2018 HAZARD MITIGATION ACTION PLAN

Prepared by:
Anderson County Hazard Mitigation Planning Committee

Under Authority of:
ANDERSON COUNTY COMMISSIONERS COURT
CITY OF PALESTINE CITY COUNCIL
CITY OF ELKHART CITY COUNCIL
CITY OF FRANKSTON CITY COUNCIL

Local Contact: Christina Crockett, EMC
903-723-7813
ccrockett@co.anderson.tx.us

RESOLUTION NUMBER R-57-2018

A RESOLUTION OF ANDERSON COUNTY, TEXAS ADOPTING THE 2018 ANDERSON COUNTY HAZARD MITIGATION ACTION PLAN

WHEREAS, certain areas of Anderson County, Texas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people and properties within the area; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) requires that local jurisdictions have in place a FEMA-approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004; and

WHEREAS, Anderson County's existing Hazard Mitigation Action Plan expired on April 30, 2017; and

WHEREAS, FEMA awarded Anderson County PDM grant #FY-15-1101 to assist in hiring a contractor, Angela J. Norton of Gilmer, Texas, to revise and update the county-wide, multi-jurisdictional Hazard Mitigation Plan covering Anderson County and the Cities of Palestine, Elkhart and Frankston, which updated Plan was approved by TDEM and FEMA;

NOW THEREFORE, BE IT RESOLVED that the Anderson County Commissioners Court hereby:

1. Adopts the REVISED and UPDATED 2018 **Anderson County Hazard Mitigation Action Plan.**
2. Vests the County Judge of Anderson County with the responsibility, authority, and means to:
   (a) Inform all concerned parties of this action
   (b) Develop an Addendum to this Hazard Mitigation Action Plan if the County's unique situation warrants such an addendum.
3. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of this Hazard Mitigation Action Plan.

FILED FOR RECORD
at _____ o'clock ____ M

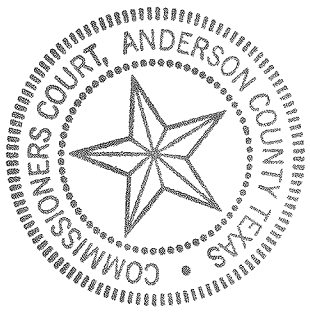
NOV 19 2018

MARK STAPLES
County Clerk, Anderson County, Texas
By _____ Deputy

Passed, Approved and Adopted this 19th day of November, 2018

Robert D. Johnston, County Judge

Mark Staples, County Clerk



RESOLUTION NO. R-36-18

A RESOLUTION OF PALESTINE, TEXAS, ADOPTING THE 2018 ANDERSON COUNTY HAZARD MITIGATION ACTION PLAN.

WHEREAS, certain areas of Palestine, Texas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people and properties within the area; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) requires that local jurisdictions have in place a FEMA-approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004; and

WHEREAS, Anderson County's existing Hazard Mitigation Action Plan expired on April 30, 2017; and

WHEREAS, FEMA awarded Anderson County PDM grant #FY-15-1101 to assist in hiring a contractor, Angela J. Norton of Gilmer, Texas, to revise and update the county-wide, multi-jurisdictional Hazard Mitigation Plan covering Anderson County and the Cities of Palestine, Elkhart and Frankston, which updated Plan was approved by TDEM and FEMA.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF PALESTINE, TEXAS, THAT:

1. The **2018 Anderson County Hazard Mitigation Action Plan** is approved in its entirety;

2. The City of Palestine will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;

3. The City of Palestine hereby vests the Mayor with the responsibility, authority, and means to:
    a. Inform all concerned parties of this action; and
    b. Assure that the Hazard Mitigation Action Plan will be reviewed at least annually; and that any needed adjustments will be presented to the HMAP revision team for consideration; and

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Action Plan.

PASSED, APPROVED, and ADOPTED by the City Council of the City of Palestine, Texas, at a regular meeting held on this the 22nd day of October, 2018.

Steve Presley

STEVE PRESLEY
MAYOR

ATTEST:

Teresa Herrera

TERESA HERRERA
CITY SECRETARY

APPROVED AS TO FORM:

Ronald S Stutes

RONALD STUTES
CITY ATTORNEY

City of Frankston
PO BOX 186
Frankston, TX 75763-0186

ADOPTION RESOLUTION: CITY OF FRANKSTON

A RESOLUTION OF FRANKSTON, TEXAS, ADOPTING THE 2018 ANDERSON COUNTY HAZARD MITIGATION ACTION PLAN

WHEREAS, certain areas of FRANKSTON, TEXAS, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people and properties within the area; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) requires that local jurisdictions have in place a FEMA-approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004; and

WHEREAS, Anderson County's existing Hazard Mitigation Action Plan expired on April 30, 2017; and

WHEREAS, FEMA awarded Anderson County PDM grant #FY-15-1101 to assist in hiring a contractor, Angela J. Norton of Gilmer, Texas, to revise and update the county-wide, multi-jurisdictional Hazard Mitigation Plan covering Anderson County and the Cities of Palestine, Elkhart and Frankston, which updated Plan was approved by TDEM and FEMA;

NOW THEREFORE, BE IT RESOLVED THAT:

7. The **2018 Anderson County Hazard Mitigation Action Plan** is approved in its entirety.
8. The City of Frankston will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
9. The City of Frankston hereby vests the Mayor with the responsibility, authority, and means to:
   (e) Inform all concerned parties of this action; and
   (f) Assure that the Hazard Mitigation Action Plan will be reviewed at least annually; and that any needed adjustments will be presented to the HMAP revision team for consideration; and
6. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Action Plan.

Passed, Approved and adopted this 13 **day of** November**, 2018.**

City of Frankston
PO BOX 186
Frankston, TX 75763-0186

Eugene Brooks

Eugene Brooks, Mayor

ATTEST

Kelli Landreth-Smith

Kelli Landreth-Smith, City Secretary

Phone: 903-876-2241 240 W. Main Street Fax: 903-876-3837

ADOPTION RESOLUTION: CITY OF ELKHART

A RESOLUTION OF ELKHART, TEXAS, ADOPTING THE 2018 ANDERSON COUNTY HAZARD MITIGATION ACTION PLAN

WHEREAS, certain areas of ELKHART, TEXAS, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people and properties within the area; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) requires that local jurisdictions have in place a FEMA-approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004; and

WHEREAS, Anderson County's existing Hazard Mitigation Action Plan expired on April 30, 2017; and

WHEREAS, FEMA awarded Anderson County PDM grant #FY-15-1101 to assist in hiring a contractor, Angela J. Norton of Gilmer, Texas, to revise and update the county-wide, multi-jurisdictional Hazard Mitigation Plan covering Anderson County and the Cities of Palestine, Elkhart and Frankston, which updated Plan was approved by TDEM and FEMA;

NOW THEREFORE, BE IT RESOLVED THAT:

4. The **2018 Anderson County Hazard Mitigation Action Plan** is approved in its entirety.
5. The City of Elkhart will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
6. The City of Elkhart hereby vests the Mayor with the responsibility, authority, and means to:
   (c) Inform all concerned parties of this action; and
   (d) Assure that the Hazard Mitigation Action Plan will be reviewed at least annually; and that any needed adjustments will be presented to the HMAP revision team for consideration; and
5. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Action Plan.

Passed, Approved and adopted this 15TH **day of** October**, 2018.**

ACRONYMS

DFIRM	Digital Flood Insurance Rate Map
EMC	Emergency Management Coordinator
EMS	Emergency Medical Service
ETCOG	East Texas Council of Governments, which includes 14 counties and 99 cities
FEMA	Federal Emergency Management Agency, formed by President Jimmy Carter on April 1, 1979.
HMAP	Hazard Mitigation Action Plan
HMGP	FEMA Hazard Mitigation Grant Program
LEPC	Local Emergency Planning Committee
LOMA	Letter of Map Amendment for specific DFIRM
NFIP	National Flood Insurance Program
PDM	FEMA Pre-Disaster Mitigation Grant Program
TCEQ	Texas Commission on Environmental Quality
TDEM	Texas Division of Emergency Management
TxDOT	Texas Department of Transportation

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HAZARD MITIGATION ACTION PLAN

EXECUTIVE SUMMARY

Anderson County and the Cities of Palestine, Elkhart and Frankston are dedicated to the protection of local citizens and their property, and to the improvement of the quality of life for all residents. Hazard mitigation is a key element in these efforts. This Hazard Mitigation Action Plan is the result of several years of study, data collection, analysis, and community debate. Experts and specialists have been consulted; the regional Council of Governments has assisted in Plan development, and the final draft of this Plan has been reviewed by elected officials and citizens from throughout the region. Final decisions about the implementation of action items identified in the Plan have been made by elected officials from Anderson County and from the Cities of Palestine, Elkhart and Frankston with public comments and suggestions solicited, encouraged, and accepted throughout the planning process.

The 2018 Anderson County Hazard Mitigation Action Plan covers Anderson County and the Cities of Palestine, Elkhart and Frankston. This Plan analyzes the risk posed to Anderson County and the Cities of Palestine, Elkhart and Frankston by all known natural hazards, and identifies mitigation actions to be taken to reduce risks associated with the following:

- Tornado
- Windstorm
- Hailstorm
- Lightning
- Severe Winter Storm
- Wildfire
- Drought
- Flood
- Dam-Levee Failure

This completed Plan and any updates will be posted on the ANDERSON County website: **http://co.anderson.tx.us/default.aspx?Anderson_County/Home** as well as on the City of Palestine website: **http://www.cityofpalestinetx.com/,** the City of Elkhart website: **http://www.thecityofelkhart.com/**, the City of Frankston website: **http://www.frankstontexas.com/** and on the East Texas Council of Governments website: **http://www.etcog.org**. Local jurisdictions and agencies will also use social media to inform the public of the revised Hazard Mitigation Plan, and invite comments and suggestions for future improvements.

The original Anderson County Hazard Mitigation Action Plan was approved by FEMA and was officially adopted by Anderson County and the Cities of Palestine, Elkhart and Frankston, effective on April 30, 2012.

Over the past five years, Anderson County and the Cities of Palestine, Elkhart and Frankston have accomplished the following hazard mitigation activities:

Anderson County

1. Anderson County has adopted Code Red emergency notification system, and uses it when needed to notify residents in an emergency. The Anderson County website home page **(http://co.anderson.tx.us/default.aspx?Anderson_County/Home)** includes a link for citizens to register their telephone numbers, to ensure prompt notification in times of emergency.

2. The Anderson County Emergency Management Office uses facebook to communicate with citizens, at this web address: **https://www.facebook.com/Anderson-County-Texas-Emergency-Management-Office-704414209589773/** The EMC also uses Twitter to distribute public notices.

3. Anderson County issues Burn Ban notices when conditions warrant; these notices are posted in a prominent position on the County website; burn bans are enforced by the Sheriff's Office and Constable. The Anderson County facebook page is used to inform citizens when burn bans are enacted or dismissed, give notice of

areas that are going to have a prescribed burn, and to inform citizens of areas to stay away from due to fires.

4. National Weather Service SKYWARN classes were held at the Anderson County Annex in Palestine, Texas on January 22, 2013; January 21, 2014; January 20, 2015; January 19, 2016; January 17, 2017, and January 17, 2018, sponsored by Anderson County Emergency Management.

5. NFIP participation continues; Anderson County participates in the National Flood Insurance Program.

City of Palestine

1. The City of Palestine has adopted Code Red emergency notification system, and uses it when needed, to notify residents in an emergency. The City's website home page **(http://www.cityofpalestinetx.com/)** includes a link for citizens to register their telephone numbers, to ensure prompt notification in times of emergency.

2. The City of Palestine has adopted the following building codes: 2012 International Building Code; 2012 International Energy Conservation Code; 2012 Existing Building Code; 2012 International Residential Code for One and Two-Family Dwellings; 2012 International Mechanical Code, as amended; 2012 International Plumbing Code; 2012 International Fuel Code; 2011 National Electrical Code. The City also uses code enforcement to require the mowing of weeds, to prevent the spread of fire. The current Code of Ordinances for the City of Palestine may be found at: **https://library.municode.com/tx/palestine/code_of_ordinances/toc.**

3. NFIP participation continues; the City of Palestine participates in the National Flood Insurance Program.

City of Elkhart

1. The City of Elkhart has adopted Code Red emergency notification system, and uses it when needed.

2. The City of Elkhart also uses its website to communicate with its citizens, at: **http://www.thecityofelkhart.com**.

3. The City of Elkhart applied for and received a FEMA Homeland Security grant in 2016, which enabled the City to purchase and install two warning sirens.

4. NFIP participation continues; the City of Elkhart participates in the National Flood Insurance Program.

5. The Elkhart Volunteer Fire Department communicates with the public via its faceook page: **https://www.facebook.com/ElkharttxVfd/**.

City of Frankston

1. The City of Frankston has adopted Code Red emergency notification system, and uses it when needed.

2. The City of Frankston also uses its website to communicate with its citizens, at: **http://www.frankstontexas.com**.

3. The Frankston Volunteer Fire Department communicates with the public via its faceook page: **https://www.facebook.com/frankstonvfd/**.

4. City of Frankston upgraded the first responder's ambulance.

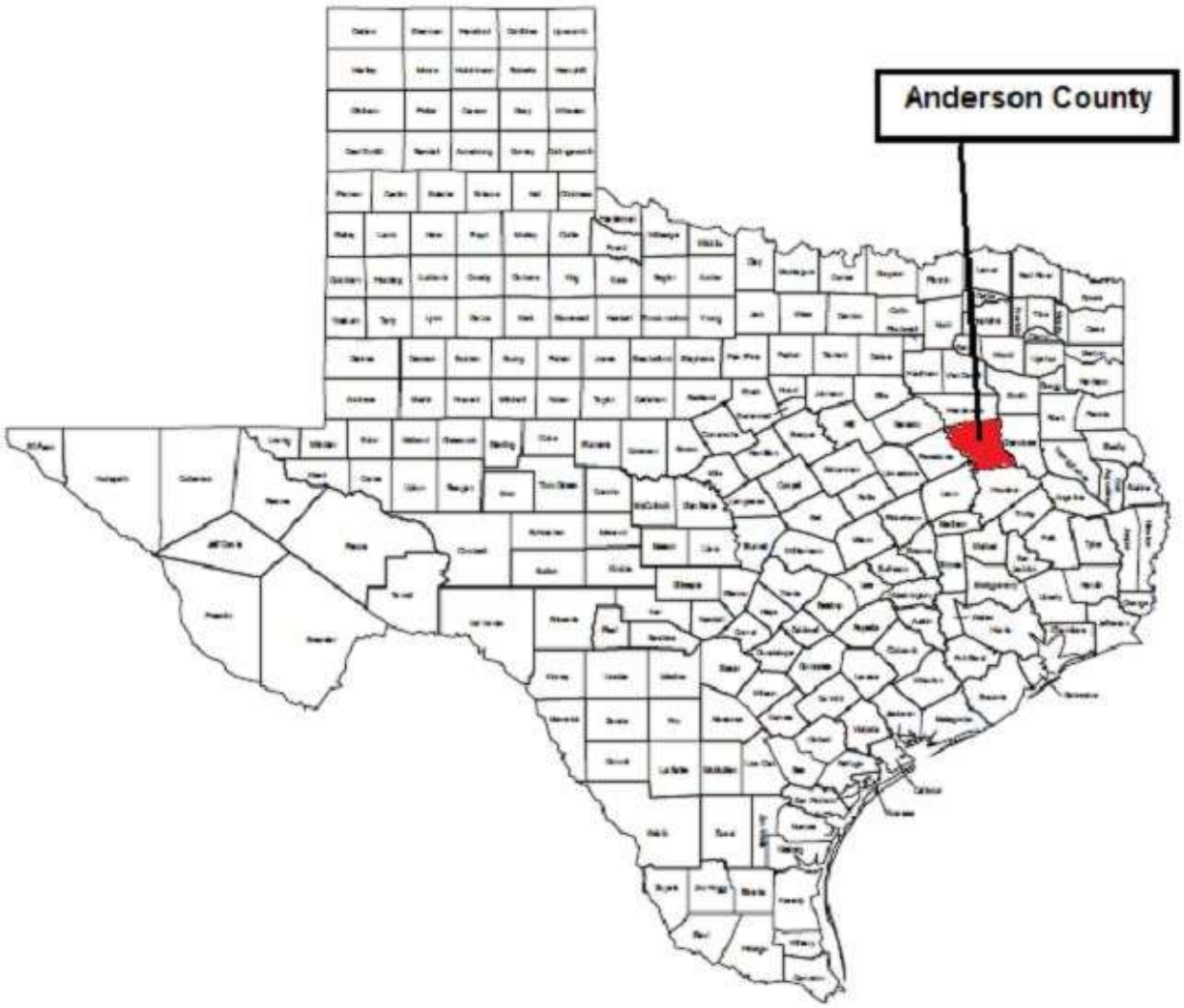
5. Frankston VFD received new bunker gear from a grant in 2016.

Hazard Mitigation Actions planned for the next five years are found on pages 191 through 200.

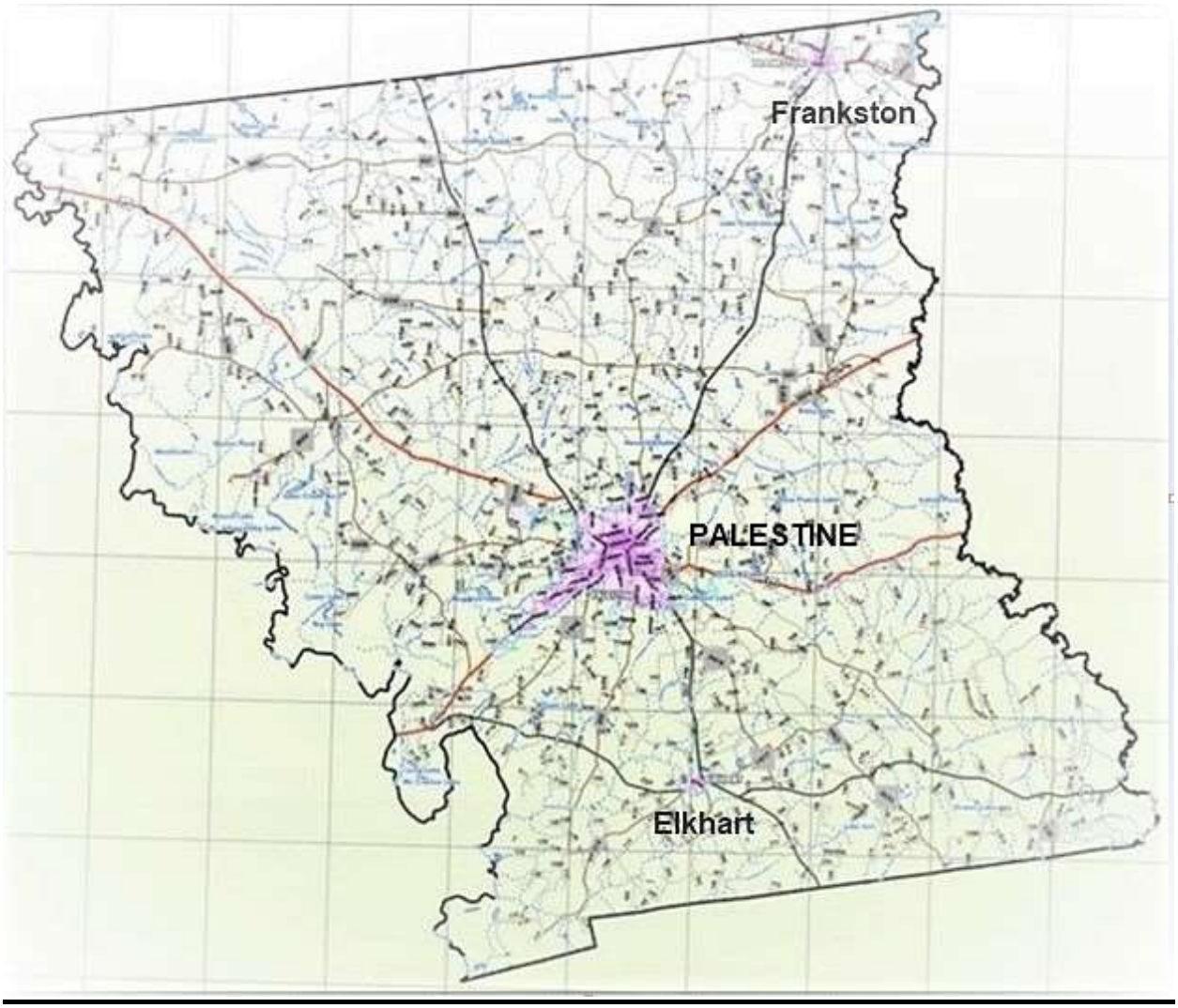
Tables showing the planned implementation schedule for these action items begin on page 201.

National Climatic Data Center weather history tables are found in Appendix I, beginning on page 242.

Locator Map of Anderson County



Map of Anderson County



2018 HAZARD MITIGATION ACTION PLAN

PLANNING PROCESS

Natural hazard 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.

Governing entities in Anderson County and the Cities of Palestine, Elkhart and Frankston cannot prevent natural hazard events, but can identify and implement mitigation measures to reduce damage and risk to human lives; to better protect the health, safety, and welfare of residents. This revised and updated Hazard Mitigation Action Plan is the result of countless hours of research, review, discussion and deliberation by many individuals throughout Anderson County and elsewhere.

The increasing public cost of disaster response requires emergency management professionals, elected officials, and the general public to seek ways to reduce the risk associated with all hazards affecting the jurisdictions where they live and work. The Hazard Mitigation Planning process resulted from a series of federal and state mandates designed to significantly reduce the impact of various hazards at local levels. Authority comes from the Robert T. Stafford Disaster Relief and Assistance Act (Public Law 93-288), as amended by the Disaster Mitigation Act of 2000. The requirements and procedures for State, Tribal and Local Mitigation Plans are found in the Code of Federal Regulations (CFR) at Title 44, Chapter 1, Part 201 (44 CFR Part 201). Additional guidance and updated regulations are provided by the FEMA Interim Final Rule dated October 31, 2007 (**http://www.fema.gov**).

Texas Executive Order RP-12 on April 3, 2002, established the Emergency Management Council, and designated the Division of Emergency Management to administer and supervise the provisions of the Act. This State directive was later modified by Texas Executive Order RP-32, issued on January 28, 2004. By these Executive Orders, the

Governor designated the Mayor of each municipality and the County Judge of each county as Emergency Management Directors for their respective political subdivisions, and authorized each political subdivision to establish inter-jurisdictional agencies by intergovernmental agreement as needed.

The Anderson County Hazard Mitigation Action Plan covers Anderson County and the Cities of Palestine, Elkhart and Frankston**.** Anderson County joined with the East Texas Council of Governments (ETCOG) to produce the initial Hazard Mitigation Action Plan for Anderson County and the Cities of Palestine, Elkhart and Frankston, which was approved by FEMA and formally adopted by all jurisdictions, effective April 30, 2012. Throughout the planning process, efforts were made to solicit input from the general public; from neighboring community leaders; from first responders; from non-profit organizations and volunteer groups such as the Red Cross, Salvation Army, and others; from local industry professionals; and from all levels of government within Anderson County and the Cities of Palestine, Elkhart and Frankston.

Copies of the current Plan are available at the Anderson County Courthouse, Palestine City Hall, Elkhart City Hall, Frankston City Hall, Anderson County Emergency Management office, and in the Anderson County Library. Throughout the revision process, a notice has been posted on the Anderson County website inviting public comment and suggestions.

Those who actively participated in the review and updating of the 2012 HMAP and preparation of this revised document include the Anderson County Judge, Anderson County Commissioners, the Anderson County Emergency Management Coordinator and Assistant; the Emergency Management Coordinator of the City of Palestine; the Mayor of the City of Elkhart, and the Mayor of the City of Frankston. Although the public was invited to attend two public meetings, few people participated.

The revision process began in February of 2015, when Anderson County applied for a FEMA grant to assist in funding the revision project. This grant, awarded in May of 2016, enabled Anderson County and the Cities of Palestine, Elkhart and Frankston to hire a contractor to prepare the revised document.

Existing plans, studies, reports and information were gathered from all available sources to assist in this Plan revision, including, but not limited to: census data; data on the current value of homes and other buildings from the Anderson County Tax Assessor's office; the 46 FEMA floodplain maps for the County and the 27 LOMAs issued regarding them; repetitive flood loss data from the FEMA regional office; definitions and other hazard information from the 2013 Texas State Hazard Mitigation Plan; maps, charts and tables from the 2013 CHAMPS report for Anderson County; wildfire data from the Texas Forest Service; fire call data from the Palestine Fire Department and from the 13 Volunteer Fire Departments in Anderson County; weather data from the National Climatic Data Service; list of county burn bans issued from the County Judge's Office; City of Palestine building codes and ordinances, from the City website; existing emergency management plans and annexes, and the expiring Anderson County Hazard Mitigation Action Plan, from the EMC's office.

Public meetings were held on April 26, 2017, to discuss the revision process, including risk assessment for newly-considered hazards, mitigation actions completed over the past five years, and possible mitigation actions to be done over the next five years; and on February 12, 2018, to review the revised document and discuss any remaining issues. This document is the result.

Community Profile

Anderson County is located in East Texas between the Trinity and the Neches rivers. Palestine, the county's largest city and its county seat, is 108 miles southeast of Dallas and 153 miles north of Houston. The City of Frankston is in the northeast corner of Anderson County, near the Henderson County border, while Elkhart is in south-central Anderson County. U.S. Highways 287, 79, and 84 provide the major transportation routes through the county. The county's center lies at 95°36' west longitude and 31°47' north latitude. Anderson County has a total area of 1,077 square miles or 689,280 acres, which includes 15 square miles (9,600 acres) of water. (Source: *Handbook of Texas Online*, Georgia Kemp Caraway, "Anderson County," last accessed 1/4/2018, **http://www.tshaonline.org/handbook/online/articles/hca01**.)

