No Progress	Delete	Priorities shifted, some minor channelization work has been completed.
Beaver Creek Channel Restoration. Channel bank restoration to prevent ongoing erosion hazard to protect existing and future buildings and infrastructure.	Flood	$100K	June 2020	Flood Control District	Flood Control District	No Progress	Revise	Priorities have shifted. Considering options for future.
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	$1.5M	On Going	Flood Control District	Flood Control District	In Progress	Keep	
Flood Warning System. Install additional in stream, weather, and precipitation gauges in watersheds impacting Yavapai Co. To include website development and remote dial-up for public agencies.	Flood	$500K	On Going	Flood Control District	Flood Control District	In Progress	Keep	
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	$100K	Dec. 2017	Flood Control District	Flood Control District	In Progress	Revise	Awaiting new State Model Ordinance updates.
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	$40K	on-going	Water Advisory Committee	General Fund	Some progress	Delete	Ground water injection sites or aquafer ponds are completed in Prescott Valley
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	$500K	On-going	Yavapai Co Firewise and Yavapai Co OEM	Self Funded	In Progress	Keep	Work is being accomplished through a collaborative effort of all stakeholders. Ongoing assessments
Regional Fuels Crew. Support two full-time crews dedicated to hazard fuel reduction, and public education in the Prescott Basin and surrounding areas.	Wildfire	$3M	On-going	Prescott Fire & Central Yavapai Fire	USDA/FS Grants	In Progress	Keep	Hazard Fuels Mitigation Crew Established in Prescott
County Fuels Crew. Support part-time road crew to perform roadside hazard fuel reduction along County roads in the interface.	Wildfire	$300K	On-going	Public Works	Self -Funding, and USDA/FS Grants	Some Progress	Keep, Revise	Currently being addressed through the Yavapai County Wildland Fuels Workshop and YCCWPP

Previous Mitigation Strategy Assessment for Yavapai County								
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Anticipated Completion Date**	**Project Lead**	**Potential Funding Source(s)**	**Status**	**Disposition**	**Explanation or brief description of work so far or reason for 'no progress'**
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	$15K	On-going	HOA's, Community Groups	Self -Funding, and USDA/FS Grants	In Progress	Keep, Revise	Successful Firewise Strategy which has increased Firewise participation 106%
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 10 years.	Wildfire	$100K	On-going	PAWUIC	Self-Funding USDA/FS Grants	In Progress	Keep, Revise	Successful Firewise Strategy which has increased Firewise participation 106%
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	$1.2M	On-going	PAWUIC/ YCEM	ARRA Grants	No Progress	Delete	Not economically viable
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	$25K	Ongoing	County GIS	General Fund	In Progress	Keep	Currently being addressed through the Yavapai County Wildland Fuels Workshop and YCCWPP
Boundary Project. Develop a 270 degree defensible wildfire boundary around interface immediately to the south of Prescott.	Wildfire	$3M	Ongoing	PAWUIC/ USFS	USDA/FS Grants	In Progress	Keep	Currently being addressed through the Yavapai County Wildland Fuels Workshop and YCCWPP
Urban Search and Rescue Team Project. Develop urban search and technical rescue capability in the County through training and procurement of specialized equipment.	All	$1M	On-going	Participating Fire Depts.	Homeland Security	No Progress	Delete	Not sustainable
Ensure Water Quality. Protect water quality from contamination through development of household hazardous waste programs over ten years.	Drought; HAZMAT	$200K	2015	YCEM	County, city, ADEQ	No Progress	Delete	Not sustainable
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	$150K	2012	county-wide Public Safety	Homeland Security	No Progress	Delete	Not sustainable
CERT 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	$50K	On-going	YCEM	FEMA	In Progress	Keep, revise	CERT Program has met with marginal success

Previous Mitigation Strategy Assessment for Yavapai County								
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Anticipated Completion Date**	**Project Lead**	**Potential Funding Source(s)**	**Status**	**Disposition**	**Explanation or brief description of work so far or reason for 'no progress'**
Repetitive Flood Loss Properties. Inform and coordinate property owners to flood mitigation programs such as retrofit and/or property acquisition.	Flood	$5M	On Going	Flood Control District	Flood Control District	In Progress	Keep	Primarily an outreach program at this time. Might consider structural measures with funding
Purchase and Store Rain Gages for use after a forest fire to assist in mitigating flood and mudslide losses.	Flood and Mudslide	$50K	Ongoing	Flood Control District	Flood Control District	In progress	Keep Revise	Rain gauges are being installed post fire on all fires since 2012
Mayer Local Drainage. Construct various flood mitigation projects to protect structures from flooding.	Flood	$30K	August 2012	Flood Control District	Flood Control District	Complete	Delete	
Lake Montezuma Area-Wide Drainage Plan. Area-wide planning project to determine hazard and mitigation projects for construction.	Flood	$300K	June 2020	Flood Control District	Flood Control District	In Progress	Revise	Extend timeline
Village of Oak Creek Area-Wide Construction Projects. Five of eight various flood mitigation projects as determined in the area-wide planning study.	Flood	$250K	June 2021	Flood Control District	Flood Control District	In Progress	Revise	Extend timeline

