DISTRICT 5

District 5 (Figure 9: District 5) is roughly 102 square miles and has a population of 2,183 Community members. The district is commonly known as Casa Blanca or Vah ki which translates into English as "house that goes into the ground". District 5 contains six villages: Sweet Water, Bapchule, South Casa Blanca, West Casa Blanca, Sacate and Wet Camp.

The northern boundary is defined by the Gila River bank; the southern boundary abuts the cities of Casa Grande and Maricopa. District 5 continues to be the center of agricultural production of the Pima and Maricopa tribes. Faced with an arid environment, the Huhugam, ancient ancestors of the Pima created irrigation systems hundreds of years before Euroamerican settlement within Arizona. The many miles of canals built allowed them to grow corn, beans, squash, and melons along the Gila River. Their ingenuity yielded significant results. Today, modern versions of the ancient irrigations systems allow Gila River Farms, founded by the Community in the 1960s, to produce crops such as cotton, alfalfa, citrus, olives, wheat and barley on nearly 35,000 acres of land with approximately 130,000 acres of additional agricultural land available to cultivate. In the ancient tradition, farmers continue to adapt by making the transition to modern farming equipment to expedite the harvesting of these diverse crops. According to the Gila River Indian Community Utility Authority, District 5 lies in the westerly storm path and is subject to more storm damage than some other districts. This is based on number of incidents related to the electrical infrastructure.

The following presents the District's planning and development guidelines in the Master Plan and have been considered relevant for consideration in the 2014 Plan:

Economic Activities

The District wishes to maximize GRIC's economic competitiveness by creating sustainable commerce and employment. A key strategy includes investing in the maintenance and development of the Community's infrastructure to support and attract businesses. In addition, District 5 wishes to support and encourage economic activity on the Interstate 10 Corridor by supporting transportation system improvements along the Interstate 10 Corridor and encouraging placement of retail facilities and commercial amenities along Interstate 10.

Housing

The District wishes to establish housing guidelines for placement and development that provide quality housing options taking into consideration home sites that are distant from existing infrastructure.

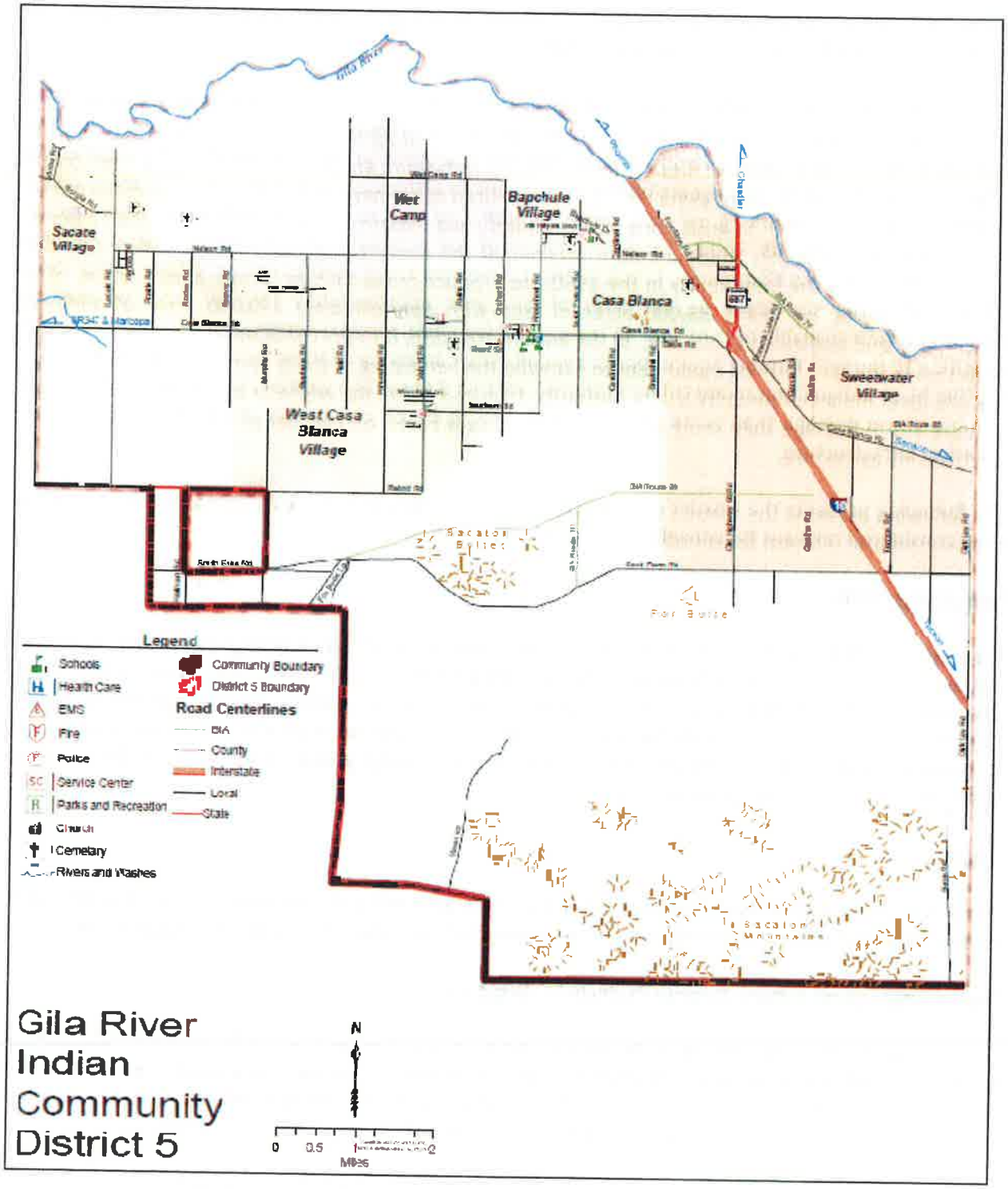
Capital Improvement Plan: Priority Projects for District 5

A key economic development opportunity for District 5 and the Community is the Interstate 10/Casa Blanca Road/SR 587 Interchange. If plans for the reconstruction of the interchange are completed, a capital program to expand basic infrastructure will need to be implemented to enhance business development. District 5 and the Community should coordinate closely with the ADOT on this project.

Another potential business development area adjacent to the John Deere Testing Facility has been identified and will be known as the Casa Blanca Road Business Development Area. To increase the

feasibility of this parcel, existing infrastructure would need to be connected to the existing infrastructure or basic infrastructure expanded.

Figure 9: District 5



DISTRICT 6

District 6 (Figure 10: District 6) is home to 2,273 residents. It sits at the base of the Sierra Estrella Mountains, where once flowing, but now dry, sandy river beds of the Gila River, Gila Floodway, Vekol, Santa Rosa and Santa Cruz Rivers crisscross the Sonoran Desert. This northern boundary of the Community is adjacent to the Ahwatukee Foothills and the southern boundary borders the City of Maricopa. District 6 contains four villages: Lone Butte, Santa Cruz, Komatke and Co-op Village. The land is 177 square miles, home to the Komatke Community Center Complex, and Vee Quiva Casino, one of the Community's three casinos.

District 6 has been severely threatened by large wildfires. Large stands of salt cedar trees grow within the river beds providing enormous fuel reserves. These stands are subject to potential ignition by illegal river bottom activities, lightening strikes, and other causes. The fire danger is further increased due to a large area of urban interface along the northern boundary. In addition, the Vee Quiva Casino and Hotel are also at risk due to the area's potential due to flooding in the wash systems.

Economic Activities

District 6 wishes to provide economic development for District 6 Members by investing in a healthcare-based activity center. This can be accomplished by encouraging placement of healthcare facilities and amenities, like clinics or pharmacies, in the District.

District 6 also desires to coordinate development efforts along SR 347 with Wild Horse Pass to maximize the economic opportunities of SR 347. This would allow the District to maximize retail and commercial opportunities at the intersection of Beltline and Riggs roads.

Housing

District 6 wishes to provide quality housing options suit the needs of its Members. This includes expanding Member housing developments in and around the District 6 villages of Komatke, Gila Crossing, and Lone Butte and discouraging scattered home sites that are distant from existing infrastructure and are costly to develop and maintain.