The Gus Engeling Wildlife Management Area (GEWMA) covers 10,958 acres in the northwestern part of the county, 21 miles northwest of Palestine. Its primary purpose is to function as a wildlife research and demonstration area for the Post Oak Savannah Ecoregion. This area includes 2,000 acres of hardwood bottomland floodplain and almost 500 acres of natural watercourses, 350 acres of wetlands: marshes and swamps and nearly 300 acres of sphagnum moss bogs. It is managed by the Texas Parks and Wildlife Department. (Source: **https://tpwd.texas.gov/huntwild/hunt/wma/find_a_wma/list/?id=10** last accessed 1/5/18.)

Rural Anderson County is home to Cayuga Independent School District (**https://www.cayugaisd.com**), located in the northwest corner of the county, with 570 students in grades PK - 12; Neches ISD (**http://www.nechesisd.com**), located in the eastern central portion of the county, east of Palestine, with 355 students in grades PK-12; Slocum ISD (**http://www.slocumisd.org/home**) located on Texas Highway 294 about 7.6 miles east of Elkhart, with over 400 students in grades PK-12, and the Westwood ISD (**http://www.westwoodisd.net**), on the western edge of the City of Palestine, which serves approximately 1,700 students in grades K-12. The map on the next page shows the geographic boundaries of all school districts within Anderson County, including Palestine ISD, Elkhart ISD and Franklin ISD.

The City of Palestine, the county seat of Anderson County, is at the intersection of U.S. highways 79 and 287, at the center of the county, some 108 miles southeast of Dallas and 150 miles north of Houston. Palestine has a council-manager government. It is the site of the Columbia Scientific Balloon Flight Facility, an operation of the National Aeronautics and Space Administration (**https://www.nsbf.nasa.gov**). This installation launches large (400 ft. diameter), unmanned, high altitude (120,000 ft.), research

balloons, tracks them, and recovers the scientific experiments suspended beneath them, for NASA centers and Universities from all over the world.

Palestine also boasts 23 historical sites on the National Register of Historic Places (**https://www.nps.gov/nr**), and each spring the city is host to several thousand people who visit the beautiful, scenic Texas Dogwood Trails (**https://www.texasdogwoodtrails.com**) over the last two weekends in March and the first weekend in April. Palestine is the western terminus of the Texas State Railroad, now a state park, which operates steam excursion trains between Palestine and Rusk (**http://texasstaterailroad.net**). Another tourist attraction is Eilenberger's Bakery, established in 1898, which ships cakes throughout the world (**https://www.eilenbergerbakery.com**). Palestine is home to the *Herald-Press*, a daily newspaper founded around 1900 (**http://www.palestineherald.com/**).

City parks include the 700-acre Palestine Community Forest, the 200-acre Davey Dogwood Park, and more (**http://www.visitpalestine.com/default.aspx?name=visitor.outdoors**). Lake Palestine, a reservoir of 25,500 surface acres on the Neches River, provides water to the city. Lake Palestine and Blackburn Crossing Dam are on the Neches River four miles east of Frankston, in the northeastern corner of Anderson County, with most of the surface area of the lake located in southeastern Henderson County. The dam is owned and operated by the Upper Neches River Authority for industrial, municipal, and recreational purposes (**http://www.unrmwa.org/index.html**). Construction of the original dam was started in 1960 and was completed on June 13, 1962; an enlargement project was begun in 1969 and completed on March 3, 1972. Lake Palestine is formed by an earthfill dam some 5,720 feet long and is used for water conservation, recreation, and wildlife preservation. The crest of the spillway is 345 feet above mean sea level, and the conservation storage capacity is 411,290 acre-feet with a surface area of 25,560 acres. The drainage area above the dam is about 839 square miles. Rocky Point (the Downstream Diversion Dam and Reservoir) is located 27 river miles downstream from Lake Palestine. Lake Palestine and the Rocky Point Impoundment are operated as a system, using interim flows supplemented by releases from Lake Palestine to satisfy contractual and permit water requirements. The UNRMWA is governed by a Board of three Directors, each from the District and appointed by the Governor for a 6-year term. The Authority is funded primarily through revenue from water

supply contracts. On July 10, 2001, Lake Palestine became the absolute property of the Upper Neches River Municipal Water Authority, and the Authority became debt free.

With almost 3,500 students, the Palestine Independent School District (**http://www.palestineschools.org**) is the largest school district in Anderson County. The district includes: Palestine High School (grades 9-12); Palestine Junior High (grades 7-8); A. M. Story Elementary (grades 4-6); Southside Primary (grades 2-3); and Northside Early Childhood Center (pre-K and first grade.) Innovation Academy, a charter school of The University of Texas at Tyler, began serving the City of Palestine in 2012 with grades 3-6; grades 7-12 were scheduled to be added at the rate of one per year. The website (**http://www.uttia.org/schools/palestine/**) indicates that the school currently (2017-18 school year) serves grades 2-11.

Trinity Valley Community College operates TVCC-Palestine (**https://www.tvcc.edu/palestine/?d=274**) just north of the city limits at the intersection of US 287 and State Highway 19. In addition to offering academic transfer courses, the Palestine campus offers vocational-technical programs in vocational nursing, cosmetology, mid-management, computer science, criminal justice, business and office technology, fire science, legal assistant, emergency medical technician and paramedic programs and also trains correctional officers for the Texas Department of Criminal Justice. Continuing education and adult education courses are also offered.

The University of Texas at Tyler (**https://www.uttyler.edu/palestine**) also operates a campus in the City of Palestine. A new $9.6 million 50-acre campus opened in 2010. The UT Tyler Palestine Campus currently offers courses in Nursing, Business, Education, Health and Kinesiology, and History, including a degree program leading to a Bachelor of Science in Nursing. A Master of Science in Nursing may be obtained through online work.

(Sources: *Handbook of Texas Online*, Lester Hamilton, "Palestine, TX (Anderson County)," accessed January 04, 2018, **http://www.tshaonline.org/handbook/online/articles/ rol63**; *Handbook of Texas Online*, Seth D. Breeding, "Lake Palestine," accessed January 05, 2018, **http://www.tshaonline.org/handbook/online/articles/hep01**; and **https://en.wikipedia.org/ wiki/Palestine,_Texas**) as well as the websites listed within the copy above.)

The City of Elkhart is located at the intersection of State Highway 294 and U.S. Highway 287, eleven miles south of Palestine in southern Anderson County. It was founded in 1851, when members of a Pilgrim community moved to land around Boxy Creek to take advantage of the new post office and a newly established railroad. A nearby spa served many socialites with its excellent mineral waters. The International-Great Northern Railroad ran both passenger and freight trains through Elkhart. The freight cars were loaded with tomatoes, cotton, and pulpwood from the local sawmills. The depot in Elkhart was a thriving center for both trains and trucks.

Today, the City of Elkhart is home to over 1,300 people and a thriving independent school district (**http://www.elkhartisd.org/**) with 1,233 students (from the city and surrounding rural areas) in grades PK-12. The City's website states: "Our city is defined less by boundaries on a map than by the sense of shared values our residents hold dear. We take pride in maintaining a wholesome lifestyle, rich in cultural history, along with a deep commitment to the preservation of our environment and a progressive approach to local business." (Sources: Handbook of Texas Online, Dorothy K. Bridges, "Elkhart, TX," accessed January 04, 2018, **http://www.tshaonline.org/handbook/online/articles/hje09**; the City of Elkhart's official website: **http://www.thecityofelkhart.com**, and the ISD website listed within the copy above.)

The City of Frankston is located at the intersection of U.S. Highway 175 and State Highway 155, near Lake Palestine and within a twenty-five-mile radius of Tyler, Jacksonville, Palestine, and Athens in far northeastern Anderson County. The town was founded when the Texas and New Orleans Railroad was built through the area. Most of its first residents moved there from Kickapoo, two miles to the southeast on an old Indian battleground site. The community was founded in January 1902. The town and post office, originally called Ayers, were renamed after Miss Frankie Miller, who donated land for the downtown city park. Lumber was the first industry of Frankston, but cotton was the basis of the economy around 1925; other crops such as peaches and tomatoes were raised extensively well into the early 1950s. Most of the community's businesses were on the town square or a few blocks away. The railroad station, south of the square, was a center of town activity. Frankston had three hotels, a variety of stores, several gas stations and

cafes, a basket factory, a Masonic hall, a livery stable, and a movie house. By the 1980s the town was incorporated with the mayor-council form of city government. Businesses and resources then included assorted stores and cafes, several gas stations, two automobile dealerships, the Fairway oilfield, the Frankston Box Factory, a bank, a savings and loan association, a rest home, a newspaper, and a funeral home. The town also had a doctor in a well-equipped medical clinic, a dentist, and several churches. Most of the economy centered around ranching, fishing and tourist attractions. The old rail depot was converted into the Depot Library, which hosts more than 7,000 volumes, tape cassettes, and other materials. Ellis Mercantile, a tourist attraction, provides a "trip into the past."

Today, Frankston is home to more than 1,200 people, with 175 businesses, and its Independent School District (**http://www.frankstonisd.net/**) boasts a band, a high school fishing team and a robotics team, in addition to an active Future Farmers of America group, and a full complement of athletic teams (football, basketball, baseball, softball, cross-country, track, golf, tennis, and power lifting). The City of Frankston covers 2.47 square miles. (Sources: Handbook of Texas Online, Jack Dempsey, "Frankston, TX," accessed January 04, 2018, **http://www.tshaonline.org/handbook/online/articles/hjf07**; City of Frankston's official website: **http://www. frankstontexas.com**, and the ISD website listed within the copy above.)

Demographics

The table below shows actual population growth from 1990 to 2010, as well as the estimated population as of July 1, 2016, per the U.S. Census Bureau website, which was last accessed on January 8, 2018: **(**https://www.census.gov/quickfacts/fact/table/palestinecitytexas,andersoncountytexas,TX/PST045216).

Population Changes

	1990	2000	2010	2016 estimate	Rate of Change (2000 – 2010)
Elkhart	1,076	1,251	1,371	1,321	9.59%
Frankston	1,127	1,205	1,229	1,203	1.99%
Palestine	18,004	17,616	18,712	18,383	6.22%
Anderson County	48,024	55,109	58,458	57,734	6.08%
State of Texas	16,986,510	20,851,820	25,145,561	27,862,596	20.59%

Household Size, Population Stability and Language

	Number of Households	Persons per household	Same residence 1 year ago	Language other than English spoken at home
Elkhart	469	2.9	N/A	4.1%
Frankston	956	2.2	N/A	0.7%
Palestine	6,499	2.78	86.3%	24.5%
Anderson County	16,572	2.68	84.2%	15.9%
State of Texas	9,149,196	2.84	83.3%	35%

Source: United States Census Bureau population estimates, July 1, 2016 (V2016) ***https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml****); last accessed 1/8/18.*

Age Distribution as a percentage of total population *(2010 census data)*

Age group	Elkhart population %	Frankston population %	Palestine population %	Anderson County population %	Texas population %
Under the age of 5 years	6.5%	6.8%	8.8%	5.4%	7.7%
Under the age of 18 years	31.1%	24.2%	28.4%	19.6%	27.3%
Ages 18 to 64 years	44.1%	46.6%	58.6%	62.4%	54.7%
Ages 65 years and over	**18.3%**	**22.4%**	**14.2%**	**12.6%**	10.3%

Source for Palestine, Anderson County, and the State of Texas data: **https://www.census.gov/quickfacts/fact/table/palestinecitytexas,andersoncountytexas,TX/PST045217** Source for Elkhart and Frankston data: **https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml** last accessed 1/8/18.

Anderson County and its cities have signigicantly more older citizens than the state average, many of whom are retirees on a fixed income. (*Source:* **http://www.city-data.com/county/Anderson_County-TX.html**; last accessed 1/8/18).

According to the 2010 census, 39.7% of all Anderson County households include at least one person who is over the age of 60, including 2,437 seniors living alone; 30% of all Anderson County households include at least one person who is over the age of 65, including 1,989 seniors living alone; and 14.3% of all Anderson County households include at least one person who is over the age of 75, including 1,134 seniors living alone. (Source: Texas Demographic Center: **http://osd.texas.gov/Data/Decennial/2010**, last accessed 1/8/18.)

During emergencies, older residents are more likely to need transportation assistance, particularly elders who live alone, and those with serious health issues. Nursing home residents are more likely to require specialized transportation assistance.

Racial Distribution

Racial group	Elkhart population %	Frankston population %	Palestine population %	Anderson County population %	Texas population %
White	79.2%	74.2%	48.6%	59.4%	45.3%
Black	9.3%	20.7%	23.9%	21.5%	11.8%
Latino	8.2%	1.8%	24.1%	17.5%	37.6%
Native American	0.7%	1.0%	0.5%	0.7%	0.7%
Asian	0.2%	0.6%	1%	0.9%	3.8%
other	2.4%	1.7%	1.9%	0.0%	0.8%

Source for Palestine, Anderson County, and the State of Texas data: **https://www.census.gov/quickfacts/fact/table/palestinecitytexas,andersoncountytexas,TX/PST045217** Source for Elkhart and Frankston data: **https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml** last accessed 1/8/18.

Special Considerations

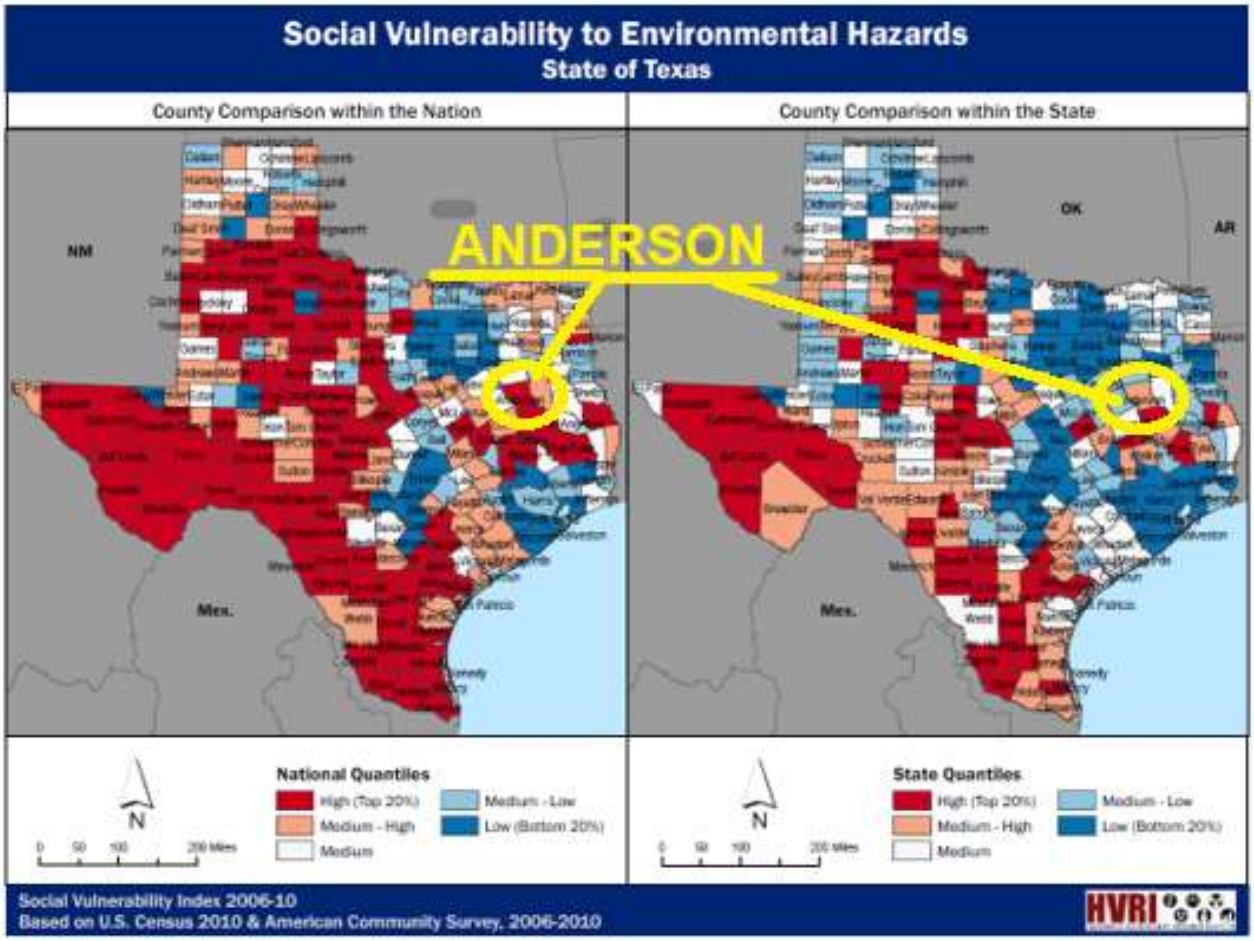
The 2010 census reported that 7.8% of the adult population of Anderson County, under the age of 65, suffers from some disability. For the City of Palestine, the figure was 7.1%; this is less than the state average of 8.2%. Detailed disability figures are not available for the smaller towns, but are expected to be comparable to those stated.

According to the U.S. Census Bureau, the median income for a household in Anderson County from 2012 – 2016 (in 2016 dollars) was $43,561; in the City of Palestine it was $38,557; in Elkhart the median household income was $31,753; and in Frankston it was

$42,204. The median per capita income (in 2016 dollars) was $18,087 in the County, $21,115 in Palestine, $17,951 in Elkhart and $26,253 in Frankston. About 20.5% of rural Anderson County residents fell below the poverty line, along with 21.9% of Palestine residents, and 21.1% of Elkhart residents, compared to the State average of 15.6%. According to the "Bearfacts Per Capita Income Report" for Anderson County, produced on November 16, 2017, by the U.S. Department of Commerce Bureau of Economic Analysis: "In 2016, Anderson [County as a whole, including all its cities and towns] had a per capita personal income (PCPI) of $32,978. This PCPI ranked 217th in the state [among 254 counties] and was 71% of the state average ($46,274) and 67% of the national average ($49,246)." **The Cities of Palestine and Elkhart, as well as rural Anderson County, are designated for special consideration because of economically disadvantaged population.**

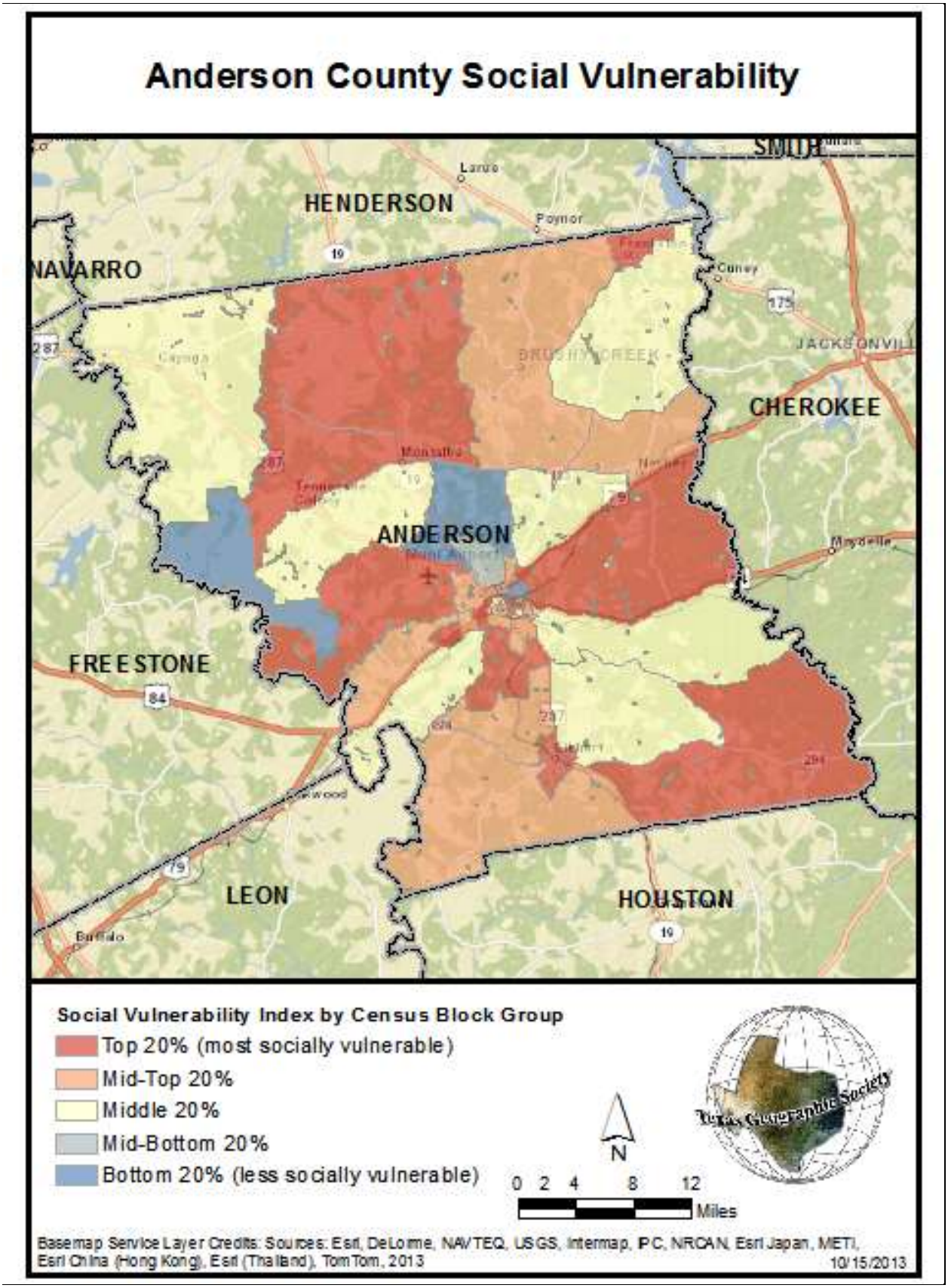
Social Vulnerability is estimated through an indexed combination of social, economic, demographic, and housing characteristics that influence a community's ability to respond to, cope with, recover from, and adapt to environmental hazards. The highest-rated counties are the most socially vulnerable (the least able to respond, cope, recover and adapt to environmental hazards).

The maps on the following page display the social vulnerability index for each county in Texas based on the 2010 Census and surveys conducted in the 2006-2010 timeframe. The map on the left compares Texas counties with all other U.S. counties. (Anderson County is shown in red, indicating top 20% in the U.S. for social vulnerability.) The map on the right compares Texas counties to each other. (Anderson County is shown in orange, indicating above-average social vulnerability, among the top 40% in the state.) Each of the five classifications contains an equal number of counties, or 20% of the total number of counties.



Source: This map was produced from data collected from several national sources, but primarily the U.S. Census Bureau (2000 census data). This data was synthesized and distributed by the Hazards and Vulnerability Research Institute at the University of South Carolina, and was provided to the Anderson County HMAP Team by the Texas Geographic Society, as part of the November 15, 2013 CHAMPS report.

The map on the next page shows social vulnerability to natural hazards within Anderson County only, by census block. *Source: This map was produced from data collected from several national sources, but primarily the U.S. Census Bureau (2000). This data was synthesized and distributed by the Hazards and Vulnerability Research Institute at the University of South Carolina, and was provided to the Anderson County HMAP Team by the Texas Geographic Society, as part of the November 15, 2013 CHAMPS report.*


Anderson County Social Vulnerability
HENDERSON
NAVARRO
CHEROKEE
ANDERSON
FREESTONE
LEON
HOUSTON
Larue
Poynor
Cuney
Malakoff
Mabelle
Buffalo
Social Vulnerability Index by Census Block Group
Top 20% (most socially vulnerable)
Mid-Top 20%
Middle 20%
Mid-Bottom 20%
Bottom 20% (less socially vulnerable)
N
0 2 4 8 12
Miles
Basemap Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013
10/15/2013

Natural Environment

Climate

The climate of Anderson County is subtropical. Temperatures range from an average minimum of 37° F in January to an average maximum of 93° in July. Rainfall averages about 46.6 inches annually, and the growing season averages 264 days. Average annual snowfall is one inch. The number of days with any measurable precipitation is 60. This pleasant climate makes Anderson County a desirable recreational and retirement area.

Topography, Soils, Vegetation, Wildlife, Mineral Resources

Anderson County is partly in the Texas Claypan area and partly in the East Texas Timberlands of the Southern Coastal Plains. Almost half of the soil is Fuquay-Kirvin-Darco, deep, sandy, and loamy. The terrain is nearly level to moderately steep in the uplands. The 66,000 acres in the western Claypan area are used mainly for pasture. The Timberlands are used mostly for pasture and woodland. Many varieties of timber grow abundantly, including red oak, post oak, white oak, pecan, walnut, hickory, elm, ash, and pine. The soil also supports a wide variety of fruits, vegetables, and nuts.

The terrain is hilly and slopes to the Trinity and Neches rivers, with an elevation of between 198 and 624 feet above sea level. The entire eastern area of the county is bordered by the Neches and is drained by Hurricane Creek, Lone Creek, and Brushy Creek. The western area is bordered by the Trinity River and is drained by Massey Lake, Mansion Creek, and Keechie Creek. Mineral resources include oil and gas and iron ore.

Economy

Between 1880 and 1940 Anderson County was predominantly agricultural. Corn, cotton, sweet potatoes, hay, and, by the 1920s, peanuts were the most important crops. The timber industry gained importance in the 1930s. Between 1940 and 1982 the number of farms dropped by 70%, from 4,422 to 1,356. Crops that remained important in the 1980s included peanuts, sweet potatoes, hay, and fruits and nuts.

