

Vulnerability Assessment for West, TX

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Executive Summary

In the Fall of 2014, fourteen Master's of Urban Planning students at Texas A&M University created this assessment report as part of the graduate course "Disaster Recovery and Hazard Mitigation" instructed by Yu Xiao, Ph.D., AICP. This assessment report is prepared as a follow up action the class' visit to the location of fertilizer explosion in the West City in October 2014. This report contains hazard, social, business, and economic vulnerability assessment of West based on available data. We also compared West results to McLennan County and Texas as a whole. The purpose of this assessment is to understand the potential threats for West that will support post-disaster mitigation and planning.

The assessment contains three parts, analyzed for each Hood County and Granbury.

- Hazard Risk Assessment
 - a. Based on the available data, we conducted an analysis of historic and predicted disaster risk in the area including natural disasters such as tornados, drought, flooding, storms, hail, winter weather, and man-made hazard such as potential oil leak or explosion, etc.
- Social Vulnerability Assessment
 - a. We focus on: 1) population growth; 2) race and gender; 3) employment, per capita income, and poverty levels; 4) educational attainment; 5) household status; and 6) physical housing characteristics.
- Business and Economic Vulnerability Assessment
 - a. Utilizing resources available to the Texas A&M Library System we analyze business and economic data and locational-based risk to these businesses.

For this assessment report, we used data from various sources. We collected data from SHELATUS (a disaster impact database), homefacts.com, and FEMA for the hazard vulnerability assessment; U.S. Census for the social vulnerability assessment; the Chamber of Commerce, ESRI, and Infogroup for business and economic vulnerability assessment.

Hazard Vulnerability Assessment

We reviewed historical disasters and predicted future disaster. Based on data sources we have, from 1960-2008 McLennan County did experience some disasters that caused significant losses. The most common type of disaster in McLennan County over that time period was severe storms, followed by flooding, tornadoes, and drought. While severe storms were the most frequent, tornadoes and drought have cause the most property damage, both in aggregate total dollar losses and average losses per event.

Looking forward, we mapped the 100-year and 500-year floodplains in the County. A 100-year floodplain indicates areas that have a 1% chance each year of flooding. We mapped the floodplain of McLennan County and West is at low-risk of flood as it is almost free from 500-year floodplain.

The 2013 fertilizer plant explosion caused ground shaking that recorded as a low magnitude earthquake. There are 2 Superfund sites (hazardous waste areas in need of clean-up) and several other areas in the small town where hazardous materials are stored or used. These areas are of concern for future risk, and the amounts and types of chemicals in each location should be reported to the city for emergency planning.

Social Vulnerability Assessment

Hazard risk analysis is only one component of understanding a community's vulnerability to disaster. The next is what researchers call "social vulnerability." Social vulnerability describes how some portions of the population may have more difficulty preparing for, coping with, and recovering from a disaster. For example, research shows that those with less income, less education, and language barriers often lack the resources to prepare and recover from a disaster and have greater difficulty accessing community resources and the elderly are at increased risk due to physical and mental health decline. Research has shown that women, racial minorities, non-English speakers, the elderly and children, and those living in poverty face more damages from disasters and have longer recovery times. Of most concern to West, the

number of elderly is nearly twice that for the state as a whole. Also of concern are renters, which occupy nearly a third of the town's housing units.

Business and Economic Vulnerability Assessment

Compared to McLennan County and Texas State, unemployment rate of West is higher, particularly in recent years compared to a decade ago. Agriculture and mining are the best industries for West with location quotient (LQ) 5, while others are below 1. This means that other industries are vulnerable to disaster because they do not have the employee base needed. Small towns, like West, usually has many small businesses that most vulnerable to disasters, and West does have many small businesses that should have pre-disaster recovery plans. Particularly, 63 percent of West businesses have only 1 to 4 employees and 43 percent have yearly sales volume less than \$500,000. Businesses are concentrated along FM 2114, Interstate 35 and Main Street. Thus, disaster planning for these areas should incorporate the needs and vulnerability of these businesses to ensure economic activity in West can continue.

Recommendation For Further Action

Based on GIS map for historical disaster of McLennan County, physically West has low level of hazard threats. However, some pre-planning can ensure that recovery in future events will proceed quickly.

- Establish a variety of educational resources about government assistance.
- Support small businesses and service sector industries to prepare for disaster, including developing recovery plans and assisting with learning about insurance.
- Educate the public about the methods to mitigate negative influence of disasters and strategies to recover from the disasters.
- Prepare for elderly and renter's needs in disaster recovery.
- Prepare knowledge base on hazardous facilities and chemicals in the area to plan for any future accidents, including developing reporting mechanism with the local fire department.

Questions or comments?

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Physical Hazard Assessment

Part 1: General Information

This section serves to establish a baseline of information for the report. It includes basic information about the location, geography, and climate of West and McLennan County. In addition, there is a discussion about the methodology used for this physical hazard assessment.

Location and Geography

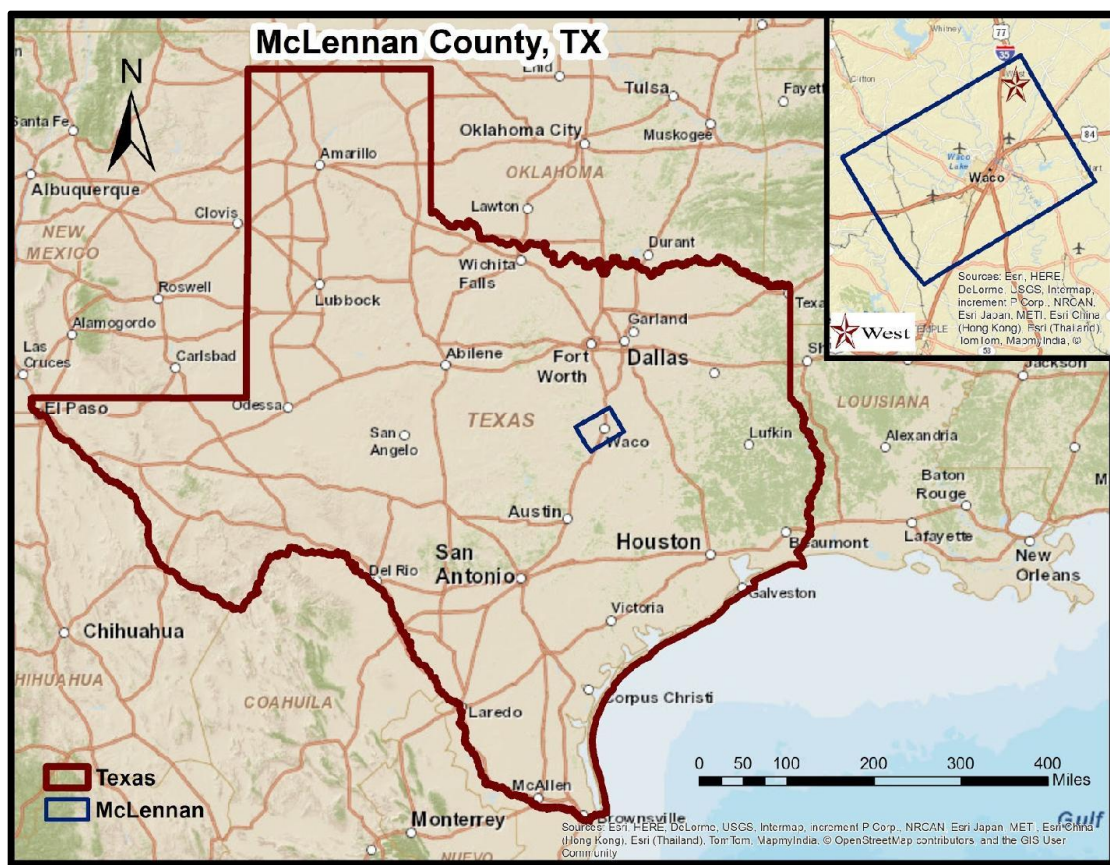


Figure 1. Study Area

West is in the northern part of McLennan County, Texas (See Figure 1) and is known as the “Czech Heritage Capital of Texas.” West is about 70 miles southwest of Dallas, Texas and 20 miles north of Waco, Texas. It sits on either side of the Brazos River, with Lake West a part of that river. Figure 2 shows the topography of McLennan County and West, with the major streams, lakes, and rivers in blue.

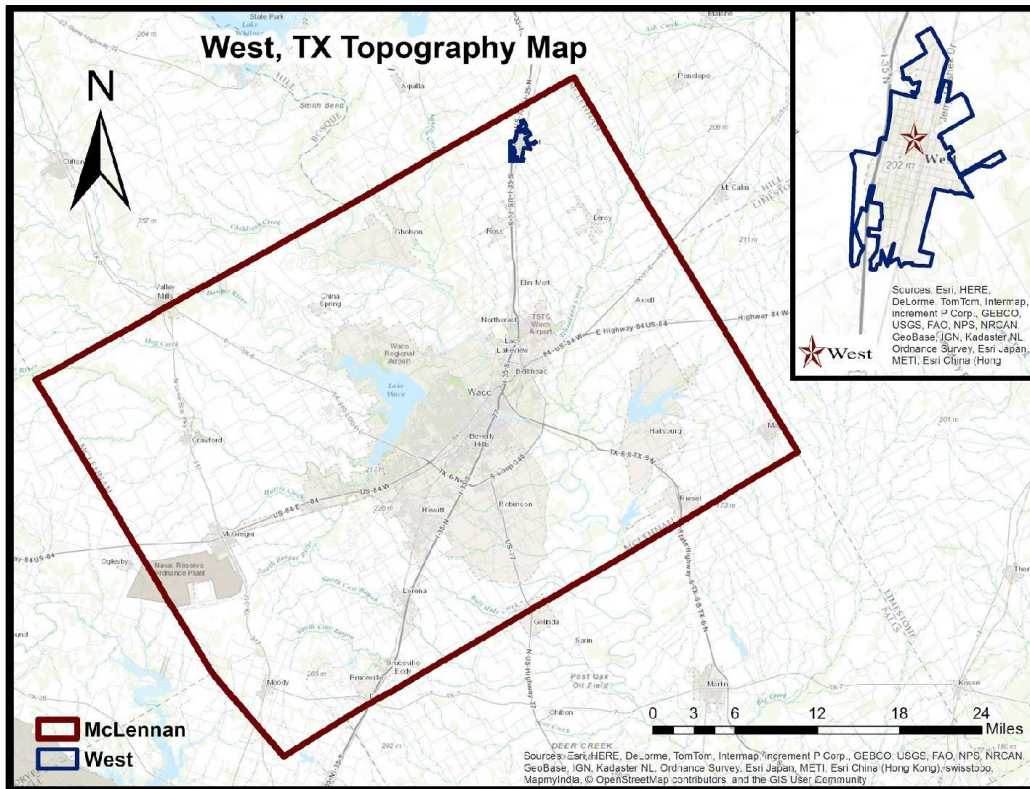


Figure 2. Topographic map for West

Climate

West, TX Rainfall and Snowfall Average		
Month	Average Rainfall	Average Snowfall
January	3.27 Inches	0 Inches
February	2.16 Inches	0.7 Inches
March	4.14 Inches	0.13 Inches
April	2.52 Inches	0.48 Inches
May	5.05 Inches	0 Inches
June	1.45 Inches	0 Inches
July	2.64 Inches	0 Inches
August	2.4 Inches	0 Inches
September	4.98 Inches	0 Inches
October	3.61 Inches	0 Inches
November	1.43 Inches	0 Inches
December	2.06 Inches	0 Inches

Figure 3: Average Rainfall and Snowfall in West. Source: <http://www.homefacts.com/weather/Texas/McLennan-County/West.html>

The rainfall (see figure 3) generally is average, but has 3 peaks in March, May, and September, which could be the main periods that floods and storms would happen. One note: Homefacts.com does not specify the years that this data was averaged from.

Methodology and Limitations

For this physical vulnerability assessment, we have taken three major steps. First, we collected maps and data of historic hazards. For these, we had two data sources: The Spatial Hazard Events and Losses Database for the United States (SHELDUS), and Homefacts.com. Second, we have made comparisons between the different hazard types to determine which were most relevant to West and McLennan County. Last, we collected and mapped floodplain data for the city and the county. This data is from the Federal Emergency Management Agency.

A few limitations of our data exist. The first we noticed was that the two sources did not always match, especially in the historical records. The SHELDUS data (portrayed later in chart form) only covers the years 1960 to 2008, but the earlier years have much fewer recorded incidents compared to the later years. This could be for two reasons: one, incidents are noticed more now because of technological improvements, or two, human expansion has caused more people to be affected by disaster incidents. Another limitation of our analysis is the lack of mappable data. The data from Homefacts.com is not available for download, so we were not able to layer it with other maps for a more robust analysis. So keep these limitations in mind as you read the report.

Part 2: Frequency Analysis

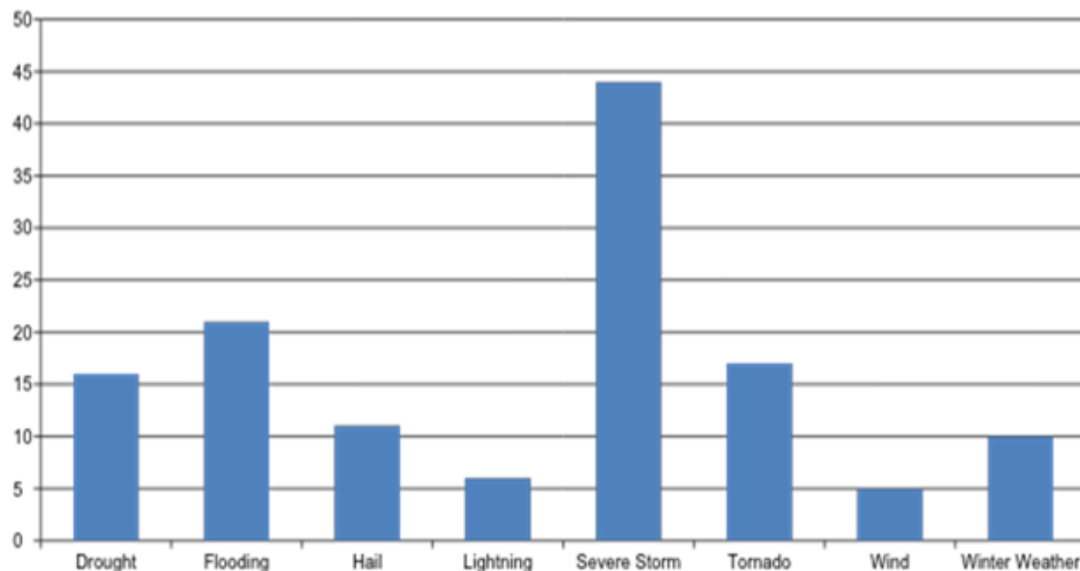
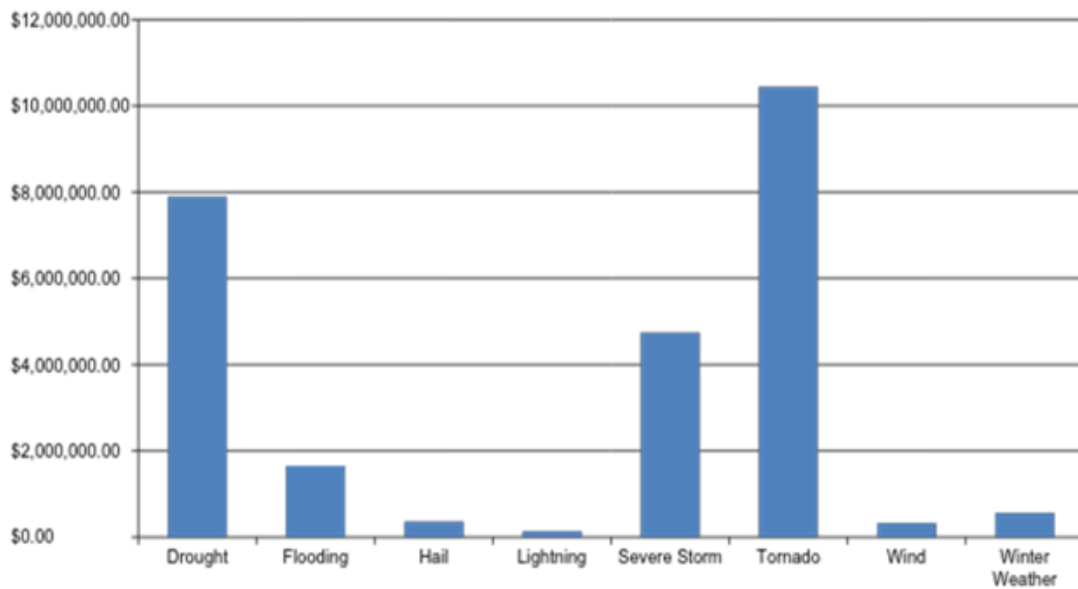


