Chapter Four–Hazard Analysis & Mitigation

Assessing Vulnerability

Introduction

Natural and man-made hazard events have occurred and will continue to occur in Henderson County and Chandler. Floods, tornados, storms, earthquakes, wildfires, and other hazardous events are inevitable. When buildings, infrastructure, agriculture, and other human activities lie in the path of a hazard event, disaster occurs. The resulting damage may impact the environment and the local economy for several years.

Henderson County nor the City of Chandler can prevent all hazard events, but does have the power to identify and implement mitigation measures to reduce damage and risk to human lives; to better protect the health, safety, and welfare of its residents; and to become a more readily sustainable community.

In 2009, Henderson County developed a Hazard Mitigation Action Plan for the County and the participating cities within the county. **This Chapter extracts the sections and recommendations for the City of Chandler from that Plan.** By incorporating Chandler's portion of the Hazard Mitigation Plan into its 2011 Comprehensive Plan it will ensure that Hazard Mitigation stays as a priority and the related strategies are reviewed on an annual basis along with the remainder of the Comprehensive Plan.

This Chapter analyzes the risk posed to Chandler by all known natural hazards, and identifies mitigation actions to be taken to reduce risks associated with the following:

- Flood
- Wildfire
- Tornado
- Disease
- Drought
- Winter Storm: Ice
- Thunderstorm: Wind / Hail / Lightning

The Henderson County Hazard Mitigation Planning Committee considered all available information about the potential vulnerability of each jurisdiction participating in the Henderson County Hazard Mitigation Action Planning Project, for each individual hazard being considered for mitigation.

Impact and Risk Summary

After careful consideration of all available data, the Committee completed a FEMA Hazard Impact and Risk Summary sheet for each jurisdiction, and used the following matrix system of risk analysis to assist in prioritizing each hazard in each jurisdiction. This matrix is a method of using **frequency** and **severity** to categorize each hazard into a risk classification that assists in ranking each hazard into classifications that define its level of potential impact.

FREQUENCY	**Highly Likely**	C	B	A	A
	Likely	C	B	B	A
	Occasional	D	C	B	B
	Unlikely	D	D	C	C
		Class D / Limited	**Class C / Minor**	**Class B / Major**	**Class A / Substantial**
	SEVERITY				

Classification A: High-Risk condition with the highest priority for mitigation and contingency planning (immediate action)

Example of Losses: Death or potentially fatal injury, complete shutdown of facilities and critical services for more than 30 days, more than 50% of property located in affected area is severely damaged.

B: Moderate-to-High Risk condition with priority for mitigation and Classification contingency planning (prompt action)

Example of Losses: Permanent disability, severe injury/illness, complete shutdown of facilities or critical services for more than 14 days, more than 25 % of property in affected area is severely damaged.

Classification C: Risk condition sufficiently high to give consideration for further mitigation and planning.

Examples of Losses: Injury or illness not resulting in disability, complete shutdown of facilities or critical services for more than 7 days, more than 10% of property located in affected area is severely damaged.

Classification D: Low-risk condition for additional mitigation contingency planning (advisory in nature).

Examples of Losses: Treatable first-aid injury, complete shutdown of facilities or critical services for more than 1 day, less than 10% of property located in affected area is severely damaged.

The City of Chandler is home to more than 2,000 people, living in over 1,000 separate households. Housing types include site-built homes of brick, stone, or wood frame construction; factory-built housing; and manufactured housing. The total appraised value of these homes is over $128 million.

There are 52 commercial buildings, with a total appraised value of over $1.4 million.

The City of Chandler is growing, from north to south. In 2008, 29 new homes were built, having a total appraised value of approximately $3.4 million. There is no development pressure in the floodplain, with the possible exception of the proposed re-routing of a small creek to allow for commercial use of adjacent land. Water well #4 is the only city amenity within the floodplain. Chandler is a member of the NFIP, and has no repetitive loss properties within its city limits.

A major, FEMA-funded project to create new, digital floodplain maps has been ongoing in Henderson County since April of 2007. The actual mapping was completed in November of 2008 with final approval of the new DFIRMs in 2010.

In 2004, Chandler was listed by the Texas Forest Service as being “at risk” for wildfire, due to the nature and extent of its urban-wildland interface. (Source: *Texas Communities at Risk, September 3, 2004, publication of the Texas Forest Service, found at: http://texasforestservice. tamu.edu. Last accessed 9/12/09.)* Therefore, special attention should be paid to reducing the risk of wildfire here. In 2006, the last year for which data is available, Chandler reported 44 fire call-outs. *(Source: www.city-data.com; last accessed 9-26-09.)*

The City of Chandler uses zoning as a means of regulating local land use to promote quality development to ensure the health, safety, and welfare of the public. Chandler does not yet have a comprehensive plan, nor a capital improvements program. There are currently no mitigation projects being implemented. The City of Chandler will explore long-range planning efforts such as the development of a Comprehensive Plan and the implementation of a capital improvement plan, which would incorporate mitigation measures as discussed within this Plan.