Previous Mitigation Strategy Assessment for Camp Verde

Description	Hazard(s) Mitigated	Estimated Cost	Anticipated Completion Date	Project Lead	Potential Funding Source(s)	Status	Disposition	Explanation
Enforce Adopted Building & Fire Codes. Continue to enforce Fire Code requirements for Adequate Fire Flow and Fire Access Lanes.	Wildfire	Staff time	Continued	Camp Verde Building Official	General Fund	In Progress	Keep	Received Fire Code Verifications from State Fire Marshal & Council Policy
Enforce Nuisance Codes for Abatement of weeds garbage and debris to create defensible spaces around existing homes and buildings.	Wildfire	Staff time	Continued	Community Development Director	General Fund	In Progress	Keep	Created nuisance abatement process in Town Code
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. Management Plan as well.	Flooding	Staff time, 100K	February 2011	Public Works/Project Mgr	General Fund	In Progress	Keep Revised	Storm Water Repair
Uninterrupted Power System for Traffic Signals. Install battery backup power systems at major traffic intersections.	Transportation Accident	$150K	2012	Public Works Director	General Fund	Complete	Delete	
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, Fire	Staff time, $100K	Continued, Ongoing	Public Works Director/Deputy Director	General Fund, County Funds FEMA HMGP	In Progress	Keep	Large Acquisition, Ongoing
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	$2M	Continued	Public Works Director	FEMA HMGP / General Fund match	No Progress, Study Complete	Keep	Study complete, Storm Water Repair
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	Staff time	Continued	Public Works Director	General Fund	In Progress	Keep	Ongoing

Previous Mitigation Strategy Assessment for Camp Verde								
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Anticipated Completion Date**	**Project Lead**	**Potential Funding Source(s)**	**Status**	**Disposition**	**Explanation**
Partner with the Forest Service and Hopi Tribe to gain permission and funding to mitigate storm water impact from Forest Service propertites surrounding our community in (5) identifiable sites.	Flooding, Mudslides	$4.5M	Continued	Public Works Director	General Fund match, FEMA HMGP	In Progress	Keep	Ongoing
Construct road crossings and drainage channels at Quarterhorse Dr. and Glenrose Dr.areas that drain the Camp Verde School District property, private properties and Forest Service properties North of Quarterhorse Dr. to the Diamond "S" ditch.	Flooding	$400K	Continued	Public Works Director	General Fund match, FEMA HMGP	In Progress	Keep	Ongoing
Verde Lakes, Ward ranch Gully, and West Clear Creek Habitat, Floodplain Remediation	Flooding Wildfire	$1.5M	Continued	Public Works Director	General Fund match, FEMA HMGP	In Progress	Keep	Ongoing
Acquisition of 50-N95 Disposable Particulate Respirators and 30-Tyvek Coveralls for 1st responders to hazmat incidents	Hazmat	$6K	Continued	Marshal's Office	General Fund match, FEMA HMGP	In Progress	Keep	Ongoing
Generator to Operate Lights and Equipment at Scenes	Equipment Operation	$3K	Continued	Marshal's Office	General Fund match, FEMA HMGP	In Progress	Keep	Ongoing
Acquisition of 100 traffic cones and 100 rolls of caution tape	Scene security and Traffic Control	$5K	Continued	Marshal's Office	General Fund match, FEMA HMGP	In Progress	Keep	Ongoing