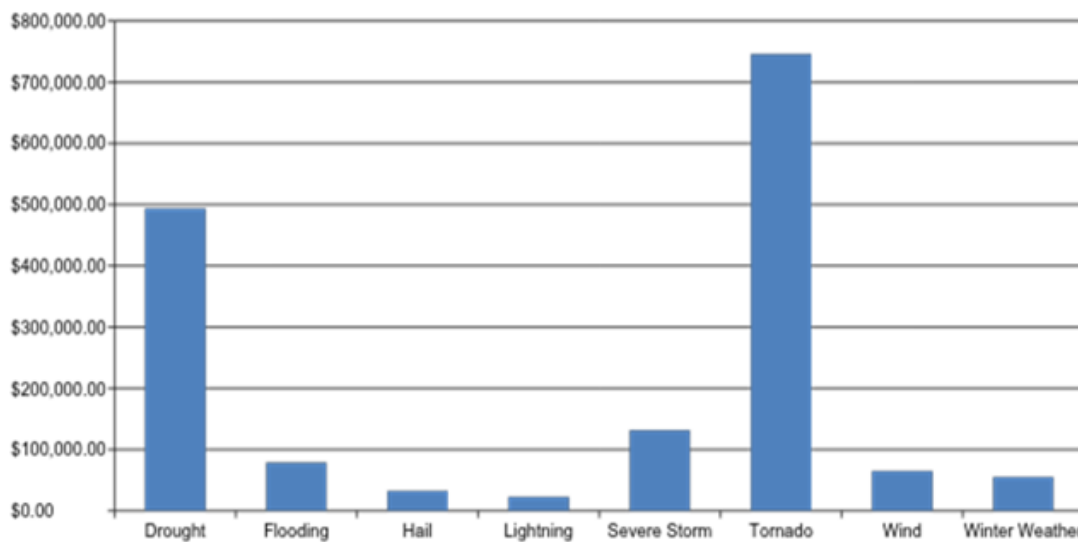
Figure 5: Number of Recorded Hazards in McLennan County: 1960-2008. Source: Hazards & Vulnerability Research Institute (2008). The Spatial Hazard Events and Losses Database for the United States, Version 6.2

As can be seen in Figure 5, McLennan County has experienced more severe storms than any other hazard. Flooding comes in second, with drought and tornados close behind. The other hazards listed still are a concern, but it is these four that tend to cause the most damage.



Figure

Figure 6: Sum of Property Damage in McLennan County by Hazard: 1960-2008. Source: Hazards & Vulnerability Research Institute (2008). *The Spatial Hazard Events and Losses Database for the United States, Version 6.2*



Figure

Figure 7: Average Property Damage in McLennan County by Hazard: 1960-2008. Source: Hazards & Vulnerability Research Institute (2008). *The Spatial Hazard Events and Losses Database for the United States, Version 6.2*

Figures 6 and 7 show property damage in McLennan County for each disaster, but Figure 6 shows the total (sum) damage done, while Figure 7 shows the average damage done per event. Tornadoes have caused the most damage both total and per event. Droughts, however, have caused a great deal of damage as well. Severe storms have caused a good deal of damage added

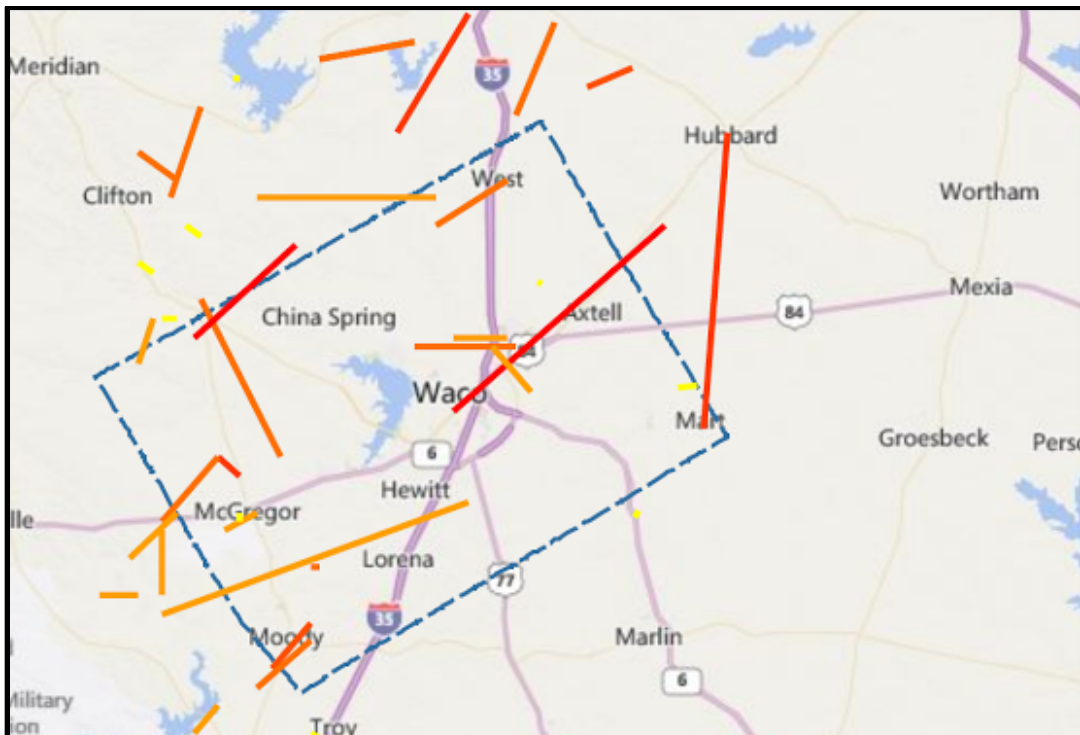
together, but do not cause as much on a per-event basis. Table 1 has the numbers from all three charts listed. Note: drought, for this dataset, is listed as 1 event per month. So if a drought lasted for 5 months, it would count as 5 individual events.

Hazard Type	Sum of Frequency	Sum of Property Damage	Average of Property Damage
Tornado	5	\$448,695.65	\$89,739.13
Drought	17	\$7,878,560.15	\$463,444.71
Flooding	20	\$2,314,200.29	\$128,566.68
Hail	6	\$5,750,000.00	\$1,150,000.00
Lightning	4	\$153,000.00	\$38,250.00
Severe Storm	30	\$2,406,379.83	\$89,125.18
Wildfire	1	\$ -	\$ -
Wind	4	\$24,461.86	\$6,115.47
Winter Weather	23	\$794,444.59	\$34,541.07

Table 1: Loss Summary in McLennan County. Source: Hazards & Vulnerability Research Institute (2008). *The Spatial Hazard Events and Losses Database for the United States, Version 6.2*

Part 3: Historic Hazards

Tornados



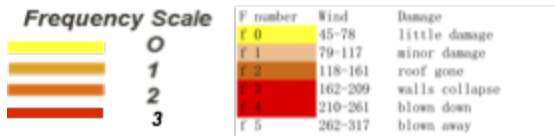


Figure 8: Tornado Paths in McLennan County: 1951-2013. Source: <http://www.homefacts.com/tornadoes/Texas/McLennan-County.html>

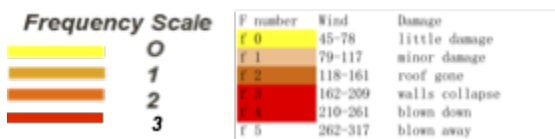
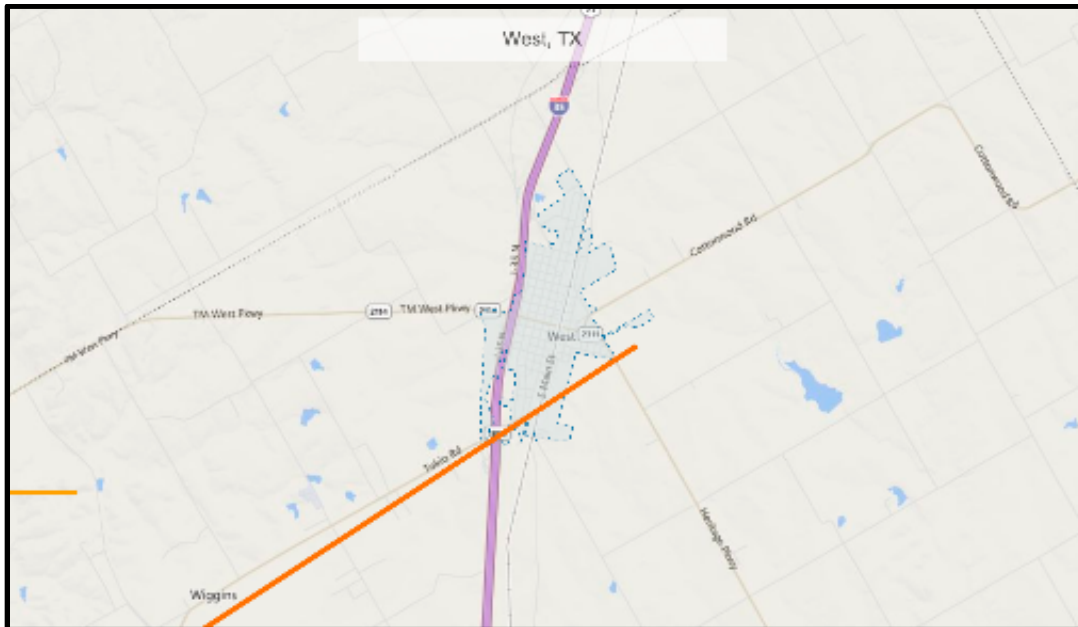


Figure 9: Tornado Paths in West: 1951-2013. Source: <http://www.homefacts.com/tornadoes/Texas/McLennan-County/West.html>

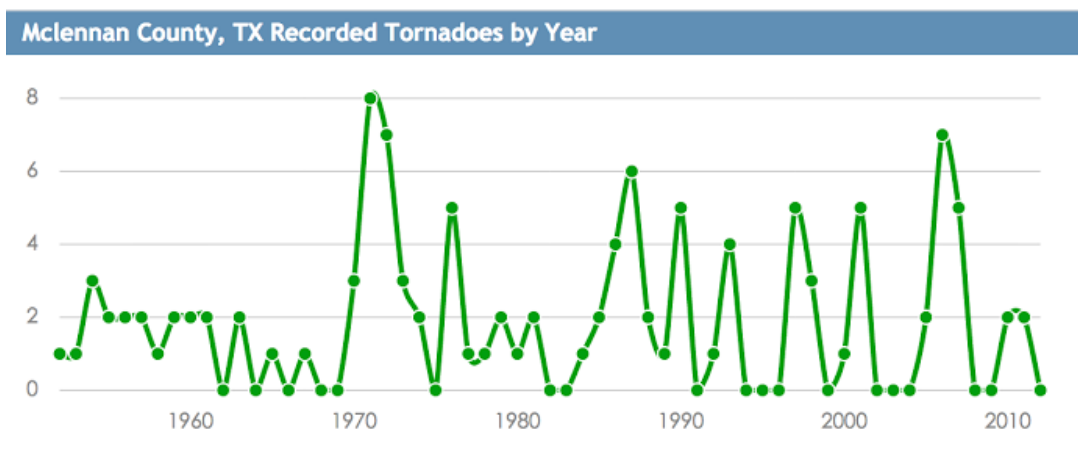


Figure 10: Tornado Records in McLennan County: 1951-2013 Source: <http://www.homefacts.com/tornadoes/Texas/McLennan-County.html>

There have been several tornadoes in McLennan County over the past 60 years. In Figure 8 you can see tornado paths in McLennan County and the surrounding areas, with color denoting intensity of the tornado. Figure 9 shows the same for the area around West. Figure 10 shows the number of recorded tornados by year from 1951 to 2013. There were some peaks throughout the years, and a series of years around the year 2000 with only one or two recorded tornados. West only has one tornado recorded on the map in Figure 9.