Natural Resources

District 6 desires to preserve, maintain and enhance the natural environment and open space character of the Gila River Indian Community area as a living resource. District 6 strives to make sure that development harmonizes with, supports, and does not degrade its natural character by ensuring development complements the District's natural resources.

Recreation

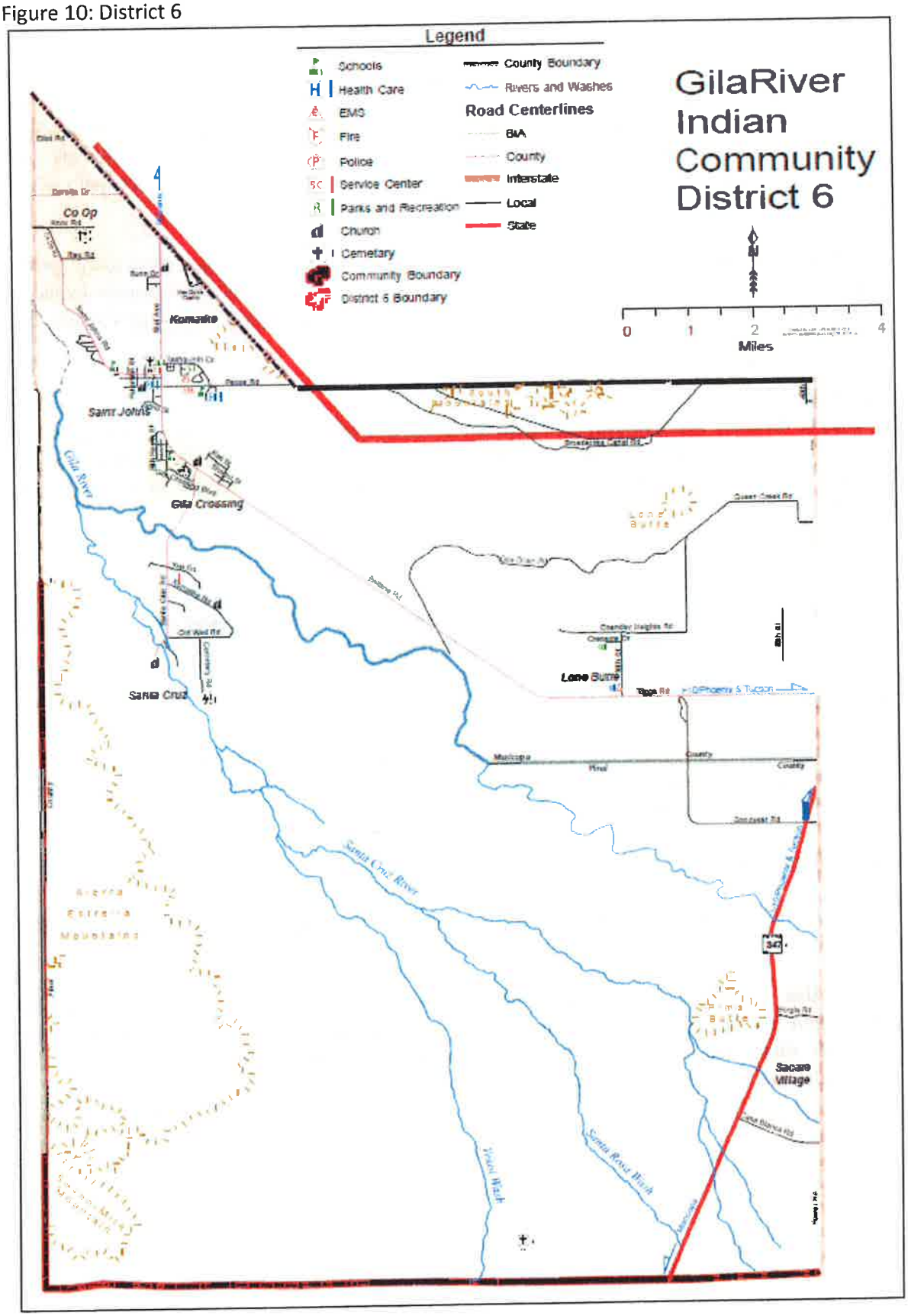
District 6 wishes to provide a range of amenities that allow Members to re-create and celebrate with one another. This includes establishing a regional park adjacent to the Vee Quiva activity center and South Mountain.

Capital Improvement Plan: Priority Projects for District 6

Members recognize the growth in the District and would like to see District 6 continue to expand its ability to provide services and amenities. The Master Plan preserves the Pecos Road corridor adjacent to 51st Avenue in Komatke as a regional public service hub. Necessary infrastructure could include water, wastewater and circulation improvements. This region is known as the Komatke Public Service Core.

The Vee Quiva Mixed Use activity center, adjacent to the Vee Quiva Casino is a great location to locate an entertainment-based, mixed use activity center. An activity center could be home to retail, higher density housing and entertainment-related activities and would bring jobs and amenities to District 6 and beyond.

Figure 10: District 6



DISTRICT 7

District 7 (Figure 11: District 7) is approximately 55 square miles with a population of 653 people. It is located at the northwestern part of the Reservation between South Mountain on the east and the Estrella Mountains to the west. District 7 is home to the Pee Posh. The Pee Posh originally lived together in small bands migrating from the lower Gila and Colorado Rivers to settle along the middle Gila and lower Salt River. The last of these bands left the Colorado River in the late 1830's. Eventually these bands came together and many settled in District 7.

District 7 has been severely threatened by large wildfires. Large stands of salt cedar trees grow within the river beds, providing enormous fuel reserves. These stands are subject to potential ignition by illegal river bottom activities, lightening strikes, and other causes. The north boundary of District 7 contains a large area of urban interface.

Economic Activities

District 7 wishes to diversify economically to create sustainable economic development and implement an effective administrative process that supports short and long-term economic development strategies, efforts and staff. This can be accomplished by investing in a retail-based activity center on Baseline Road on the east border of the District.

Housing

District 7 desires to provide housing options for the varying needs of Members and ensure guidelines are established for placement, development and use for housing.

Natural Resources

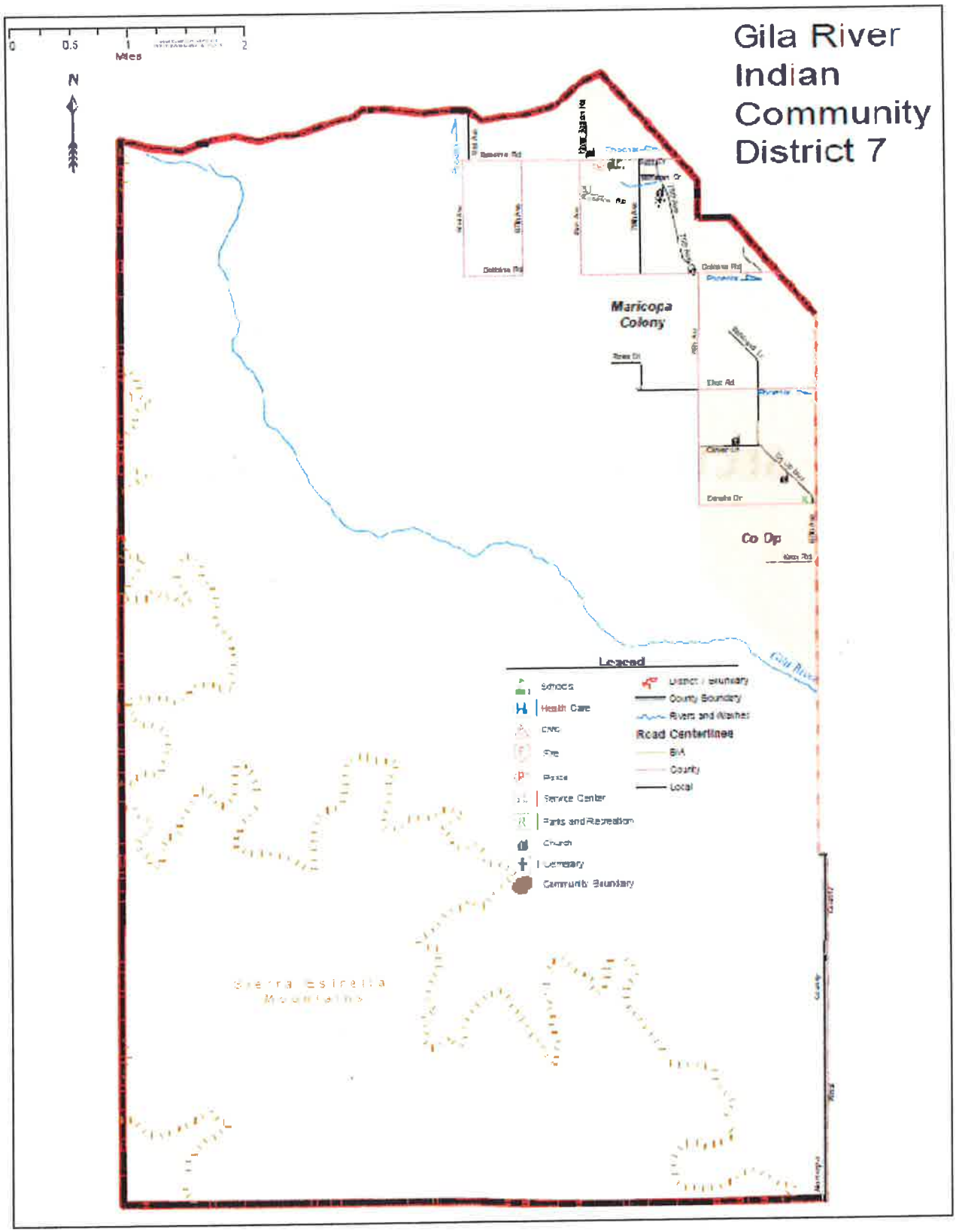
District 7 wishes to preserve, maintain and enhance the natural environment and open space character of the Gila River Indian Community area as a living resource, making sure that development harmonizes with, supports, and does not degrade its natural character.