Previous Mitigation Strategy Assessment for Chino Valley								
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Anticipated Completion Date**	**Project Lead**	**Potential Funding Sources**	**Status**	**Disposition**	**Explanation**
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	$1 million	2025	Community Development, Legal, and Public Works	Federal Grant	No Progress	Delete	Not Appropriate to mitigation
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	$250,000	2013	Public Works Director	CIP Program	Complete	Delete	Project Completed
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	$200,000	Ongoing	Police and Public Works, Chino Valley Fire District	CIP Program	No Progress	Delete	Not Appropriate to mitigation
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	$750,000	2025	Public Works Director	CIP Program	No Progress	Keep	Need Project Scope
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	$600,000	2012	Public Works Director	CIP Program	Complete	Delete	Project Complete
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	$75,000	Ongoing	Community Development, Legal, and Public Works, Chino Valley Fire District	General Funds	Ongoing	Keep	Continuous
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	$75,000	2050	Community Development, Legal, and Public Works	General Fund	Ongoing	Keep	Continuous

Previous Mitigation Strategy Assessment for Clarkdale								
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Anticipated Completion**	**Project Lead**	**Potential Funding Sources**	**Status**	**Disposition**	**Explanation**
Improve Flood Warning System on Verde River. Install gage and equipment for flood warning system in the Verde River at Tuzigoot Bridge.	Flood	$10,000	2013	Yavapai Co Flood Control District	Yavapai County	In Progress	Keep	Implemented rudimentary measurement measures. Funding
Tuzigoot Bridge. Enlarge or replace Tuzigoot Bridge to alleviate traffic and accommodate emergency response vehicles during flooding events on the Verde River.	Flood	$28,000,000	2015	ADOT	ADOT	In Progress	Keep	Bridge Inspection Report Completed Funding
Finalize PARA Study. Work with consultant or finalize the Transportation Master Plan for the Town.	Transportatio n Accident	$125,000	2011	ADOT	ADOT	Completed	Delete	Established transportation plan
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	$5,000 +Staff Time	On Going	Clarkdale Community Development Dept	General Fund	Complete On going	Keep	Adopted 2012 International Building Codes in April of 2014
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	$25,000	2015	Clarkdale Fire District	Fire District	No Progress	Keep	Funding
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	$5,000 +Staff Time	On Going	Clarkdale Community Development Dept	General Fund	On Going	Delete	Adopted 2012 International Building Codes in April of 2014
Wildfire Fuel Reduction. Conduct wildfire hazard fuel reduction within and surrounding Clarkdale to reduce the risk to existing and new structures.	Wildfire	$20,000	2012	Clarkdale Fire District	Fire District	On Going	Keep	As determined by funding
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	$300,000	2014	Clarkdale	General Fund Grants	In Progress	Keep	Purchased 2 small generators to keep partial electric to two buildings for recharge of critical service communication equipment. Funding

Previous Mitigation Strategy Assessment for Clarkdale								
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Anticipated Completion**	**Project Lead**	**Potential Funding Sources**	**Status**	**Disposition**	**Explanation**
Develop IGA with Yavapai County Flood Control District for establishing procedural guidelines for the implementation and enforcement of the NFIP floodplain management.	Flood	Staff Time	Annually	Clarkdale Community Development Dept	General Fund	Completed Annually	Keep	Various flood control preventions completed annually based upon annual County funding
Yavapai County Flood Mitigation Projects. Major projects are driven by historical events and minor projects are driven by local issues	Flood	Staff Time	Annually	Clarkdale Public Works Dept	Yavapai Co Grants	Completed Annually	Keep	Various flood control preventions completed annually based upon annual County funding
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	3,500,000	2015	Clarkdale Utility Dept	Water Fund HUD Homeland Security Grant	Completed	Delete	Replacement aboveground waterlines with 12,350 ft of new 12" and 8" C-900 PVC water mains, fire hydrants, and new service connections. Improvements will provide security for water system, reduce service outages & water loss, improve system pressures & resolve volume issues & improve fire protection
89A Reservoir Site Protection. Install traffic control barricades to protect vulnerable existing reservoir tanks.	Transp Accident	30,000	2015	Clarkdale Utility Dept	Water Fund HUD	No Progress	Keep	Funding
Mescal Well Project. Additional future water supply	Water	1,200,000	2021	Clarkdale Utility Dept	Water Fund HUD			