In 1881 traces of oil were found, and in 1926 the Boggy Creek Dome was discovered. In January 1928 the first successful oil producer in Anderson County, known as the Humble-Lizzie Smith No. 1, was brought in. The discovery brought prosperity, and meant that the Great Depression had a less severe impact than elsewhere.

Manufacturing of products such as glass containers, garments, automotive parts, metal and wood products, aluminum, and furniture played an important role in the economy of the county. Manufacturing-related and retail employment rose from 2,006 in 1965 to 3,663 in 1980, accounting for over 55% of total employment. Oil and natural gas discoveries, valuable timber regions, rich ranchlands for grazing cattle, iron ore deposits, and the conversion to peanut production kept the price of farm and ranch land steadily increasing. Three units of the Texas Department of Corrections were located at Tennessee Colony in the northwestern part of the county. In the early 1980s cattle were grazed on 200,000 acres of open land and about 127,000 acres of forest land; commercial timber grew on 200,000 acres; cultivated land comprised 86,000 acres, of which 23,000 was in row crops and the rest was either fallow or in close grown crops or hay. Urban development covered 28,000 acres. Anderson County then ranked twenty-second in production of commercial timber among the forty-three counties in the East Texas pine-hardwood region known as the Piney Woods.

Anderson County experienced growth in oil and gas production during the 1970s and 1980s, and these continued to be significant components of the local economy into the 1990s. Other sectors, including transportation, retail and wholesale trade, finance, and the service industries, also grew. Meanwhile the area's population steadily increased.

Agriculture continues to be a significant component of the area's economy, with manufacturing and distribution businesses and tourism also contributing. In 2002 the county had 1,735 farms and ranches covering 365,182 acres, 37% of which were devoted to crops, 35% to pasture, and 24% to woodlands. In that year farmers and ranchers in the area earned $23,063,000; livestock sales accounted for $16,457,000 of the total. Cattle, hay, truck vegetables, melons, pecans, and peaches were the chief agricultural products.

The county attracts numerous visitors, who enjoy the beautiful Dogwood Trails in the spring, balloon launchings at the United States government's Scientific Balloon Base, picturesque train rides to Rusk on the Texas State Railroad, the Engeling Wildlife Management Area, the 900-acre Palestine Community Forest, and other historic sites and museums.

The largest employer in Anderson County is the Texas Department of Criminal Justice, which employs more than 3,900 people. Another 1,600 residents work at two Wal-Mart distribution centers. Other significant employers include a thriving medical and healthcare sector that tends to the large population of retirees. Industries providing employment include agriculture, forestry, fishing and hunting, mining (all of which together constitute 22.2% of the work force); construction (16.4%); professional, scientific, management, administrative, and waste management services (14.7%); finance, insurance, real estate, and rental and leasing (14.3%); educational, health and social services (11.6%).

Sources: *Handbook of Texas Online*, Georgia Kemp Caraway, "Anderson County," accessed January 04, 2018, **http://www.tshaonline.org/handbook/online/articles/hca01**; also **http://www.bestplaces.net/climate/county/texas/anderson; http://www.city-data.com/county/Anderson_County-TX.html#ixzz53dAMOHkv** and **https://en.Wikipedia.org/wiki/Palestine,_Texas**.

According to **www.city-data/com/county/Anderson_County-TX.html** (last accessed 1/8/17) Anderson County has the following housing units, by structure type:

Single-family residence, detached: 14,414

Single unit, attached: 69

Duplex: 154

3 or 4 units: 552

5 to 9 units: 370

10 to 19 units: 394

20 to 49 units: 122

50 or more units: 188

Mobile homes: 4,330

Boats, RVs, vans, etc.: 65

Between 2010 and 2014, the following building permits were issued in Anderson County:

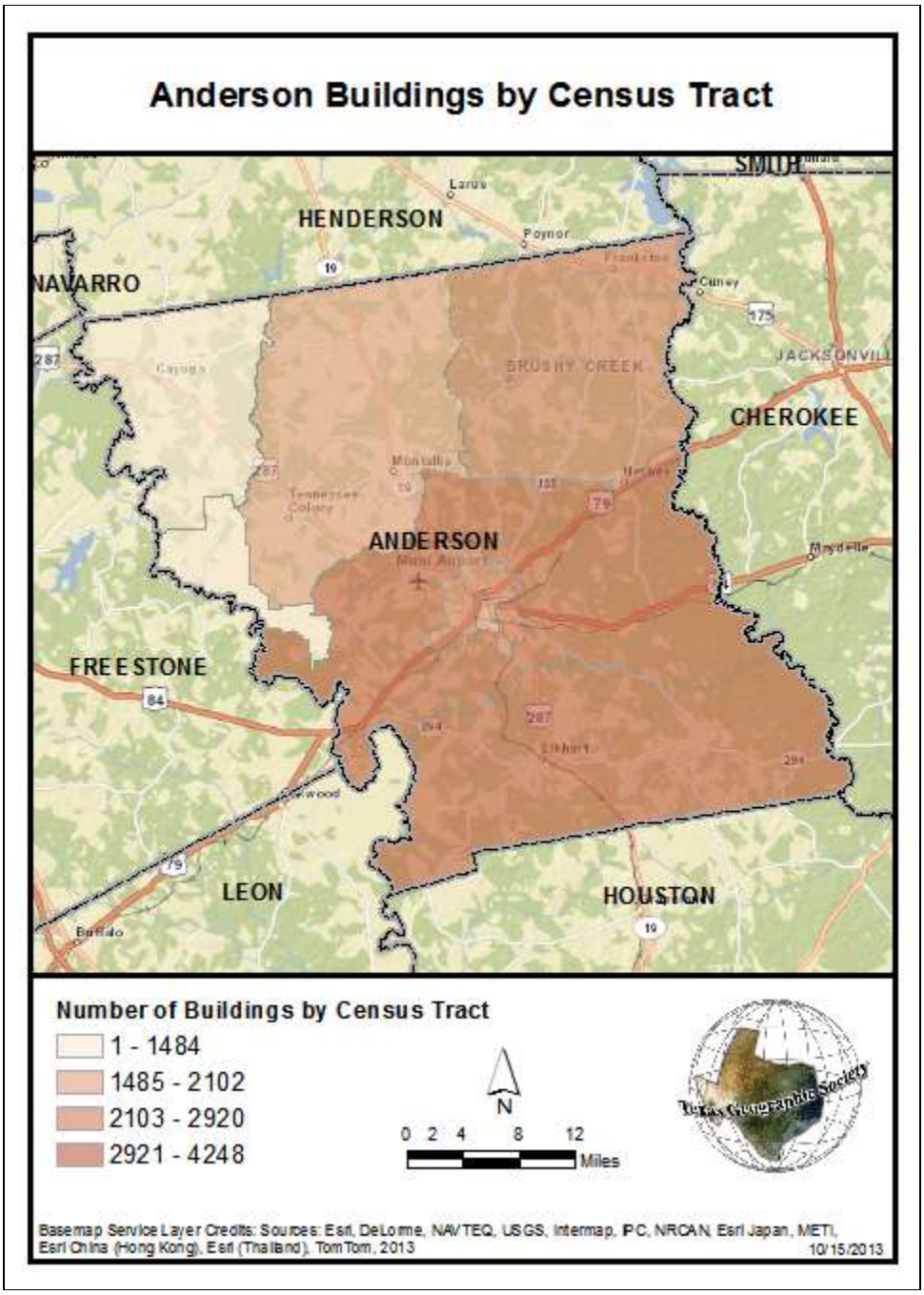
2010: 16 buildings, average cost: $176,900

2011: 13 buildings, average cost: $178,600

2012: 3 buildings, average cost: $163,200

2013: 4 buildings, average cost: $116,000

2014: 2 buildings, average cost: $116,200



Source: *This table was produced from data collected from several sources, primarily the U.S. Census Bureau (2000) and Dun & Bradstreet (2002), and applying RS Means (2006) building replacement values for typical square footage in each occupancy type. It was provided by the Texas Geographic Society, as part of the 2013 CHAMPS report.*

HAZARD IDENTIFICATION AND RISK ASSESSMENT

Identification of Hazards

Understanding possible hazards and their potential consequences is the first step toward effective reduction of community risks. The committee has identified eight specific natural hazards to be mitigated by Anderson County, seven which are to be mitigated by the City of Palestine, seven to be mitigated by the City of Elkhart and seven to be mitigated by the City of Frankston.

The Anderson County Hazard Mitigation Planning Committee identified these hazards through an extensive process that used research from the National Climatic Data Center; the State of Texas Hazard Mitigation Plan; the 2013 CHAMPS report, prepared by the Texas Geographic Society; the Multi-hazard Identification and Risk Assessment: A Cornerstone of the National Mitigation Strategy; other materials obtained at TDEM training on Hazard Mitigation Planning; Planning Committee member input; and public input. All fifteen (15) of the hazards defined in the State of Texas Hazard Mitigation Plan 2013 update were considered for inclusion into this Plan. However, some are not included in this plan as targets for mitigation by the subject jurisdictions, for the reasons stated below.

All 15 of the hazards defined in the State of Texas Hazard Mitigation Plan 2013 update were considered by the Hazard Mitigation Planning Committee. Those hazards are:

1. **Flood,** which is an overflow or accumulation of an expanse of water that submerges land. Flooding may result from the volume of water within a river, creek or lake, which overflows or breaks dams or levees, with the result that some of the water escapes its normal boundaries. A **flash flood** is rapid flooding of low-lying areas, usually caused by heavy rain in a relatively short period of time. For the purposes of this plan, flash floods are considered together with flood as a single hazard.

2. **Hurricane / Tropical Storm,** which are areas of disturbed weather in the tropics with closed isobars and a distinct rotary circulation. Hurricanes and tropical storms bring heavy rain, localized flooding, high tides, localized coastal erosion, and wind damage. To qualify as a hurricane, wind speed must be 74 mph or more. Hurricanes are classified into categories based on wind speed and the potential damage they cause. **Because the subject jurisdictions are more than 250 miles from the Texas Gulf Coast, hurricanes and tropical storms are not a hazard to be mitigated in this Plan.**

3. **Wildfire,** which is any uncontrolled fire that occurs in the countryside or a wilderness area. Reflecting the type of vegetation or fuel, other names such as brush fire, bushfire, forest fire, grass fire, and wildland fire may be used to describe the same phenomenon. A wildfire differs from other fires by its extensive size, the speed at which it can spread out from its original source, and its ability to change direction unexpectedly and to jump gaps, such as roads, rivers and fire breaks.

4. **Tornado,** which is a localized and violently destructive rotating windstorm occurring over land, characterized by a funnel-shaped cloud extending toward the ground.

5. **Drought**, which is an extended period of months when a region notes a deficiency in its water supply. Generally, this occurs when a region receives consistently below average precipitation. It can have a substantial impact on the ecosystem and agriculture, and may cause severe water shortages, as well as higher fire danger.

6. **Coastal Erosion,** which is a hydrologic hazard defined as the wearing away of land and loss of beach, shoreline, or dune material because of natural coastal processes or manmade influences. **Because the subject jurisdictions are more than 250 miles from the Texas Gulf Coast, coastal erosion is not a hazard to be mitigated in this Plan.**

7. **Dam or Levee failure,** which is defined as the sudden, uncontrolled release of water from a body of water that was previously contained by a dam or levee. Such events are comparatively rare, but can cause immense damage and loss of life when they occur, if people or structures are in the release path.

8. **Earthquake,** which is the motion or trembling of the ground produced by a sudden displacement of rock in the Earth's crust. **Because no earthquake has been reported in Anderson County history, and because the subject jurisdictions are not located in an earthquake fault zone, earthquake is not expected to create problems in any of the jurisdictions within the next five years; therefore, earthquake is not a hazard to be mitigated in this Plan.**

9. **Expansive Soil,** which includes several types of clay, particularly bentonite, which are especially prone to shrinking and swelling. Areas where these clays are known to be present are especially likely to have damage due to expansive soil. This can disrupt supply lines (roads, power lines, railways and bridges) and damage structures. **Because expansive soil has not been reported in any of the subject jurisdictions and is not expected to create problems in any of the jurisdictions within the next five years, expansive soil is not a hazard to be mitigated in this Plan.**

10. **Extreme Heat,** which is defined as "temperatures that are 10° or more above the normal average high temperature." The dangerous effects of extreme heat are compounded by the addition of high humidity. Extreme heat is dangerous because heat stroke and dehydration may occur when people work outdoors in hot, humid conditions. Between 1950 and 2017, the National Weather Service received six reports of unusual heat in Anderson County. "Excessive heat" was reported to the NCDC only once, in August of 2011, which was the worst drought year on record, across much of Texas. The other five reports of "heat" occurred in July 1998, August 1999, and July through September of 2000. No "extreme heat" or "excessive heat" has been reported in Anderson County or any of its cities since 2011. No deaths, injuries or damages due to extreme heat have been reported at any time. **Because**

extreme heat has not been reported in any of the subject jurisdictions over the past six years and is not expected to create problems in any of the jurisdictions within the next five years, extreme heat is not a hazard to be mitigated in this Plan.

11. **Hailstorm,** which is defined as a storm which brings frozen precipitation in the form of small balls or lumps, usually consisting of concentric layers of clear ice and compact snow. Texas officials estimate that up to 40 percent of all homeowners' insurance claims in the state result from hail damage. The northern half of the state, where the subject jurisdictions are located, experiences more frequent severe hailstorms than other areas of Texas.

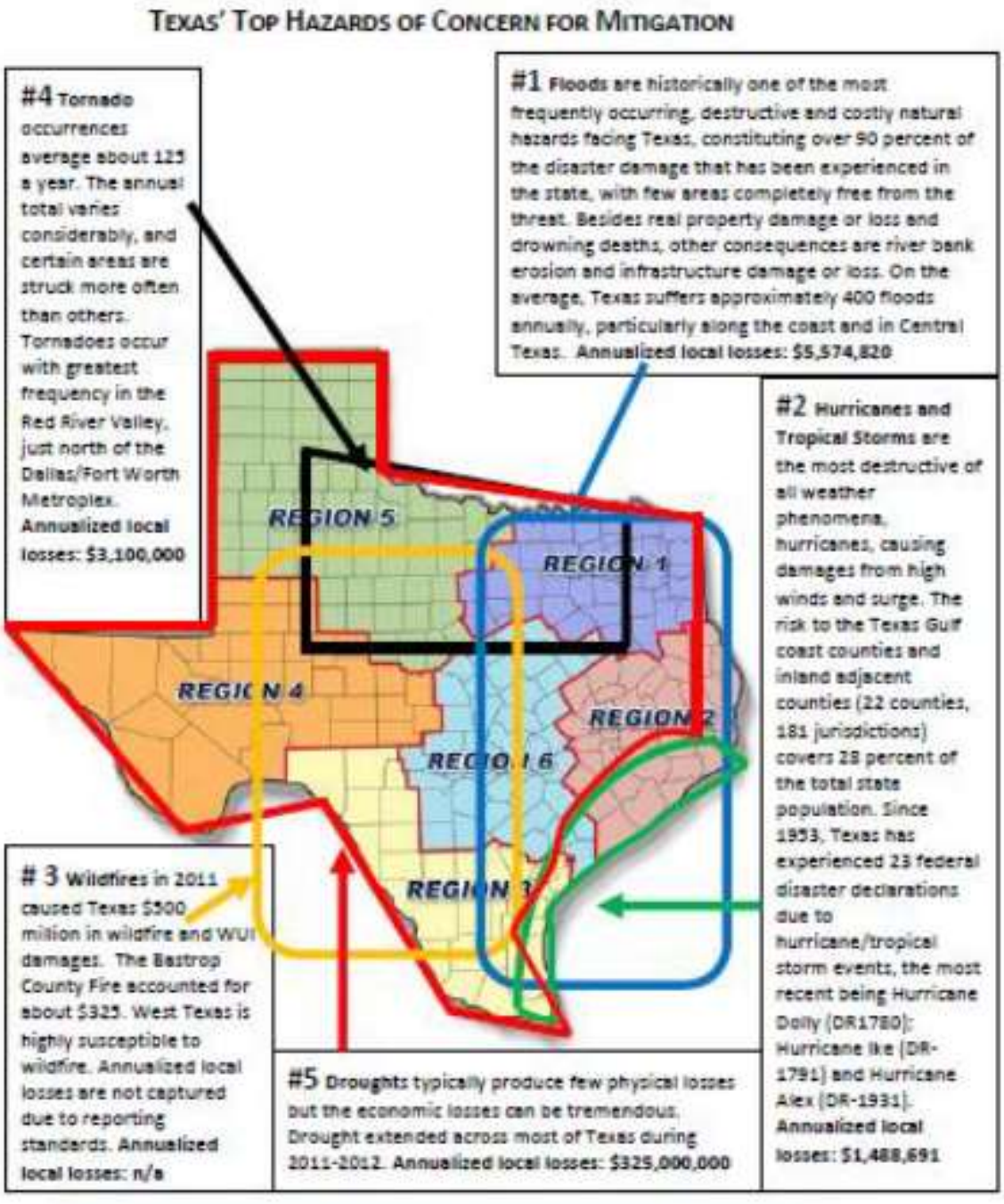
12. **Land Subsidence,** which is defined as the loss of surface elevation due to the removal of subsurface support. It can range from broad, regional lowering of the land surface to localized, full-blown collapses. Land subsidence occurs in different areas for different reasons. A sinkhole is a category of subsidence. **Because land subsidence has not been reported in the subject jurisdictions and is not expected to occur in any of the jurisdictions within the next five years, land subsidence is not a hazard to be mitigated in this Plan.**

13. **Severe Winter Storm,** characterized by freezing rain or snow, and sometimes referred to as an ice storm. The U.S. National Weather Service defines an ice storm as a storm which results in the accumulation of at least 0.25-inch (0.64 cm) of ice.

14. **Windstorm,** characterized by the presence of strong straight-line winds, of 85 mph or above, with little or no precipitation. According to the current FEMA wind zone map, the subject jurisdictions are located in wind speed zone 4, and can expect to be subject to Wind Storms generating straight-line winds of up to 250 mph. (Source: **www.training.fema.gov/emiweb/is/is394a/03wind-0306.pdf**, last accessed on January 12, 2018.)

15. **Lightning**, which is the discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm, creating a “bolt” when the buildup of charges becomes strong enough. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit.

The map on the next page shows Texas’ top five mitigation concerns, with the areas of the State that are most at risk for each.



*(Source: 2013 Texas State Hazard Mitigation Plan Update: **https://www.txdps.state.tx.us/dem/ Mitigation/txHazMitPlan.pdf**.)*

Profiling Hazards to be Mitigated

The Hazard Mitigation Committee determined just how badly each hazard could affect the subject jurisdictions. Any given hazard type can produce different effects depending on its magnitude, duration, and intensity. The plan uses past occurrences to predict future probability. **Appendix 1 – Historical Storm Data** includes all incidents reported to NOAA since January 1, 1950. This database lists all significant weather events impacting Anderson County and the Cities of Palestine, Elkhart and Frankston. Since most of the hazards can affect the entire area of the County and all Cities equally, they are analyzed together. Exceptions are noted, when one particular location is more vulnerable to a certain hazard.

Factors Examined:

Location - *Potential affected area* that the hazard might impact.

Extent - Potential magnitude or *severity of Impact* – how much can it cost people and communities to respond and recover?

Previous Occurrence – how often has the hazard occurred in the past?

Probability of Future Events – How often is the hazard likely to occur? Is the hazard year-round or seasonal? Probability or frequency of occurrence is categorized as **unlikely** through **highly likely**. These terms are defined as follows:

Highly likely: Event is probable within the next year or two.
Likely: Event is probable within the next 3 to 5 years.
Occasional: Event is possible within the next 5 years.
Unlikely: Event is not expected to occur within the next 5 years.

Hazard Magnitude Categories

Four categories were used to define each hazard's potential severity: substantial, major, minor, or limited. For purposes of this document, these categories are defined as follows:

Substantial:

- Multiple deaths likely;
- Complete shutdown of facilities for 30 days or more could occur;
- More than 50% of property likely to be destroyed or suffer major damage.

Major:

- Injuries and/or illnesses may result in permanent disability;
- Complete shutdown of critical facilities for at least 2 weeks could occur;
- More than 25% of property likely to be destroyed or suffer major damage.

Minor:

- Injures and/or illnesses could result in permanent disability;
- Complete shutdown of critical facilities for more than 1 week could occur;
- More than 10% of property likely to be destroyed or suffer major damage.

Limited:

- Injuries and/or illnesses are treatable with first aid;
- Minor quality of life lost;
- Shutdown of critical facilities and services for 24 hours or less;
- Less than 10% of property likely to be destroyed or suffer major damage.

All these factors were used to profile each hazard to be mitigated in the subject jurisdictions. Some hazards, such as floods and wildfires, were profiled by mapping the geographic extent of probable damage, because these events usually occur in predictable areas of the community. Other hazards, such as tornadoes, do not occur in predictable areas; these were profiled by reviewing past occurrences and projecting the possibilities of future events.

ANDERSON COUNTY HAZARD IMPACT AND RISK SUMMARY

Hazard	Frequency of Occurrence	Warning Time	Potential Severity	Priority
Tornado *	Likely	Minimal or None	Substantial	High
Severe Winter Storm *	Likely	More than 12 hours	Minor	Medium
Drought *	Occasional	More than 12 hours	Substantial	Medium
Flood *	Occasional	More than 12 hours	Minor	Medium
Hailstorm *	Highly Likely	Minimal or None	Limited	Low
Wildfire *	Highly Likely	Minimal or None	Limited	Low
Windstorm *	Highly Likely	Minimal or None	Limited	Low
Dam / Levee Failure *	Occasional	More than 12 hours	Minor	Low
Lightning	Occasional	Minimal or None	Limited	Low
Extreme Heat	Occasional	More than 12 hours	Limited	Low
Earthquake	Unlikely	Minimal or None	Limited	Low
Expansive Soil	Unlikely	More than 12 hours	Limited	Low
Land Subsidence	Unlikely	More than 12 hours	Limited	Low
Hurricane / Tropical Storm	Unlikely	More than 12 hours	Minor	Low
Coastal Erosion	Unlikely	More than 12 hours	Limited	Low

*** Chosen for mitigation**

ELKHART HAZARD IMPACT AND RISK SUMMARY

Hazard	Frequency of Occurrence	Warning Time	Potential Severity	Priority
Tornado *	Likely	Minimal or None	Substantial	High
Severe Winter Storm *	Highly Likely	More than 12 hours	Major	Medium
Drought *	Occasional	More than 12 hours	Substantial	Medium
Flood *	Occasional	More than 12 hours	Minor	Low
Hailstorm *	Highly Likely	Minimal or None	Limited	Low
Wildfire *	Highly Likely	Minimal or None	Limited	Low
Windstorm *	Highly Likely	Minimal or None	Limited	Low
Lightning	Likely	Minimal or None	Limited	Low
Extreme Heat	Occasional	More than 12 hours	Limited	Low
Dam / Levee Failure	Unlikely	More than 12 hours	Limited	Low
Earthquake	Unlikely	Minimal or None	Limited	Low
Expansive Soil	Unlikely	More than 12 hours	Limited	Low
Land Subsidence	Unlikely	More than 12 hours	Limited	Low
Hurricane / Tropical Storm	Unlikely	More than 12 hours	Minor	Low
Coastal Erosion	Unlikely	More than 12 hours	Limited	Low

*** Chosen for mitigation**

FRANKSTON HAZARD IMPACT AND RISK SUMMARY

Hazard	Frequency of Occurrence	Warning Time	Potential Severity	Priority
Tornado *	Likely	Minimal or None	Substantial	High
Drought *	Occasional	More than 12 hours	Substantial	Medium
Flood *	Occasional	6 to 12 hours	Major	Medium
Severe Winter Storm *	Highly Likely	More than 12 hours	Minor	Medium
Hailstorm *	Highly Likely	Minimal or None	Limited	Low
Wildfire *	Highly Likely	Minimal or None	Limited	Low
Windstorm *	Highly Likely	Minimal or None	Limited	Low
Lightning	Likely	Minimal or None	Limited	Low
Extreme Heat	Occasional	More than 12 hours	Limited	Low
Dam / Levee Failure	Unlikely	More than 12 hours	Limited	Low
Earthquake	Unlikely	Minimal or None	Limited	Low
Expansive Soil	Unlikely	More than 12 hours	Limited	Low
Hurricane / Tropical Storm	Unlikely	More than 12 hours	Limited	Low
Land Subsidence	Unlikely	More than 12 hours	Limited	Low
Coastal Erosion	Unlikely	More than 12 hours	Limited	Low

*** Chosen for mitigation**

PALESTINE HAZARD IMPACT AND RISK SUMMARY

Hazard	Frequency of Occurrence	Warning Time	Potential Severity	Priority
Tornado *	Likely	Minimal or None	Substantial	High
Flood *	Occasional	More than 12 hours	Minor	Medium
Severe Winter Storm *	Likely	More than 12 hours	Minor	Medium
Drought *	Occasional	More than 12 hours	Substantial	Medium
Lightning *	Highly Likely	Minimal or None	Limited	Low
Wildfire *	Highly Likely	Minimal or None	Limited	Low
Windstorm *	Highly Likely	Minimal or None	Limited	Low
Hailstorm	Likely	Minimal or None	Limited	Low
Extreme Heat	Occasional	More than 12 hours	Limited	Low
Hurricane / Tropical Storm	Unlikely	More than 12 hours	Minor	Low
Dam / Levee Failure	Unlikely	Minimal or None	Limited	Low
Earthquake	Unlikely	Minimal or None	Limited	Low
Expansive Soil	Unlikely	More than 12 hours	Limited	Low
Land Subsidence	Unlikely	More than 12 hours	Limited	Low
Coastal Erosion	Unlikely	More than 12 hours	Limited	Low

*** Chosen for mitigation**

The Anderson County Hazard Mitigation Committee identified the following nine hazards as potentially serious dangers for one or more of the subject jurisdictions, to be addressed in this Plan: Tornado, Windstorm, Hailstorm, Severe Winter Storm, Wildfire, Drought, Flood, Dam - Levee Failure (County only) and Lightning (City of Palestine only).