Capital Improvement Plan: Priority Projects for District 7

The District 7 community has noted the desire for additional housing. The District 7 Master Plan recommends that continued housing expansion be concentrated in the "north-central core".

Baseline Mixed Use Activity Center: Members have shown an interest in commercial and job opportunities within the District. One possible opportunity exists on the far northeast corner of the District, on either side of Baseline Road, known as the Baseline Mixed Use Activity Center. The development is adjacent to new residential construction within expanding Laveen.

Figure 11: District 7



SECTION 3: RISK ASSESSMENT

44 C.F.R. § 201.7(c)(2) requires Indian Tribal governments to provide sufficient hazard and risk information from which to develop and prioritize appropriate mitigation actions in order to safeguard and protect tribal members, lands, and cultural and other resources in long-term or permanent ways. This includes detailed descriptions of all the natural hazards that could affect the tribal planning area, as well as an analysis of the Indian Tribal government's vulnerability to those hazards.

Section Changes

- There were significant changes to this 2014 Plan's identified hazards, focusing on natural hazards.
- Potential loss estimates and analyzing development trends were omitted from this 2014 Plan.
- The Calculated Priority Risk Index (CPRI) was used in this 2014 Plan to validate and prioritize the identified hazards.

For the purpose of this Plan, the Planning Team decided to follow FEMA guidance and focus only on natural hazards. In addition, there were many human caused hazards identified in the 2007 Plan that had no historical or factual basis to support their inclusion. This was key in the decision to draft this Plan and change many of the previous goals.

The historical hazard events are illustrated in Table E. The information was gathered from hazard profiles and originally collected from a variety of federal and tribal resources. The Planning Team identified the hazards, reviewed and approved Community and hazard profiles. The sections were revised as part of the update process.

This section includes the following subsections; Hazard Identification; Hazard Profiles; and Assessing Vulnerability (Table C). The Planning Team reviewed and approved the Critical and Non-Critical Facilities and Infrastructure list provided to the Community's Geographic Information Systems ("GIS") Department in order to complete the OEM Mapping Project. These maps and data are located at the GRIC OEM.

3.1 Hazard Identification

In order to identify hazards, the following question must be answered, "What hazards can and do occur in the Community?" The list of hazards identified in the 2007 Plan were reviewed and refined to reflect the hazards that pose the greatest risk to the Community. These hazards changed from the 2007 Plan due to the decision to focus on natural hazards for the 2014 Plan review and limit the number of hazards that are not a likely threat and are not accompanied by sound information and/or data. The new identified hazards were rated based as part of the CPRI.

The screening process was based on the following considerations:

- Documented historical events or each previously documented hazard, especially events or hazards that occurred during the last plan cycle.

- Experiential knowledge of the Planning Team regarding the risk associated with the hazard.

The Planning Team used the CPRI methodology to rate and prioritize the hazards identified in this 2014 Plan. CPRI values are arrived at by assigning varying degrees of risk to four categories for each hazard, then calculating an index based on a weighting scheme. The values which help determine the CPRI for each of the hazards are based on the probability of an event occurring, the magnitude of severity of that event, how much warning time is usually given and how long the event will impact the planning area. The CPRI values for the hazards identified in this 2014 Plan are illustrated below. (See Appendix 4 for scoring sheets).

Table C: Calculated Priority Risk Index

Calculated Priority Risk Index (CPRI)

Hazard	Probability				Magnitude/Severity				Warning Time				Duration				CPRI Score
	Unlikely	Possibly	Likely	Highly Likely	Negligible	Limited	Critical	Catastrophic	< 6 hours	6 - 12 hours	12 - 24 hours	> 24 hours	< 6 hours	< 24 hours	< 1 week	> 1 week	
Example	X							X	X				X				2.35
Flooding			X			X				X					X		2.70
Severe Weather				X		X					X		X				2.80
Severe Temperature				X			X					X				X	3.25
Wildfire			X		X				X						X		2.85

A Hazards table (Table D) was created by the Planning Team? to differentiate the list of Hazard in the 2007 and 2014 plans. The key rationale for change is that the Planning Team chose to only focus on natural hazards that have significant potential impact to GRIC as supported by historical events (See Table E). The previous 2007 Plan included hazards that had no or very little information and/or data to support a real threat to the Community.

Table D: Hazards

2007 Plan Hazards	2014 Plan Hazards
Natural Hazard	**Natural Hazards**
Drought	**Flooding**
Dust/Sandstorms	**Severe Weather (Thunderstorms and High Winds)**
Extreme Heat	**Severe Temperature (Extreme Heat)**
Flooding/Flashflood	**Wildfires**
Infestations	
Monsoon/Thunderstorms/High Winds	
Subsidence	
Tropical Storms/Hurricanes	
Wildfires	
Human Caused	
Arson	
Biological	
Civil Disturbance	
Dam/Levee Failure	
Fuel/Resource Shortage	
Hazardous Material Incidents	
Hostage Situation	
Power/Utility Failure	
Terrorism (includes Cyber Security Issues	
Transportation Accident	

3.2 Hazard Profiles

44 C.F.R. § 201.7(c)(2)(i) requires that the risk assessment include a description of the type, location and extent of all natural hazards that can affect the tribal planning area. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

The information and data used is based on the available data at the time of research and collection (Table E). There is no specific data regarding Severe Weather/Extreme Heat for GRIC. The sections regarding Estimating Potential Loss and Analyzing Development Trends from the previous 2007 Plan are omitted in this Plan update. There is limited data to complete these areas at this time. Additionally, an improvement in record keeping of historical data will assist with showing evidence of potential hazards for planning purposes. The data will then available to GRIC for analysis. The risk assessment differs from

the 2007 Plan due to the focus on only natural hazards. In addition, there is a lack of institutional knowledge and documentation from the previous plan.

Table E documents the natural hazards chosen for inclusion in the 2014 Plan.

Table E: Historical Events

Date	Type of Hazard	Fatality/Injuries	Damages	Declaration
2012	Flooding	0	$161,013	Yes
2010	Flooding	0	unknown	Yes
2006	Flooding	0	unknown	No
2000	Flooding	0	$165,000	yes (state and federal)
1993	Flooding	1 death	$350,000	Yes (state and federal)
2011	Monsoon Storm	0	unknown	Governor Declaration
2011	Thunderstorm	0	unknown	No
2010	Thunderstorm	$566,825	unknown	Yes
2009	Thunderstorm	4 minor injuries	unknown	No
2000	Thunderstorm	0	$214,000	Governor declaration
1999	Monsoon Storm	0	Unknown (downed power line)	No
1997	Microburst	0	Est. $100,000	No
April 2012	Wildfire	0	unknown	No
July 2012	Wildfire	0	unknown	No
March 2012	Wildfire	0	unknown	No
2008	Wildfire	0	Unknown	No

Source: OEM incident database and anecdotal information received from the Planning Team. The Wildfire information was received from the Gila River Fire Department.