Previous Mitigation Strategy Assessment for Cottonwood									
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Priority Ranking**	**Anticipated Completion Date**	**Project lead**	**Potential Funding Sources**	**Status**	**Disposition**	**Explanation or brief description of work so far or reason for 'no progress'**
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	$200,000	High	On Going	Code Enforcement Officers	General Fund	In Progress	Keep	City is currently working toward the adoption of 2012 ICC building, mechanical and fire codes
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	$1,000,000	Med	On Hold	Public Works Utilities	Grants and General Funding	In Progress	Keep	90% complete, 2 properties left to remove from floodplain
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	$5,000	Low	2016	Police/Fire/ Developmental Services	General Fund	In Progress	Keep	City has held meetings to update residents on flood control issues
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	$2,500 Year	Med	On Going	Police Dept	General and RICCO Funds	In Progress	DELETE	Project outside parameters of this plan
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	$1,000	Low	On Going	Fire Dept	General Fund or Grant funding	In Progress	DELETE	Project outside parameters of this plan
HazMat Code Enforcement. Ensure code compliance related to hazardous materials use, storage and disposal in the community.	HazMat	$10,000	Med	On Going	Fire Dept	Grants and General Fund	In Progress	DELETE	Project outside parameters of this plan

Previous Mitigation Strategy Assessment for Cottonwood									
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Priority Ranking**	**Anticipated Completion Date**	**Project lead**	**Potential Funding Sources**	**Status**	**Disposition**	**Explanation or brief description of work so far or reason for 'no progress'**
Accident Reduction Details. Continuation of traffic accident mitigation by selective enforcement in high risk areas. 5-year cost.	Traffic Accident	N/A	High	On Going	Police Dept	General Fund	In Progress	DELETE	Project outside parameters of this plan
Early Warning System. Active early warning system for inclement weather and flooding conditions. Cooperative with Yavapai Co and NOAA.	All	$30,000	Med	Pending Funding	Public Works And Police Dept	Grant Funds	In Progress	Keep	Reverse 911 system in implementation stage
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	$750,000	High	Pending Funds	Utilities	General Fund and Grant Funds	In Progress	Keep	75% of generators have been installed. Anticipate completion in 2019
Public Safety Communication Improvements. Upgrade public safety communication systems to handle storm related operational disruptions during severe weather.	All – Response Oriented	$1,000,000	High	Underway	Public Safety (Fire Dept and Police Dept)	Grant Funds General Funds	Complete	Delete	New communications center with back-up power constructed 2014
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	$20,000	High	2015	Public Works	Capital Purchase	In Progress	Keep	An additional street eliminates the 6th crossing access issue. Wet crossings still exist and need funding not available at this time.

Previous Mitigation Strategy Assessment for Cottonwood									
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Priority Ranking**	**Anticipated Completion Date**	**Project lead**	**Potential Funding Sources**	**Status**	**Disposition**	**Explanation or brief description of work so far or reason for 'no progress'**
Targeted Stormwater Drainage Improvements. Identify repetitive flooding problems within the community and develop projects to reduce the flooding hazard.— Complete Old Town District/Del Monte Wash Channelization/Re-delineation Project. Complete channelization of Del Monte Wash between Balboa Street and 5th Street to remove residential and commercial properties from the floodplain	Flood	$50,000	High	On Going	Public Works	General Fund	In Progress	Keep, Revise	City wide Drainage study this year. Which will identify hazards. First source of funding for Old Town project available July 2017
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	$160,000	High	On Going	Fire Dept and Street Dept	General Fund	In Progress	Keep	Conservation group has removed some invasive vegetation fuels from interface areas along Verde River

Previous Mitigation Strategy Assessment for Dewey-Humboldt

Description	Hazard(s) Mitigated	Estimated Cost	Anticipated Completion Date	Project Lead	Potential Funding Sources	Status	Disposition	Explanation or brief description of work so far or reason for 'no progress'
Antelope Meadows Commercial Center. Remove flooding risk to the residents 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	$100,000	No longer a possible project.	Dewey-Humboldt Engineering and Public Works Dept	IGA, General Fund, or HURF	No progress	delete	Reason Project has stopped non-cooperation from the stakeholders.
Implement and Enforce building Codes. Implement and enforce council directed building codes and adopt new international codes as they become available and/or are applicable.	All	$0	Codes are enforced as needed Reviewed annually for necessary updates	Dewey-Humboldt Community Development and Bldg Dept	N/A	Complete	keep	Town has adopted the 2012 Building Code and will adopt future updates as needed.
Public Outreach. Educate the public on the risks resulting from fire, severe weather, and associated hazards; including recommendations on how to protect themselves and their property from damages due to natural and man-made hazards events.	Drought, Severe Wind, Fire	$5,000	Semi-annual basis	Dewey-Humboldt Community Development	General Fund	In progress	keep	Implemented "fire wise" and hope for certification soon
NFIP Compliance. Maintain compliance with 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	$0	6/2011	Yavapai County Flood Control District (through an agreement with Dewey-Humboldt)	N/A	In progress	delete	Flood Management is done through the Yavapai County Flood Control Office.
All Weather Crossing at Prescott Street. All weather crossing of the Agua Fria River is recommended at the location of the exiting low-flow at-grade crossing along Prescott St. to improve circulation and emergency vehicle access. In addition to local studies, a 2012 Arizona Dept. of Transportation study identified the need. The Town is considering either a Bridge or Box Culverts.	Fire, Flood	$3,500,000 to $900,000 depending on solution (either a bridge or a box culvert)	Annual review for available funding options/ No anticipated completion date at this time	Dewey-Humboldt Public Works Dept.	IGA, General Fund, or HURF, Possible Grants	No progress since the ADOT study.	keep	No funds. Annual review will determine funding availability.