Hazard Type	Sources used to Identify	Why it was identified
Tornado	Review of past storm events; Committee input; National Climatic Data Center; CHAMPS data; internet research; public input	The County experiences a tornado **once every two years**, on average, with 34 events reported to NOAA from 1953 to 2008, a period of 56 years. Each of the subject jurisdictions has experienced at least one tornado. **Two deaths, 87 injuries, and total property damage of $30,657,500 were reported.**
Windstorm	Review of past storm events; Committee input; National Climatic Data Center; CHAMPS data; internet research; public input	The County experiences about **three to four significant wind storms per year**, with 206 events reported to NOAA from 1959 to 2017, a period of 58 years, an average of 3.55 events per year. **Two injuries** were reported, along with total **property damage of $2,272,800**.
Hailstorm	Review of past storm events; Committee input; National Climatic Data Center; CHAMPS data; internet research; public input	The County experiences **one or more significant hail storms per year**, with 104 events reported to NOAA from 1955 to 2017, a period of 62 years, an average of 1.7 events per year. A total of **$85,000 in property damage** was reported.
Severe Winter Storm	Review of past storm events; Committee input; National Climatic Data Center; CHAMPS data; internet research; public input	The County experiences at least **one severe winter storm almost every year**, with 18 events reported to NOAA from 1996 to 2017, a period of 22 years. **Total property damage reported was $15,377,000.**

Hazard Type	Sources used to Identify	Why it was identified
Wildfire	Review of past events; Committee input, National Climatic Data Center; Texas A&M Forest Service TxWRAP website; CHAMPS data; internet research; public input	**Eight wildfires have been reported to NCDC since 2011; one firefighter was injured, and $1,265,000 in property damage was reported.**
Drought	Review of past storm events; Committee input, National Climatic Data Center; CHAMPS data; internet research; public input	The County experiences drought potential annually. Since 1996, NOAA received **45 reports of drought** affecting the subject jurisdictions. **$504,000 in property damage and $1,599,000 in crop damage were reported.**
Flood	Review of past storm events; Committee input; National Climatic Data Center; FEMA flood map website; CHAMPS data; internet research; public input	The County experiences an average of **2 or more flash flood events per year**, with 45 events reported to NOAA since 1997, which is a period of 21 years. **Seven deaths occurred in 2016, when 7.5" of rain fell in the Palestine area in one hour, and 6 homes were completely destroyed**. A total of $3,330,000 in property and crop damage was also reported due to floods.
Dam-Levee Failure	Committee input; internet research; public input	There are 54 dams in Anderson County, 12 of which would cause economic damage if the dam catastrophically failed.
Lightning	Review of past storm events; Committee input; National Climatic Data Center; CHAMPS data; internet research; public input	The County experiences lightning often, at an estimated rate of 12 to 16 strikes per square km per year. The 8 events reported to NOAA from 1999 to 2012 caused **reported property damage of $778,000**.

Data Sources:

American Society of Civil Engineers (ASCE), “Facts About Windstorms.”
Web site: **www.windhazards.org/facts.cfm**

Bureau of Reclamation, U.S. Department of the Interior
Web site: **www.usbr.gov**

Federal Emergency Management Agency (FEMA)
Web site: **www.fema.gov**

National Climatic Data Center (NCDC), U.S. Department of Commerce, National Oceanic and Atmospheric Administration
Web site: **http://lwf.ncdc.noaa.gov/oa/ncdc.html**

National Drought Mitigation Center, University of Nebraska-Lincoln
Web site: **www.drought.unl.edu/index.htm**

National Severe Storms Laboratory (NSSL), U.S. Department of Commerce, National Oceanic and Atmospheric Administration
Web site: **www.nssl.noaa.gov**

National Weather Service (NWS), U.S. Department of Commerce, National Oceanic and Atmospheric Administration
Web site: **www.nws.noaa.gov**

Storm Prediction Center (SPC), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service
Web site: **www.spc.noaa.gov**

Texas State Hazard Mitigation Plan, 2013 Update, available online at:
http://www.dps.texas.gov/dem/Mitigation/txHazMitPlan.pdf

Texas A&M Forest Service, Texas Wildfire Risk Assessment Portal (TxWRAP)
Web site: **https://www.texaswildfirerisk.com/**

The Tornado Project, St. Johnsbury, Vermont
Web site: **www.tornadoproject.com**

United States Department of Energy (DOE)

Web site: **www.energy.gov**

United States Geological Survey (USGS), U.S. Department of the Interior
Web site: **www.usgs.gov**

Tornado

The committee analyzed storm history events and information from the American Society of Civil Engineers to profile tornados and determined that the potential severity of impact could be major.

Major Characteristics:

Injuries and/or illnesses result in permanent disability

Complete shutdown of facilities for at least 2 weeks

More than 10 percent of property destroyed or with major damage

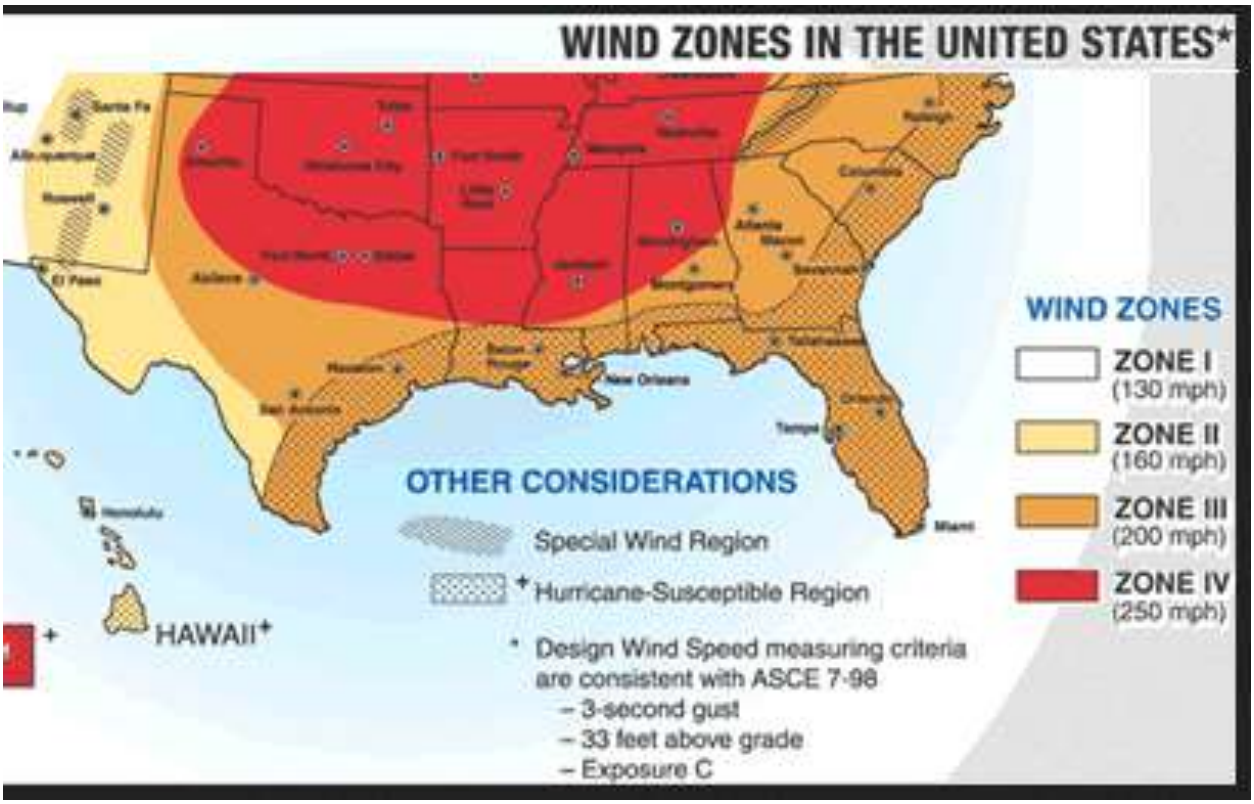
The following table profiles how tornados could affect the jurisdictions.

TORNADO	
Category	**Response**
Potential Severity of Impact	Major
Frequency of Occurrence	Likely
Probability of Future Events	Likely
Seasonal Pattern	All Year
List of Sources	"Taking Shelter from the Storm" (2014) FEMA booklet National Climatic Data Center historical records Committee Input
Probable Duration	15-30 min.
Warning Time	Minimal / no warning – (20 min.)
Existing Warning Systems	Internet, Radio, TV, CODE RED
Potential Affected Area	Entire County and all participating Cities
Cascading Potential	Power outage Debris in road (trees) Natural gas pipeline breaks – Fire Injuries, Possible deaths Transportation disruption Rerouting traffic

Justification for the County's Risk Assessment/Profile

Anderson County is in Wind Zone IV (250 mph) according to the Design Wind Speed map created by the American Society of Civil Engineers, and is estimated to have 6-10 tornados per 1,000 square miles. Using these two factors, all of Anderson County is at "High Risk." This means that any of the jurisdictions could experience an F4 (old Fujita Scale) tornado, which could create devastating damage.

Past records indicate that 34 tornados have touched down in Anderson County since 1950, causing two deaths, 87 injuries, and over $30,000,000 in property damage.



Most past incidents are recorded using the old Fujita Scale, while current incidents use the Enhanced Fujita Scale. Both the original Fujita Scale and the new Enhanced Fujita Scale were used for reference and are included here.

Fujita Tornado Measurement Scale (old)

Category F0	Gale Tornado (42-72 mph)	Light damage. Some damage to chimneys, break branches, push over shallow-rooted trees, damage to signs.
Category F1	Moderate Tornado (73-112 mph)	Moderate damage. The lower the limit is the beginning of hurricane wind speed; peel surface off roofs, mobile homes pushed off of foundations or overturned, moving autos pushed off of the road.
Category F2	Significant Tornado (113-157 mph)	Considerable damage. Roofs torn off frame houses; mobile homes demolished, boxcars pushed over; large trees pushed over or uprooted, light-object missiles generated
Category F3	Severe tornado (158-206 mph)	Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; cars lifted off ground and thrown
Category F4	Devastating tornado (207-260 mph)	Devastating damage. Well-constructed houses leveled; structure with weak foundation blown off some distance; cars thrown and large missiles generated
Category F5	Incredible tornado (261-318 mph)	Incredible damage. Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 100 yards; trees debarked; incredible phenomena will occur

Comparison of old and new scales

Fujita Scale			Derived EF Scale		Operational EF Scale	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	**EF Number**	**3 Second Gust (mph)**
0	40-72	45-78	0	65-85	**0**	**65-85**
1	73-112	79-117	1	86-109	**1**	**86-110**
2	113-157	118-161	2	110-137	**2**	**111-135**
3	158-207	162-209	3	138-167	**3**	**136-165**
4	208-260	210-261	4	168-199	**4**	**166-200**
5	261-318	262-317	5	200-234	**5**	**Over 200**

Enhanced Fujita Scale Damage Indicators

NUMBER (Details Linked)	DAMAGE INDICATOR	ABBREVIATION
1	Small barns, farm outbuildings	SBO
2	One- or two-family residences	FR12
3	Single-wide mobile home (MHSW)	MHSW
4	Double-wide mobile home	MHDW
5	Apt, condo, townhouse (3 stories or less)	ACT
6	Motel	M

NUMBER (Details Linked)	DAMAGE INDICATOR	ABBREVIATION
7	Masonry apt. or motel	MAM
8	Small retail bldg. (fast food)	SRB
9	Small professional (doctor office, branch bank)	SPB
10	Strip mall	SM
11	Large shopping mall	LSM
12	Large, isolated ("big box") retail bldg.	LIRB
13	Automobile showroom	ASR
14	Automotive service building	ASB
15	School - 1-story elementary (interior or exterior halls)	ES
16	School - Junior or senior high school	JHSH
17	Low-rise (1-4 story) bldg.	LRB
18	Mid-rise (5-20 story) bldg.	MRB
19	High-rise (over 20 stories)	HRB
20	Institutional bldg. (hospital, govt. or university)	IB
21	Metal building system	MBS
22	Service station canopy	SSC
23	Warehouse (tilt-up walls or heavy timber)	WHB

NUMBER (Details Linked)	DAMAGE INDICATOR	ABBREVIATION
24	Transmission line tower	TLT
25	Free-standing tower	FST
26	Free standing pole (light, flag, luminary)	FSP
27	Tree - hardwood	TH
28	Tree - softwood	TS

Frequency - 34 reported tornados from 1953-2008 (56 years). On average, a tornado occurs once each 1.6 years. No tornados have been reported over the past ten years, but another could occur at any time. See **Appendix 1** – **Historical Storm Event Data** for additional information.

Fatalities, Personal Injuries and Property Damage

Tornados in Anderson County have caused two deaths and 87 injuries. Total property damage reported was $30,657,500.

The HMAP Committee believes that all of Anderson County, including the Cities of Palestine, Frankston and Elkhart, are at risk from tornados, which could have a magnitude of up to EF-4, with 3-second gusts of up to 200 miles per hour. Such tornados have been reported in Anderson County four times between 1955 and 1987 and are likely to occur in the future.

Windstorm

The Committee analyzed storm history events as reported by the National Climatic Data Center and used information from personal past experience to profile windstorm events and determined that the potential severity of impact for windstorms is limited.

Limited Characteristics:

Injuries and illnesses are treatable with first aid.

Minor loss of Quality of Life

Shutdown of critical facilities and services for 24 hours or less

Less than 10 percent of property destroyed or with major damage

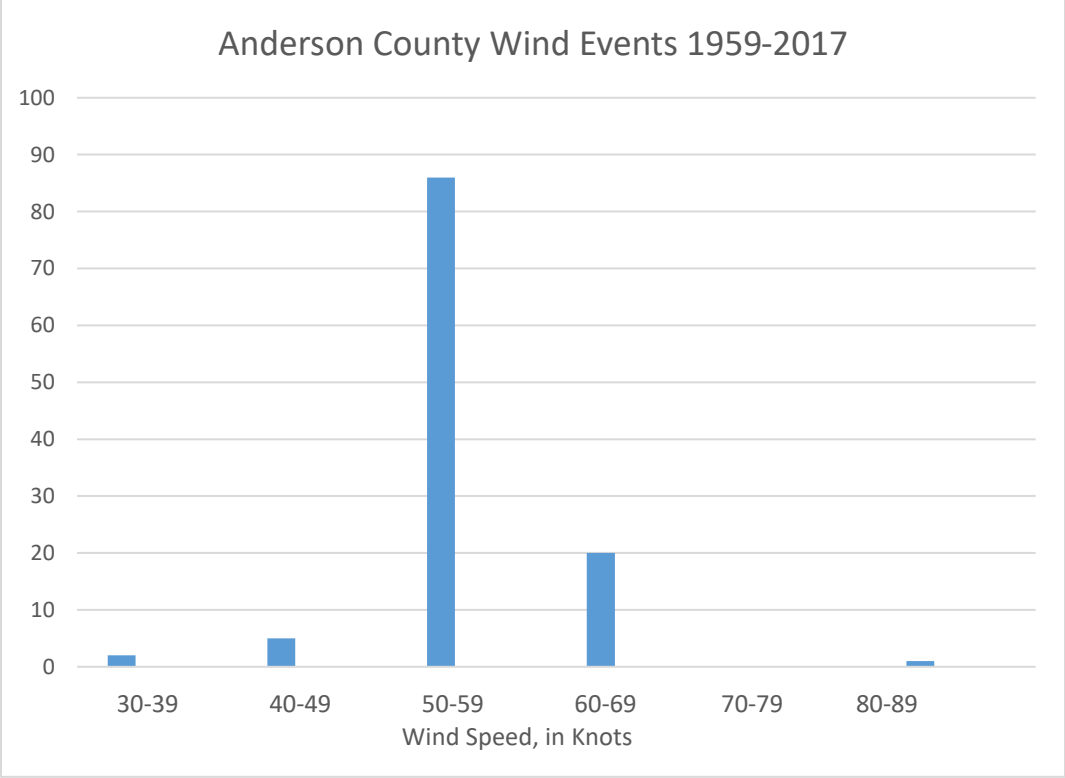
WINDSTORM	
Category	**Response**
Potential Severity of Impact	Limited
Frequency of Occurrence	Highly Likely
Probability of Future Events	Highly Likely
Seasonal Pattern	All Year
List of Sources	Warning system Outdoor Siren TV, radio, internet Weather radios
Probable Duration	Gust:1-2 hours
Warning Time	3-6 hours
Existing Warning Systems	Internet, Radio, TV, Fire Department, CODE RED
Potential Affected Area	Entire County and all participating Cities
Cascading Potential	Property damage to fences, roofs, livestock roaming, poultry houses collapse Debris from trees Transportation delays Injuries and deaths Electrical grid problems, Communication problems – phone and computer lines down

Frequency of Event

A total of 206 Windstorm events were reported to the National Climatic Data Center from 1959 through 2017. This is an average of 3.49 events per year, over a 59-year period. See **Appendix 1 – Historical Storm Event Data** for additional information.

Magnitude / Wind Knots

Anderson County wind events prior to 2003 seldom show a reported wind speed. However, since May 1, 2003, every report includes an estimate of wind speed. The 114 reported wind speeds included 7 incidents of winds at 49 knots or below, 86 incidents of 50-59 knot winds, 20 incidents of 60-69 knot winds, and one report of 87 knot winds, which struck the Bethel Community on January 25, 2012, causing a reported $110,000 in property damage.



The Beaufort wind scale was used to describe characteristics of wind storms.

The Modern Beaufort Wind Scale

Beaufort number	Description	Wind speed				Land conditions
		km/h	mph	kts	m/s	
0	Calm	< 1	< 1	< 1	< 0.3	Calm. Smoke rises vertically.
1	Light air	1 – 5	1 – 3	1 – 2	0.3 – 1.5	Wind motion visible in smoke.
2	Light breeze	6 – 11	4 – 7	3 – 6	1.5 – 3.3	Wind felt on exposed skin. Leaves rustle.
3	Gentle breeze	12 – 19	8 – 12	7 – 10	3.3 – 5.5	Leaves and smaller twigs in constant motion.
4	Moderate breeze	20 – 28	13 – 17	11 – 15	5.5 – 8.0	Dust and loose paper raised. Small branches begin to move.
5	Fresh breeze	29 – 38	18 – 24	16 – 20	8.0 – 11	Branches of a moderate size move. Small trees begin to sway.
6	Strong breeze	39 – 49	25 – 30	21 – 26	11 – 14	Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult. Empty plastic garbage cans tip over.
7	High wind, Moderate gale, Near gale	50 – 61	31 – 38	27 – 33	14 – 17	Whole trees in motion. Effort needed to walk against the wind. Swaying of skyscrapers may be felt, especially by people on upper floors.
8	Gale, Fresh gale	62 – 74	39 – 46	34 – 40	17 – 20	Some twigs broken from trees. Cars veer on road. Progress on foot is seriously impeded.
9	Strong gale	75 – 88	47 – 54	41 – 47	21 – 24	Some branches break off trees, and some small trees blow over. Construction/temporary signs and

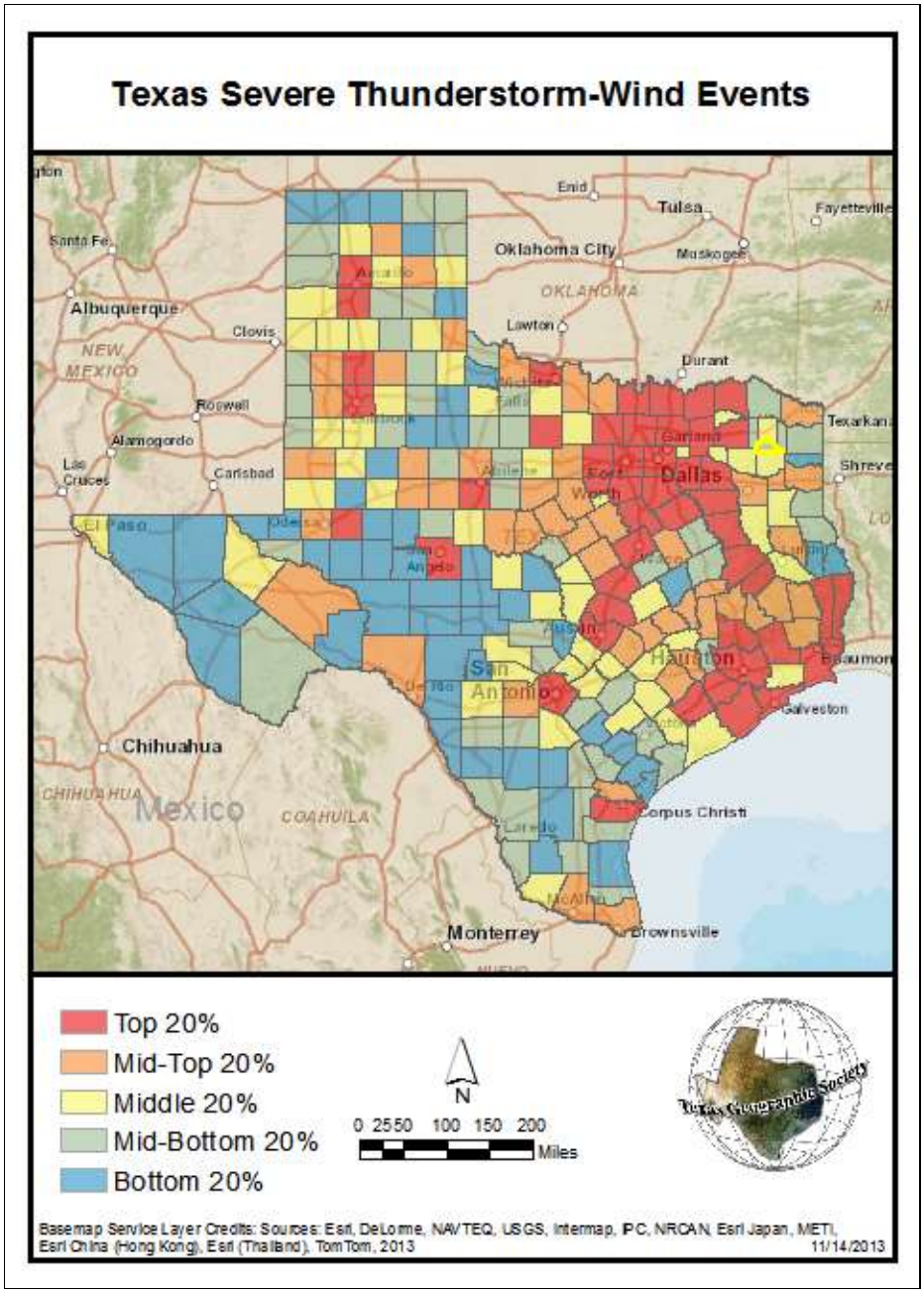
Beaufort number	Description	Wind speed				Land conditions
		km/h	mph	kts	m/s	
						barricades blow over. Damage to circus tents and canopies.
10	Storm[6], Whole gale	89 – 102	55 – 63	48 – 55	25 – 28	Trees are broken off or uprooted, saplings bent and deformed. Poorly attached asphalt shingles and shingles in poor condition peel off roofs.
11	Violent storm	103 – 117	64 – 72	56 – 63	29 – 32	Widespread damage to vegetation. Many roofing surfaces are damaged; asphalt tiles that have curled up and/or fractured due to age may break away completely.
12	Hurricane[6]	≥ 118	≥ 73	≥ 64	≥ 33	Very widespread damage to vegetation. Some windows may break; mobile homes and poorly constructed sheds and barns are damaged. Debris may be hurled about.

Personal Injuries and Property Damage

Two people were reportedly injured during a windstorm event in 1983, when high winds overturned three mobile homes in the Bethel Community. A hole had to be cut in the roof of one mobile home to rescue a woman who was pinned under debris. Numerous roofs were damaged, with trees and power lines downed in Palestine.

Storm winds have caused a total of $2,272,800 in reported property damage throughout Anderson County, including $1,202,700 within the City of Palestine; $143,500 in the City of Elkhart; $67,000 in the City of Frankston; $115,000 in the Bethel area; $30,000 in the Bradford area; $2,000 in the Brushy Creek area; $165,000 in the Cayuga area; $10,000 in the Deanwright area; $5,000 in the Denson Springs area; $4,000 in the Elmwood area; $1,000 in the Kossuth area; $17,000 in the Montalba area; $80,000 in the Neches area; $5,000 in the Pert area; $27,000 in the Salmon area; $15,500 in the Slocum area; $5,000 in the Springfield area; $93,100 in Tennessee Colony; $19,000 in the Tucker area; and $691,000 of damage in other areas of rural Anderson County.

As shown on the map below, Anderson County is rated among the top 20% of the State for severe thunderstorm-wind events, based on data collected from 1950 through 2013.



Source: *This map was produced from data collected by NOAA's National Climatic Data Center (NCDC), compiled and distributed by the Hazards and Vulnerability Research Institute [SHELDUS dataset v.9], University of South Carolina, and was provided by the Texas Geographic Society, as part of the November 2013 CHAMPS report.*

The HMAP Committee believes that, in the future, Anderson County and its cities could experience wind storms of up to 90 knots, but winds of around 50-60 knots are most likely.

Hailstorm

The HMAP Committee analyzed storm history events as reported by the National Climatic Data Center and used information from personal experience to profile hailstorm events and determined that the potential severity of impact for hailstorms is limited.