ASSET INVENTORY

44 C.F.R. § 201.7(c)(2)(ii)(A) requires that the plan describe the Indian tribal government's vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.

The Planning Team reviewed and analyzed the critical and non-critical facilities and infrastructure and made this a priority in the update process.

Structural assets identified within GRIC are classified as either critical or non-critical facilities or infrastructure. Critical facilities and infrastructure are those systems whose incapacity or destruction would have a debilitating impact on the Community's ability to respond to and recover from disasters.

Table N summaries the eight general categories adopted to define critical facilities and infrastructures.

This criteria was set forth by the Critical Infrastructure Assurance Office of the United States Department of Commerce. *See* Exec. Order NO. 13,010, 61 Fed. Reg. 37347 (July 15, 1996).

The eight general categories summarized in Table N include:

Infrastructure Categories	Facility
Telecommunications Infrastructure	Fiber Optic Lines Radio, Cellular, and/or Microwave Towers
Electrical Power Systems	High Voltage Transmission Lines Transform Substations, Generation Stations
Gas and Oil Facilities	Conveyance of Delivery Pipelines Major Storage Locations (10,000 gallons or larger) Fuel and Oil Dispensing Locations
Banking and Finance Institutions	Local Banks Credit Unions
Transportation Networks	Interstates, US or State Highways, Major Local Arterial Roadways Railways, Rail Yards, Train Depots Airports, Major Bridges, Culverts, and Storm Drains
Water Supply Systems	Water Treatment Plants, Sewer Treatment Plants, Water Supply Wells/Reservoirs Primary Delivery Pipelines (10-inch and larger) Booster or Pump Stations Storage Tanks, Water Towers
Government Services	City, County, and/or State Administrative Buildings Facility Yards Military Bases, Correctional Facilities Emergency Operations Centers, IT Support Centers
Emergency Services	Fire, Police & Sheriff Stations Hospitals, Trauma or Urgent Care Centers Evacuation Centers, Ambulance Centers

Other assets such as public libraries, educational institutions, museums, parks, recreational facilities, historic buildings or sites, churches, residential and/or commercial subdivisions, are classified as non-critical facilities and infrastructure. Although important, they are not necessarily "critical" per the definition set forth in Executuve Order 13010. Furthermore, these facilities may function as emergency shelters and housing, and/or staging areas for rescue operations.

A list of facilities classified as non-critical, but may serve as critical facilities during an emergency is provided in Table O.

Table O: Non-Critical Faciliities Serving as Critical Facilities

Educational	Schools
Cultural	Churches Historic Buildings, Parks or Structures, Museums
Businesses	Government owned buildings that operate as business centers Buildings leased to commercial vendors
Residential	Structures used primarily for living quarters or residential purposes: Houses, Apartments, Mobile Homes, Dining Halls, Cafeterias, etc...
Recreation/Leisure	Swimming Pools, Golf Courses, Parks Gymnasiums, Recreation Halls

**Refer to the tables of critical and non-critical facilities and infrastructure by District and Classification per hazard (located in the OEM office).

Below are the Community Wide Counts by District of Critical and Non-Critical Facilities and Infrastructure:

Table P: Community Wide Counts by District of Critical and Non-Critical Facilities and Infrastructure

	Critical Facilities and Infrastructure Community-Wide								Non-Critical Facilities and Infrastructure		
District/Feature	Telecommunications Infrastructure	Electrical Power Systems	Gas and Oil Facility	Banking and Financial Institutions	Transportation Networks	Water Supply System	Government Services	Emergency Services	Government Services	Residential	Business
1	80	2075	0	0	226	737	272	4	3	526	1
2	120	997	0	0	116	171	95	1	2	282	0
3	366	2673	7	0	373	782	746	25	69	1013	0
4	654	6628	18	0	706	1737	392	3	8	974	8
5	492	4103	15	0	432	1264	335	4	50	1053	0
6	504	2376	21	0	374	1103	552	7	20	856	1
7	79	1002	4	0	72	428	33	2	6	339	0
Total	2295	19854	65	0	2299	6222	2425	46	158	5043	10

The numbers are based on the extensive research conducted by the Community's Geographic Information Systems Department of the critical and non-critical facilities and infrastructure in the Community. (Data worksheets available at OEM)

Assessing Cultural Resources

44 C.F.R. § 201.7(c)(2)(ii)(D) requires that the plan describe the Indian tribal government's vulnerability in terms of the cultural and sacred sites that are significant, even if they cannot be valued in monetary terms.

Indian Tribal governments are encouraged to address cultural and sacred sites in their risk assessments. According to tradition, many consider their sacred sites to be a "close hold" subject and typically are unable to share specific locations and conditions in a public document, including the Community.

Respecting these cultural beliefs, GRIC will cite that there are some areas that could be vulnerable but are sacred. OEM in conjunction with the Tribal Historic Preservation Office (THPO) in the Cultural

Resources Department has the necessary lists, maps and information needed in an event of a disaster or emergency.

Each profile includes the following sections:

- Introduction/History
- Probability and Magnitude
- Vulnerability Analysis

3.2.2 Flooding/Flash Flooding/Drainage

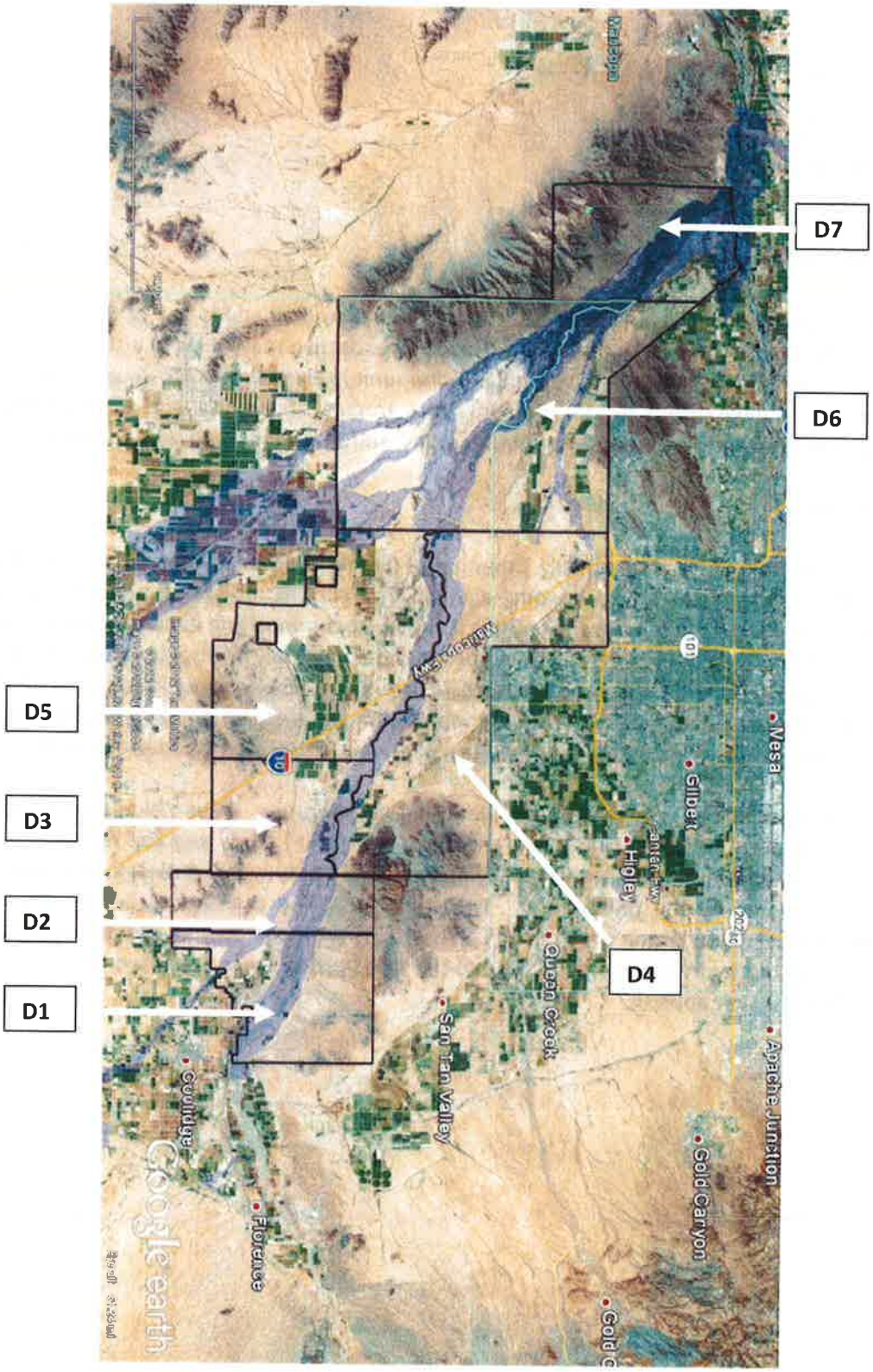
Flooding is defined as an overflowing of water onto normally dry land and is one of the most significant and costly of natural disasters. Flash flooding is caused by excessive rain falling in a small area in a short time and is a critical hazard in the Gila River Indian Community. Flash floods are usually associated with summer monsoon thunderstorms or the remnants of a tropical storm. Several factors contribute to flash flooding: rainfall intensity and duration, topography, soil conditions, and ground cover.