Previous Mitigation Strategy Assessment for Dewey-Humboldt

Description	Hazard(s) Mitigated	Estimated Cost	Anticipated Completion Date	Project Lead	Potential Funding Sources	Status	Disposition	Explanation or brief description of work so far or reason for 'no progress'
Create multiple access points with all-weather roads on the west side of Highway 69. A 2012 ADOT study identified that Dewey Road, Prescott Dells Road, Powerline Rd, and Rocky Hill Road as good alternatives for additional routes in portion of the Town for circulation consideration.	Fire, Flood	$3,500,000 to $7,200,000	Annual review	Dewey-Humboldt Community Development and Engineering and Public Works Dept.	General Fund, or HURF, Possible Grants, Flood Control Funds	no progress	delete	No progress since the study due to the extreme costs. Annual review will determine funding availability. Currently the roads listed are private roads and need to be acquired by the Town and placed into the Town road inventory. This is an item that council has discussed on a few occasions. A study session is being planned to establish a plan and procedure to begin addressing alternate routes.
Fire Wise Community Certification. In 2016/2017 two areas of the Town became Fire wise community certified. In these areas the residents are now working to maintain defensible space for fire hazards.	Fire. Flooding, landslides	Unknown Is staff time being used for this on a minimal basis	First portion 2017	Dewey-Humboldt Community Development with resident's participation. And then taking over the lead after start up	Grant from Prescott area wildland urban interface commission	Complete and in progress for other areas of the Town.	Keep	Blue Hills area – West side of Town adjacent to National Forest Ground Foothills are on the east side of town adjacent to State Trust Land. The groups are working on the other areas in Town.
Installation of headwalls and spillways on Foothills Road Headwalls and spillways at two major drainage areas on a local main collector road. Installed to prevent further erosion of road bed and to prevent damage on adjacent properties.	Flooding/ erosion	$160,000	Summer 2014	Dewey-Humboldt Public Works Department and Yavapai County Flood Control District	Yavapai County Flood Control District	Completed	Keep	Gabion basket headwalls and spillways were installed on two main drainage areas that were beginning to erode. We were able to address these areas before damage to Town infrastructure began.

Previous Mitigation Strategy Assessment for Dewey-Humboldt								
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Anticipated Completion Date**	**Project Lead**	**Potential Funding Sources**	**Status**	**Disposition**	**Explanation or brief description of work so far or reason for 'no progress'**
Annual Cleanup Program. This Program enables residents to dispose of excess brush, rubbish, etc from their properties twice a year service provided by the town.	Fire	$10,000.00	Annually	Dewey-Humboldt Public Works Department	General Funds	Ongoing	Keep	
Ditch and Channel Cleanup and Repair. Annually clean and repair drainage ditches and channels throughout Town.	Flooding/ Landslides/ Erosion Control	$35,000.00	Annually	Dewey-Humboldt Public Works Department	General Funds/ Hurf Funds/ Flood Control	Ongoing	Keep	This is completed along with the Multi-Year Road Maintenance Plan. Any areas that are in need of erosion control are evaluated and addressed at that time.

Previous Mitigation Strategy Assessment for Jerome

Description	Hazard(s) Mitigated	Estimated Cost	Anticipated Completion Date	Project Lead	Potential Funding Source(s)	Status	Disposition	Explanation or brief description of work so far or reason for 'no progress'
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	$150,000	Ongoing	Town Manager, Fire Chief, Public Works Chief	Grants (CDBG, FEMA, USDA, others) plus town budget	• Complete	• Keep	Area drainage study funded by a $159,000 Grant from Yavapai County and completed by Town Engineer.
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	$25,000	Ongoing	Fire Chief and Chief Building Official.	Wildlands fees	• In Progress	• Keep	Fuel Abatement through a Firewise Grant for $25,000 from Yavapai County
HAZMAT Public Outreach. Educate the public about hazardous materials safety by including information in Town newsletter and distributing flyers at Town events.	HAZMAT	$500	Ongoing	Town Manager and Fire Chief.	Town budget – general fund.	• In Progress	• Keep	Fire department outreach through Town Newsletter
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	$3,000	Ongoing	Fire Chief, Chief Building Official, Police Chief	Town budget	• In Progress	• Keep	Adopted 2012 IFC, working on the adoption of the 2012 IBC and other Codes