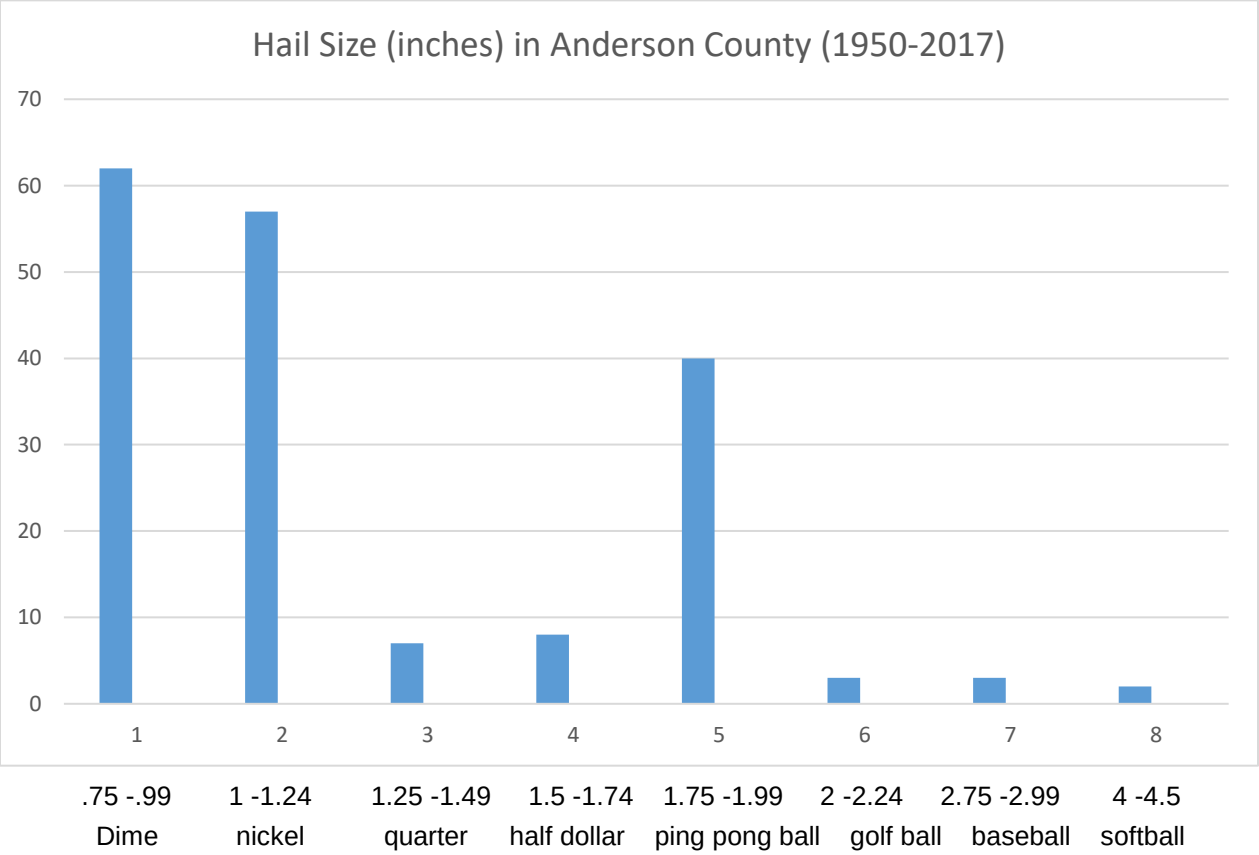
Limited Characteristics:

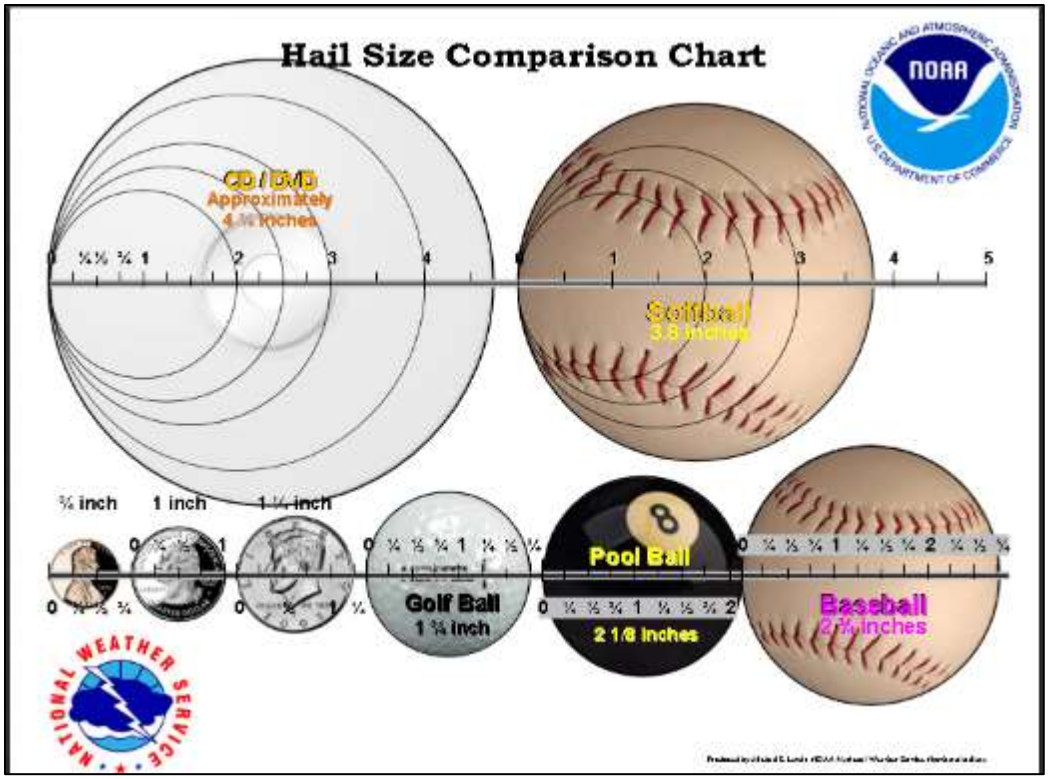
Injuries and illnesses are treatable with first aid.
Minor loss of Quality of Life
Shutdown of critical facilities and services for 24 hours or less
Less than 10% of property destroyed or with major damage.

HAILSTORM	
Category	**Response**
Potential Severity of Impact	Limited
Frequency of Occurrence	Highly Likely
Probability of Future Events	Highly Likely
Seasonal Pattern	All Year
List of Sources	Warning system Outdoor Siren TV, radio, internet Weather radios
Probable Duration	Less than one hour
Warning Time	3-6 hours
Existing Warning Systems	Internet, Radio, TV, Fire Department, CODE RED
Potential Affected Area	Entire County and all participating Cities
Cascading Potential	Property damage to fences, roofs, livestock roaming, poultry houses collapse Debris from trees Transportation delays

Since 1955, 182 reported hailstorms have caused a total of $85,000 in reported property damage within the planning area. This is a 62-year period, meaning that, on average, locations in Anderson County receive hail about three times each year. The specific events reported to NOAA are listed in **Appendix I**. Reported hail size has ranged from 0.75 inches (about the size of a dime, which may cause significant damage to plants and crops) up to 4.5 inches in diameter (larger than a softball, which may cause extensive structural damage and the risk of fatal injury to persons or animals without shelter).

The following charts show the number of incidents reporting hail of the various sizes, a hail size comparison, and a table giving typical damage for each size category. The first was created locally; the other two are from the National Weather Service.





SIZE CODE	INTENSITY CATEGORY	SIZE (DIAMETER INCHES)	DESCRIPTIVE TERM	TYPICAL DAMAGE
H0	Hard Hail	up to 0.33	pea	no damage
H1	Potentially Damaging	0.33-0.60	marble	slight damage to plants and crops
H2	Potentially Damaging	0.60-0.80	dime	significant damage to plants and crops
H3	Severe	0.80-1.20	nickel	severe damage to plants and crops
H4	Severe	1.2-1.6	quarter	widespread glass and auto damage
H5	Destructive	1.6-2.0	half dollar	widespread destruction of glass, roofs, and risk of injuries
H6	Destructive	2.0-2.4	ping pong ball	aircraft bodywork dented and brick walls pitted
H7	Very Destructive	2.4-3.0	golf ball	severe roof damage and risk of serious injuries
H8	Very Destructive	3.0-3.5	hen egg	severe damage to all structures
H9	Super Hailstorms	3.5-4.0	tennis ball	extensive structural damage could cause fatal injuries
H10	Super Hailstorms	4.0 +	baseball	extensive structural damage could cause fatal injuries

Property Damage

Based on its examination of past occurrences, the HMAP Committee believes that Anderson County and the Cities of Elkhart and Frankston are at future risk of hail up to 4.5" in diameter, with hail of 2" diameter or less likely to occur within the next five years. However, because no damage has been reported due to hail in the City of Palestine over the past ten years, the City of Palestine chooses not to mitigate Hailstorms at this time.

Lightning

Lightning is the discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm, creating a "bolt" when the buildup of charges becomes strong enough. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Lightning rapidly heats the sky as it flashes but the surrounding air cools following the bolt. This rapid heating and cooling of the surrounding air causes thunder. On average, 89 people are killed each year by lightning strikes in the United States. Lightning often causes property damage in rural areas, striking television antennas, windmills, and well pumps. Trees which are struck by lightning often fall on power lines, fences and buildings, causing additional damage. Lightning is also cited as a cause of wildfires, particularly during times of drought, when brush, weeds and undergrowth are particularly dry and subject to ignite. Such fires can spread rapidly.

The National Lightning Safety Institute **http://www.lightningsafety.com** provided the following definitions of types of lightning and lightning effects:

Direct Strike - This is the most dangerous hazard, wherein the person or structure is in a direct path for lightning currents to seek ground. The magnitude of the current determines its effects. A typical amperage of 2OkA acting on a ground of 10 ohms creates 200,000V. A large strike can attain l5OkA levels.

Side Strike - This hazard results from the breakup of the direct strike when alternate parallel paths of current flow into the ground via a person or structure. When the initial current path offers some resistance to current flow, a potential above ground develops and the person or structure's resistance to ground becomes the alternate path of conduction.

Conducted Strike - This hazard occurs when lightning strikes a conductor which in turn introduces the current into an area some distance from the ground strike point. Unprotected connected equipment can be damaged and personnel injured if they become an indirect path in the completion of the ground circuit.

Structure Voltage Gradient - When current passes through two or more structures momentary voltage differentials are created. Poor interconnect bonding may cause a completed circuit potential difference. The same hazard is created, for example, by a person touching an ungrounded object while he himself is grounded. The electrical circuit is completed through him, sometimes with fatal consequences.

Induced Effects - Lightning can induce electric field and magnetic field coupling into structures and into wiring. Magnetic coupling is transformer action, and the common laws for transformers prevail.

Streamer Conductor - The streamer hazard occurs when a lightning leader influences electric behavior of objects on the earth. Even streamers which do not become a part of the main channel can contain significant amounts of current. Streamer current exposure can affect people and sensitive electronics.

Sequelae - These secondary effects are many. Forest and grass fires, explosive steam conditions in masonry, trees and other water-bearing objects, and consequences of the thunder clap startling a person so as to drop a wrench or inadvertently throw a switch are examples.

Step Voltage/Touch Voltage - This hazard occurs as a result of a lightning strike hitting the ground and dissipating its energy through the ground. The ground current creates a voltage drop across the surface of the earth, emanating from the earth entry point radially. A person standing on the earth within several hundred feet from the lightning strike point can have several hundred volts generated between his feet. This hazard is identical to a person being grounded while touching two live wires, one with each hand.

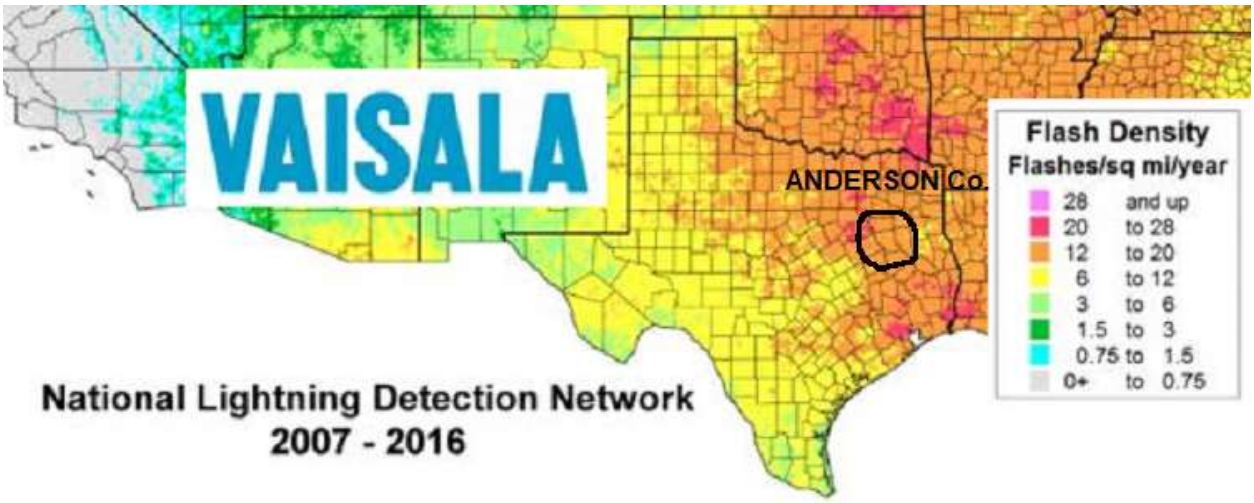
The extent for lightning can be expressed in terms of the number of strikes within a 5-minute interval.

Lightning Activity Level (LAL)	
LAL 1	No thunderstorms.
LAL 2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud-to-ground strikes in a 5-minute period.
LAL 3	Widely scattered thunderstorms. Light to moderate rain will occasionally reach the ground. Lightning is infrequent, 6 to 10 strikes in a 5-minute period.
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11 to 15 cloud-to-ground strikes in a 5-minute period.
LAL 5	Numerous thunderstorms. Rainfall moderate to heavy. Lightning frequent and intense, greater than 15 cloud-to-ground strikes in a 5-minute period.
LAL 6	Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag Warning.
Source: ***http://www.erh.noaa.gov/rnk/LAL.htm***	

Source: 2013 Update to the State of Texas Hazard Mitigation Plan: **http://www.dps.texas.gov/dem/Mitigation/ txHazMitPlan.pdf**

Since January 1, 1999, Lightning strikes have been reported to the NCDC just 3 times in rural Anderson County, causing a total of $360,000 in damages, and 5 times within the City of Palestine, with a reported total of $418,000 in damages. This is an average of more than $97,000 in damages for each of the 8 reported events over the past 18 years. No damage from lightning has been reported in the City of Elkhart or the City of Frankston.

Many lightning strikes have occurred which have not been reported to NCDC. According to the National Lightning Detection Network, for the years of 2007 – 2016, Anderson County experienced 12 to 20 lightning strikes per square mile per year, which translates to 235 - 392 strikes per year within the City of Palestine, and 12,936 – 21,560 lightning strikes per year in the unincorporated areas of Anderson County.



(Source: **https://www.vaisala.com/en/products/data/data-sets/nldn** *last accessed 2/7/18.)*

The Committee used personal experience to profile lightning as a hazard to life and property in the Anderson County jurisdictions and determined that the potential severity of impact for lightning is limited.

Limited Characteristics:

- Injuries and/or illnesses are treatable with first aid;
- Minor quality of life lost;
- Shutdown of critical facilities and services for 24 hours or less;
- Less than 10 percent of property destroyed or with major damage.

LIGHTNING	
Category	**Response**
Potential Severity of Impact	Limited
Frequency of Occurrence	Highly Likely
Probability of Future Events	Highly Likely
Seasonal Pattern	All Year
List of Sources	Warning system Outdoor Siren (City of Elkhart only)

LIGHTNING	
Category	**Response**
	TV, radio, internet Weather radios
Probable Duration	1-2 hours
Warning Time	3-6 hours
Existing Warning Systems	Internet, Radio, T.V., hand radio Team. Fire Department, CODE RED
Potential Affected Area	Entire County and all participating Cities
Cascading Potential	Property damage to fences, roofs, livestock Debris from trees Transportation delays Injuries and deaths Electrical grid problems, Communication problems – phone and computer lines down

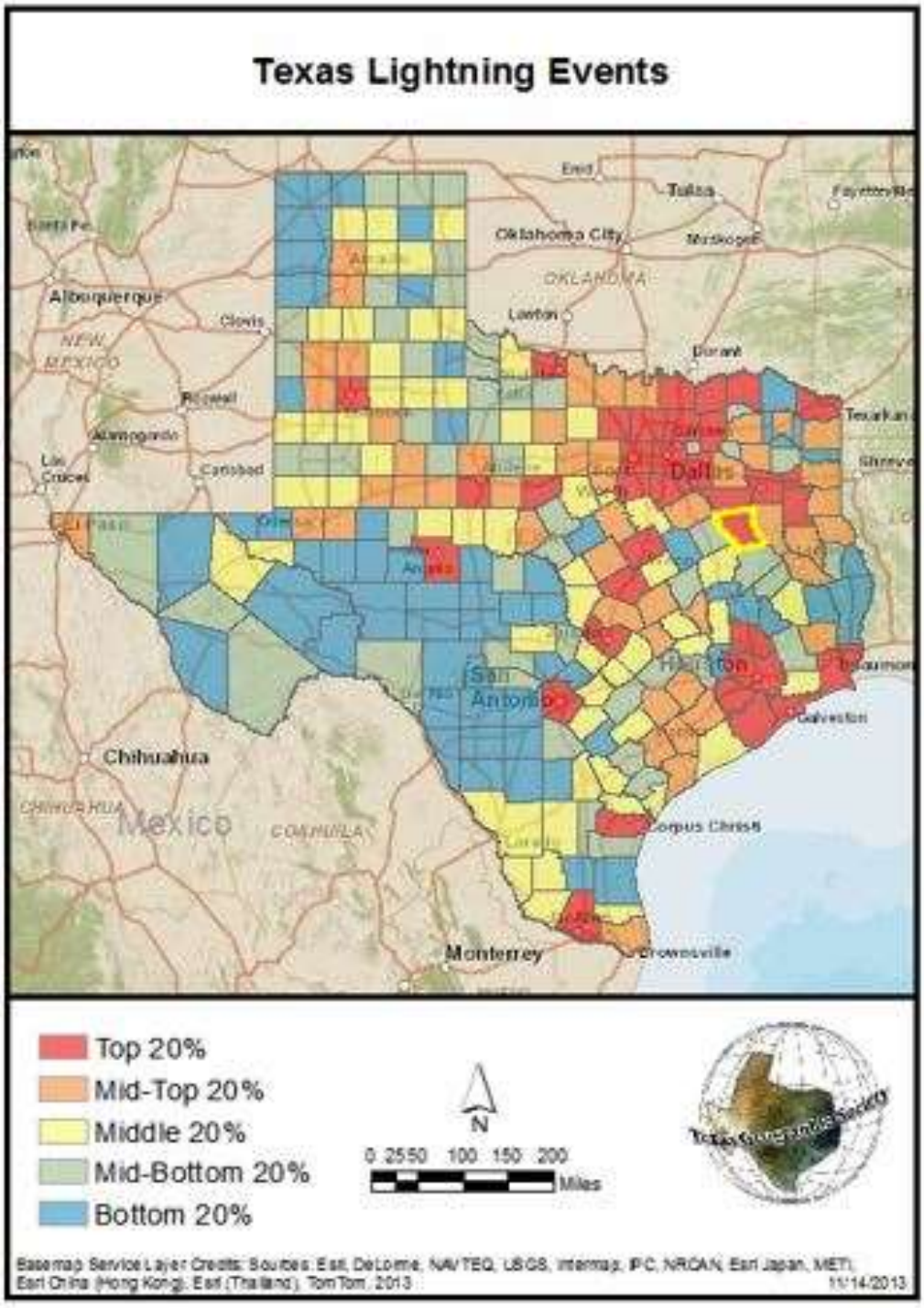
The table below was produced by the Texas Geographic Society, as a part of the CHAMPS Initial Risk Assessment for Anderson County, dated November 15, 2013, to portray the number, frequency, and severity of reported losses due to lightning in Anderson County at that time. The CHAMPS data shows a fatality in Anderson County on June 28, 1982. This incident is not recorded in the NCDC Storm Events Database, and no further information about this event is available.

Anderson County Top Lightning Events Table				
Date	Fatalities	Injuries	Property Damage (2012 Dollars)	Crop Damage (2012 Dollars)
5/31/2012	0	0	$250,000	$0
1/8/2008	0	0	$212,121	$0
5/31/2012	0	0	$175,000	$0
1/21/1999	0	0	$69,079	$0
7/11/2012	0	0	$60,000	$0
6/12/2012	0	0	$25,000	$0
5/25/2005	0	0	$17,500	$0
8/30/2010	0	0	$3,150	$0
12/5/1969	0	0	$3,088	$0
6/28/1982	1	0	$0	$0
				11/14/2013

Source: This table was provided to the HMAP Committee by the Texas Geographic Society as part of its 2013 CHAMPS report.

The map below indicates that Anderson County is in the top 20% among Texas counties for lightning strikes reported between 1960 and 2010.

The HMAP Committee anticipates that a similar number of lightning strikes (12 – 20 per square mile per year) will be experienced throughout rural Anderson County and the City of Palestine over the next five years. Because no reported lightning damage has occurred within the City of Elkhart or the City of Frankston, and none is anticipated within the next five years, those two jurisdictions chose not to mitigate for this hazard.



Source: This map was produced from data collected from several national sources, but primarily from NOAA's National Climatic Data Center (NCDC). The data used is compiled by county and distributed by the Hazards and Vulnerability Research Institute [SHELDUS dataset v.9], University of South Carolina, and was provided to the HMAP Committee by the Texas Geographic Society.

Severe Winter Storm

The HMAP revision team analyzed storm history events as reported by the National Climatic Data Center (see **Appendix 1**) and used information from personal experience to profile ice storm events and determined that the potential severity of impact for winter storms is minor.

Minor Characteristics:

Injuries and illnesses do not result in permanent disability;

Complete shutdown of critical facilities and services for no more than 1 week;

Not more than 10% of property destroyed or with major damage.

The following table profiles how severe winter storms could affect the jurisdictions:

SEVERE WINTER STORMS	
Category	**Response**
Potential Severity of Impact	Minor
Frequency of Occurrence	Likely
Probability of Occurrence	Likely
Seasonal Pattern	Winter
List of Sources	• National Climatic Data Center • Team Input
Probable Duration	1-3 days
Warning Time	6-12 hours
Existing Warning Systems	Internet, Radio, TV, Storm watchers, CODE RED
Potential Affected Area	Entire County and all participating Cities
Cascading Potential	• Power outages • Loss of heat • Frozen / Broken Pipes • Property damage • Dangerous driving conditions • Stranded travelers / Motels at full capacity • Tree debris blocks roads • Delayed Emergency Response Time • Impacts to the economy • Communication capabilities decrease

Frequency of Event

A total of 19 Severe Winter Storm events have been reported to the National Climatic Data Center from 1994 through 2017. This is a 27-year period. On average, Anderson County and its three cities experience one ice storm every year or two.

Magnitude

Anderson County ice storm events produce damage both structurally and economically, affecting both rural residents and city dwellers. Winter storms may damage trees, causing loss of timber production, and trees or limbs may fall on utility lines, causing service disruption. Homes, barns and other structures may be damaged by falling timber. Icy roads cause traffic accidents and delay. Electric service may be disrupted, especially in rural areas, for several hours to several days, depending upon the extent of damage to the transmission lines and the number of lines that are damaged at once. Because severe winter weather is likely to affect a wide area at the same time, the limited number of trained repair personnel and limited inventory of repair parts may lengthen the time required to return service to all areas.

Some of the most notable severe winter storm events in Anderson County history are described below.

(1) The February 1994 Ice Storm: An arctic cold front moved into Northern Texas during the afternoon of February 8, causing temperatures to drop 60° within 48 hours. Up to four inches of ice and sleet accumulated. Numerous highways, businesses, and schools were closed. Over 30,000 homes suffered power outages, and damage from falling trees was widespread to homes and businesses. Two indirect fatalities occurred as icy roads caused traffic accidents. This storm affected Anderson and 77 other counties, causing total property damage of $50,000,000 throughout Texas.

(2) February 2003 Winter Storm: Freezing rain and sleet fell across North Texas late Monday morning the 24th, ending the morning of the 25th. Ice accumulations of 1/4 to 1/2 inch were accompanied by sleet and snow accumulations of 1 to 3 inches. Schools and businesses were for two days. Thousands of motorists were stranded for over 24 hours. Hundreds of flights were cancelled, thousands delayed, and 2,500 people were

stranded at the DFW Airport Monday night. There were hundreds of automobile accidents. Emergency rooms at area hospitals estimated 20-40% of their patients' injuries were snow or ice related from Monday through Wednesday. Conditions did not improve until Thursday afternoon the 27th, when significant melting occurred. This storm affected Anderson and 45 other counties. Total damage reported in Anderson County alone was $15 million.

(3) January 2007 Ice Storm: Freezing rain fell across North Texas. Dozens of winter weather and flash flood incidents were reported. In Anderson County, a large oak tree fell on a church after ice weighted down the tree's branches. Recent heavy rains had also saturated the tree's roots, contributing to the fall. The church was over a hundred years old and was badly damaged. This storm affected Anderson and 44 other counties. Total damage reported in Anderson County alone was $50,000.

(4) February 2010 Heavy Snow: Four to six inches of snow fell across Anderson County. A NASA meteorologist recorded 6 inches at the Palestine upper air balloon facility. Several roads across the county were temporarily impassible as the snow was falling, but crews from TXDOT were able to treat the roadways and the roads were re-opened. The weather conditions played a significant role in numerous traffic accidents across the county, including a fatality on U.S. Highway 79. This storm affected Anderson and 9 other counties. Total damage reported in Anderson County alone was $250,000.