Introduction/History

The Flood Prone areas identified within the Community (Flood Prone maps located in the OEM office) illustrate the planning area for future flooding events. The current mitigation projects represent the high probability of a flooding occurrence. Flooding is the most common and expensive hazard in Arizona and GRIC. There have been at least 10 state and/or federal emergency or disaster declarations for flash flooding or flooding for the area that includes the Gila River Indian Community in the past 10 years. The United States Geological Survey (USGS) identified major drainage systems entering the Community and has since been compiled by consultants to provide an overview of 100-year flood prone areas.

The following image (Figure 12) references identified flood prone areas (blue hatch) within the Reservation. This is not a National Flood Insurance Program (NFIP) study and the Community has not joined the NFIP. The Community's Reservation Wide Drainage Study was a drainage assessment across the Community initiated by the Community. The study identified drainage issues at specific areas, including digitizing the flood prone areas in GIS. The maps are used only to identify a flood hazard. There are no associated hydrology or hydraulics, so the flood prone areas identified are not considered floodplains without further analysis.

Figure 12: Flood Prone Areas



Flood prone areas as identified in the "Gila River Reservation Wide Drainage Study" prepared by Stantec Consultants January 2008 [D is for District]

The following section lists and describes significant historical events associated with flooding hazards in the Community.

In 2012, the Gila River Indian Reservation experienced several monsoon storms. Three of the storms resulted in the activation of the GRIC Emergency Operations Center ("EOC") and resulted in two separate Governor Emergency Declarations. The total homes affected were 161 with approximate costs totaling $66,013. (See photos below)

District 1-Damaged Home from August 14, 2012 Thunderstorm

January, 2010

- State of Emergency Declaration by Arizona Governor Jan Brewer and Gila River Indian Community Governor William Rhodes, ultimately resulting in a Presidential Declaration.

Skousen Bridge Before/After

BEFORE

AFTER

July 28, 2006

- Significant rain on the usually dry Gila River caused extreme overflowing. The photograph below of the flood waters was taken when most of the water level had receded. The Coolidge Dam needed to release water because of the excessive rain. The Gila River flooded again and on Tuesday, August 1, 2006, the river water broke a Gila River Telecommunications Incorporated ("GRTI") phone cable on Skousen Road in District 1 (North Blackwater). When the flood waters subsided, GRTI restored service within 48 hours.

Facing North East on Skousen Road flood water above the fence where debris collected.
Source: Maricopa County Flood Control District

October 23, 2000

- State emergency declaration for flooding followed by a federal declaration on October 27, 2000. Statewide damages in excess of 7 million were reported, while damages in excess of $165,000 were reported for the GRIC.

January 8, 1993

- State emergency declaration for flooding by a federal declaration. Statewide damages in excess of $134 million were reported, while damages in excess of $350,000 were reported for the GRIC.

During the 1993 winter storm, Coolidge Dam officials were forced to release large quantities of water into the Gila River, causing major flooding in the Chin Road and Blackwater areas. A Gila River Indian Community Police Officer lost his life from the flooding. Olberg Bridge was the only open road at the time of the flooding.

1993 Flooding at Santa Cruz Village

Flood Mitigation

Master Drainage Plan - District 3

The Community embarked on a stormwater management program to develop and provide stormwater management and flood control facilities in District 3, town of Sacaton. With assistance of consultants, the Community programmed the development of a Master Drainage Plan to set the precedence for stormwater management within the District. The Master Drainage Plan was provided in two major phases. The first phase is providing the existing 10 year and 100 year storm hydrological results to estimate associated peak discharges and volumes. The second phase included developing structural and non-structural measures to address the identified results. Due to economic conditions, the Community was not able to fulfill this Report's recommendations, but has since been reviewed for potential implementation.

Gila River Indian Community Reservation Wide Drainage Study

The Community determined in 2006 that the surface water hydrology conditions of six of the seven total Reservation districts needed to be evaluated. This was to provide recommendations and design for future development and drainage protection. This was completed in January 2008. District 3 was excluded due to previous stormwater study completed for the District. This study was initiated by the Community to provide a conceptual level (about 30% level) evaluation of the existing drainage conditions within the six districts and recommended;

- Future drainage studies;

- Future drainage related photogrammetry;
- Future drainage improvements; and
- Prioritize drainage issues that need to be addressed.

Photographs and cost estimates do not address all of the Community drainage issues, but instead provide photography of some of the more significant District findings and associated costs. (Refer to GRIC Reservation Wide Drainage Study for further detail available at OEM).

Santa Cruz River and Middle Gila River Watershed Reconnaissance Study

As part of initial steps of addressing flood control in a Regional manner utilizing current reports and resources, an Initial Watershed Assessment ("IWA") was prepared with the United States Army Corps of Engineers ("USACE") in response to the request by the Community for a Reconnaissance Study of the Santa Cruz River Watershed on August 2, 2011 and subsequent letter to include the Middle Gila River Watershed dated February 1, 2012 as offered by the USACE. *See* Water Resources Development Act of 2000, Pub. L. No. 106-541, 114 Stat. 2588; *see also* Water Resources Development Act of 2007, Pub. L. No. 110-114, 121 Stat. 1074.

In accordance with the USACE' authority, the USACE is conducting a watershed assessment under the Tribal Partnership Program. On April 2, 2012, USACE provided approval to proceed in development of the IWA for GRIC. Planning activities will follow the USACE process with consideration to tribal input and processes for completing a watershed assessment. USACE implementation guidance directs that a watershed assessment under the Tribal Partnership Program will follow the guidance covering watershed assessments and planning activities pursuant to Section 729 of the Water Resources Development Act of 1986, Study of Water Resource Needs of River Basins and Regions. *See* CECW-P Memorandum for Commanders, Major Subordinate Commands, dated May 16, 2008, Subject: Implementation Guidance for Section 2011 of the Water Resources Development Act of 2007 (WRDA 2007), Tribal Partnership Program. Funds in the amount of $100,000 were allocated for the USACE in Fiscal Years 2011 through 2012 to conduct the initial watershed assessment phase of this study.

Gila River Indian Community Flood Control Management Task Force

In recognition of flooding hazards across the Community, in 2008 the Community developed the Gila River Indian Community Flood Control Management Task Force ("Flood Control Task Force") pursuant to Resolution GR-103-08. The Task Force plans and provides recommendations to the Executive Office and Community Council for the following:

- Addressing immediate and permanent flood control management and storm water drainage as it impacts the Community from within and outside the Reservation boundaries.

- Organizing and structuring of the Community's resources to establish a permanent means for the Community to handle storm water drainage and flood control management affecting the Community and the entire reservation with the goal of including such plans in future operating budgets.

- Selecting a person(s) to participate in regional flood control meetings as needed to represent the Community's interests and report information to the Task Force, Executive staff, and Community Council.