Previous Mitigation Strategy Assessment for Prescott								
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Anticipated Completion Date**	**Project Lead**	**Potential Funding Source(s)**	**Status**	**Disposition**	**Explanation or brief description of work so far or reason for 'no progress'**
Improve Communications Infrastructure. Finalize construction of seven communication sites to improve emergency response communication capabilities.	All – Response Oriented	$500,000	7/1/12	Police Dept	GF/Grants	Complete	Delete	Work completed
Wildfire Fuel Reduction. Continue wildfire fuel reduction on private/public property to protect existing and future buildings and infrastructure. 5 year cost.	Wildfire	$600,000 Annually	On-going	Fire Dept	GF/Grants	In-progress	Keep	Annual work being performed in line with grant monies received.
Improve Response Capability. Purchase additional hazardous materials mitigation equipment.	HazMat	$300,000	7/1/16	Fire Dept	Grants	Completed	Delete	New joint hazardous material response vehicle purchase by CYFD/PFD
Improve Emergency Operations Center. Purchase and install computer, audio/visual, communications, and reverse 911 equipment.	All – Response Oriented	$200,000	7/1/16	Fire Dept	Grants	No Progress	Keep	Lacked funding
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	$75,000	On-going	Fire Dept	Grants	In progress	Keep	This effort moved from fixed date conclusion to on-going to ensure institutionalization.
Improve Low Water Crossings. Install gates, signs, and gages to prevent vehicle travel in 28 low water crossings during flooding events.	Flood	$383,731	7/1/12	Public Works	GF/Grants	Complete	Delete	Work completed
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	$100,000	On-going	Administrative Svcs	Grants	Completed	Delete	Work completed
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	$200,000	On-going	Fire Dept	Grants	In progress	Keep	This effort moved from fixed date conclusion to on-going to ensure institutionalization.
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	$75,000 Annually	On-going	Community Development	GF/Grants	In-progress	Keep	Codes brought to most current version in Spring 2016. Effort to comply is on-going.

Previous Mitigation Strategy Assessment for Prescott								
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Anticipated Completion Date**	**Project Lead**	**Potential Funding Source(s)**	**Status**	**Disposition**	**Explanation or brief description of work so far or reason for 'no progress'**
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	$300,000	7/1/12	Public Works	GF/Grants	Complete	Delete	Work completed
Wildfire Code Enforcement. Continue enforcement of wildland urban interface code. 5 year cost.	Wildfire	$75,000 annually	On-going	Fire Dept	GF/Grants	In-progress	Keep	On-going need to institutionalize efforts
Improve drainage infrastructure at various channel crossings and off-channel site locations.	Flooding	$2,757,000	On-going	Public Works	GF/Grants	In-progress	Keep	On-going assessment conducted with each and every public works project.
Replacement and protecting of existing sewer and water mains within FEMA Floodplains, which are subject to runoff.	Flooding	$9,772,611	7/1/16	Public Works	GF/Grants	In-progress	Keep	On-going assessment conducted with each and every public works project.
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	$75,000	7/1/12	Public Works	GF/Grants	Complete	Delete	Effort completed.