(5) February 2011 Winter Weather: The second winter storm of the week brought around 2" of snow and sleet across the county. A one vehicle rollover accident due to the slick roads injured two people on TX 19 between Montalba and Bois d'Arc. This storm affected Anderson and 17 other counties. Total damage reported in Anderson County alone was $50,000.

One Fatality, two Injuries and Property Damage

One traffic fatality was reported on February 23, 2010, due to icy road conditions. Two injuries were reported on February 3, 2011, also due to slick roads. Total property damage reported throughout Anderson County for all winter storm incidents since 1994 is over $15,377,000.

The HMAP Committee anticipates that Anderson County and its Cities will experience 2 to 4 severe winter storms over the next five years, resulting in ice and snow accumulation of up to 6."

Wildfire

In general, the following factors will affect the potential and severity of a wildfire:

- Climatic Considerations – Areas of extreme climate conditions, including temperature, relative humidity, wind speed, and duration of high velocity, precipitation, wind direction, fog, and other atmospheric conditions;
- Topographic Considerations – elevation and ranges of elevation, location of ridges, drainages and escarpments, slope, location of roads, bridges and railroads;
- Geographic Considerations – Fuel types, concentration in a mosaic and distribution of fuel types, earthquake fault zones, hazardous material routes;
- Flammable material – on structure exteriors;
- Narrow roadways – leading to developed areas;
- Inadequate hydrants or poorly placed hydrants;
- Combustible landscaping or debris near structures;
- Increased development and human activity in and near the wildland-urban interface.

The Committee analyzed NCDC records as well as local fire department calls and runs to profile wildfire events and determined that the potential severity of impact for wildfire in Anderson County and its cities is limited.

Limited Characteristics:

Injuries and illnesses are treatable with first aid;

Minor quality of life lost;

Shutdown of critical facilities and services for 24 hours or less;

Less than 10% of property destroyed or with major damage.

The following table profiles how wildfires could affect the County and Cities.

WILDFIRE	
Category	**Response**
Potential Severity of Impact	Limited
Frequency of Occurrence	Highly Likely
Probability of Future Events	Highly Likely
Seasonal Pattern	Summer and Winter
List of Sources	Committee Input
Probable Duration	2 hours duration – event itself
Warning Time	Minimal / no warning
Existing Warning Systems	KBDI, Haines Index, CODE RED
Potential Affected Area	Entire County and all participating Cities
Cascading Potential	Property damage Road closure Traffic accidents Loss of power – burning utility poles Stripped resources Fences Damaged Livestock roaming Loss of resources

National Weather Service (NCDC) records 7 wildfire events in Anderson County, 6 of those dated August 12 to September 5, 2011, which was a time of severe drought and widespread fires throughout much of east Texas:

1. On August 12, 2011, the Texas Forest Service reported that “a 2-acre grass fire was intentionally set near South Sycamore Street, south of Palestine. This fire burned a home.” Reported property damage was $75,000.
2. On August 15, 2011, the local newspaper reported that “A tree limb fell on a power line and sparked a grass fire that burned 464 acres near Todd City. The Todd City fire was centered near the intersection of FM 19 and CR 335 in the northeastern part of the county. The fire began on the 15th, was contained on the 15th, and then fully controlled on the 20th. The fire consumed a deer camp, a fiberglass salt water tank, several outbuildings, and an oil tank. One firefighter suffered heat exhaustion

and smoke inhalation and was taken to the hospital." Reported property damage was $750,000.

3. On August 30, 2011, the Texas Forest Service reported that "Henderson Fire #475 began in the far northeastern parts of (Anderson) County near Frankston, was contained September 5th, and fully controlled on September 15th. The fire burned 2,314 acres and claimed 3 homes." Reported property damage was $400,000.
4. On September 4, 2011, the Texas Forest Service reported that "Henderson Fire #495, also known as the New Chapel Fire, burned 5,000 acres near FMs 315 and 321, approximately 9 miles north of Palestine. Five barns and 100 bales of hay were lost in this fire." Reported property damage was $15,000 and crop damage was $10,000.
5. On September 5, 2011, the Texas Forest Service reported that "Henderson Fire #504 burned 503 acres and burned one home, near FM 228 and CR 1214 in the far southeastern corner of (Anderson) County. This fire was started by a downed power line." Reported property damage was $25,000.
6. On September 5, 2011, the Texas Forest Service reported that "Henderson Fire #507 burned 1,400 acres and was started by power lines, near FM 322 and CR 2109 west of Elkhart. The fire began on the 5th, was contained on the 6th and controlled on the 15th." No property or crop damage was reported.
7. On October 15, 2015, the local newspaper reported that two fires occurred: one near Neches, off Anderson County Road 338, and another fire near Montalba near Anderson County Road 471. The Neches fire burned an estimated 125 acres, while the Montalba fire burned approximately 50 acres. No homes or structures were burned in either fire, and no property or crop damage was reported.

Rural Anderson County experiences numerous brushfires, some severe. See the data below which was extracted from the records of the Palestine Fire Department, Elkhart Volunteer Fire Department, Frankston Volunteer Fire Department and records of the 11 other Volunteer Fire Departments within Anderson County:

	Number of fires reported:			
Year	**Palestine FD**	**Elkhart VFD**	**Frankston VFD**	**All Other Anderson County Rural VFDs**
2008	117	41	27	98
2009	142	47	32	170
2010	141	38	21	264
2011	153	76	48	447
2012	106	68	38	294
2013	124	52	41	257
2014	118	38	37	215
2015	113	50	36	258
2016	77	44	34	250
2017	124	37	22	282

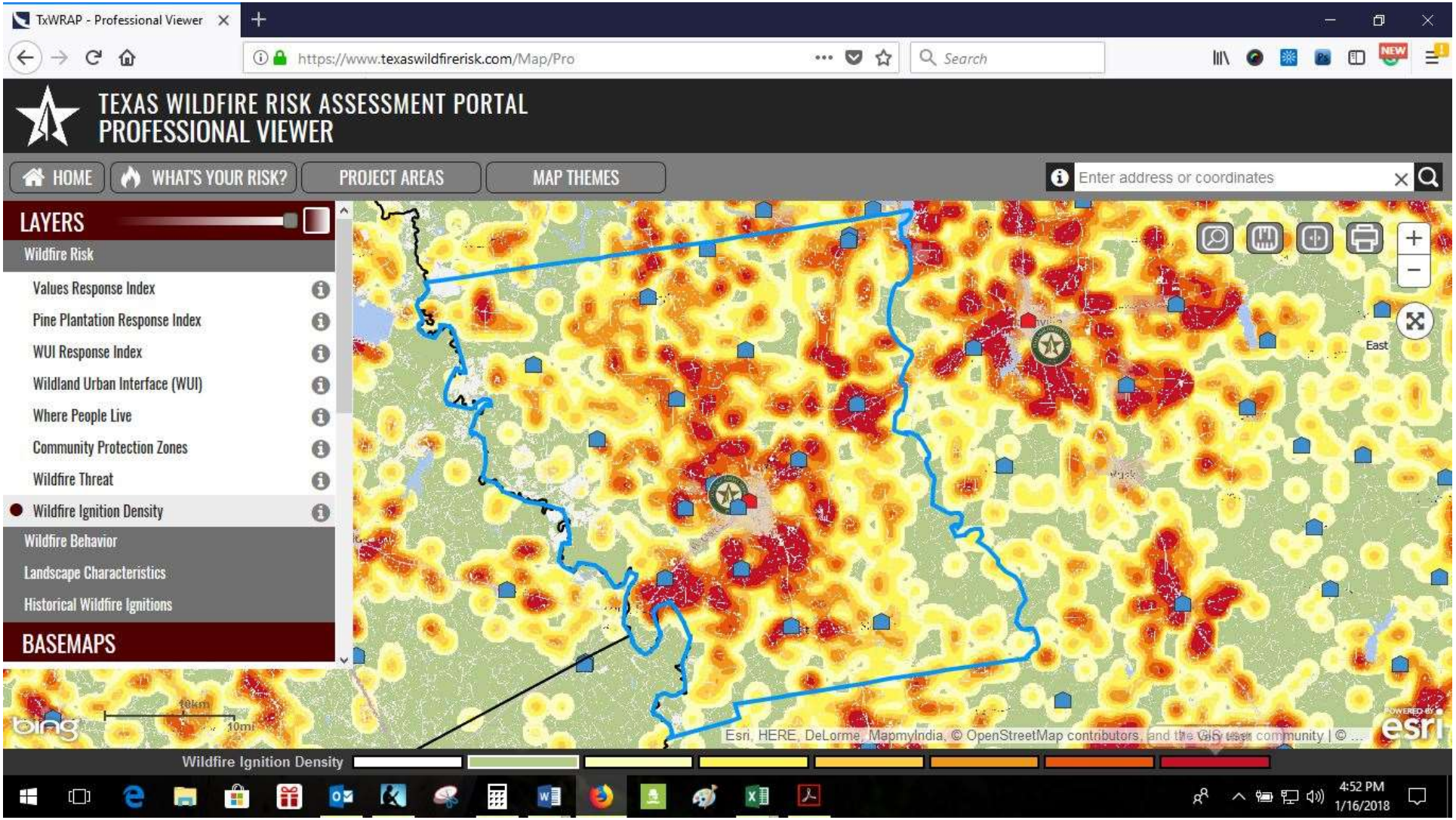
The maps on the following pages were taken from the Texas A&M Forestry Service website, Texas Wildfire Risk Assessment Portal (https://www.texaswildfirerisk.com) on January 16, 2018. The first group of maps show all of Anderson County, which is shaded light grey on these maps; the second group of maps show only the City of Palestine, which is shaded light grey to show city boundaries; the third group of maps show only the City of Elkhart, which is shaded light grey to show city boundaries; and the fourth group of maps show only the City of Frankston. These maps show:

1. **Wildfire Ignition Density** -- the likelihood of a wildfire starting, based on historical ignition patterns;
2. **Housing Density** – where people live, which can be compared to historic fire locations;
3. **Community Protection Zones** – areas of primary and secondary priority for planning purposes;
4. **Wildland Urban Interface** – where people and structures are bordered by woodland fuels;
5. **WUI Response Index** – rating the potential impact of wildfire on people and their homes;
6. **Values Response Index** – represents a rating of the potential impact of wildfire on values and assets;

7. **Historic Location and Cause** of all known fires within the subject jurisdiction from 2005 – 2015.

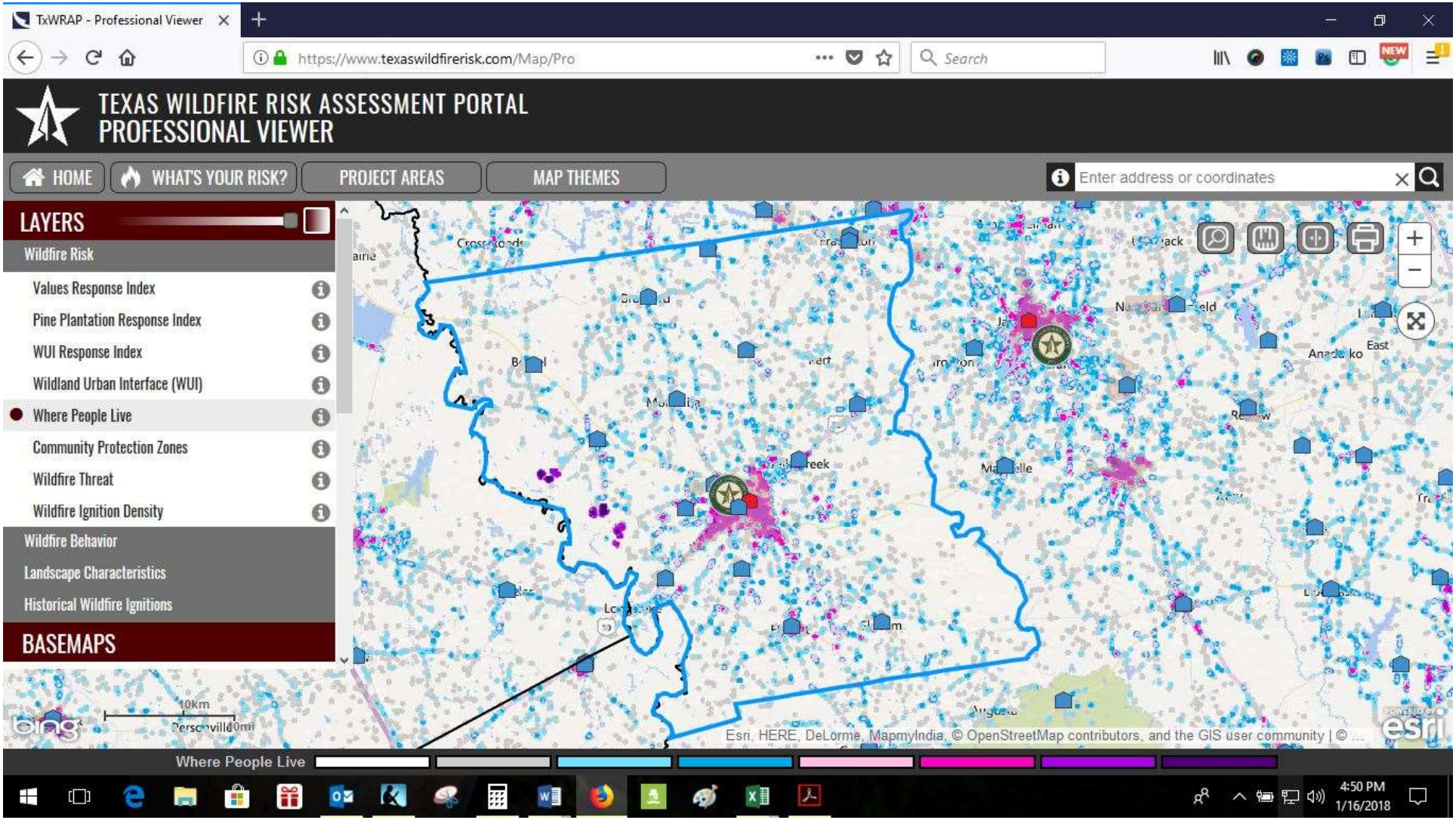
These maps represent all that is known about the past extent and probable future extent of wildfire in Anderson County and the Cities of Frankston, Elkhart and Palestine.

The Anderson County HMAP Committee believes that wildfire could occur within the next five years, more likely in a rural area, or possibly at the Wildland-Urban Interface of one of the Cities. Barring extreme drought and high winds, any such fire should be contained by the nearest Fire Department and not allowed to spread over more than perhaps 100 acres of rural grass land, or a single building within the city.



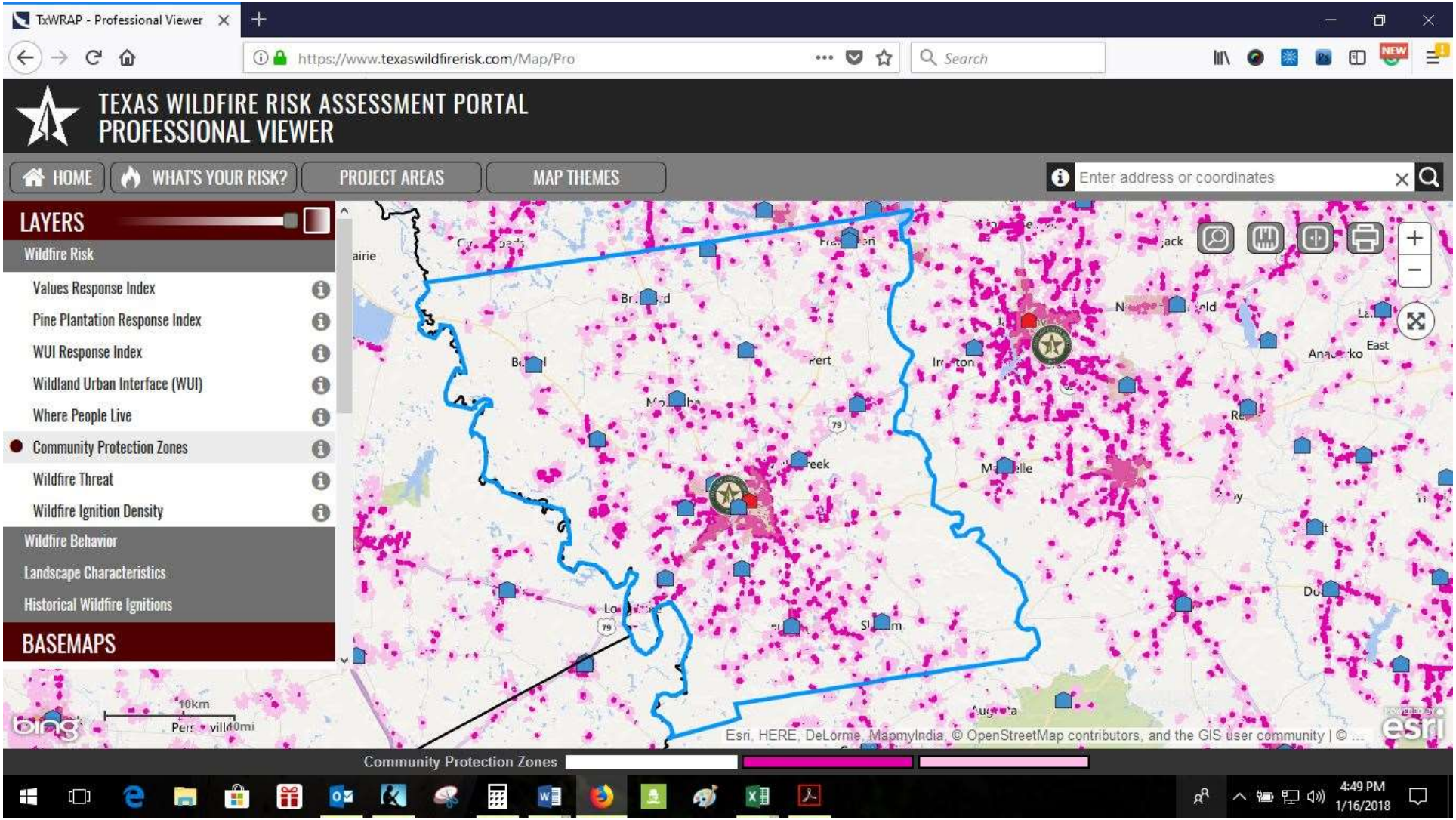
Wildfire Ignition Density – likelihood of a wildfire starting, based on historical ignition patterns.

Anderson County is outlined in blue. Fire stations are shown in red or blue; Texas Forest Service offices are shown by the logo.



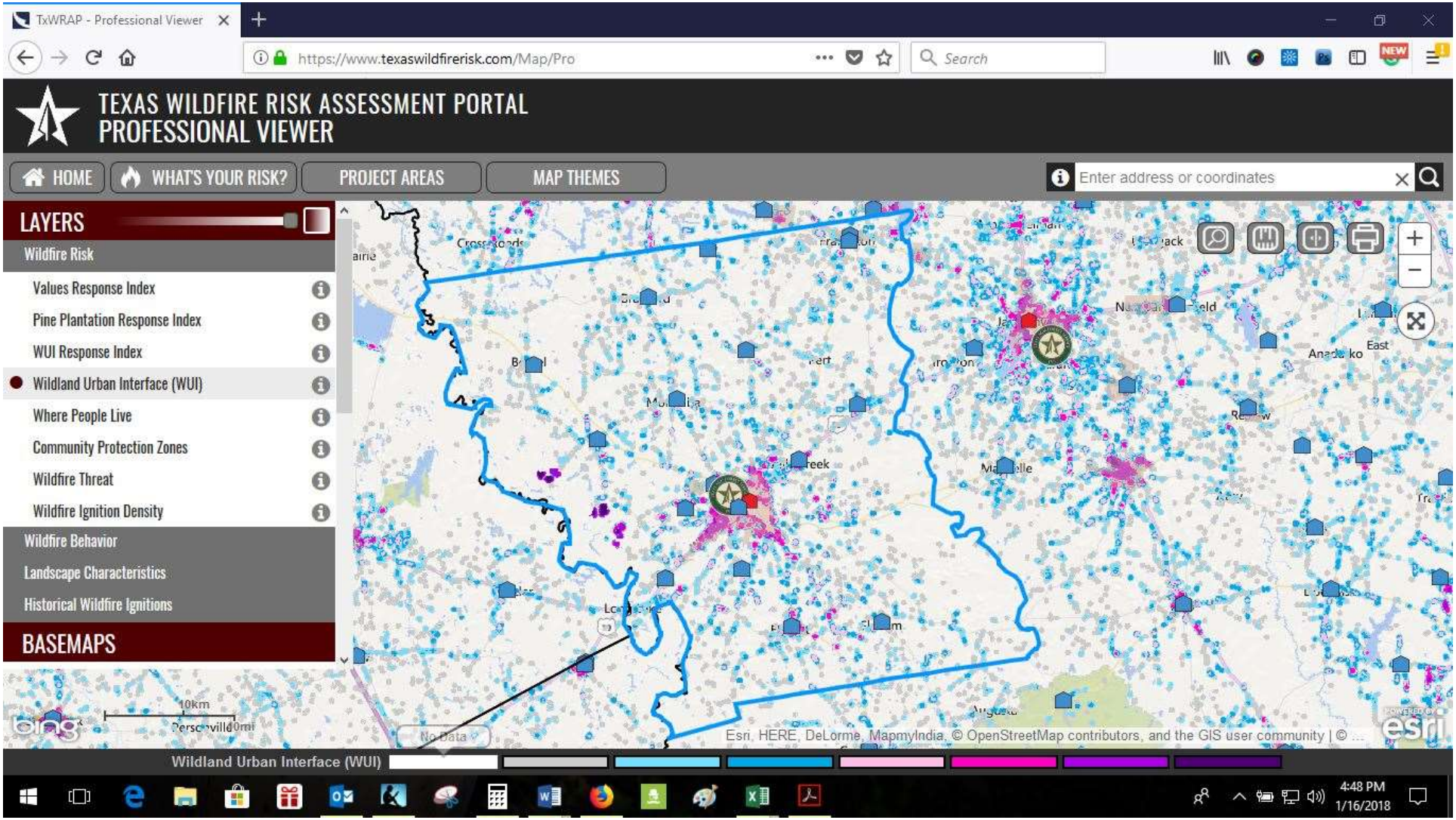
Housing density – shows where people live – compare to historic fire locations

Anderson County is outlined in blue. Fire stations are shown in red or blue; Texas Forest Service offices are shown by the logo.



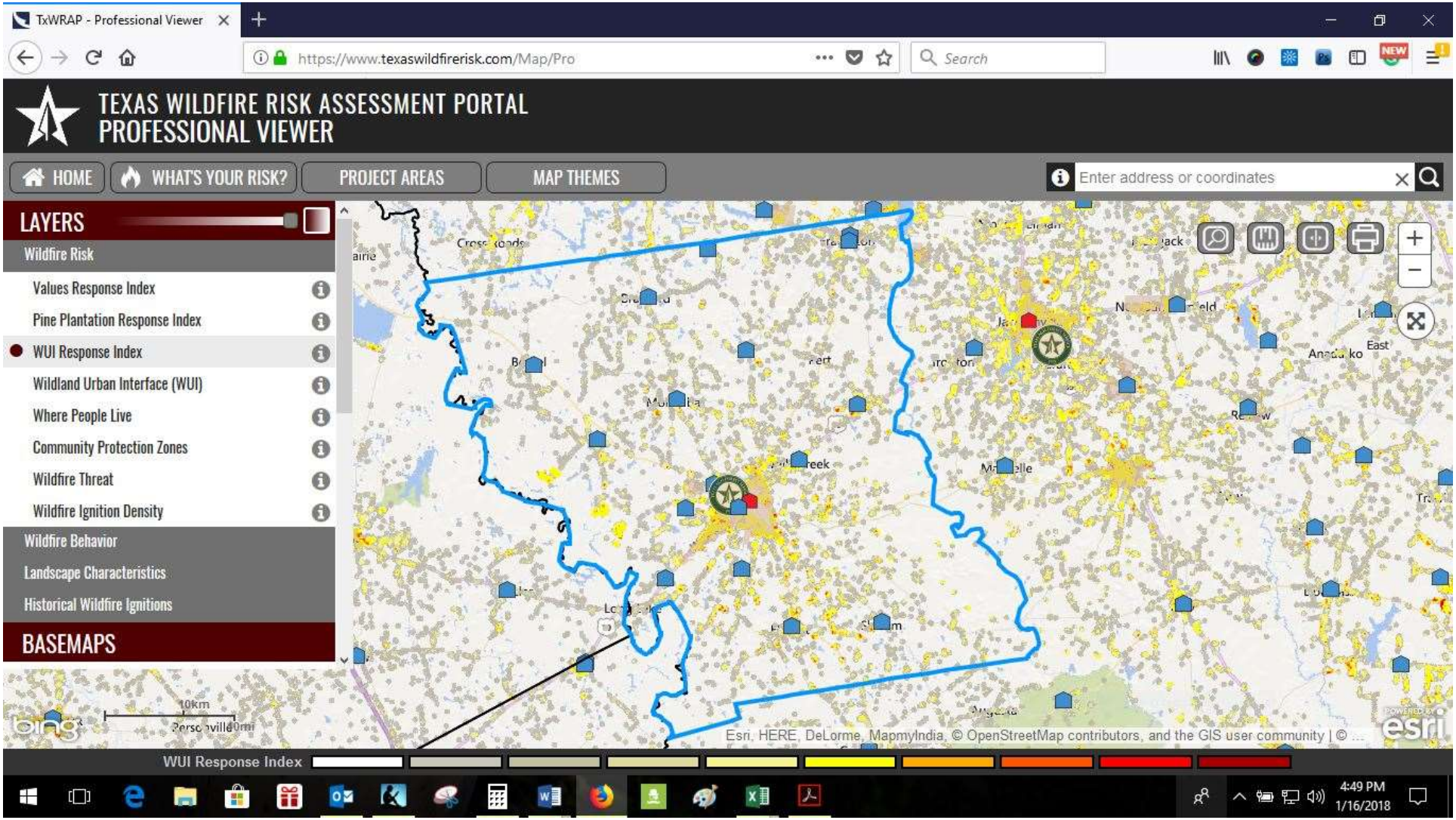
Community protection zones – primary and secondary priorities for planning purposes

Anderson County is outlined in blue. Fire stations are shown in red or blue; Texas Forest Service offices are shown by the logo.