Hail

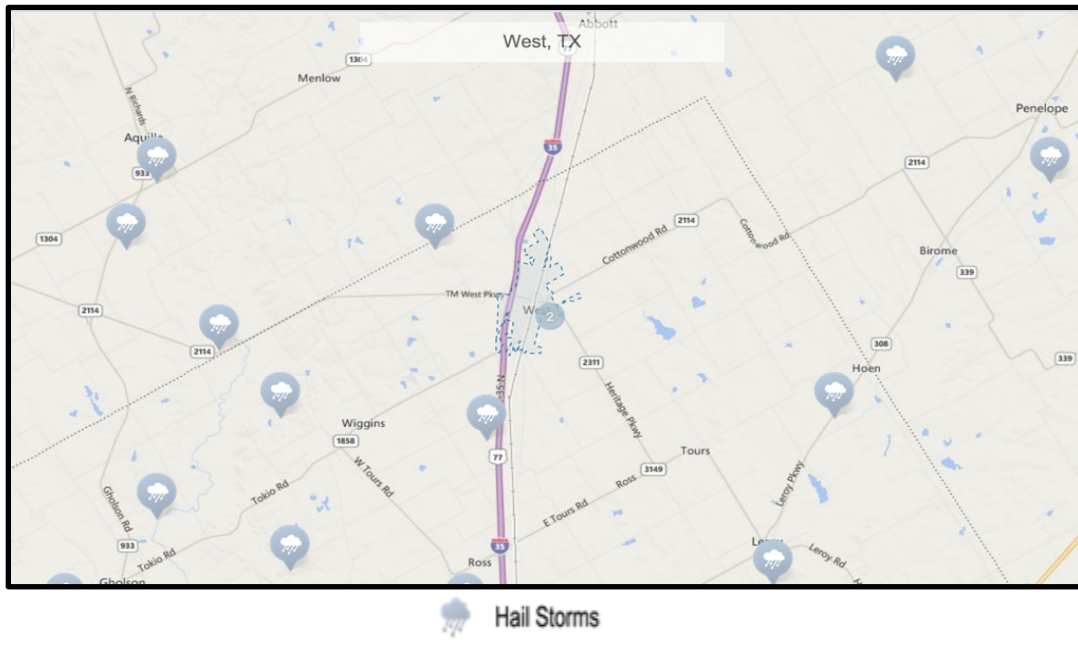


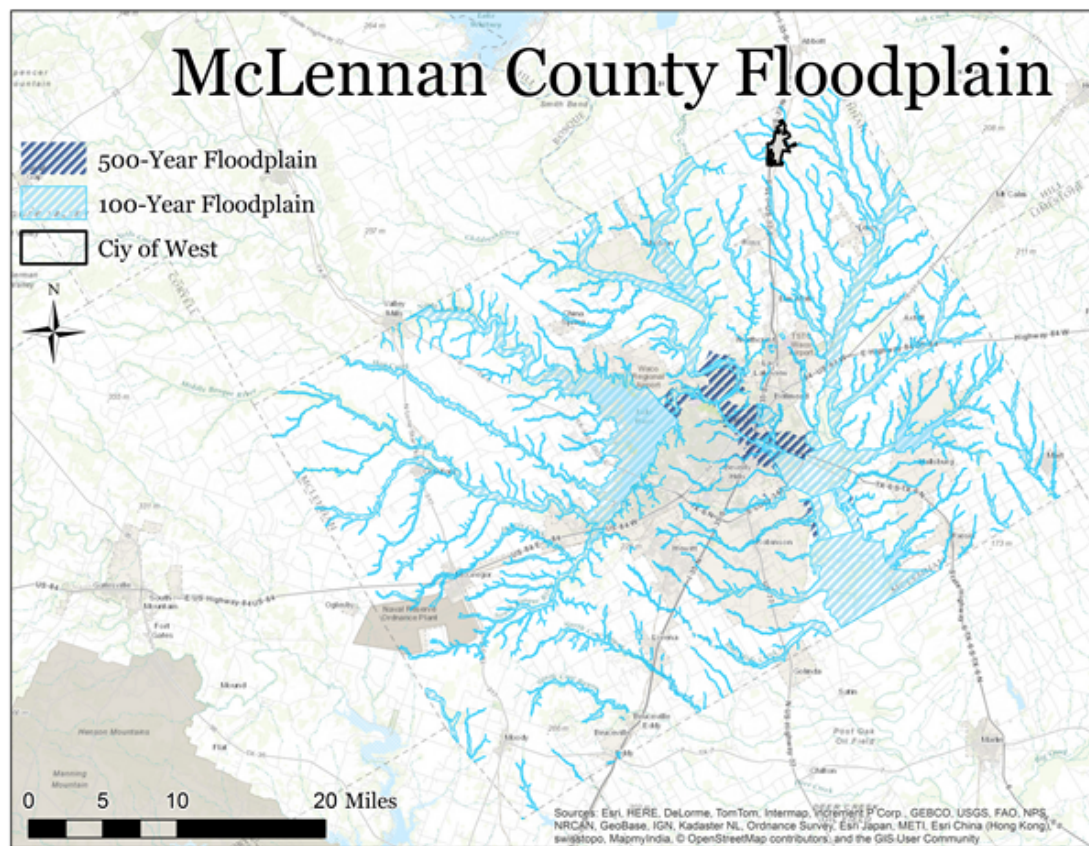
Figure 11: Hail Storms in West: 1951-2013.

<http://www.homefacts.com/interactivemap/Texas/McLennan-County/West.html>

Figure 11 shows hail storms in West from 1951 to 2013. The numbers with circles mean that many storms happened around that area. Hail storm have only hit West a couple times, and tend to have not been very damaging compared to other disasters.

Part 4: Risk Assessment

The later sections of this report will analyze social and economic vulnerability in McLennan County and West, but for now we will look at physical risk and vulnerability to disasters. Many of the area's disasters do not have specific areas of higher risk due to the nature of the disasters (tornados, storms, hail, winter weather, etc.). But flooding and man-made hazards do have significant areas of risk, so we will look at those in this document.



Figure

12: Floodplain in McLennan County. Source: FEMA Flood Map Service Center

Figure 12 shows the floodplain in McLennan County, while Figure 13 shows it in the city of West. There is not a large amount of floodplain in the county, but West has almost no areas of floodplain at all. In the city there are a couple very small areas of floodplain, but those seem to be undeveloped. In the county there is one major area of 500-year floodplain (dark blue) along the Brazos River.

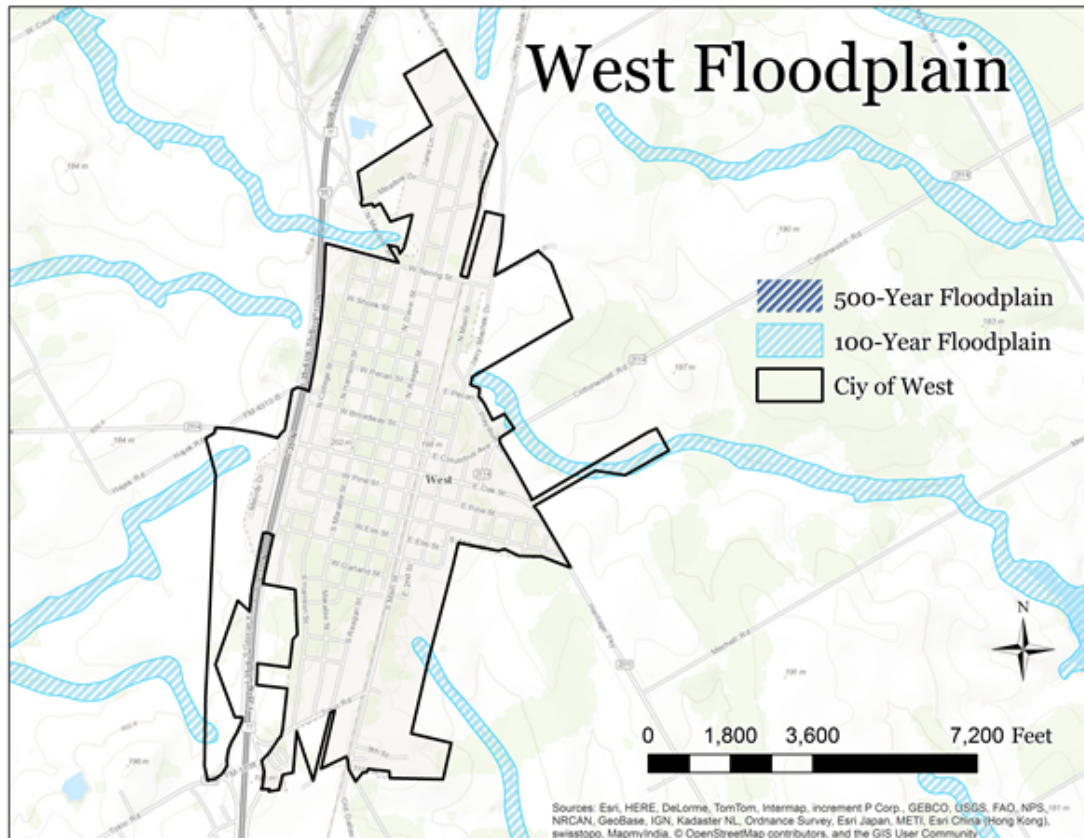


Figure 13: Floodplain in West. Source: FEMA Flood Map Service Center

Floodplain Maps

Superfunds

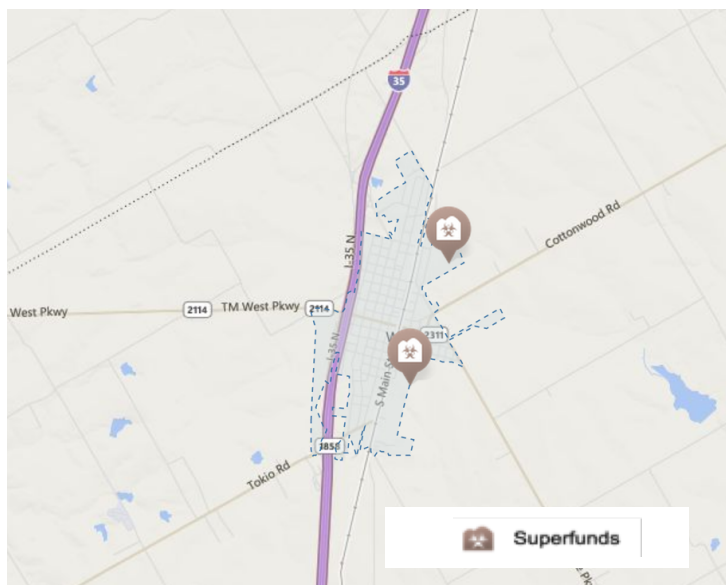


Figure 14: Superfunds. Source: <http://www.homefacts.com/interactivemap/Texas/Hood-County/Granbury.html>

Superfunds are sites identified by the Environmental Protection Agency as contaminated by hazardous waste and targets for cleanup. As seen in Figure 14, there are two superfunds in West.

Tanks and Spills

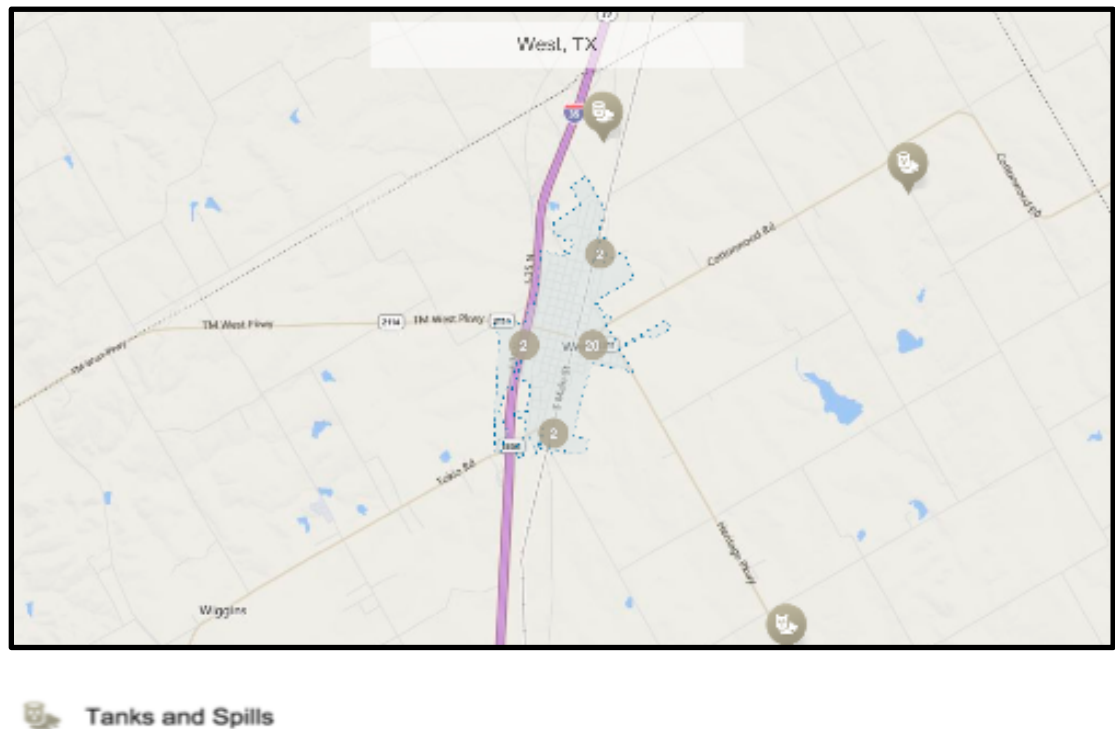


Figure 15: Tanks and Spills. Source: <http://www.homefacts.com/interactivemap/Texas/McLennan-County/West.html>

Figure 15 shows the containment of hazardous materials, storage tanks, containment areas, and other structures. They are designed to hold chemicals and prevent unwanted releases into the environment. The numbers encircled on the map represent that many sites in that general area. These sites include many common places, such as grocery stores and gas stations.

Summary

West and McLennan County have certainly experienced their fair share of disasters, but, as seen in Figure 16, the probability for future disasters is fairly low. Both data sets analyzed in this report have shown that tornados are the biggest concern, and drought seems to be a close second. Severe storms tend to occur often, but do not usually cause that much damage (although they are the third highest damaging disasters in the county). Man-made disasters are certainly a concern because of the recent explosion, and hazardous sites will need to be scrutinized heavily in the future.

Natural Disasters for West, TX

Probability of Natural Disasters for West, TX



Earthquakes

 [details](#)

West, TX has a very low risk of earthquakes.



Hurricanes

 [details](#)

West, TX has a very low risk of hurricanes.



Hail

West, TX has a very low risk of hail storms.



Tornados

 [details](#)

West, TX has a low risk of tornados.

Figure 16: Probability of Natural Disasters by Homefacts.com:1951-2013 Source: <http://www.homefacts.com/city/Texas/McLennan-County/West.html>

Social Vulnerability Assessment

The inability to cope or resist impact of the natural disaster is vulnerability. Vulnerability is most often associated with poverty, as it is greatest for low income and minority communities (Green, Bates and Smyth, 2007). Social Vulnerability involves relative ability to respond appropriately to threatening conditions. Lack of income, transport, age, gender, minority status and lack of information lead to social vulnerability (Levine, 2007). The social vulnerability for City of West, Texas has been studied using different demographic factors including population growth, race and gender, employment, per capita income, and poverty levels, educational attainment, household status and physical housing characteristics. City of West has been compared with the McLennan County and Texas demographics, in order to put it in context within its county and state. Further social vulnerability has been studied using ArcGIS maps, mapping the vulnerability by overlaying different social vulnerability factors, which illustrates the most vulnerable population or area in the City of West.

Part 1: Socioeconomic Background

Population Growth

Population of a place is not stagnant and cannot be considered constant. The change of population, its growth rate and future projection are important consideration for hazard mitigation plans. It is important to take in account the new growing population to plan effectively. A population change calls for flexible planning where, the plan can adapt to the changing population.