Previous Mitigation Strategy Assessment for Prescott Valley								
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Anticipated Completion**	**Project Lead**	**Funding Sources**	**Status**	**Disposition**	**Explanation or brief description of work so far or reason for 'no progress'**
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	$50,000	Ongoing	Central Yavapai Fire District (CYFD)	Grant	In Progress	Keep	Neighborhoods and subdivisions within our fire district are assessed annually as to which ones are at greatest risk. Wildfire information and education is introduced to homeowners prior to high risk periods.
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	$500,000	Ongoing	CYFD	Grant	In Progress	Keep, will assess any property within our district. Funds vary by grant and community.	CAFMA will assess any residential property within our jurisdiction at no charge to the homeowner. Depending on the grand and area assessed, the homeowner may be eligible for a reimbursement.
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	$150,000	Ongoing	Public Works (PW)	General Fund	In progress	Keep	Town continues to maintain roadside/ROW mowing through annual contracts to reduce risk.
Emergency Vehicle Pre-Emption System. Install a traffic signal priority system for police and fire emergency response vehicles.	Response	$500,000	Ongoing	Police Department (PD) & CYFD	Grant	No progress	Delete	Not a fiscal priority. This is a nice to have system, but not a necessity.
Traffic Control Devices. Obtain 2 lighted sign boards and trailer for use in providing location specific traffic control during hazard events.	Traffic Accident	$50,000	June 2016	PW	Grant	Complete	Delete	Purchased the 2nd light board 2 years ago.
Construct Agua Fria Channel flood control facilities to protect residential areas from flood damages.	Flooding	$10,000,000	June 2013	PW	Flood Control District	In progress	Keep	Design is complete. Continue to search for ways to fund this project.
Complete Phase 2 of the Western Drainage flood control project to protect residential areas from flood damages.	Flooding	$1,000,000	March 2012	PW	Flood Control District	Complete	Delete	Phase 2 completed in 2012. Phase 3 (final) completed in 2013.

Previous Mitigation Strategy Assessment for Prescott Valley								
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Anticipated Completion**	**Project Lead**	**Funding Sources**	**Status**	**Disposition**	**Explanation or brief description of work so far or reason for 'no progress'**
Construct Spouse Drainage flood control facilities to protect residential areas from flood damages.	Flooding	$1,800,000	June 2014	PW	Flood Control District	In progress	Keep	Design complete for Spouse/Viewpoint intersection. Construction scheduled for 2017. Other crossings to be addressed in the future.
Secondary Well Site Power Systems. Obtain backup electrical generation systems for emergency operation at all well sites.	Severe Wind, Power Outage	$500,000	Ongoing	Utilities	Impact Fees	Complete	Delete	Completed project in 2014. Generator stored at WWTP facility.
Source Water Assessment Program for the North Well Field, Big Chino Water System and the Agua Fria Recharge Facilities.	Drought	$100,000	August 2014	Utilities & Water Resources	Impact Fees	In progress	Keep	North Well Field Completed (can remove this portion). Big Chino at about 5%. Recharge facilities at about 50%.
Uninterrupted Power System for Traffic Signals. Install battery backup power systems at 10 major traffic intersections.	Traffic Accident, Severe Wind	$300,000	Ongoing	PD, CYFD, PW	Grant	Complete	Delete	All upgrades to the backup systems for these signals was completed in 2014.
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	$230,000	Within 5 years	PD, PW	Grant, Bond, General Fund	In progress	Keep	PD parking lot wall will be raised by several feet for added security. It has a secondary exit. PD lobby still needs bulletproof glass. Generator was upgraded. Additional cameras still needed. Council Chambers, Library and Town Hall portions complete.
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	$7,500,000	July 2015	PD, CYFD	Grants & Bond	Complete	Delete	Fire training facility is built and located at 9601 E. Valley Rd. in Prescott Valley. There is no police training facility.
Community Secondary Routes. Plan, design, construct secondary access routes for emergency vehicles.	All	$5,000,000	August 2016	PD, CYFD	Grants, Bonds & General Fund	In progress	Keep	Each new subdivision and phase is reviewed for primary and secondary ingress/egress.

Previous Mitigation Strategy Assessment for Prescott Valley								
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Anticipated Completion**	**Project Lead**	**Funding Sources**	**Status**	**Disposition**	**Explanation or brief description of work so far or reason for 'no progress'**
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	Staff Time	On-going	PW / Engineering Division Mgr	General Fund	In progress	Keep	This is an annual project that is mandated through the Federal Government. Will continue to monitor and report as required.

Previous Mitigation Strategy Assessment for Sedona								
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Anticipated Completion Date**	**Primary Agency**	**Potential Funding Source(s)**	**Status** • **No Progress** • **In Progress** • **Complete**	**Disposition** • **Keep** • **Delete** • **Keep, revise**	**Explanation or brief description of work so far or reason for 'no progress'**
Civilian Emergency Response Team. Train and educate public on basic first response capabilities. 5-year cost.	All – Response Oriented	Uses current staff	Ongoing	Sedona Fire District	N/A	No Progress	Keep and Revise	This program needs to be re-evaluated. Primary issues are resources, both staffing and funding.
Urban Wildland Interface Training for officers, risk assessments. 5-year cost.	Wildfire	Uses current staff	Ongoing	Sedona Fire District	N/A	In Progress	Keep, Revise	In addition to WUI specific training we will continue to train and certify all Sedona Fire District Firefighters as wildland firefighters and red card them. This includes the pack test, annual refresher, and necessary PPE
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	Uses current staff	Ongoing	Sedona Fire District	N/A	In Progress	Keep, Revise	In order to be capable of responding and aiding the residents and visitors of Sedona during floods and flash floods SFD requires all Operational Personnel be trained to the Operations Level and the Technical Rescue Team is trained to the Technician Level. Additionally, last year we began putting our Helicopter Rescue Technicians through Water Recue Training with DPS. Collectively this effort, and the associated equipment and recertification constitute or flooding/flash flooding response commitment.