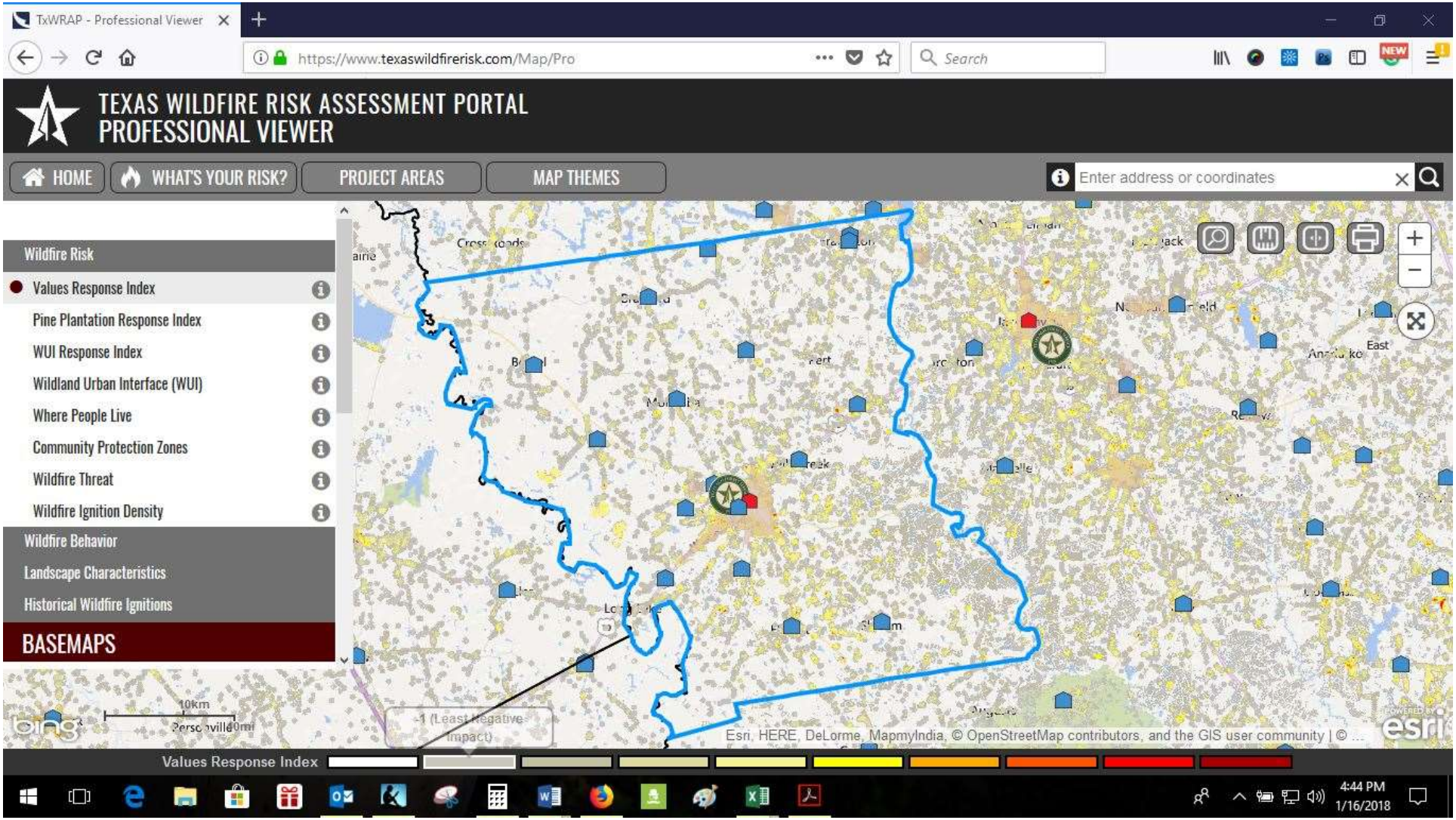
Wildland-Urban Interface (WUI) – depicts where humans and structures meet or intermix with woodland fuels.

Anderson County is outlined in blue. Fire stations are shown in red or blue;
Texas Forest Service offices are shown by the logo.



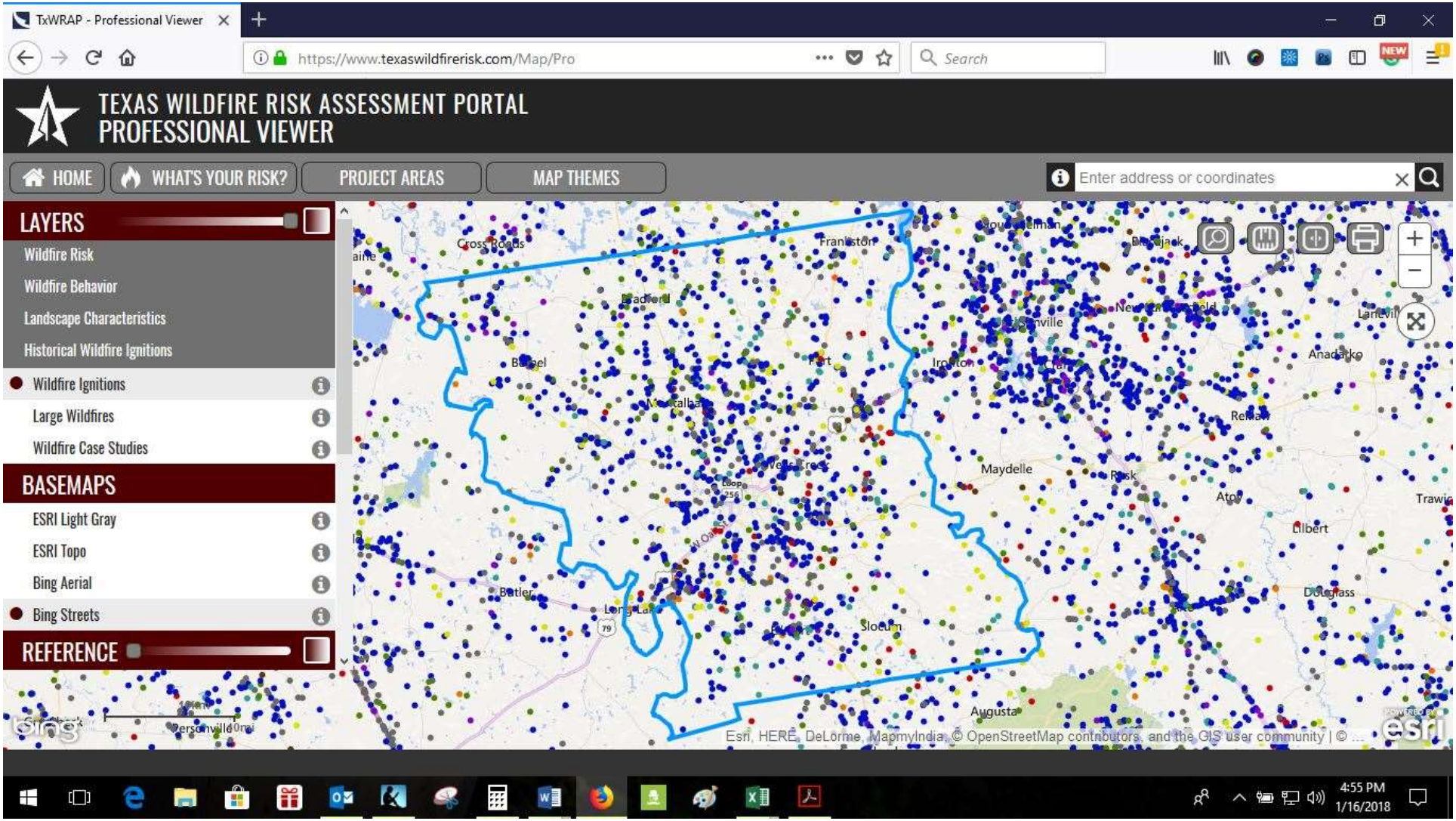
WUI Response Index – represents a rating of the potential impact of wildfire on people and their homes

**Anderson County is outlined in blue. Fire stations are shown in red or blue;
Texas Forest Service offices are shown by the logo.**

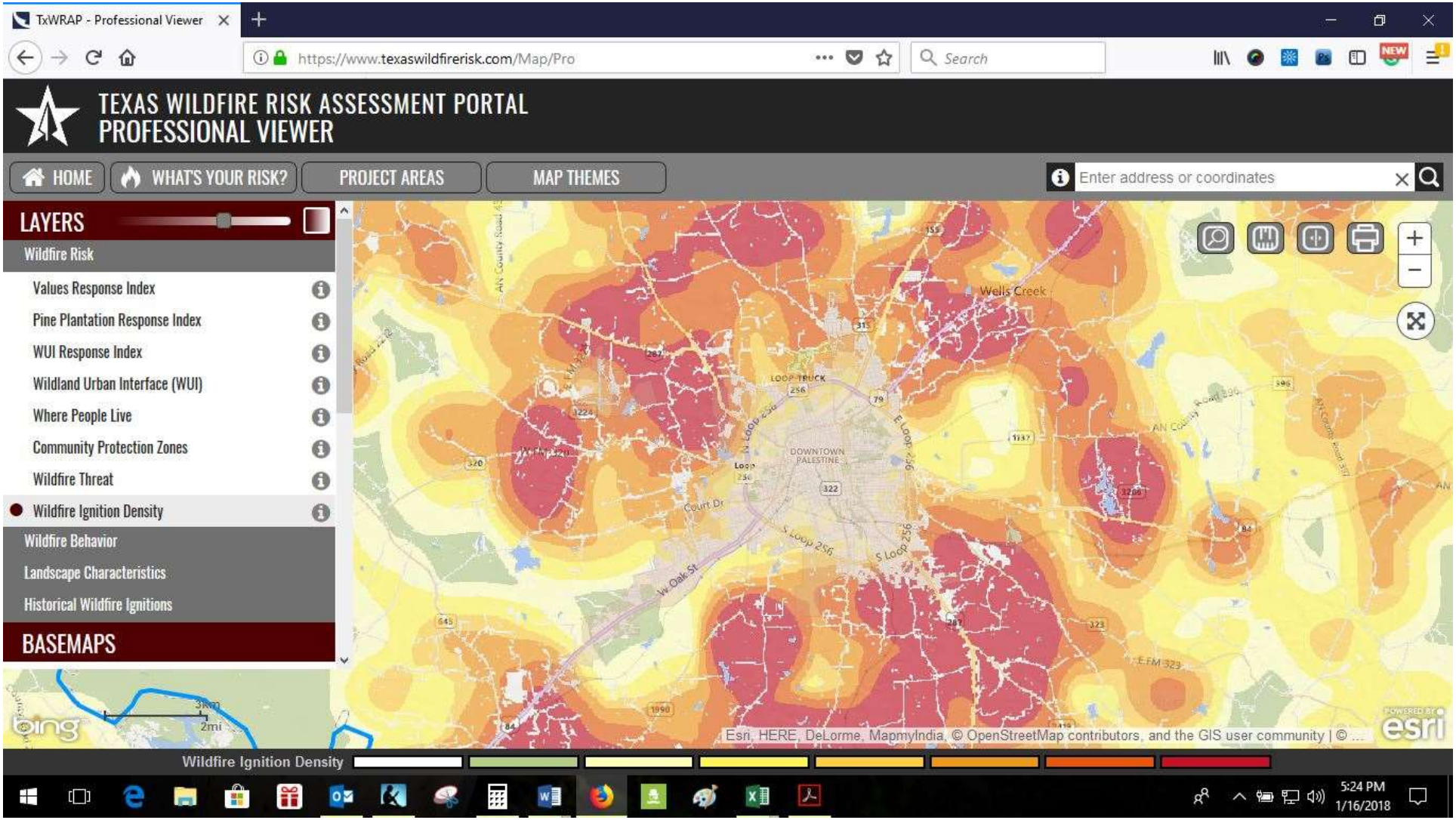


Values Response Index – represents a rating of the potential impact of wildfire on values and assets

Anderson County is outlined in blue. Fire stations are shown in red or blue; Texas Forest Service offices are shown by the logo.

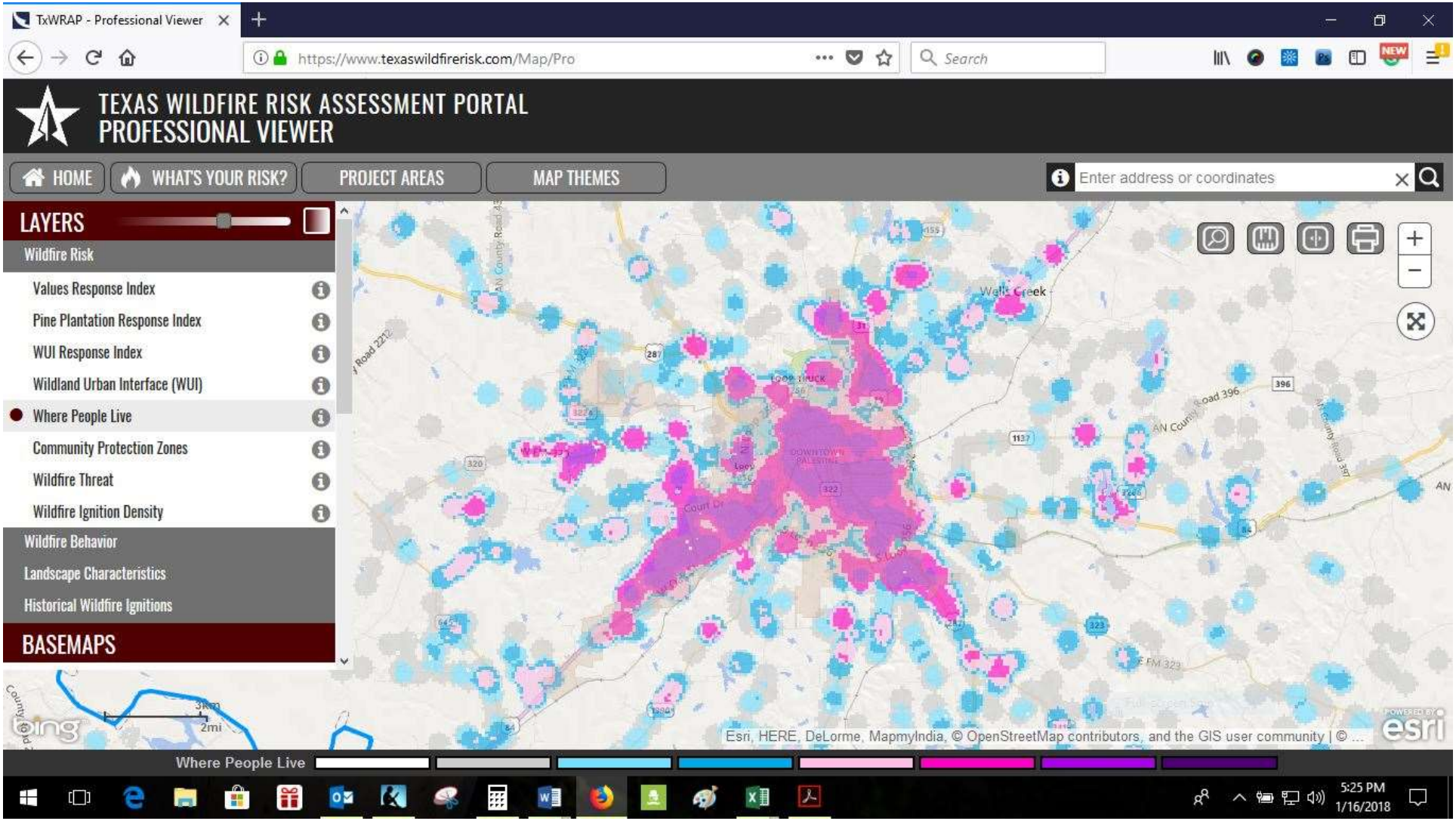


Wildfire locations and causes (2005 – 2015)
Anderson County is outlined in blue.



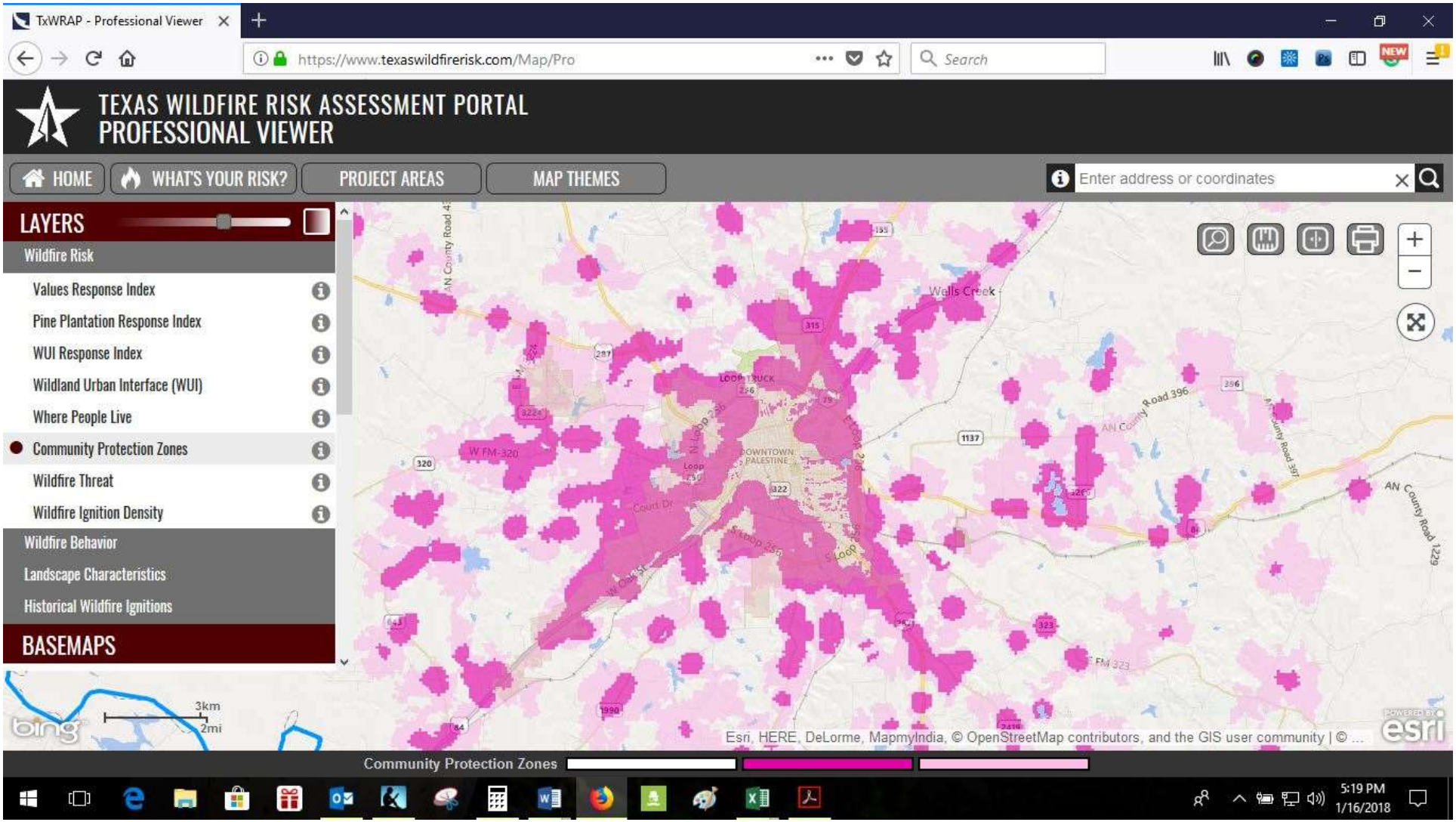
Wildfire Ignition Density – likelihood of a wildfire starting, based on historical ignition patterns

The City of Palestine is shaded light grey.



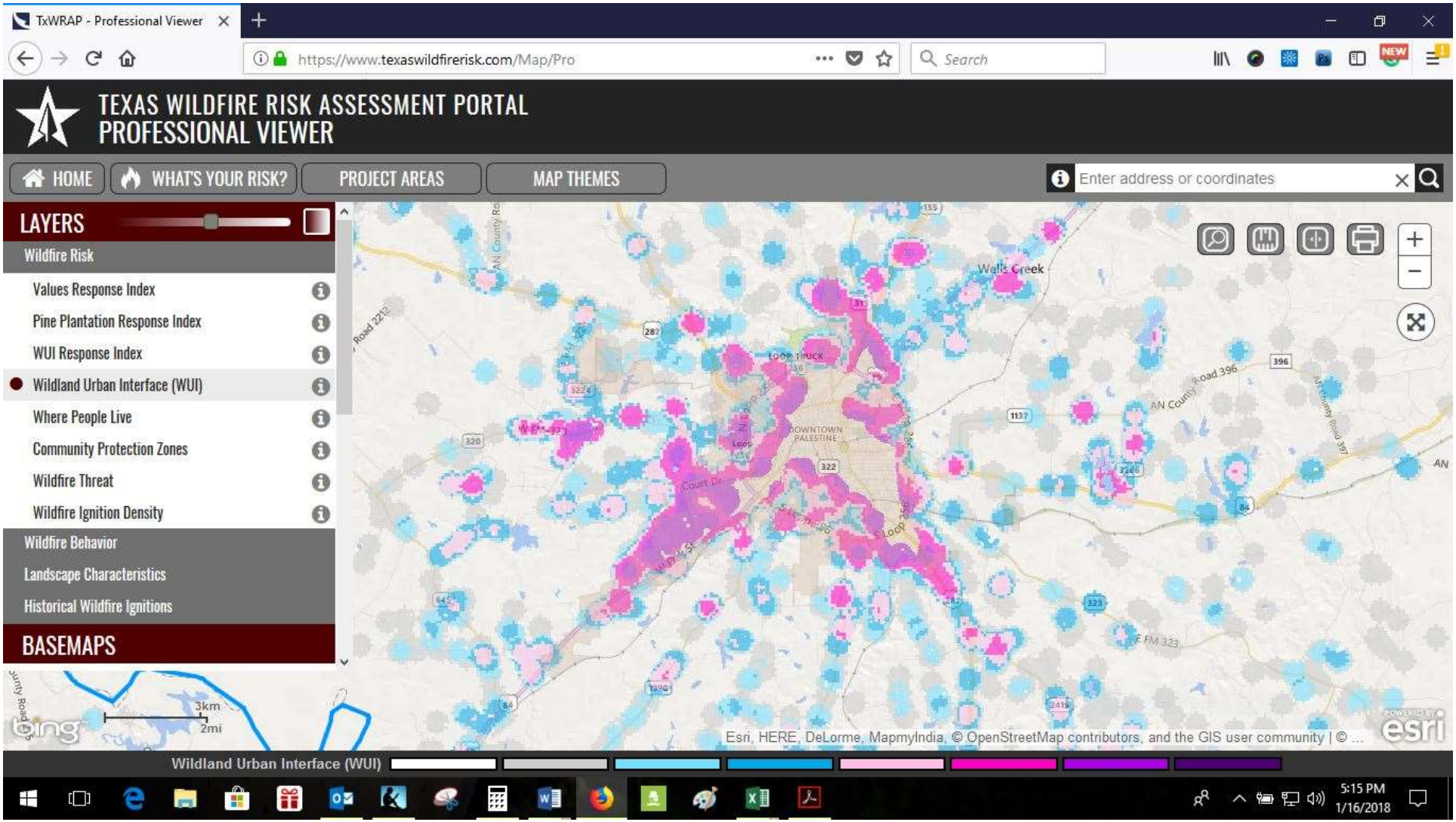
Housing density – shows where people live – compare to historic fire locations

The City of Palestine is shaded light grey.