Chandler Hazard Impact and Risk Summary

Hazard	*Frequency of Occurrence*	*Warning Time*	*Potential Severity*	*Risk Level*	*Priority*
Wildfire	✓ Highly Likely ☐ Likely ☐ Occasional ☐ Unlikely	✓ Minimal or None ☐ 3 to 6 hours ☐ 6 to 12 hours ☐ More than 12 hours	☐ Substantial ☐ Major ☐ Minor ✓ Limited	☐ Very High ✓ High ☐ Limited ☐ Minimal	High
Tornados	☐ Highly Likely ✓ Likely ☐ Occasional ☐ Unlikely	✓ Minimal or None ☐ 3 to 6 hours ☐ 6 to 12 hours ☐ More than 12 hours	✓ Substantial ☐ Major ☐ Minor ☐ Limited	☐ Very High ✓ High ☐ Limited ☐ Minimal	High
Disease	✓ Highly Likely ☐ Likely ☐ Occasional ☐ Unlikely	☐ Minimal or None ☐ 3 to 6 hours ✓ 6 to 12 hours ☐ More than 12 hours	✓ Substantial ☐ Major ☐ Minor ☐ Limited	☐ Very High ✓ High ☐ Limited ☐ Minimal	High
Drought	☐ Highly Likely ☐ Likely ✓ Occasional ☐ Unlikely	☐ Minimal or None ☐ 3 to 6 hours ☐ 6 to 12 hours ✓ More than 12 hours	✓ Substantial ☐ Major ☐ Minor ☐ Limited	☐ Very High ✓ High ☐ Limited ☐ Minimal	Medium
Winter Storm: Ice	✓ Highly Likely ☐ Likely ☐ Occasional ☐ Unlikely	☐ Minimal or None ☐ 3 to 6 hours ☐ 6 to 12 hours ✓ More than 12 hours	☐ Substantial ☐ Major ✓ Minor ☐ Limited	☐ Very High ✓ High ☐ Limited ☐ Minimal	Medium
Flooding / Flash Flooding	☐ Highly Likely ☐ Likely ✓ Occasional ☐ Unlikely	☐ Minimal or None ☐ 3 to 6 hours ✓ 6 to 12 hours ☐ More than 12 hours	☐ Substantial ✓ Major ☐ Minor ☐ Limited	✓ Very High ☐ High ☐ Limited ☐ Minimal	Medium
Thunderstorm Wind / Hail / Lightning	✓ Highly Likely ☐ Likely ☐ Occasional ☐ Unlikely	✓ Minimal or None ☐ 3 to 6 hours ☐ 6 to 12 hours ☐ More than 12 hours	☐ Substantial ☐ Major ☐ Minor ✓ Limited	☐ Very High ✓ High ☐ Limited ☐ Minimal	Low

Chandler Infrastructure (Critical Facilities in BOLD)

Address	**Year Built**	**Flood Zone**	**Occupancy Department**	**Building Value**	**Contents Value**
811 E. Hwy 31	1989	X	**City Hall / police station Community Ct.**	$600,700	$22,490
315 S. Broad St.	1997	X	150 K gal Elevated Water Tank	$237,100	0.00
Cherry St.	1984	X	75 K gal Elevated Water Tank	$175,100	0.00
Martin St.	1981	X	420 K gal ground water tank	$71,000	0.00
Old Noonday Rd.	1997	X	Plant Sewer Treatment	$150,000	$50,000
900 E. Hwy 31	1996	X	Library	$243,500	$50,000
Cherry St.	1984	X	200 K gal Elevated Water Tank	$375,800	0.00

Prioritizing Hazards

Based on the above-described analyses, the County Hazard Mitigation Planning Committee rated the following hazards according to priority for the City of Chandler:

	Class A	Class B	Class C	Class D
Wildfire	A			
Tornado	A			
Disease	A			
Ice Storms/ Winter Storms		B		
Drought		B		
Thunderstorm / Lightning / Hail			C	
Flood			C	

Goals, Strategies and Actions for Hazard Mitigation have been established in Chapter 9 City Service Environment and are incorporated into the Chapter 12 Implementation Plan.