Previous Mitigation Strategy Assessment for Sedona								
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Anticipated Completion Date**	**Primary Agency**	**Potential Funding Source(s)**	**Status** • **No Progress** • **In Progress** • **Complete**	**Disposition** • **Keep** • **Delete** • **Keep, revise**	**Explanation or brief description of work so far or reason for 'no progress'**
Keep sand and bags available to the public at the following four locations: 2070 Contractors Road, 431 Forest Road, 120 Indian Cliffs Road, and Red Rock High School. 5-year cost.	Flooding/ Flash Flooding	$35,000	Ongoing	City Public Works Dept./ Maintenance Superintendent	City Maintenance Budget	In Progress	Keep, Revise	The City Maintenance yard was added as a location for sand bag availability in 2014. The address for this location is 2070 Contractors Road, Sedona.
2065 Sanborn Drive: Headwall and bank protection work at existing drainage crossing to protect the integrity of Sanborn Drive.	Flooding/ Flash Flooding	$30,000	Fall of 2011	City Public Works Dept./ Assistant City Engineer	Yavapai Co Flood Hazard Mitigation Grant Funding	Complete	Delete	This project was completed in May 2011.
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	$400,000	Spring of 2012	City Public Works Dept./ Assistant City Engineer	Yavapai Co Flood Hazard Mitigation Grant & City Development Impact Fees	Complete	Delete	This project was completed in June 2012.
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	$1.1M	Spring of 2012	City Public Works Dept./ Assistant City Engineer	Yavapai Co Flood Haz Mitigation Grant Funding and City Development Impact Fees	Complete	Delete	This project was completed in December 2012.
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	$1.4M	Fall of 2015	City Public Works Dept./ Assistant City Engineer	Yavapai Co Flood Hazard Mitigation Grant Funding and City Development Impact Fees	Complete	Delete	This project was completed in March 2014.

Previous Mitigation Strategy Assessment for Sedona								
Description	**Hazard(s) Mitigated**	**Estimated Cost**	**Anticipated Completion Date**	**Primary Agency**	**Potential Funding Source(s)**	**Status** • **No Progress** • **In Progress** • **Complete**	**Disposition** • **Keep** • **Delete** • **Keep, revise**	**Explanation or brief description of work so far or reason for 'no progress'**
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	Uses current staff	Ongoing	City Public Works Dept./ Assistant Engineer	N/A	In Progress	Keep	No changes.
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	$10,000	Fall of 2015	City Public Works Dept./ Assistant Engineer	City General Fund	In Progress	Keep	We do currently use BFE info from our 1994 SCS Floodplain Management Study for the FEMA FIRM "A Zones".

Previous Mitigation Strategy Assessment for Yavapai-Prescott Indian Tribe								
Description	**Hazard(s) Mitigated**	**Est Cost**	**Anticipated Completion Date**	**Project Lead**	**Funding Sources**	**Status**	**Disposition**	**Explanation or brief description of work so far or reason for 'no progress'**
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	$500	Ongoing	YPIT Environmental Protection/ Emergency Management	GAP	In Progress	Keep	We continue to do education for all our staff/ members
Educate tribal community on severe wind through an informational / outreach meeting to be conducted at least once in the next year.	Severe Wind	$500	Ongoing	YPIT Environmental Protection/ Emergency Management	GAP	In Progress	Keep	We continue to do education for all our staff/ members
Clearing of overburden and brush and establishing defensible space on tribal properties.	Wildfire	$12,000	2011 & Ongoing	YPIT Environmental Protection/ Emergency Management	BIA	Complete & In Progress	Keep, revise	This was completed in 2011; however, we have added additional sites, so this continues to be ONGOING. The 2011 cost was $12,000; the current project is $134,000
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	$500	Ongoing	YPIT Environmental Protection/ Emergency Management	GAP	In Progress	Keep	We continue to do education for all our staff/ members