According to the census, the overall trend of population change in Texas can be seen as growing in the past decade. The rate of growth is comparatively less in West relative to the very high growth rate of Texas and the McLennan County. Nevertheless, the trend shows growth of 4.27% from 2000 to 2010. This needs to be addressed in the hazard mitigation, disaster preparedness and recovery plan. The growth rate for McLennan

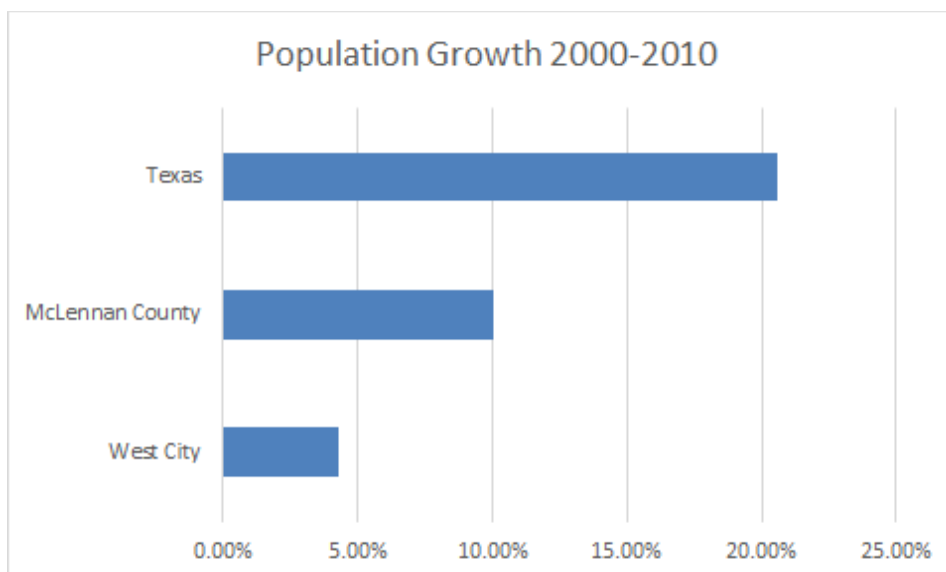


Figure 1: Population Growth from 2000-2010 (Source: US Census Bureau, Census 2000, 2010)

Race and Age

Race

Social vulnerability assessment requires identification of race, as mostly the minority groups of population are the most vulnerable in disasters. They are widely affected by disasters and have difficulty in recovery process. This may be due to lack of resources, lack of knowledge and connections. Sometimes it may be due to language barriers, or inability to reach the sources of funding

The table below shows composition of West City, McLennan County and Texas according to the race. West City has majority of white with about 81% of total population. Other race consists of African-American, Hispanic and other minorities that add up to about 19%. At the county level and state level the difference is not that large. McLennan County is also dominantly white population with 59% of the total. Next highest percent is the Hispanic population. The demographics of Texas state show a different result, where the white population contains comparatively lesser 45.40%, the Hispanic, African-American and other minorities make up to 55% of the total population.

Subject	West City		McLennan County		Texas State	
	Population	%	Population	%	Population	%
White	2,286	81.06	138,247	58.85	11,415,017	45.40
African-American	183	6.49	34,058	14.50	2,903,204	11.55
Hispanic	340	12.06	55,370	23.57	8,314,445	33.07
Other	11	0.39	7,231	3.08	2,512,895	9.99
Total	2,820	100	234,906	100	25,145,561	100

Age

Age is an important vulnerability factor. Small children and elderly population are the most vulnerable from disaster. They are dependent on stronger independent population for aid during such event. It is important to identify the vulnerable age population to plan accordingly. The population study shows one quarter of the population falling in the very vulnerable group of small children below 5 years of age and elderly population of 65 and above age.

Subject	West City		McLennan County		Texas State	
	Population	%	Population	%	Population	%
< 5 years old	123	4.36	16,694	7.12	1,928,842	7.65
5-19 years old	685	24.29	53,073	22.62	5,676,141	22.52
20-64 years old	1,403	49.75	135,432	57.72	14,968,524	59.38
>65 years old	609	21.60	29,427	12.54	2,635,390	10.45
Total	2,820	100	234,626	100	25,208,897	100

Gender and Household Type

Gender alone cannot determine the vulnerability of a place but it indicates social vulnerability when used in conjunction with the type of household. It is seen that single parent family household are more vulnerable compared to married- couple family type. This is true

special in household with single mother families. Single parent household need to consider the vulnerability of a child and require extra care and effort. Moreover, the head of family has the sole responsibility of taking care of the family which limits the income making them more socially vulnerable. Even during disaster if the parent gets injured or cannot work the whole family will suffer tremendously making these type of household very vulnerable.

Gender

Subject	West City		McLennan County		Texas State	
	Population	%	Population	%	Population	%
Male	1,339	47.48	113,992	48.58	12,509,812	49.62
Female	1,481	52.52	120,634	51.42	12,699,085	50.38
Total	2,820	100	234,626	100	25,208,897	100

Household Type

Subject	West City		McLennan County		Texas State	
	Population	%	Population	%	Population	%
Married-couple family	710	54.49	57,663	55.45	4,515,013	50.60
Male householder, no wife present	49	3.76	4,313	4.15	467,431	5.24
Female householder, no husband present	164	12.59	12,788	12.30	1,254,704	14.06
Nonfamily households	380	29.16	29,229	28.11	2,685,785	30.10
Total	1,303	100	103,993	100	8,922,933	100

Employment and Per Capita Income

Employment

About 6.7% of the civilian in labor force are unemployed, it means 93.3% of them have at least two major places (house and office/field work) in their daily basis. Office and field work usually have standardized disaster mitigation plan for safety reason except for them who work in small businesses. Thus employed citizens are less vulnerable than unemployed citizens.

Comparing with county and state level, percentage of unemployment in the city is the lowest. Number of unemployment in the city level only 1% of total number of the county and less than 0.01% of total number of the state. So, we can conclude that social vulnerability based on unemployment in West city is relatively low. But still, since they are minority based on employment status, they need more attention from local government to reduce their vulnerability to disaster.

Subject	West City		McLennan County		Texas State	
	Population	%	Population	%	Population	%
Employed	1,278	93.28	104,749	92.64	11,440,956	92.32
Unemployed	92	6.72	8,318	7.36	951,176	7.68
Civilian Labor Force >16 yr.	1,370	100	113,067	100	12,392,132	100

Income

Comparing with County and State level, median income of West city is higher than County's but lower than State's. Yet number of households with income in low quarter (lower than median) is smaller than County's and State's as well. The order is also the same with number of households with income <\$10,000 (we categorized it as low income) who are the most vulnerable family. The percentage is lower than County's and State's. Unfortunately, percentage of households with income >\$200,000 is so small compare to County's and State's.

From the facts above we can conclude that vulnerability in the city level is the smallest compare to County's and State's level (based on income distribution and number of low income families). More income means more source for disaster mitigation; more money to pay insurance for all family member and to prepare for disaster to come. Yet, number of households with highest income is not that many as well. So, chance to get aids when disaster come from people in the city is small. Coordination with County and State government should be made by the City Government based on this fact since County and State have big number of high income households.

Subject	West City		McLennan County		Texas State	
	Population	%	Population	%	Population	%
<\$10,000 (low)	75	7.39	9,093	10.83	653,830	7.44
\$10,000 - \$24,999 (med-low)	260	25.62	16,562	19.72	1,444,369	16.45
\$25,000 - \$49,999 (med)	293	28.87	22,497	26.79	2,173,827	24.75
\$50,000 - \$99,999 (med)	265	26.11	23,042	27.44	2,611,771	29.74
\$100,000 - \$199,999 (med-hi)	117	11.53	10,911	12.99	1,500,344	17.08
>\$200,000 (hi)	5	0.49	1,861	2.22	398,457	4.54
Total Households	1,015	100	83,966	100	8,782,598	100
Low quarter	628	61.87	48,152	57.35	4,272,026	48.64
High quarter	387	38.13	35,814	42.65	4,510,572	51.36
Median income	\$51,563		\$41,589		\$60,621	

Housing Occupancy and Physical Housing Characteristics

Percentage of owner-occupied housing in West city is the biggest if compared to county and state level. Although occupancy cannot be a single variable to determine wealthy level in the

city, but we can assume that people who can purchase a house are wealthier than people who not. We can say that they are from medium-high income families that less vulnerable to disaster. Vice versa, people who still can rent a house are from medium-low income family that more vulnerable to disaster.

People who rent the house do not have full occupancy of their house. Their attempts to improve their capacity from physical aspect (especially old houses) are limited by the rental regulation. Thus they only can follow the rules and improve their capacity from other aspects if they have enough resources (money, human resources, and knowledge) to do so. In fact, their resources are limited as well. In order to upgrade their capacity, local government should cooperate with apartment owner to strictly give attention to every single unit they have and do regular inspection about housing safety condition. Number of old houses (>35 years old) in the city should be another attention; the older a house, the bigger their change to be destroyed by natural disaster. City's percentage is the biggest compare to County's and State's level. Housing inspection should be done and if needed, local government should encourage citizens to enhance their houses quality.

From 1,015 occupied housing in the city, 39 unit of them do not have available vehicle. Generally, we can conclude that people do not have vehicle in the city of west (not a high density city) are from low income families and live in rental housing. They have high vulnerability to disaster. Besides, they do not have enough resources to have disaster mitigation, they have very limited mobility when disaster come. Government should cooperate with apartment owner to asses dweller who do not have vehicle available and prepare emergency public transportation with prioritize the service to housing units that do not available vehicle.

Housing Occupancy

Subject	West City		McLennan County		Texas State	
	Population	%	Population	%	Population	%
Owner-occupied	637	62.76	50,505	60.15	5,609,007	63.87
Renter-occupied	378	37.24	33,461	39.85	3,173,591	36.13
Occupied Housing Unit	1,015	100	83,966	100	8,782,598	100
Total Housing Unit	1,199		95,089		9,978,137	

Physical Housing Characteristics

Subject	West City		McLennan County		Texas State	
	Population	%	Population	%	Population	%
House <15 years old	10	0.99	361	0.43	2,166,040	24.66
15-35 years old house	421	41.48	59,121	70.41	3,329,398	37.91
>35 years old house	768	75.67	35,607	42.41	4,482,699	51.04
No vehicle available	39	3.84	5,920	7.05	520,304	5.92
1 vehicle available	353	34.78	29,743	35.42	3,032,086	34.52
2 vehicles available	434	42.76	33,207	39.55	3,563,093	40.57
>3 vehicles available	189	18.62	15,096	17.98	1,667,115	18.98
Total Occupied Housing Units	1,015	100	83,966	100	8,782,598	100

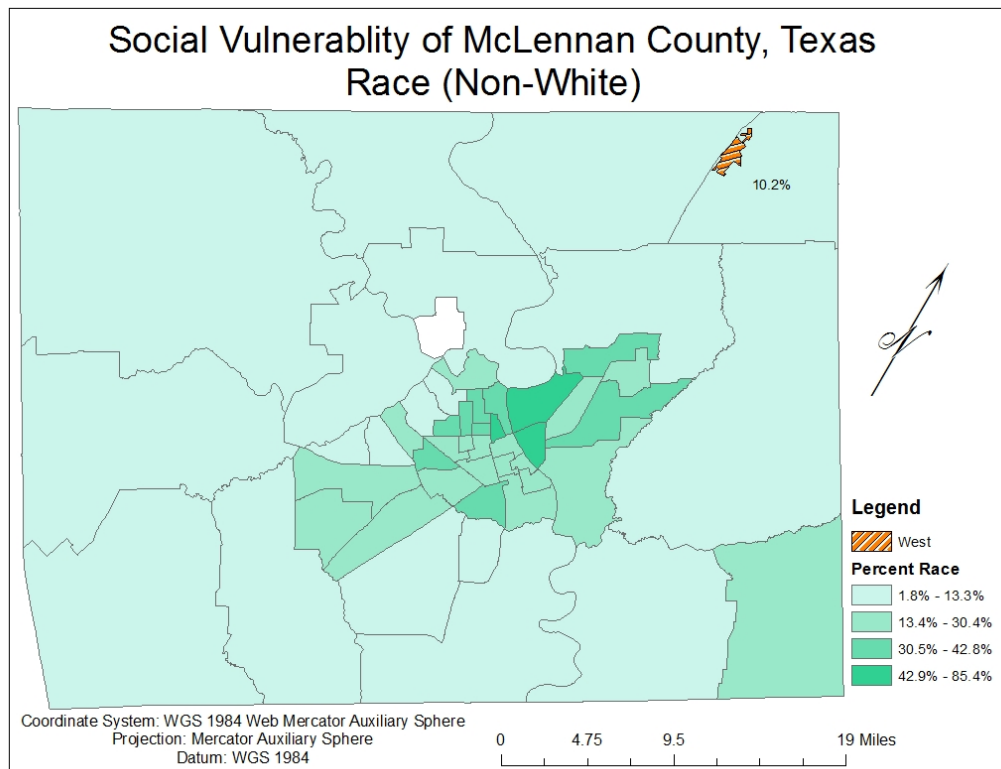
Educational Attainment

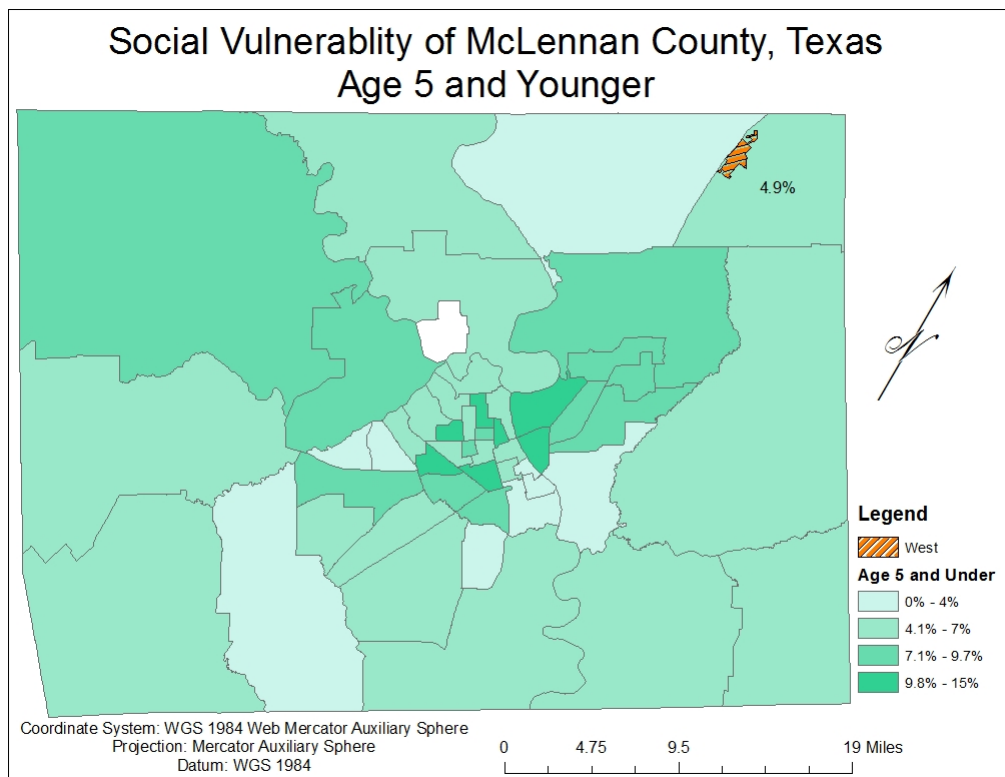
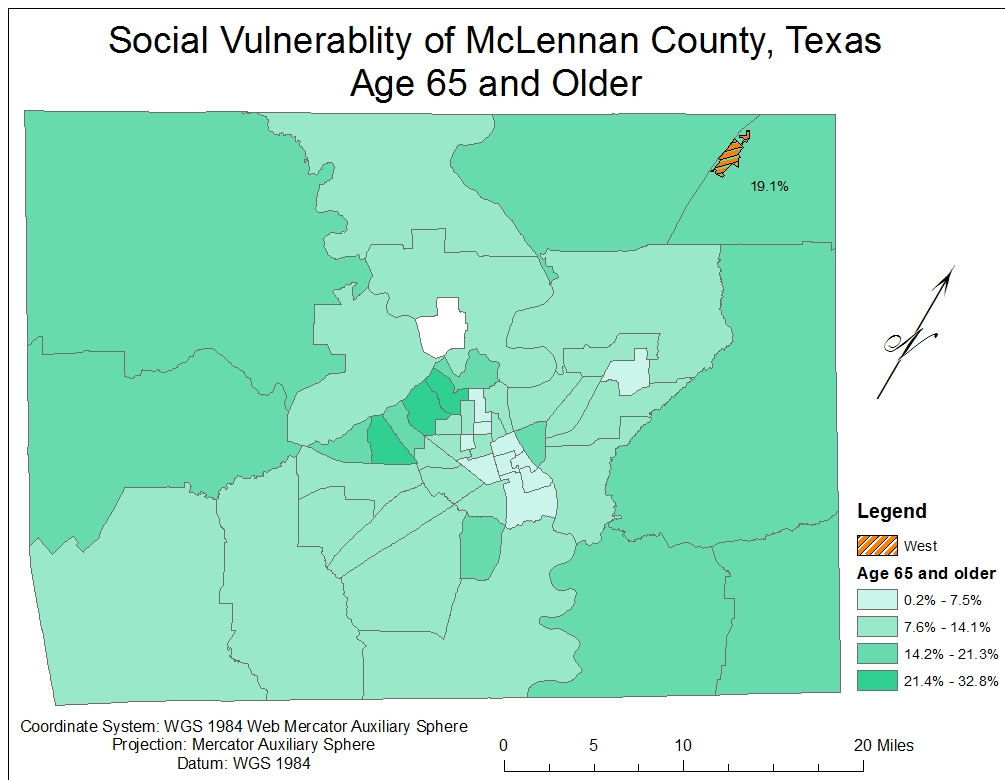
More education leads to the ability to get more resources to enhance their capacity on disaster mitigation. More education is also related to having more income. Of total population of the city, 1,638 are >25 years old. 18% of the population has less than high school education. This subset of the population is going to be more vulnerable. This percentage, however, is average when compared to the county and state level.