These parameters have evolved into addressing flood control at a regional scale and continue to be the driving force to address flooding issues as an administrative function until dissolution of the Task Force and the scope of flood control is transferred to a designated Department.

Probability and Magnitude

Based on geographic location and historical information, the probability of future flooding events is likely. According to the CPRI, a level of likely high is categorized by frequent events with a well documented history of occurrence.

Vulnerability

Table F represents the probable impact/consequences to a flooding event. Refer to Table E for the historical events with known costs. In the future, costs of damages will be provided with better documentation in future updates through the use of improved tracking and new forms.

Table F: Flooding Probable Impact/Consequences to Flooding

HAZARD	IMPACT/CONSEQUENCES
Flooding	Damaged Homes
	Debris Removal
	Levee Failure
	Canals and Culverts Failure
	Road Closure/Damage
	Septic Tank Issues
	Animal Illness/Death
	Poor Land Development
	Evacuation and Relocation

Table G delineates the number of critical and non-critical facilities and infrastructure that may be affected in a flooding incident based on an analysis and map study identifying a "River Flood Plain" (Maps available in the OEM). It represents each district and the classification for critical and non- critical facilities and infrastructure. This data may be essential during emergency response efforts and can be found in the Flood Prone maps (Maps available in the OEM office).

Table G: Number of Critical/Non Critical Facilities and Infrastructure per District

	Critical Facilities & Infrastructure Flooding Areas								Non-Critical Facilities & Infrastructure – Flooding Areas		
District	Telecommunications Infrastructure	Electrical Power Systems	Gas and Oil Facility	Banking and Financial Institutions	Transportation Networks	Water Supply System	Government Services	Emergency Services	Government Services	Residential	Business
1	28	427	0	0	70	179	61	0	0	106	1
2	22	514	0	0	54	104	1	1	1	143	0
3	28	411	0	0	47	133	2	1	4	26	0
4	33	350	2	0	48	73	0	0	0	9	10
5	4	58	3	0	20	49	0	0	0	15	0
6	112	509	9	0	90	168	25	0	0	67	0
7	23	613	2	0	33	246	27	2	5	212	0
Total	250	2882	16	0	362	952	116	4	10	578	11

3.2.5 Severe Temperature (Extreme Heat)

Severe Temperature (Extreme Heat) is defined as high temperature weather exceeding average temperatures and is of several weeks duration. Extreme Heat can bring on health emergencies in susceptible people. A heat wave is an extended period of extreme heat, and is often accompanied by high humidity. Extreme heat can also be characterized by temperatures ten degrees above the average high temperature for the region.

Introduction/History

Extreme Heat kills by pushing the human body beyond its limits. In extreme heat and high humidity, evaporation is slowed and the body must work extra hard to maintain a normal temperature. Most heat disorders occur because the victim has been overexposed to heat or has over-exercised for his or her age and physical condition. Older adults, young children and those who are sick or overweight are more likely to succumb to extreme heat. Conditions that can induce heat-related illnesses include stagnant atmospheric conditions and poor air quality. Consequently, people living in urban areas may be at greater risk from the effects of a prolonged heat wave than those living in rural areas. Also, asphalt and

concrete store heat longer and gradually release heat at night, which can produce higher night time temperatures known as the "urban heat island effect."

A heat wave is an extended period of extreme heat, and is often accompanied by high humidity. Extreme Heat can also be characterized by temperatures ten degrees above the average high temperature for the region. Extreme heat conditions can be dangerous and even life-threatening for humans who do not take the proper precautions. In addition to affecting people, extreme heat affects plants and animals leading to reduced agricultural yields. According to the Arizona Department of Health Services,[1] the major human risks associated with extreme heat are:

Heat cramps: Heat Cramps are muscular pains and spasms due to heavy exertion. They usually involve the abdominal muscles or the legs. The loss of water and salt from heavy sweating causes heat cramps.

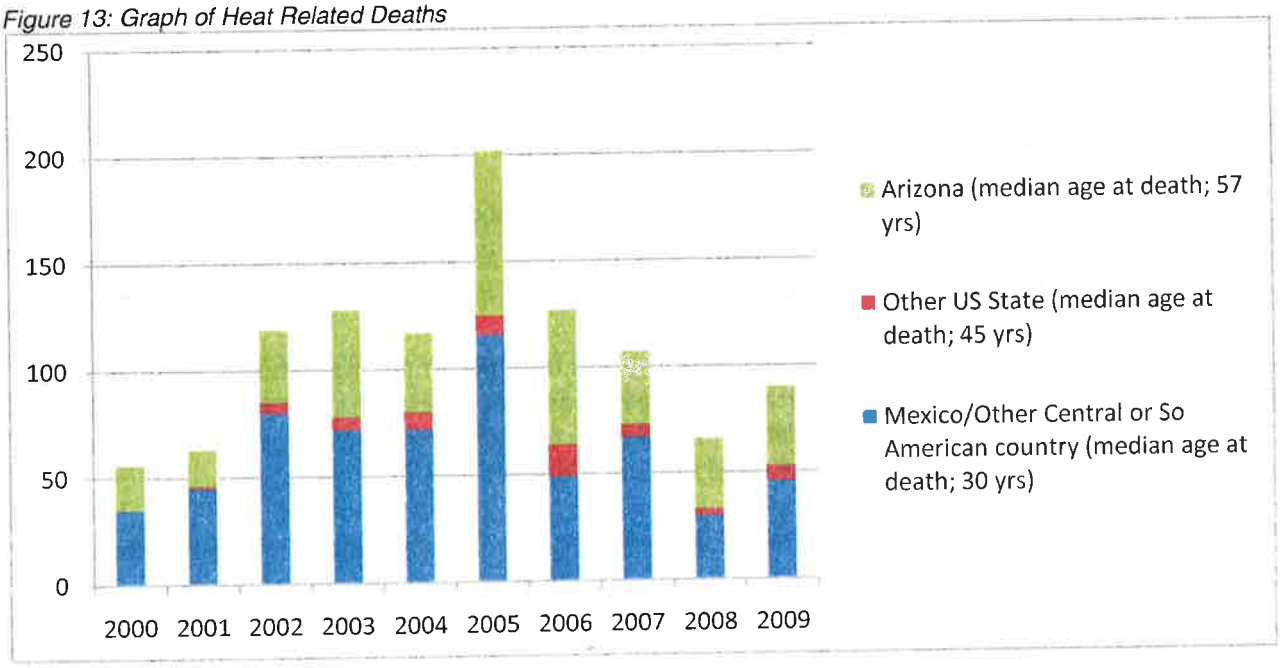
Heat Exhaustion: Heat Exhaustion is less dangerous than heat stroke. It typically occurs when people exercise heavily or work in a warm, humid place where body fluids are lost through heavy sweating. Fluid loss causes blood flow to decrease in the vital organs, resulting in a form of shock. With Heat Exhaustion, sweat does not evaporate as it should because of high humidity or too many layers of clothing. As a result, the body is not cooled properly. Signals include cool, moist, pale, flushed or red skin; heavy sweating; headache; nausea or vomiting; dizziness; and exhaustion. Body temperature will be near normal.

Heat Stroke: Heat Stroke, also known as sunstroke, is life-threatening. The victim's temperature control system, which produces sweating to cool the body, stops working. The body temperature can rise so high that brain damage and death may result if the body is not cooled quickly. Signals include hot, red and dry skin; changes in consciousness; rapid, weak pulse; and rapid, shallow breathing. Body temperature can be very high, sometimes as high as 105° F.

Table H and Figure 13 show heat related deaths from 2000-2009. There is a total of 1,153 deaths from heat due to weather conditions in Arizona. The illegal immigrants crossing Arizona's borders with Mexico account for the majority of these deaths (612 or 53%). This was the most current information available at the time of this report.

[1] **ADHS website**

Figure 13: Graph of Heat Related Deaths



The number of heat related deaths in Arizona, per county and population is illustrated in the Table H. The four counties along the southern border of Arizona (Cochise, Pima, Santa Cruz and Yuma) accounted for 63% of deaths from excessive heat. The high number of deaths in those four counties is likely linked to an increase in illegal immigrant traffic as is the steady increase in deaths from 2000. Regardless of the residence status, most deaths occurred during the months of July.