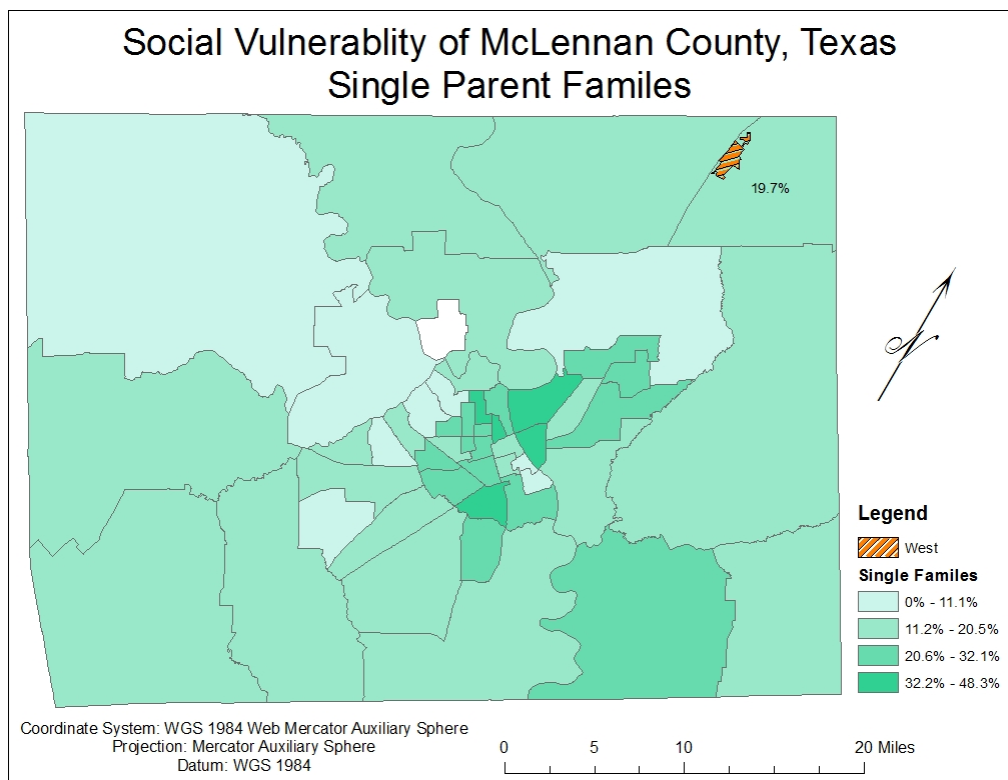
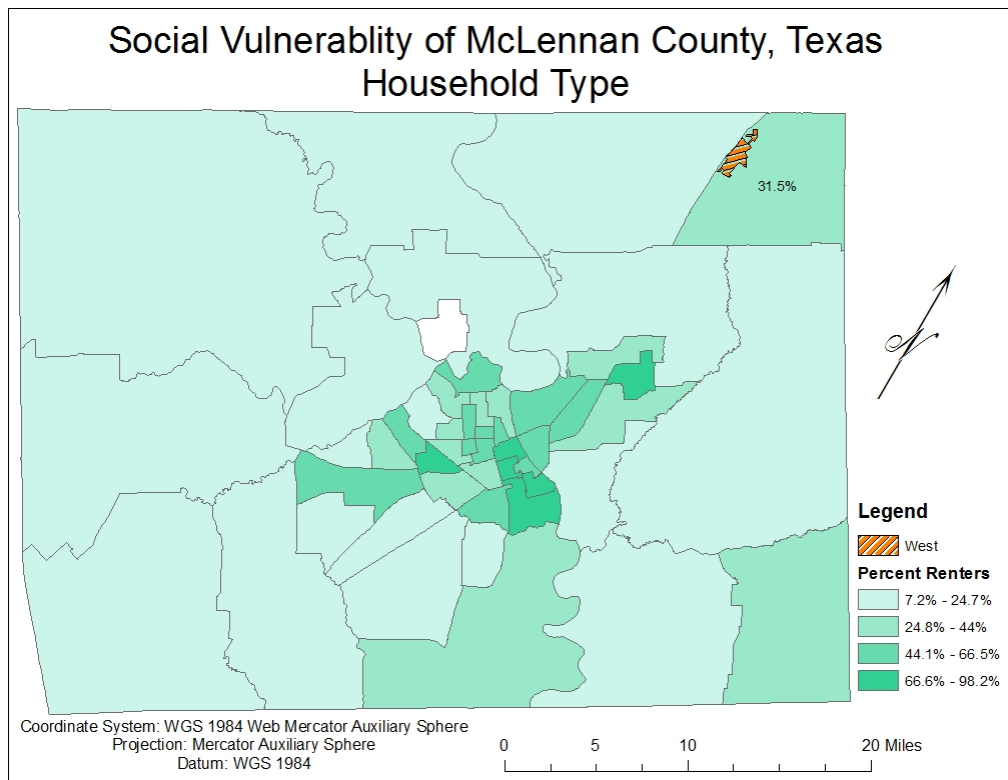
Educational Attainment

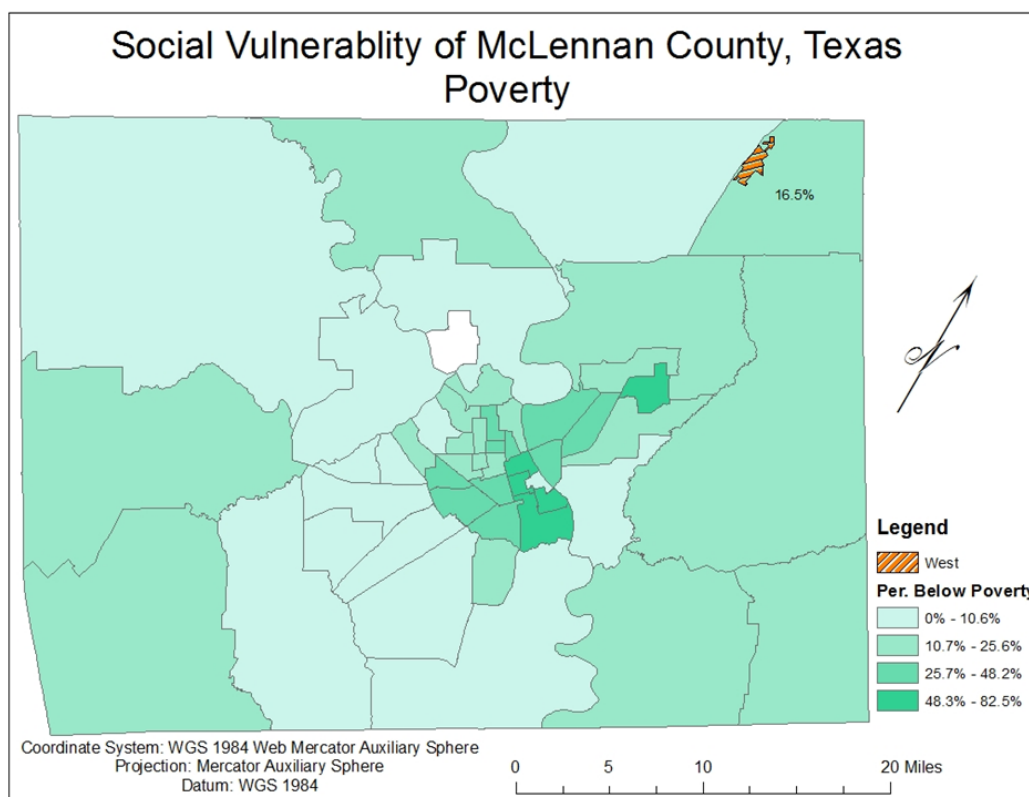
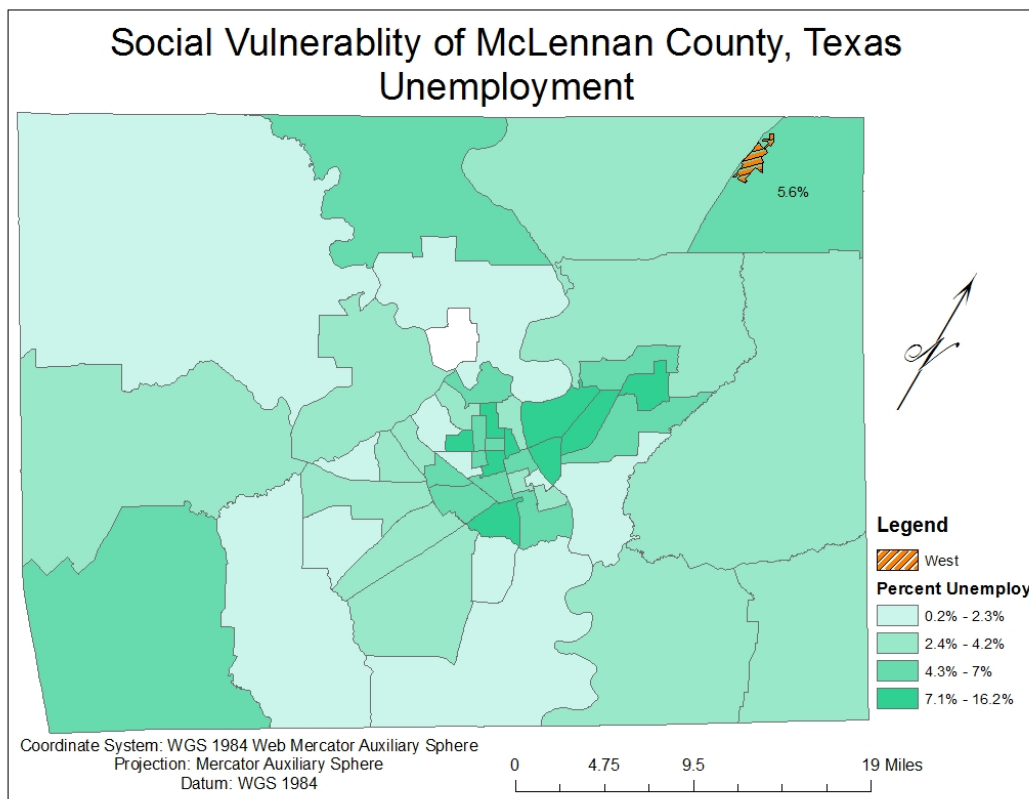
Subject	West City		McLennan County		Texas State	
	Population	%	Population	%	Population	%
Less than high school graduate	297	18.13	24,721	17.85	2,913,412	18.88
High school graduate	487	29.73	38,569	27.86	3,870,287	25.08
Some college, associate's degree	601	36.69	44,748	32.32	4,530,948	29.36
Bachelor's degree or higher	253	15.45	30,423	21.97	4,119,877	26.69
Population >25 y/o.	1,638	58.09	138,461	59.01	15,434,524	61.23
Population 3 y/o. and over enrolled in school	773	27.41	72,920	31.08	7,135,279	28.30
Total Population	2,820		234,626		25,208,897	

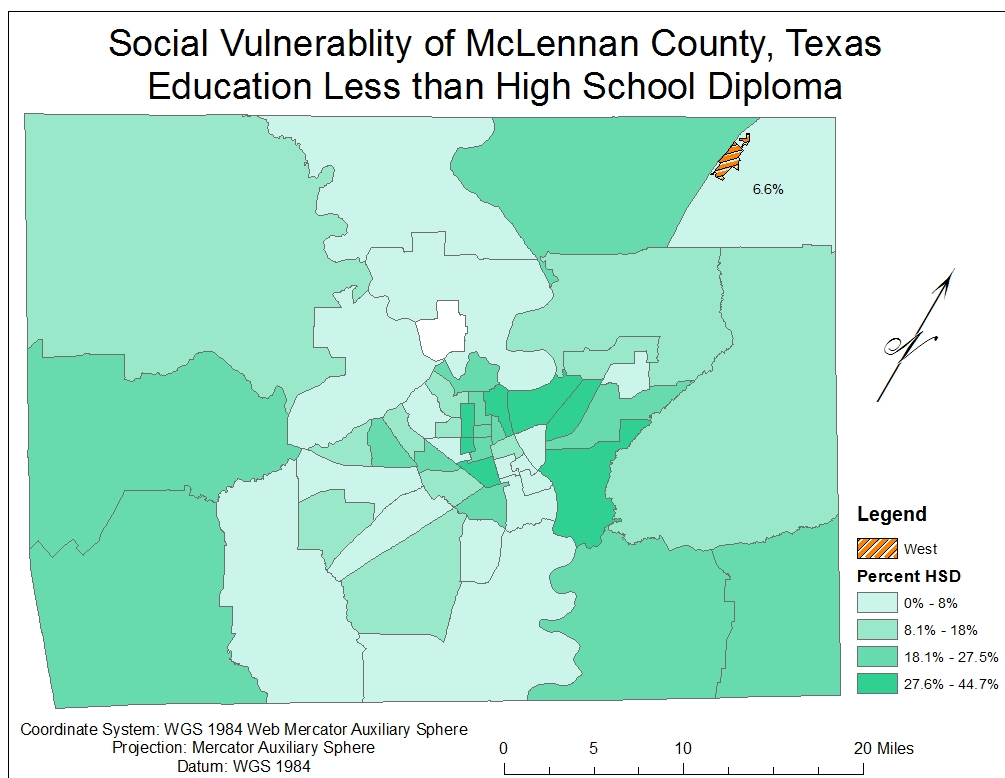
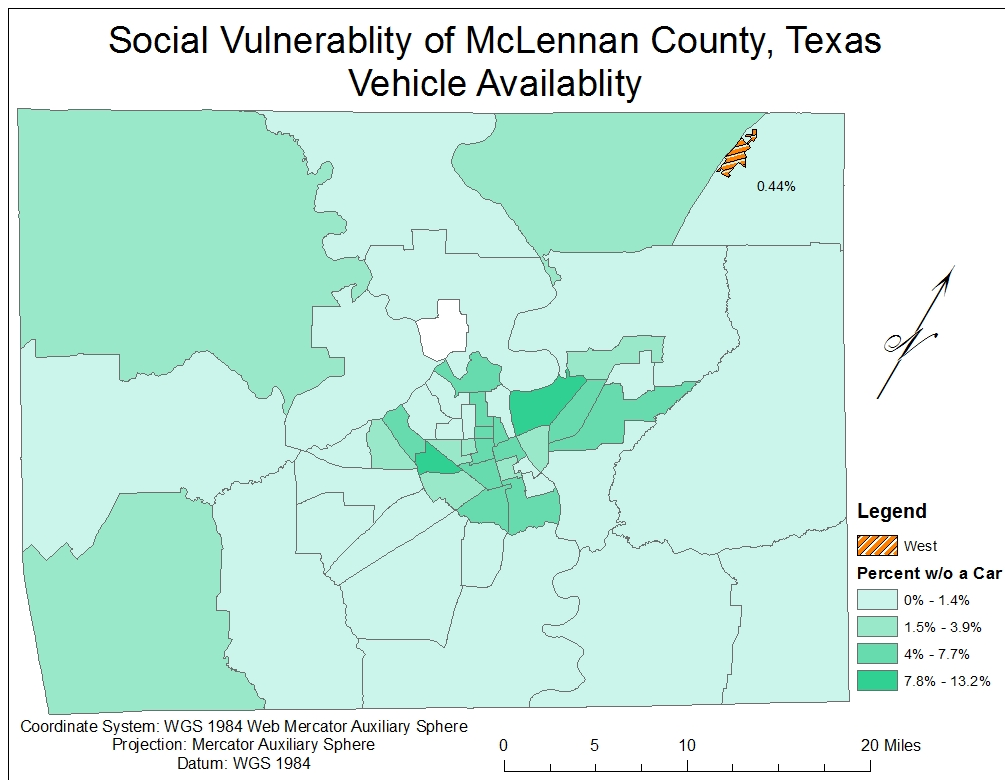
GIS Maps









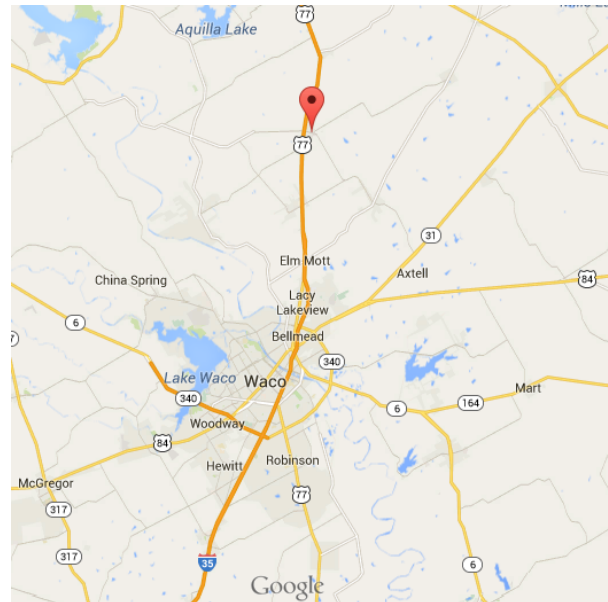


Business and Economic Vulnerability Assessment

Introduction

The city of West is located in McLennan County, Texas, just north of the county seat of Waco. Map 1 marks West within its regional context. The town was founded in 1882 on property owned by Thomas West, adjacent to the railroad that traversed his land. The city has a strong Czechoslovakian (Czech) heritage and celebrates each year with “West Fest” (a Czech polka festival). The city has a small population of slightly over 2,800 citizens that has remained steady since the 2010 census (Commerce, 2010).

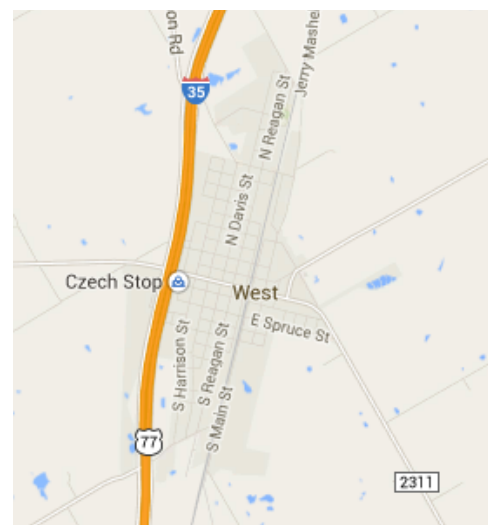
Today, West thrives on the flow of travelers on Interstate 35, the main connection between Dallas and Austin. The Czech Stop and Little Czech bakery attract thousands each year for their traditional Czech pastries. The small businesses in the historic downtown area bring visitors to the town and “West Fest” provides an infusion of dollars into the economy each year. The small population and location near the larger and more industrialized Waco provides the West with the small town rural appeal with all the amenities of a larger city within a short drive. The citizens love the small town appeal not realizing the vulnerabilities it adds to their home town.



Map 1. West within McLennan County

Economic Vulnerability

Economic vulnerability, “defined as the increased proneness to certain economies to downside risks,” is created by many factors including the size and demographics of the available workforce, number and types of industry and vulnerability to natural and man-made disasters (Cordina, 2004). West has approximately 2807 citizens and is predominantly white (87%). The population is approximately half male and half female. According to the 2010 Census Bureau report, 795 residents are less than 20 years of age, 692 residents are between the ages of 20-44, 580 residents are between 45-59 years of age, and 740 residents are over the age of 60. This means that approximately 26% of the town’s population is retired or near retirement and with another approximately 21% between 45 and 59 years of age, nearly half (47%) of the town’s population is middle aged or beyond.



Map 2. City of West, with the popular Czech Stop marked

McLennan County has approximately 18.8% between 45-59 years and 17.3% over 60 for 36.1% at middle age and beyond. Texas has 19.4% between 45-59 years and 15.1% over 60 for 34.5% at middle age and beyond. The small town has a higher percentage of retirees and older workers, and this makes the economy vulnerable from an aging workforce (Commerce, 2010).

	Texas	McLennan County	City of West
Percentage of citizens over 45 years of age	34.5%	36.1%	47%

Table 1. Percentage of population over 45 years of age

West has multiple vulnerabilities to its economic base including a small population and the proximity to a larger city with more employment opportunities. Waco has the ability to extend tax incentives to draw large businesses to the area. West's small population supports the city government through a general fund from property tax, franchise tax, and fines (City of West, 2014). The loss of any business or population could devastate the government's funding. All of these factors combined make West's economic base fragile. Unemployment can also be an indicator of vulnerability for local economies by comparing the percentage of local to county and state percentages.

	West	McLennan County	Texas
Unemployment Rate 2013	6.7%	4.6%	5.1%
Unemployment Rate 2000	1.9%	4.8%	3.8%

Table 2. Census Data for 2000 and 2014 Unemployment Rates (Commerce, 2014)

One way to gage the vulnerability of the local economy is to compare it to the county and to the state. The location quotient (LQ) is the best method. If the LQ is equal to 1 then the business is considered stable and has the same percentage of employees as the reference area. If the LQ is above one, then the business is considered to be in good condition, and it has a higher percentage of the employee base than does the the reference area. If the LQ is less than one, then the business is vulnerable and has less of the percentage of employees than the reference area.

The top industries used for comparison are 1) agriculture and mining, 2) construction, 3) manufacturing, 4) trade, transportation, and utilities, 5) finance, and 6) education and services. The comparison of McLennan County to the state of Texas shows that the county varies from as low as a 0.10 LQ for agriculture and mining to the highest of 1.81 LQ for manufacturing. West compared to McLennan County shows that agriculture and mining is the best industry for West

with a 5 LQ, education and services had a 1.2 LQ, finance had a 1 LQ, and the rest of the groups all have an LQ of less than 1. The low location quotients of the various industries show that

	Ag & mining	Construction	Manufacturing	Transportation, trade, utilities	Finance	Education & Services
McLennan vs. Texas/USA	0.10/0.22	1.06/1.36	1.81/1.61	0.87/0.93	0.96/1.03	1.0/0.92
West vs. Texas/USA	0.5/1.0	0.13/0.17	0.44/0.36	0.24/0.17	1.0/1.0	1.2/1.14

Table 3. Location Quotient for top industry in McLennan County, Texas and West, Texas

most of the industries within West are vulnerable because they do not have the employee base needed other than agriculture, finance and certain services such as education and health care workers that were the greatest portion of the education and services subset. McLennan County was more closely equal to the Texas numbers with most being near 1 or greater than one except for agriculture and mining, which is somewhat expected from a county with the largest portion of the population living in the city of Waco (Commerce, 2010; Esri, 2014).

Another indicator of economic vulnerability can be seen in the rate of growth for the area. From 2010 to 2014 shows that the population, number of employable citizens, and the number of households stayed relatively stagnant and the predictions for growth through 2019 show little changes for West as well. The city and county both experienced a 0.77% job growth rate between 2000 and 2014 though the county population grew by 10 percent and West population only grew by 1.81% during that time period (Sperling, 2014). A less than one percent growth rate in 14 years shows that new businesses are not coming to the area and the small population increase would only show that the employee base needed for new industry would not be available.

Map and Data Analysis

We gathered data on 172 businesses (which includes schools, churches, and non-profit organizations) within and nearby West's city limits (Infogroup, 2014). In Appendix 1, we list these businesses, along with some of their information, including their exact sales volume, exact employee size, primary NAICS code, business owner, and address. We were able to get location data for 133 of these businesses, meaning that 39 do not appear on this map or on subsequent ones. The businesses not included in the maps are italicized in the business list in Appendix 1. As shown in Map 1, many of the businesses cluster along Interstate 35 and Farm-to-Market 2114 and along Main Street, which is the location of the downtown and runs parallel to the railroad tracks. A few businesses are located in other areas, across I-35 and throughout the city limits.

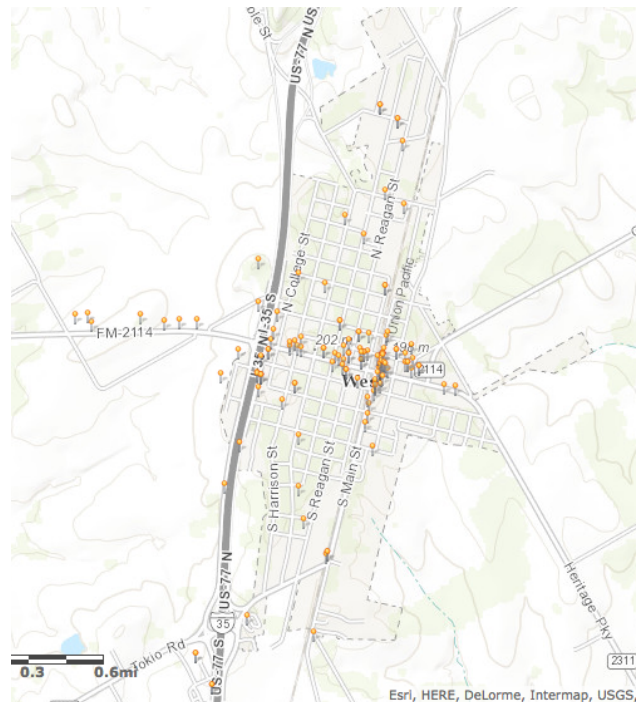
Small towns often have small businesses, and these are particularly vulnerable to disasters:

Disasters disrupt businesses through a variety of mechanisms in addition to direct physical damage to buildings, equipment, vehicles and inventories. Specifically, disruption of infrastructure such as water/sewer, electric power, fuel (natural gas), transportation and telecommunications frequently forces businesses to shut down in the aftermath of a disaster... Moreover, disasters can cause population dislocation, losses in discretionary income among those victims who remain in the impact area (which can weaken market demand for many products and services), and competitive pressure from large outside businesses (Zhang, Lindell & Prater, 2009).

We use two measures to examine the presence of small businesses in West: The number of employees and the yearly sales volume. These two measures represent different facets of small business vulnerability. For instance, “marginal enterprises” might easily exhaust their small stockpile of funds if they lack business post-disaster and cannot stay afloat until the area recovers (Alesch, Holly, Mittler & Nagy, 2001). Also, if even one of four or so employees at a small business cannot come into work post-disaster, the business loses a significant portion of its workforce.

Figure 1 shows the number of businesses in each category of size, based on the number of employees. (We do not have data on 4% of the businesses in our set – these businesses fall under the far right “N/A” category in the bar graph.) The majority of businesses in West are small: 63% of them employ one to four people. Only 2% of businesses have more than 50 employees.

With so many small businesses with such vulnerabilities, West officials need to plan ahead so that system can be restored as soon as possible. They can work with business owners to organize communication systems that effectively warn about incoming storms that might cause flooding or lead to tornadoes. As shown through the 2013 West Fertilizer Company explosion, the small city is also vulnerable to man-made disasters (Santos & Krauss, 2013). West is “sliced



Map 3. Businesses in West

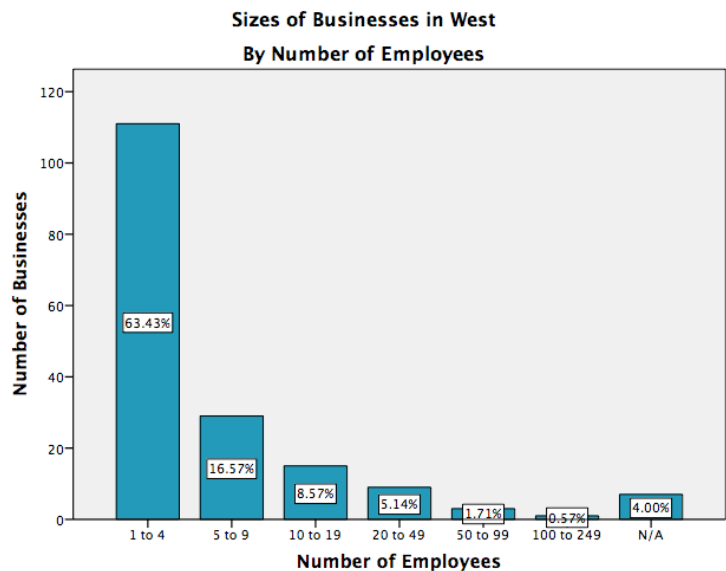
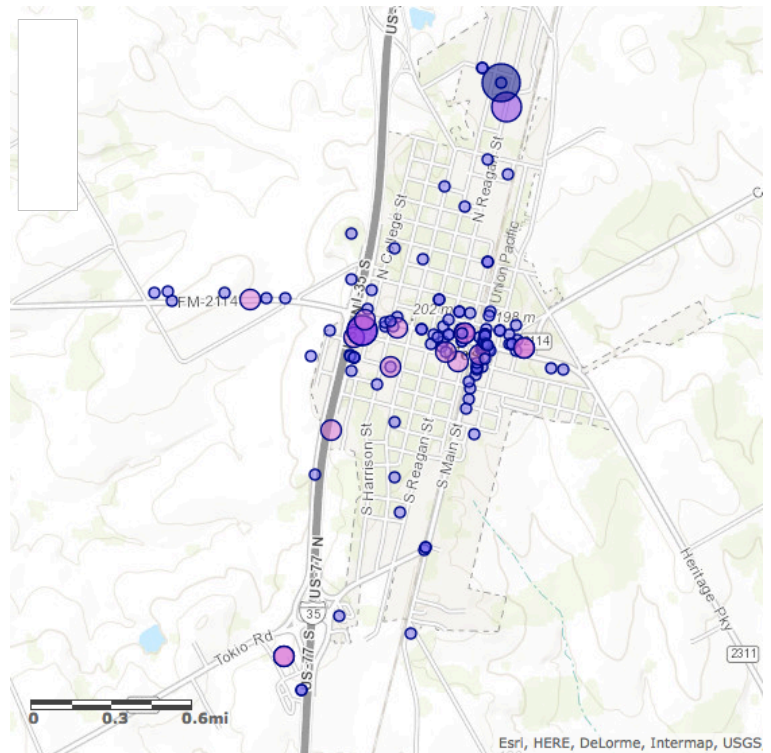


Figure 1. Business size by number of employees

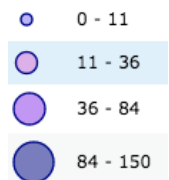
by a busy railroad and highway” (Interstate 35); these popular routes for freight introduce the possibility of high-impact crashes and accidents (Santos & Krauss, 2013). A solid, established communication network can increase cooperation between the city and its businesses before, during, and after a disaster. For instance, if certain utilities like electricity are down after a disaster, the city can communicate with the businesses about the delay and inform them about the status of the restoring process.