Table H: Heat Related Deaths - Arizona

County	Population 2010	Heat Related Deaths 2000-2009
Maricopa	3,817,117	313
Pima	980,263	562
Pinal	375,770	50
Yavapai	211,033	4
Mohave	200,186	25
Yuma	195,751	99
Coconino	134,421	11
Cochise	131,346	22
Navajo	107,449	4
Apache	71,518	3
Gila	53,597	1
Santa Cruz	47,420	49
Graham	37,220	2
La Paz	20,489	8
Greenlee	8,437	0
Source: US Census, 2010 & AZ Dept of Health Services		

Probability and Magnitude

Based on geographic location and historical information, the probability of future extreme heat is highly likely. According to the CPRI (See "Risk Assessment Section"), a level of likely high is categorized by frequent events with a well documented history of occurrence.

The magnitude of this hazard is expected to remain relatively the same as the historical data indicates. Based on deaths related to exposure of heat, a level of critical is likely and is categorized by significant impact, general public likely to experience effects and caution required.

To raise the public's awareness and prevent heat illnesses from occurring, the National Weather Service ("NWS") and Warning and Forecast Office issue three types of heat related messages. The combination of four factors that will trigger a heat related message are: temperature, humidity, amount of cloudiness and expected duration of conditions. The three types of messages are:

Heat Advisory – issued when the temperature is forecast to be unusually hot but not life-threatening.

Excessive Heat Watch – issued when conditions are likely to result in a life-threatening heat emergency within the next 24 to 48 hours.

Excessive Heat Warning – issued when a life-threatening heat emergency exists or is imminent.

Another indicator of the magnitude and degree of danger associated with extreme heat is the Heat Index ("HI"). According to the NWS, the HI is an accurate measure of how hot it really feels when the Relative Humidity is added to the actual air temperature. Table I: Heat Index, published by NWS, shows the HI based on values that were devised for shady, light wind conditions and the exposure to full sunshine can increase HI values by up to 15°F.

Table I, Figure 14, and Figure 15 all represent background information on the issues related to excessive heat. Table I, is from the National Oceanic Atmospheric Administration's website and provides the heat index used to determine the likelihood of a heat disorder based on the combination humidity and temperature. Figure 14 and Figure 15 provide average temperatures and record temperatures for the area. This assisted in determining that excessive heat is a factor for GRIC.

Table I: Heat Index

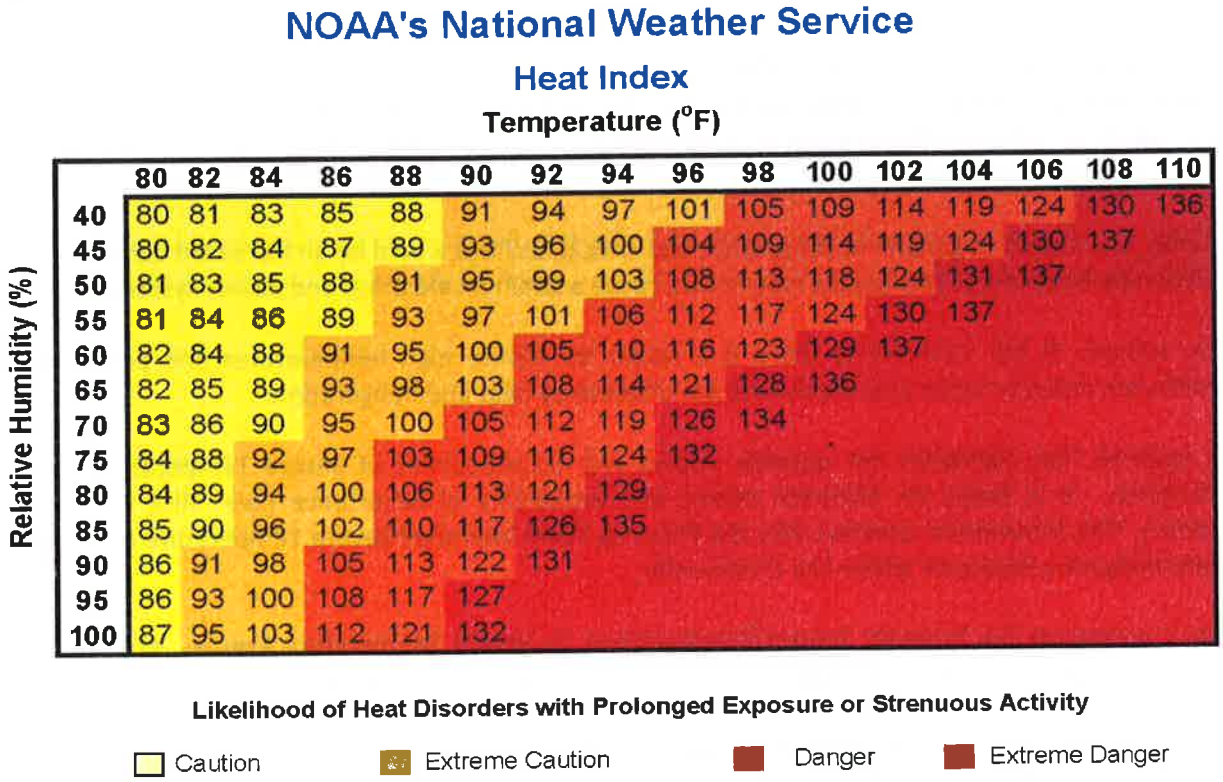


Figure 14: Average Temperatures

Average Climate for Sacaton, AZ Period of Record 4/1908 – 7/2012												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Temp	65.7	70.4	75.9	84.9	93.8	103.1	104.9	102.8	99.2	88.3	75.7	66.6
Min Temp	33.9	37.9	42.3	48.6	56.4	65.6	74.8	73.2	66.1	53.0	40.6	34.5
Total Precip	.80	.78	.82	.34	.15	.10	1.24	1.41	.75	.54	.61	1.0

Figure 15: Extreme Temperatures

Record Single Day Extremes of Climate for Sacaton, AZ Period of Record 4/1908 - 12/2011												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Temp	89	92	100	106	114	121	118	120	115	110	100	87
Min Temp	9	15	19	28	33	44	57	53	38	25	19	12
Total Precip	1.31	1.78	1.53	1.08	1.20	1.01	4.45	4.00	2.72	1.33	1.43	2.02

Vulnerability

The entire GRIC area is susceptible to the impacts of extreme heat. The most commonly documented impacts are health related based on studies and reported cases to the Center for Disease Control and more specifically, Arizona Department of Health Services. As these studies reveal, historically, the most severely impacted is the elderly.

Typically, the impact to general building stock and critical facilities would be an increased demand on air conditioning equipment. This impact may in turn cause a strain on electrical and power systems.

Every summer in the Community there is a threat for severe high temperatures and public safety agencies are called to assist individuals who are affected by heat and dehydration.

The updated Plan highlights the possible impact and consequences of Severe Temperature on the Reservation. It is based on historical events and probability of occurrence (See "Risk Assessment Section"). This information portrays why the Planning Team identified Severe Temperature as requiring hazard mitigation measures within the Community.

Table J represents the Probable Impact/Consequences to Severe Temperature Events. Any unknown costs of damages will be provided with better documentation in future updates.

Table J: Probable Impact/Consequences to Severe Temperature Events

Severe Temperature-Extreme Heat IMPACT/CONSEQUENCES
Power Outages Related Incidents
Health Issues-Heat Exhaustion
Increase in heat related medical calls
Food spoilage and disposal
Public Health Outbreak
Possible Crop Damage
Water Outage
Animal Illness/Death

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

Introduction/History

Thunderstorms, high wind, dust, rain, lightning, flooding and flash flooding during the monsoon season has been a major hazard for GRIC. In addition to state and federal disaster declarations, the Community has issued numerous tribal declarations for response and recovery from monsoon storm damage. Sometimes declarations occur more than once in the same year.

The following section lists and describes historical events associated with this hazard in GRIC:

Monsoon Storm July 30, 2011

- This historical event included a monsoon storm with high winds, rain, lightning, and other hazardous weather. As part of the declaration process, it was determined adequate response and recovery assistance for families and individuals in District 3 to be beyond the scope and capabilities of the District 3 Service Center. The Governor issued an emergency declaration for Individual and Public Assistance for District 3.

Thunderstorm July 5, 2011

- Several strong thunderstorms developed Southeast of Phoenix. The storms produced damaging microburst winds and dense blowing dust that affected portions of the Pinal and Maricopy County's. Gusts in excess of 50 mph near Sacaton uprooted trees, downed power poles and blew a semi-truck off the Interstate.

Thunderstorm/Flooding January 2010

- This historical event included strong thunderstorms that caused flooding and severe damage to Skousen Bridge. (See Flooding section for pictures). There was a GRIC Governor's state of emergency declaration.

Thunderstorm July 3, 2009

- During this historical event, scattered thunderstorms with heavy rain and wind damaged about 25 homes in the GRIC. Many trees were uprooted and power poles were blown down near Highway 587 and Sesame Street. There were four persons reported with minor injuries as a result of the thunderstorm.

Thunderstorm October 21, 2000

- This historical event included thunderstorms with associated wind, rain, lightning, and other hazardous weather, and resulted in extensive infrastructure and property damage and risks to the people within the GRIC.

- The Governor issued an emergency declaration for the entire Community to provide the necessary response and recovery assistance. Damage and recovery costs were estimated to be $214,000.

Monsoon Storm July 23, 1999

- During this historical event, five miles north of Casa Grande, the power lines snapped by a storm, with a wind speed magnitude of 60 mph.

Monsoon Storm August 14, 1997

- In the vicinity of Casa Blanca Road and Ruins Road, a microburst caused damage to a softball field where dugouts were blown over and smashed, with one piece of dugout blown across the road. It also blew a prefabricated home off its foundation. A satellite dish was uprooted and two power poles snapped. Roof damage was observed, a stop sign was twisted and blown over and an awning was blown off at the southeast corner of Casa Blanca Road and Ruins Road. The second of two micro-bursts struck Casa Blanca, this one with more fury. Winds of 70 mph

produced damage near Southern Road and Ruins Road, and destroyed three trailers, snapped eight power poles, knocked down trees and caused minor injuries to one individual. Damage and recovery costs are estimated at $100,000.

-

Probability and Magnitude

The probability of severe weather as described in this profile has a CPRI (Refer to Risk Assessment Section) rating of 'highly likely', with documented history of occurrences within the entire planning area. The probability according to the CPRI, 'possibly' describes a single community that has rare occurrences of severe weather with minimal structural damage.

Severe weather and thunderstorms have the capability to affect the entire Community. The infrastructure, including all structures and critical facilities in the planning area are vulnerable and at risk of being damaged. Winds can cause structural loss, downed power lines, obstruct traffic flow and significant damage from downed trees. A catastrophic event could lead to major economic loss for the community. Furthermore, high wind speeds and flying debris can pose a significant threat to human life.

Vulnerability

Severe thunderstorms occur on an irregular basis with varying magnitudes and can cause a wide range of damage; from a few downed limbs, to wide spread tree loss, hail damage, and damage to property. Due to the nature of the hazard and the type of damage it causes, thunderstorms can be very dangerous to human beings, possibly causing serious injuries and even death.

The updated Plan highlights the possible impact and consequences of Severe Weather to the Community. It is based on historical events and probability of occurrence. This information portrays why the Planning Team identified Severe Weather as requiring hazard mitigation measures to eliminate or reduce the effects of a Severe Weather emergency or disaster within the Community.

Table K represents the probable impact/consequences to Severe Weather events. Refer to Table E (page 52) for the historical events with known costs. Any unknown costs of damages will be provided with better documentation in future updates.

Table K: Probable Impact/Consequence Severe Weather Events

IMPACT/CONSEQUENCES
Damaged Homes
Power Outages/Down Power Lines
Lightning Strikes (Infrastructure Damage and Wildfires)
Animal Illness/Death
Dust Storms
Traffic Accidents
Air Quality Issues
Respiratory Issues

3.2.5 Wildfires

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

Introduction/History

The planning area for Wildfires is primarily in District 6 and 7 (Appendix 3) which contains indigenous and invasive fuels that provide fuel loading. These areas are subject to potential ignition by illegal river bottom activities, lightning strikes, and other causes. These Districts also have a large urban interface along the Northern Boundary. According to the Community Wildfire Protection Plan, the areas have been identified as medium hazard areas.

Although Arizona is affected by numerous wildfires every year, the central deserts, including the Community is less vulnerable due to sparse vegetation and lack of standing timber. The Community does however experience smaller scale grass and brush fires that sometimes endanger houses, crops and infrastructure.

The Maricopa County Community Wildfire Protection Plan demonstrates Santa Cruz and Saint John's as medium risk communities for wildfires.

May 2008

- Ethan Fire destroyed 6,000 acres, The Bottle Fire occurred in the same area.

April 1, 2012

- Pee Posh Fire occurred north of Baseline, west of 91st Avenue in the Pee Posh wetlands. The cost and loss associated to cultural and environmental damages was significant. Suppression costs were not documented and therefore are not available.

July 1, 2012

- Pecos Fire was located to the East of Pecos Road near a Department of Public Works treatment area. The Pecos Fire was caused from debris in the district, but there were no known damages except for suppression costs.

March 31, 2012

- River Fire occurred along 91st Avenue area. There were no known damages except for suppression costs.

The Bureau of Indian Affairs ("BIA") Pima Agency is responsible for Wild land Fire Protection and Fuel Management. Bureau of Indian Affairs is also responsible for accessing fire loss damage and is currently drafting the Fire and Fuel Management Plans.

The Gila River Fire Department provides initial attack on wild land incidents to protect tribal assets. They provide resources on larger fires through a cooperative agreement with the BIA Pima Agency.

Probability and Magnitude

Wildfires cause property damage and threaten lives and the environment in the surrounding areas. A catastrophic fire could cause flooding and other watershed issues. Wildfires can also cause damage to power lines, increasing threat of Extreme Heat during higher temperature months.

District 6 and District 7 are severely threatened by large wildfires due to stands of salt cedar trees that grow within the river beds that result in enormous fuel reserves. These stands are subject to potential ignition by illegal river bottom activities, lightening strikes, and other causes.

Vulnerability

The updated Plan highlights the possible impact and consequences of wildfires on the Gila River Indian Community. It is based on historical events and probability of occurrence. This information portrays why the Planning Team identified wildfires as requiring hazard mitigation measures within the Community.

The probable impact/consequences to wildfire events is represented in Table L. Refer to Table E (Page 52) for the historical events with known costs. Any unknown costs of damages will be provided with better documentation in future updates.

Table L: Probable Impact/Consequences Wild Fire Events

IMPACT/CONSEQUENCES
Evacuations
Need for Sheltering (food, water, and supplies
Loss of property
Loss of Life
Road closures
Destruction to homes and land
Environment (Air Quality)
Water Quality
Cultural Resources issues
Loss of natural vegetation
Animal Illness/Death

Table M delineates the number of critical and non-critical facilities and infrastructure that may be affected in a wildfire incident in accordance wild land fire potential. The Table represents each district and the classification for critical and non- critical facilities and infrastructure as defined in Section 7-Asset Inventory. This data may be essential during emergency response efforts. The Wildfire Prone area maps are located at OEM and an overview is provided in Appendix 6.

Table M: Number of Critical/Non Critical Facilities and Infrastructure per District

	Critical Facilities and Infrastructure Wild Fire Areas (Moderate – Very High Risk)								Non-Critical Facilities and Infrastructure Wild Fire Prone Areas (Moderate-Very High Risk)		
District/Feature	Telecommunications Infrastructure	Electrical Power Systems	Gas and Oil Facility	Banking and Financial Institutions	Transportation Networks	Water Supply System	Government Services	Emergency Services	Government Services	Residential	Business
1	40	726	0	0	101	239	62	0	5	139	1
2	119	950	0	0	114	163	95	1	0	269	0
3	112	902	4	0	191	263	201	6	4	259	0
4	248	1912	7	0	321	353	44	0	4	147	3
5	110	585	4	0	117	156	54	0	1	159	0
6	448	1913	18	0	343	827	512	16	15	766	0
7	14	78	4	0	18	70	0	0	0	30	0
Total	1091	7066	37	0	1205	2071	968	23	29	1769	4