Map 2 shows businesses located in the downtown area, symbolized by their size based on the number of employees. The purple dots grow with the number of employees. The legend indicates the range of employees for each corresponding dot size. Though the map lacks a clear-cut pattern, it does appear that most of the larger businesses are located near Interstate 35 and in the downtown area, at the intersection of Main Street and Farm-to-Market 2114. Most of medium-sized businesses also cluster around the intersection of Main Street and Farm-to-Market 2114 and near the interstate. It seems as though the businesses outside of the downtown area and off the interstate are almost exclusively small ones. Many of these are likely one-man operations out of residences. (This type of businesses come with their own vulnerabilities that are very much tied with social vulnerabilities.) The notable exceptions to this pattern are the two large businesses in the north of the city, off of Reagan Street. These are West Rest Haven and West Independent School District (ISD).

According to our data from ReferenceUSA (last updated in October 2013 for this particular entry), West Rest Haven was the largest employer in West, with 150 employees (Infogroup, 2014). However, the business’s nursing home facility was destroyed in April 2013 by the West Fertilizer Company explosion. They are currently operating out of temporary facilities (American HealthTech, n.d.). On April 4, 2014, the nursing home’s administration and Board of Directors broke ground on its new building, across the street from the original one. The new facility will be about the same size as the former one, so we suggest that over time after its planned summer 2015 opening, West Rest Haven will reach near its former employee size and sales volume (KWKT, 2014).



Map 4. Location of businesses symbolized by number of employees



Rose Ann Morris, the administrator of West Rest Haven, recounts her experience the night of the explosion and how it related to their preparation:

We've conducted fire drills, disaster drills and mock drills on what we would do if the fertilizer plant just yards away from us caught on fire... It all made perfect sense and looked great on paper, but we quickly learned that no one could have possibly prepared completely for what happened to us that night. You can't roll wheelchairs, charts and medication carts over a foot of debris. And the windows? They weren't part of any evacuation plan we devised prior to April 17th, but they were certainly part of our equation that night! (American HealthTech, n.d.)



Figure 2. West Rest Haven, before fertilizer plant explosion; Source: www.healthtech.net/careheroes

The near-complete destruction of West Rest Haven's building represents the vulnerability of even large businesses to man-made disasters, even ones that are aware of the danger of proximity to risky operations, like those at West's fertilizer plant.

Other vulnerabilities relate to a business's influx of income. Figure 3 shows the distribution of West businesses over the categories of yearly sales volume ranges. Our dataset does not distinguish between businesses with no sales volume and those for which we had no local sales volume data. Thus, the category "N/A or \$0" includes churches (i.e. West Brethren Church and Bold Springs Baptist Church), government organizations (i.e. West Fire Department and West Public Library), and other non-profit organizations (i.e. St. Mary's Catholic School and Community Care Foundation WIC). It also includes national franchises like U-Haul and regional businesses like Pointwest Bank, which has branches in West, Hewitt, and China Spring (Pointwest Bank, n.d.). We highly doubt businesses like these two had no income from goods or services. Thus, this discrepancy likely comes from the lack of local branch data. Additionally, this category includes other businesses for which we simply lack data.

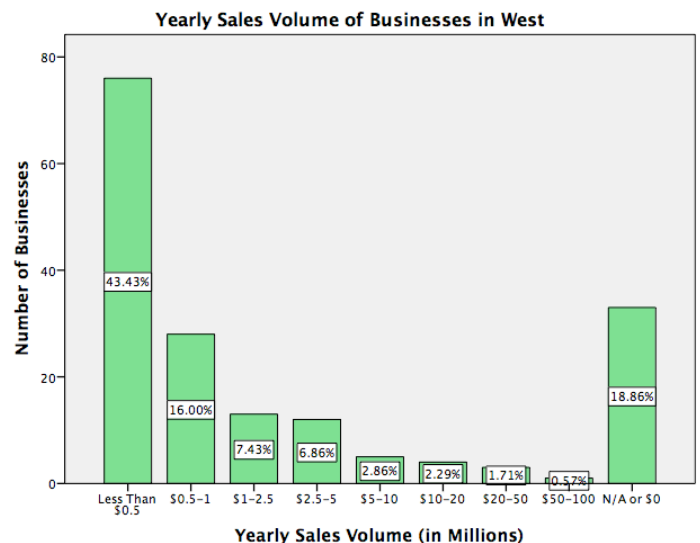


Figure 3. Business size by yearly sales volume

According to our bar graph, 43% of the businesses earn less than \$500,000 in yearly sales. If we include only businesses which earn income through goods and services and for which we have data (in other words, those outside of the "N/A or \$0" category), 54% of these earn less than \$500,000. In addition to our former method of classifying "small businesses" by their number of employees, we can do so by sales volume. Map 3 shows the location distribution of businesses of various sales volume ranges. As in the previous map, the dot signifies the relative size of the business based on sales. We removed all businesses for which we lacked sales volume data or had no sales volume. For the most part, the businesses with the greatest volume

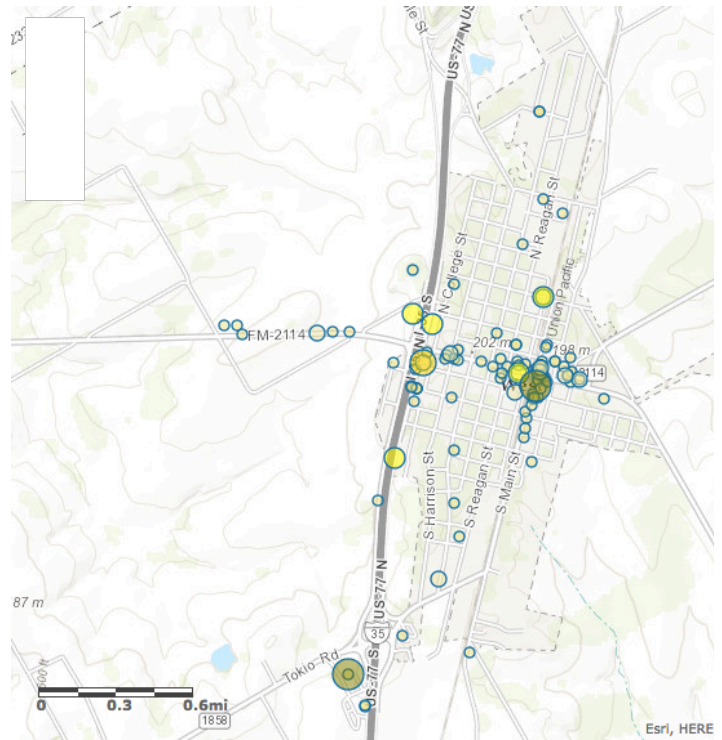
follow the same pattern as the high employers. They cluster around I-35, as it forms the west border of the city, and in the downtown area near the intersection of Main Street and Farm-to-Market 2114.

The business with the highest sales volume in our dataset is West Auction, Inc., which has around \$55,994,000 in yearly sales. West Auction holds weekly auctions to sell livestock on behalf of ranchers and “is a rest station for export cattle going to Mexico” (West Auction, Inc., n.d.). It also runs a 24-hour restaurant and veterinary clinic. The business is likely highly dependant on the I-35 corridor for the transportation of cattle to and from their auction house. A decapitated interstate might affect West Auction, especially if the blockage were to occur on an auction day. The business could plan for this possibility by distributing information on alternative routes that bypass the interstate to potential sellers and buyers in case of such obstruction. This is an unique preparedness measure for the auction house since its customers are not likely to seek competitors in case of our hypothetical situation. Many would likely still journey to the auction house despite one-time increased transportation costs, though we would assume a more permanent obstruction would cause customers to seek other auction houses.

Source: Andy Bartee



Figure 4. Fertilizer plant explosion as soon from the front of the Czech Stop



Map 5. Location of businesses symbolized by sales volume



Another high sales volume business in West is Czech Stop Grocery and Deli. It has around \$23,563,000 in yearly sales. Its proprietor also owns Little Czech Bakery, which neighbors Czech Stop and has \$3,647,000 in its own sales. Both of these businesses cater to travelers who pass through West while driving on the I-35 route between Dallas/Fort Worth and Austin. They are open every day for 24 hours. Even during the aftermath of the 2013 fertilizer plant explosion, Czech Stop “kept its doors open -- and the kolaches coming -- almost without interruption,” serving responders and victims who came by during the mayhem (Liebelson, Lee & Raja, 2013). Together, Czech Stop and Little Czech Bakery employ 159 people. These businesses are

definitive in many people's perceptions of West and its Czech heritage (Packer, 2011). The aforementioned hypothetical I-35 obstruction or even changes in travel behavior that decreases I-35 traffic could lessen the success of these popular stops.

While small businesses are more vulnerable because they have fewer people, resources, and money, large-scale damage to large businesses would cause a greater negative impact because they have employ more people and potentially attract more customers from outside the city. Businesses of any size can also be vulnerable if they are stand-alone companies. Businesses with multiple locations can often weather disasters better, especially if the other locations are outside of the impact zone and able to support the damaged locations (Zhang, Lindell & Prater, 2009). West's "well-supported" businesses include Subway, Sonic Drive-In, Bush's Chicken, Dollar General, Verizon Wireless, and Family Dollar Store. Large national companies would support these types of businesses.

Conclusion and Recommendation

The economic vulnerability assessment shows that West is highly vulnerable for many reasons. The town has over 60% businesses with less than 5 employees, has few chain stores or restaurants, and has a small but stable population with approximately half at middle age or greater. The large number of small businesses increases the risk of non-recovery after a major disaster or during poor economic times because many small businesses do not have insurance and are not diversified enough to make it through hard times. The low number of chain stores and restaurants also make the economy more unstable because these types of stores normally have funds infused from the larger corporation and are at less of a risk of closer during extended times of recovery and low economic swings. The small population that has remained steady since 2000 and is projected to only grow by less than 100 people over the next 5 years makes the economy vulnerable because there is not a sufficient workforce to add new jobs to the economy and so economic growth is stifled (Esri, 2014). West is also vulnerable to tornadoes and to man-made disasters from the close proximity to a major interstate, two pipelines, and a major railway that carries explosive and toxic materials. West must prepare for and make plans for emergency management and recovery that would take into account the need for protecting the small businesses from catastrophic loss that would devastate the local economy.

West's government officials must create plans to help their economy become more diversified and find a way to help their business base grow. The emergency manager must get the town involved in planning for disasters and other vulnerabilities that could destroy the ability for the small businesses to recover. Planning and pushing for economic growth and finding ways to buffer the impact of the disasters needs to be a top priority of West officials if they want to ensure that their small town remains a viable economic entity.

List of Businesses in Dataset (Appendix)

Company Name	Number of Employees	Sales Volume	Primary NAICS	Executive Name	Address
Ace Auto Supply	3	\$568,000	441310	Henry Rydel	110 E Pine St
Aderhold Funeral Home Inc	2	\$232,000	812210	Larry W Payne	808 S Reagan St
Al's Cleaners Laundry Inc	1	\$48,000	812320	Diane Parma	308 W Ronda St
Allstate Insurance Agency	3	\$558,000	524210		210 N Main St
Alvin's Body Shop	1	\$120,000	811121	Alvin Soukup	322 T M West Pkwy
<i>American Tower Corp</i>	<i>11</i>	<i>\$4,081,000</i>	<i>517919</i>		<i>18183 N Interstate 35</i>
Ashbrook & Co	2	\$66,000	541213	Lisa Renegar	216 W Oak St
<i>Baptist Family Life Ctr</i>	<i>3</i>	<i>\$0</i>	<i>813110</i>		<i>403 N College Ave</i>
Bear Contractors Inc	13	\$3,240,000	237130	Olenn Morrison	449 T M West Pkwy
Best Donuts & Kolache Shop	2	\$99,000	722515		508 W Oak St
<i>Best Western-Czech Inn</i>	<i>2</i>	<i>\$183,000</i>	<i>721110</i>	<i>Jerrel Bolton</i>	<i>114 Melodie Dr</i>
Big Czech Oil Fuel & Retire	3	\$10,886,000	425120	Alvin Pavliceck	201 W Oak St
<i>Biochem Lab Inc</i>	<i>3</i>	<i>\$0</i>	<i>541711</i>	<i>Juanita Janek</i>	<i>4751 Tokio Rd</i>
Blessings Christian Gift Shop	2	\$212,000	453220	Robin Waters	207 S George Kacir Dr
Body West Gym	3	\$112,000	713940	Dustin Pebles	205 E Columbus St
<i>Bold Springs Baptist Church</i>	<i>3</i>	<i>\$0</i>	<i>813110</i>		<i>103 N Harrison St</i>
Bold Springs Tire & Lube Ctr	5	\$947,000	441320	Ranae Dameron	21242 N Interstate 35
<i>Bold Springs Water Supply Corp</i>	<i>4</i>	<i>\$1,052,000</i>	<i>221310</i>		<i>4546 Cottonwood Rd</i>
Bud's Tiger Stop Inc	6	\$4,178,000	447190	Phyllis Chupik	201 W Oak St
Bush's Chicken	15	\$729,000	722511	John Randall	106 S George Kacir Dr
Carla's Collage	1	\$106,000	453220	Sue Pescaia	207 S George Kacir Dr
CEFCO	6	\$1,683,000	445120		215 S George Kacir Dr
Cen-Tex Livestock Equipment	3	\$7,070,000	424910		219 N College Ave
Cernosek Insurance	1	\$186,000	524210	Donald Cernosek	203 N Blume St
<i>Certified Bookkeeping & Tax</i>	<i>1</i>	<i>\$115,000</i>	<i>541219</i>	<i>Karen McCullough</i>	<i>PO Box 126</i>
Charles R Hajek	2	\$422,000	484230		311 W Oak St
<i>Church Of Christ Of West</i>	<i>2</i>	<i>\$0</i>	<i>813110</i>	<i>Bob Martin</i>	<i>311 Tokio Rd</i>

<i>Coleford Sales</i>	35	\$26,800,000	441110	<i>Larry Cole</i>	404 SW 1 st St
Community Care Foundation Wic	2	\$0	621399		407 W Oak St
Community Grocery & Market	15	\$4,207,000	445110	Richard Sulik	203 W Pine St
<i>Country Blacksmith</i>	2	\$176,000	811490	<i>Fred Mechell</i>	
Country Boys Pressure Washing	1	\$331,000	238190	Jefferson Simeen	506 N College Ave
<i>Croll, John G Dvm</i>	3	\$314,000	541940	<i>John G Croll</i>	
Czech Point Collectibles	1	\$106,000	453220	Ed Havel	114 E Oak St
Czech Stop Grocery & Deli	84	\$23,563,000	445110	Bill Polk	105 N College Ave
Czech-American Restaurant	6	\$291,000	722511	Jenene Picha	220 N Main St
D & S Special Touch	2	\$83,000	811192	Darrick Ervin	201 S Main St
Divine Designs	2	\$168,000	453110	Sharon Jackson	120 N Main St
Dollar General	5	\$920,000	452990	Veronica Jones	508 E Oak St
<i>Donald J Cernosek Insurance</i>	1	\$186,000	524210	<i>Donald Cernosek</i>	PO Box 422
Dr Eric Chudej Family Dgnstc	3	\$548,000	621493	Eric Chudej	401 Meadow Dr
Dudik Automotive	3	\$340,000	811111	Eddie Dudik	109 N Harrison St
Eddy's Saddles & Tack	2	\$394,000	451110	Eddy Jackson	101 S Main St
Ellis Furniture Refinishing	1	\$73,000	811420	Gary Ellis	413 S Marable St
Emilio's Auto & Tire Shop	4	\$7,226,000	423130	Angela Pandar	22185 N Interstate 35
<i>Ernie's Plumbing Svc Inc</i>	2	\$398,000	238220		
Expressions Salon	3	\$128,000	812112	Laura Kubacak	213 E Oak St
Family Dollar Store	5	\$920,000	452990	Tom Hayes	125 S Main St
Farmers Insurance	2	\$372,000	524210	Christopher Gutierrez	203 S George Kacir Dr
First Baptist Church Of West	6	\$0	813110	John Crowder	501 N Marable St
First United Church	1	\$0	813110	Eric Coleman	310 W Pine St
<i>Gary's Lawn Mower Shop</i>	1	\$126,000	811411	<i>Gary Kreder</i>	734 S Fork Wiggins Rd
Gerik's Ole Czech Smokehouse	6	\$291,000	722511	Jennifer Ashley	511 W Oak St
Gift Barn	1	\$106,000	453220	Eva Matula	20555 N Interstate 35
<i>Glass Doctor</i>	5	\$1,819,000	444190		
Green Door Video Arcade	6	\$1,377,000	443142	Bliane Smelcer	105 S Main St
Grimm Insurance	5	\$930,000	524210	Pat Grimm	210 N Main St
Grimm Jares, Suzanne CPA	2	\$230,000	541211	Suzanne Grimm Jares	210 N Main St

<i>H & R Carpet</i>	8	\$2,400,000	442210	<i>Terry Reddell</i>	<i>19743 N Interstate 35</i>
Headquarters Beauty Salon	2	\$85,000	812112	Barbra Michalek	124 N Main St
<i>Herbert Brem Insurance</i>	2	\$372,000	524210	<i>Herbert Brem</i>	<i>744 E Weinberger Rd</i>
<i>Hilltop Water Supply</i>	3	\$789,000	221310		<i>1788 Cemetery Rd</i>
Honorable David Pareya	4	\$0	921120	David Pareya	201 N Reagan St
Hospadar	1	\$401,000	511199	Jan Vaculik	707 S Marable St
J & B Realty LTD	2	\$371,000	531210	Bettye Tucker	217 N Roberts St
J K West & Co		\$0	999990		700 W Oak St
Jares, Suzanne G CPA	2	\$230,000	541211	Suzanne G Jares	210 N Main St
Jo Ann's Bridal Shop	3	\$441,000	448120	Jo Ann Morris	207 S George Kacir Dr # 207
<i>Jupe Grain Co Inc</i>	5	\$868,000	493130	<i>Ervin Jupe</i>	<i>206 S Roberts St</i>
Jus Cuttin	2	\$85,000	812112	Carla Robbins	601 W Oak St
Kapvik Supply Co	2	\$539,000	452990		202 E Mesquite St
Kolar's Apartments	2	\$514,000	531110		223 S Main St
Kolar's Upholstery	2	\$146,000	811420	Jaroline Kolar	13018 Old Dallas Rd
Lankford, James E CPA	2	\$230,000	541211	James E Lankford	210 N Roberts St
Lassetter & Assoc	6	\$247,000	561611	Larry Lassetter Sr	300 N Reagan St # A
<i>Lawson Funeral Home</i>	3	\$348,000	812210	<i>Joseph Kotch</i>	<i>PO Box 616</i>
Little Czech Bakery	75	\$3,647,000	722511	Bill Polk	105 N College Ave
Lone Star Asset Recovery	2	\$226,000	811111		204 N Main St
<i>M & M Self Storage</i>	2	\$75,000	531130	<i>Patrick Matus</i>	<i>2106 Cemetery Rd</i>
Mach1 Systems & Solutions Inc	2	\$545,000	443142	Gary J Mach	116 E Oak St
Main & Broadway Beverage Co	1	\$326,000	445310	Mark Hoelscher	318 N Main St
Marak Gerik Appliances Heating	2	\$398,000	238220	Marty Marak	109 S Main St
Marak Realty	1	\$185,000	531210	Cheryl Marak	200 W Highland St
<i>Mayflower</i>	20	\$3,474,000	484110		
<i>Mcep</i>	3	\$548,000	621111	<i>Jill Beatty</i>	<i>601 Medical Pkwy</i>
Mellgren Chiropractic Clinic	4	\$381,000	621310	Walter J Mellgren Jr	109 N Reagan St
Mid Texas Veterinary Clinic	5	\$523,000	541940	John G Croll	20557 N Interstate 35
Misc Engineering LLC	3	\$0	999990	Allan Mcfarland	580 T M West Pkwy
Mobile Auto Glass Svc	1	\$363,000	444190	Jeff Taylor	722 T M West Pkwy

Montes Mexican Restaurant	6	\$291,000	722511		100 Czech Inn Dr
Muska Insurance Svc	2	\$372,000	524210	Tommy Muska	213 N Washington St # C
Musslewhite		\$0	999990		307 W Oak St
Myatt Fuels	3	\$10,886,000	425120		512 N Washington St
Old Corner Drug Store	7	\$2,198,000	446110	Kirk Wines	200 N Main St
Old KATY Consignment Co	1	\$83,000	453310	Daniel Ballbw	107 S Main St
Olde Czech Corner Antiques	1	\$83,000	453310	Lisa Muska	130 N Main St
Outwest Bar & Grill	3	\$145,000	722511	Mike Hetyra	301 S Main St
P & M Fire Protection	3	\$4,113,000	423610		207 E Oak St
P S Medical Well Child Clinic	3	\$548,000	621111	Billy Don Pierce	407 W Oak St
Pareya, Evelyn R CPA	2	\$230,000	541211	Evelyn R Pareya	209 E Oak St
Pareya's Package Store	2	\$652,000	445310	Michael Pareya	209 E Oak St
Pizza House Of West	15	\$729,000	722511	Jeanne Anderson	505 W Oak St
<i>Playdium Swimming Pool</i>	<i>13</i>	<i>\$646,000</i>	<i>713940</i>		<i>418 Cottonwood Rd</i>
Pointwest Bank	15	\$0	522110	Charles Nemec	200 W Oak St
Polansky's Auto & Body Shop	15	\$1,806,000	811121	Charles Polansky	309 E Oak St
Pro Tech Refrigeration Inc	2	\$279,000	811412	Harry Stacek	304 W Oak St
<i>Ron's Truck Sales</i>	<i>2</i>	<i>\$1,291,000</i>	<i>441120</i>		
<i>S M D Equipment Co</i>	<i>2</i>	<i>\$4,388,000</i>	<i>423820</i>	<i>Heath Mosley</i>	<i>17598 N Interstate 35</i>
Select Rehabilitation	4	\$0	624310	Stephanie Jones	300 W Haven St
Slovacek West LP		\$0	999990		214 Melodie Dr
Slovak Realty	2	\$371,000	531210	Bob Grimm	210 N Main St
Smelscer Amusement	3	\$312,000	713120	Blaine Smelscer	103 S Main St
<i>Solano Properties</i>	<i>3</i>	<i>\$557,000</i>	<i>531210</i>	<i>Blair Bolton</i>	<i>114 Melodie Dr</i>
Sonic Drive-In	36	\$1,750,000	722511	Patricia Berartz	701 W Oak St
Sparks, Larry D DDS	4	\$522,000	621210	Larry D Sparks	312 N Main St
<i>SPJST Lodge</i>	<i>3</i>	<i>\$0</i>	<i>813410</i>	<i>Johnny Krizan</i>	<i>700 S Czech Hall Rd</i>
St Mary's Catholic Church	4	\$0	813110	Edward Karasek	301 S Harrison St
St Mary's Child Development	5	\$216,000	624410		507 W Spruce St
St Mary's School	30	\$0	611110	Ericka Sammon	507 W Spruce St
State National Bank Of Texas	22	\$44,547,000	522110	Dalbert Thiele	100 N Main St

Staub, Jacob G	2	\$248,000	541110	Jacob G Staub	300 N Reagan St
Stockyard Cafe	20	\$972,000	722511	Adele Uptmore	20645 N Interstate 35
Strickly	1	\$55,000	722410	Merle Gilson	788 T M West Pkwy
SUBWAY	10	\$486,000	722511	John Pescaia	209 S George Kacir Dr #C
Sykora Family Ford Inc	33	\$15,300,000	441110	Ed Sykora	519 S George Kacir Dr
Tin Shop	4	\$352,000	811490	Gary Snokhous	129 S Main St
Two Amigos Mexican Restaurant	6	\$291,000	722511		208 N Main St
U-Haul	1	\$37,000	531130		226 W Oak St
<i>Underwood Construction</i>	<i>4</i>	<i>\$2,023,000</i>	<i>236115</i>		<i>503 Meadow Dr</i>
Uptmore Motors Inc	4	\$3,062,000	441120	Ernest Uptmore	605 W Oak St
Urbanovsky Studio	2	\$164,000	541921	Danny Urbanovsky	300 W Pine St
US Post Office	11	\$0	491110	Gena Cunningham	301 W Columbus St
<i>Verizon Wireless</i>	<i>8</i>	<i>\$5,504,000</i>	<i>517210</i>		
<i>Veterans Of Foreign Wars</i>	<i>1</i>	<i>\$0</i>	<i>813410</i>	<i>Robert Zahirniak</i>	<i>815 S Reagan St</i>
Village Bakery	8	\$396,000	311811	Georgia Montgomery	113 E Oak St
Village Shoppe	2	\$294,000	448120	Gladys Quilter	111 E Oak St
Vintage Auto	1	\$113,000	811111	Todd Blahuta	22251 N Interstate 35
Webre Mower Svc	1	\$276,000	444210	Thomas Webre	1013 N Reagan St
<i>West Airpark AIRPORT-45tx</i>	<i>1</i>	<i>\$54,000</i>	<i>488119</i>	<i>John Fisher</i>	<i>Old Dallas Rd</i>
West Animal Clinic	3	\$314,000	541940	Tom Meurer	416 T M West Pkwy
West Auction Inc	17	\$55,994,000	424520	Adell Uptmore	20645 N Interstate 35
West Bancshares Inc	20	\$0	551111	Charles Nemec	200 W Oak St
West Brethren Church	5	\$0	813110		901 N Marable St
<i>West Chamber Of Commerce</i>	<i>1</i>	<i>\$0</i>	<i>813910</i>	<i>Gary Nors</i>	<i>308 N Washington St</i>
<i>West City Garage</i>	<i>9</i>	<i>\$0</i>	<i>921120</i>	<i>George Nors</i>	<i>211 W Pine St</i>
West City Hall	2	\$0	921110	Joey Pustejovsky	110 N Reagan St
West City Police Station	15	\$0	922120	James Lawhorn	110 N Reagan St
West Custom Mufflers	20	\$1,955,000	811112	Charles Polansky	309 E Oak St
West Drug	8	\$2,512,000	446110	Mike Sulak	206 N Main St
<i>West Fire Dept</i>	<i>18</i>	<i>\$0</i>	<i>922160</i>		<i>City Hall Bldg</i>
<i>West Food Mart</i>	<i>10</i>	<i>\$2,805,000</i>	<i>445110</i>	<i>Mark Zapalac</i>	<i>102 N Roberts St</i>

West Furniture & Appliance	2	\$517,000	442110	Evelyn Pareya	115 E Oak St
<i>West Gas Svc Inc</i>	<i>6</i>	<i>\$10,824,000</i>	<i>221210</i>	<i>Robert Urbanovsky</i>	<i>Interstate 35 W</i>
West Independent School Dist	58	\$0	611110		1212 N Reagan St
West Long Term Recovery		\$0	999990		510 E Oak St
West Medical & Surgical Clinic	3	\$548,000	621111	George N Smith	306 N Davis St
West News	5	\$1,055,000	511110	Linn A Pescaia	214 W Oak St
West Parkway Daycare Learning	5	\$216,000	624410	Debbie Ferguson	822 T M West Pkwy
West Public Library	1	\$0	519120	Nancy Hykel	209 Tokio Rd
West Rest Haven	150	\$9,281,000	623110		110 E 10th St
West Retirement LTD	1	\$257,000	531110	Charolet Rendek	701 Tokio Rd
West Sales & Svc Htg & AC	5	\$996,000	238220	Ernest Kaska	111 E Pine St
West Senior Ctr	3	\$0	624120		200 Tokio Rd
West Terrace Apartments	2	\$514,000	531110	Bettye Tucker	217 N Roberts St
West Texas		\$0	999990		200 Tokio Rd
West Thrift Shop	2	\$166,000	453310	Maria Galvan	118 E Oak St
<i>West True Value</i>	<i>10</i>	<i>\$1,776,000</i>	<i>444130</i>	<i>George Smajstrla</i>	<i>114 N Roberts St # 30</i>
<i>Westfest Inc</i>	<i>7</i>	<i>\$348,000</i>	<i>711190</i>	<i>John Hurtik</i>	<i>1110 S Main St</i>
Why West		\$0	999990		301 N Washington St
Wild West Salon	2	\$85,000	812112		207 S George Kacir Dr
<i>Zach's Wholesale</i>	<i>2</i>	<i>\$5,109,000</i>	<i>423920</i>		<i>19352 N Interstate 35</i>
Zatopek Oil Co Inc	1	\$3,628,000	425120	Don Zatopek	512 N Washington St

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