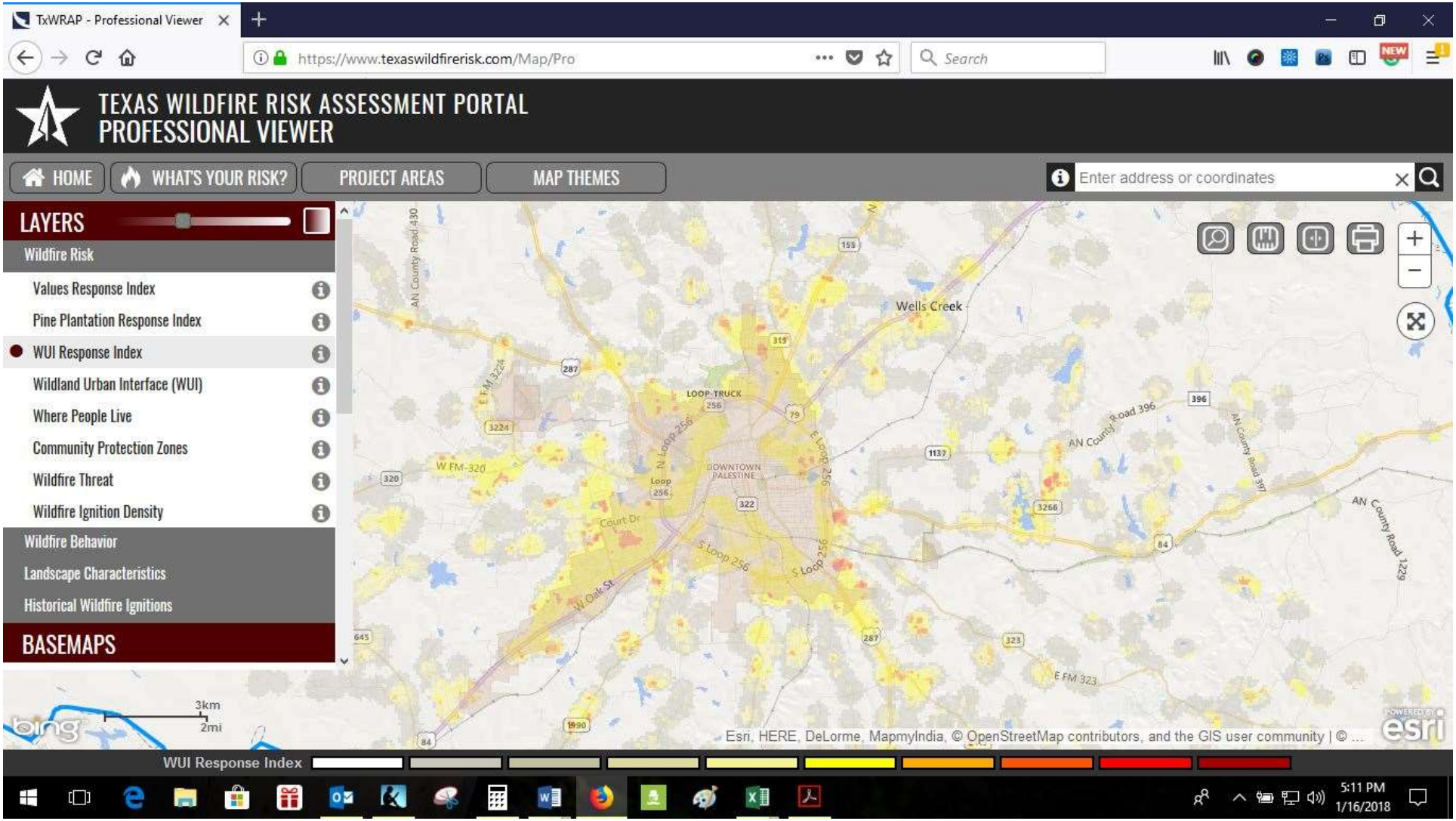
Community protection zones – primary and secondary priorities for planning purposes

The City of Palestine is shaded light grey.



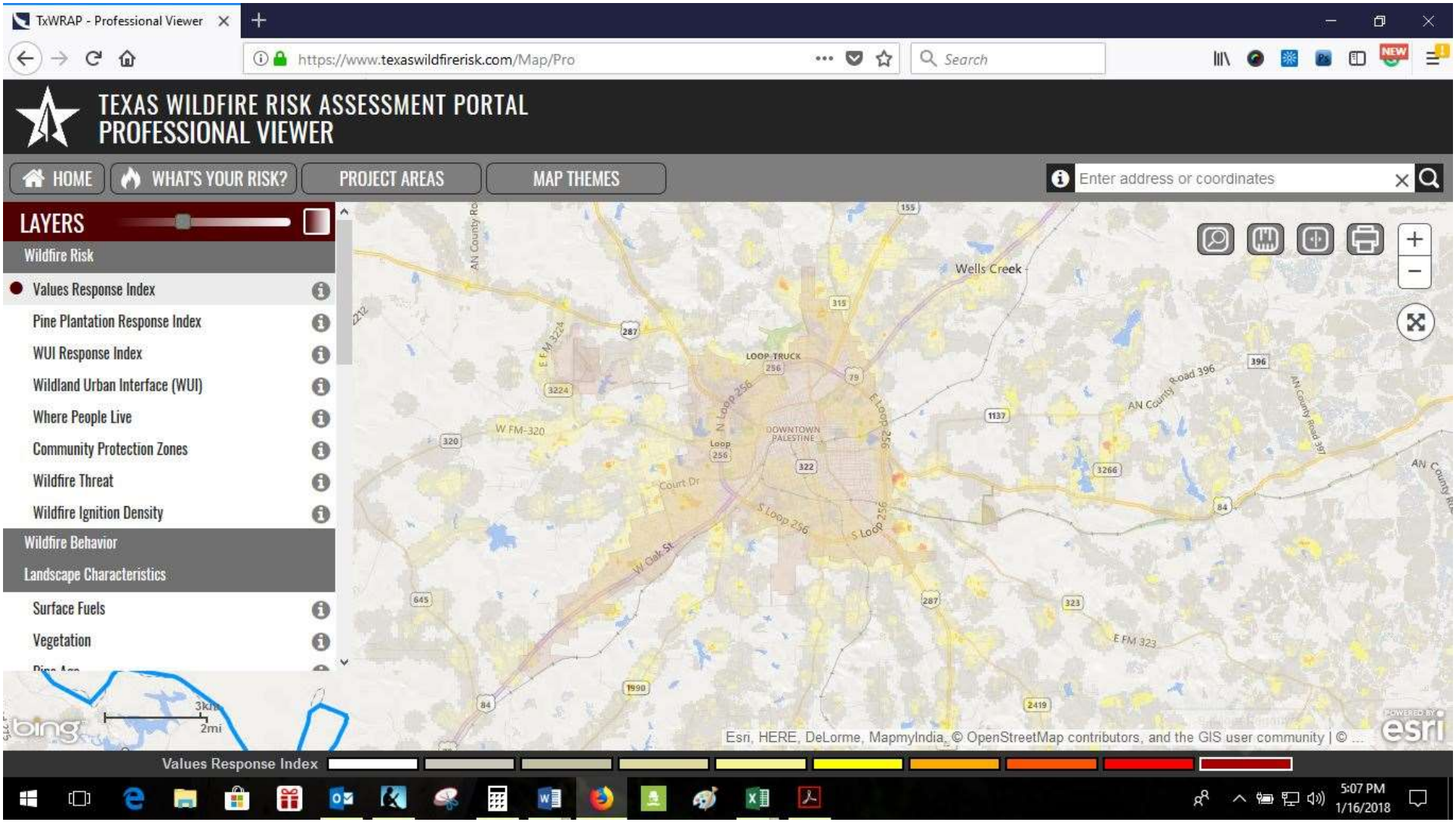
Wildland-Urban Interface (WUI) – depicts where humans and structures meet or intermix with woodland fuels.

The City of Palestine is shaded light grey.



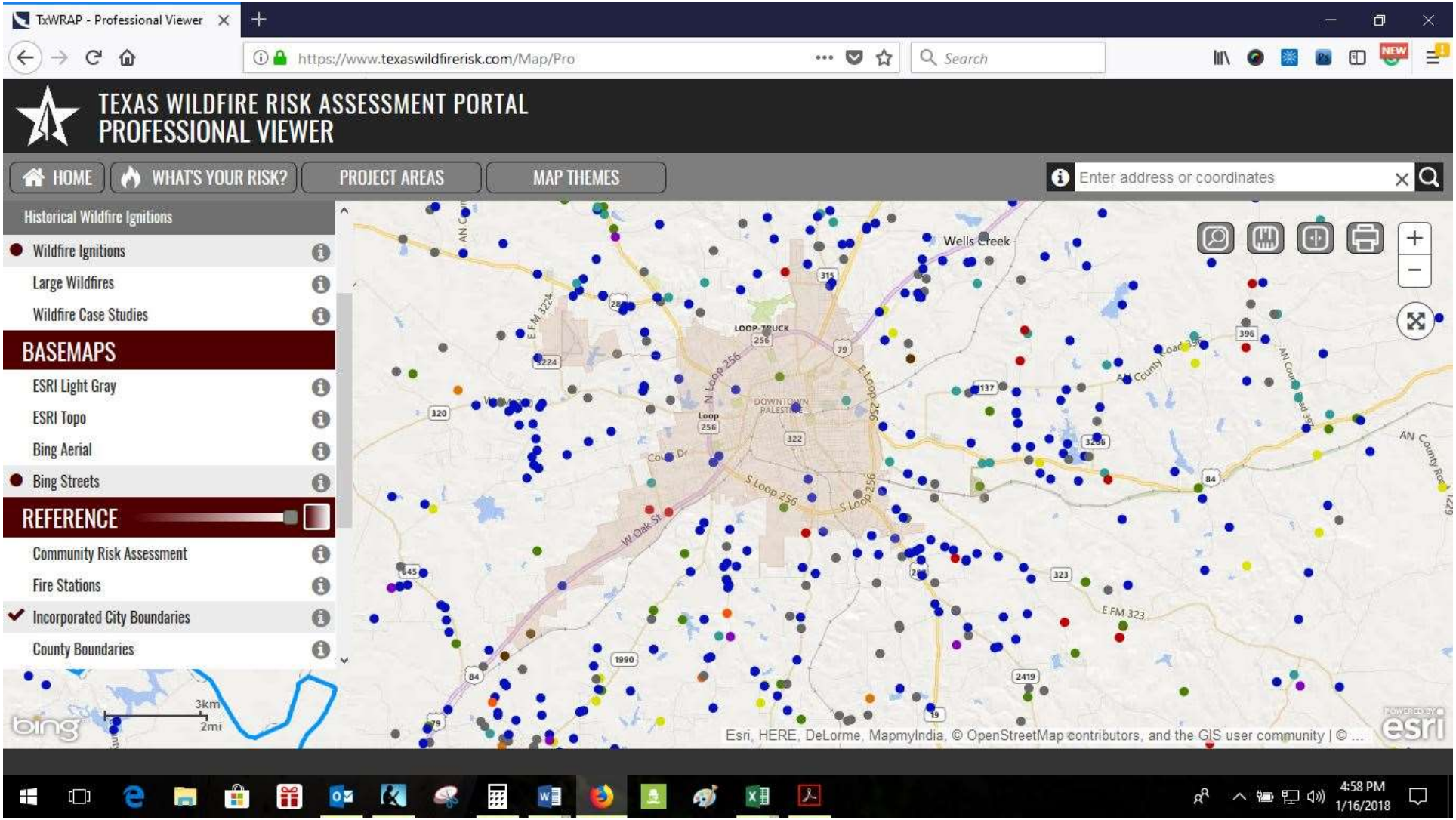
WUI Response Index – represents a rating of the potential impact of wildfire on people and their homes.

The City of Palestine is shaded light grey.



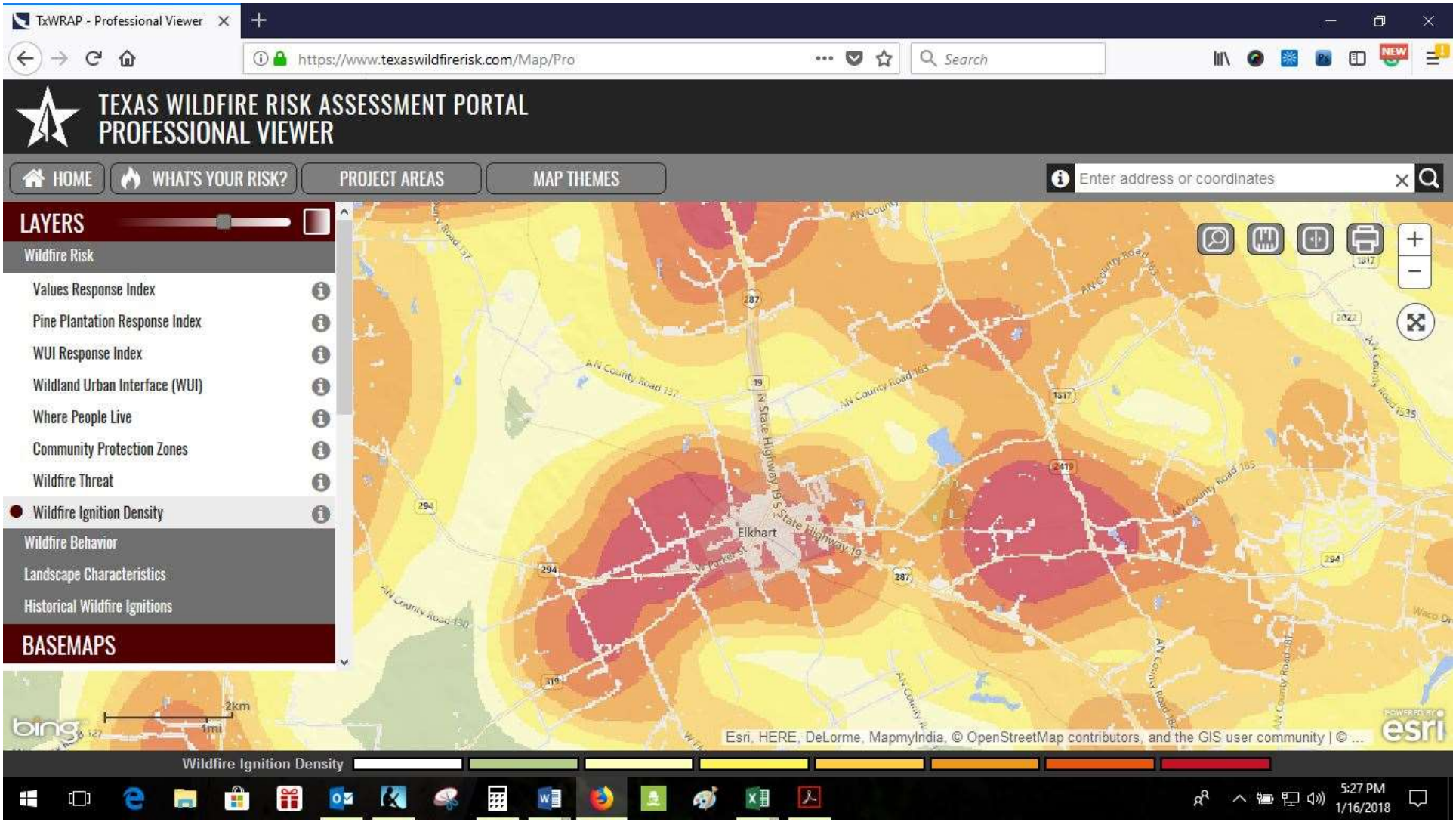
Values Response Index – represents a rating of the potential impact of wildfire on values and assets

The City of Palestine is shaded light grey.



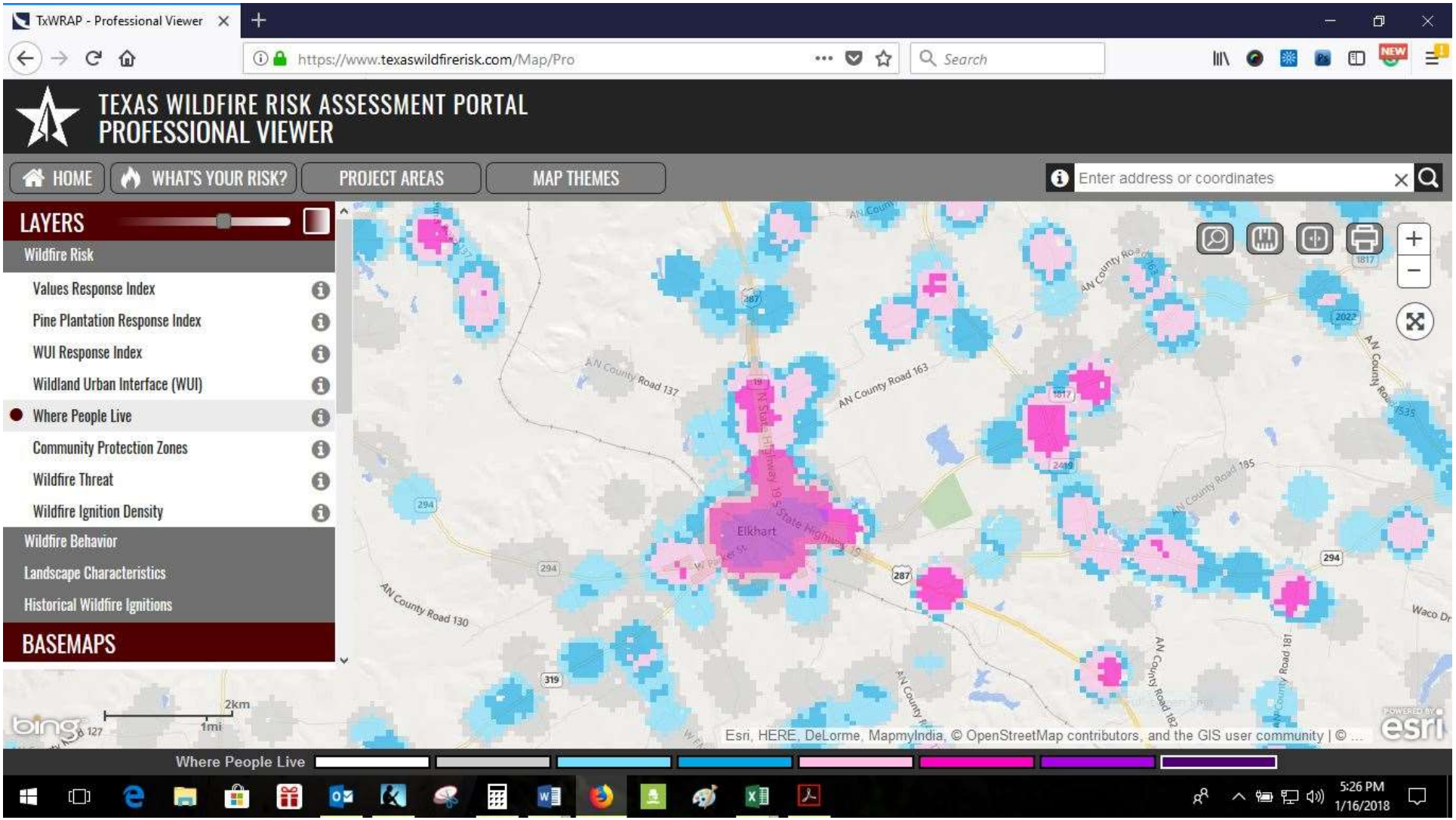
Wildfire locations and causes (2005 – 2015) City of Palestine

The City of Palestine is shaded light grey.



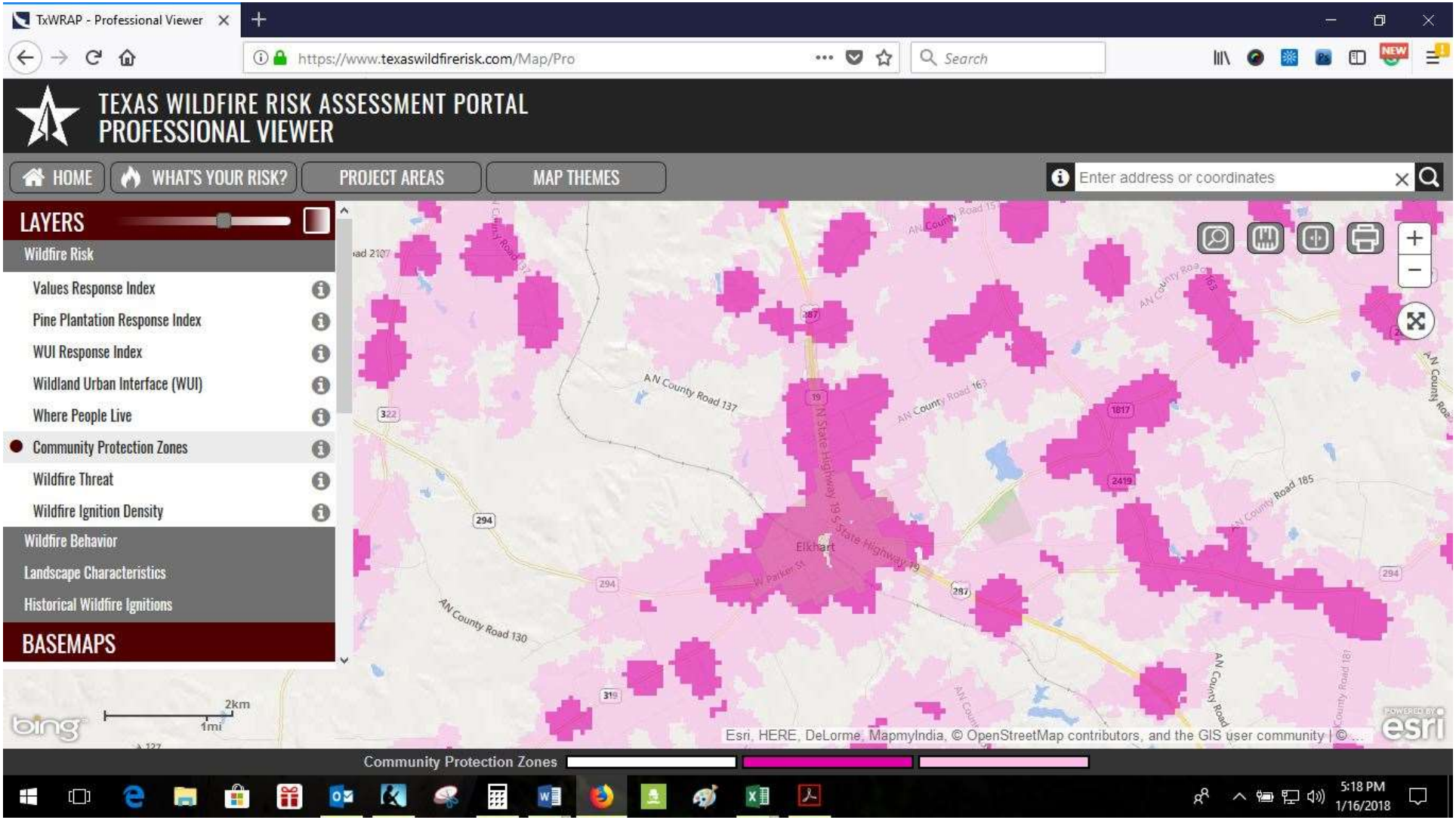
Wildfire Ignition Density – likelihood of a wildfire starting, based on historical ignition patterns

The City of Elkhart is shaded light grey.



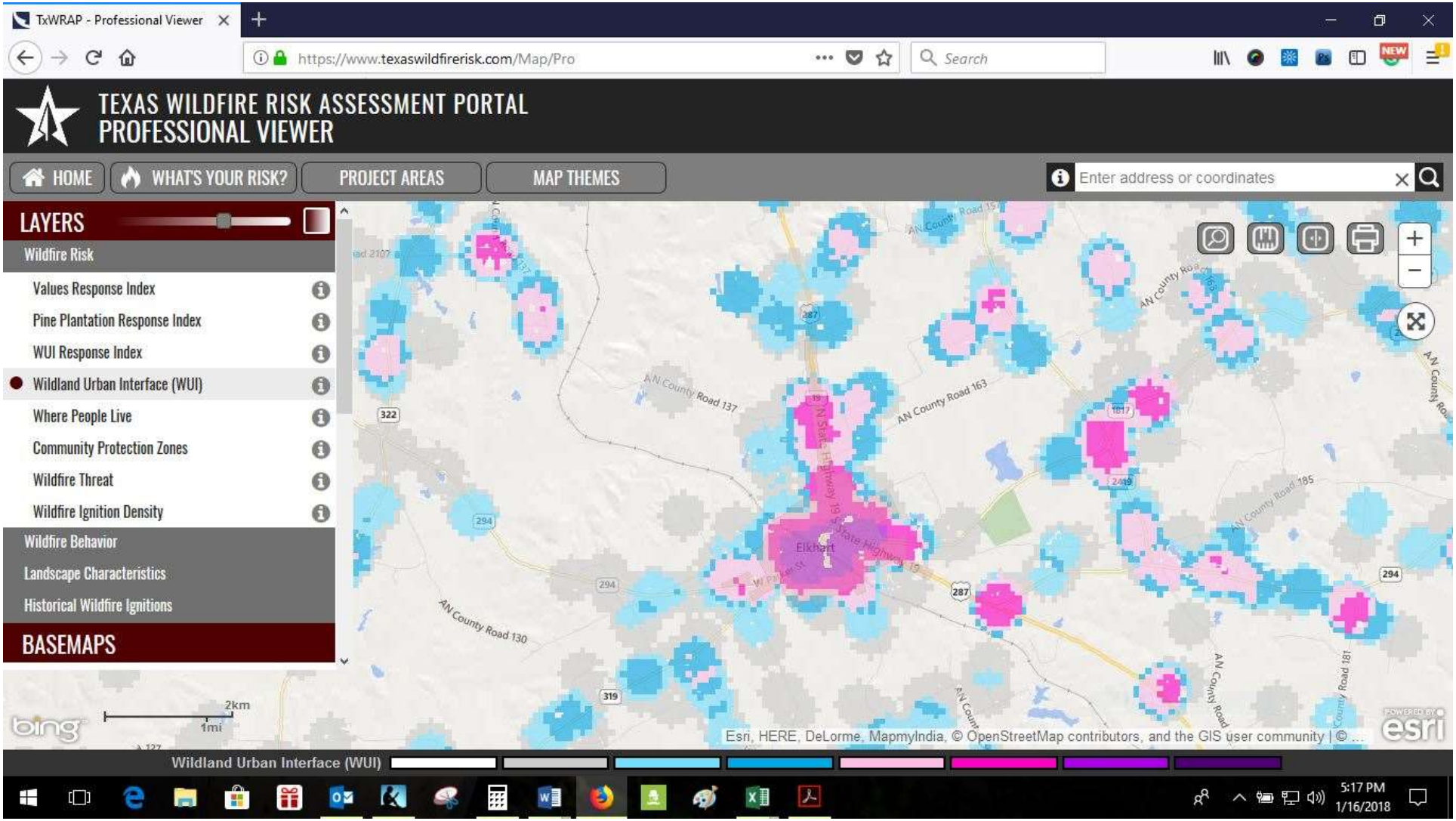
Housing density – shows where people live – compare to historic fire locations

The City of Elkhart is shaded light grey.



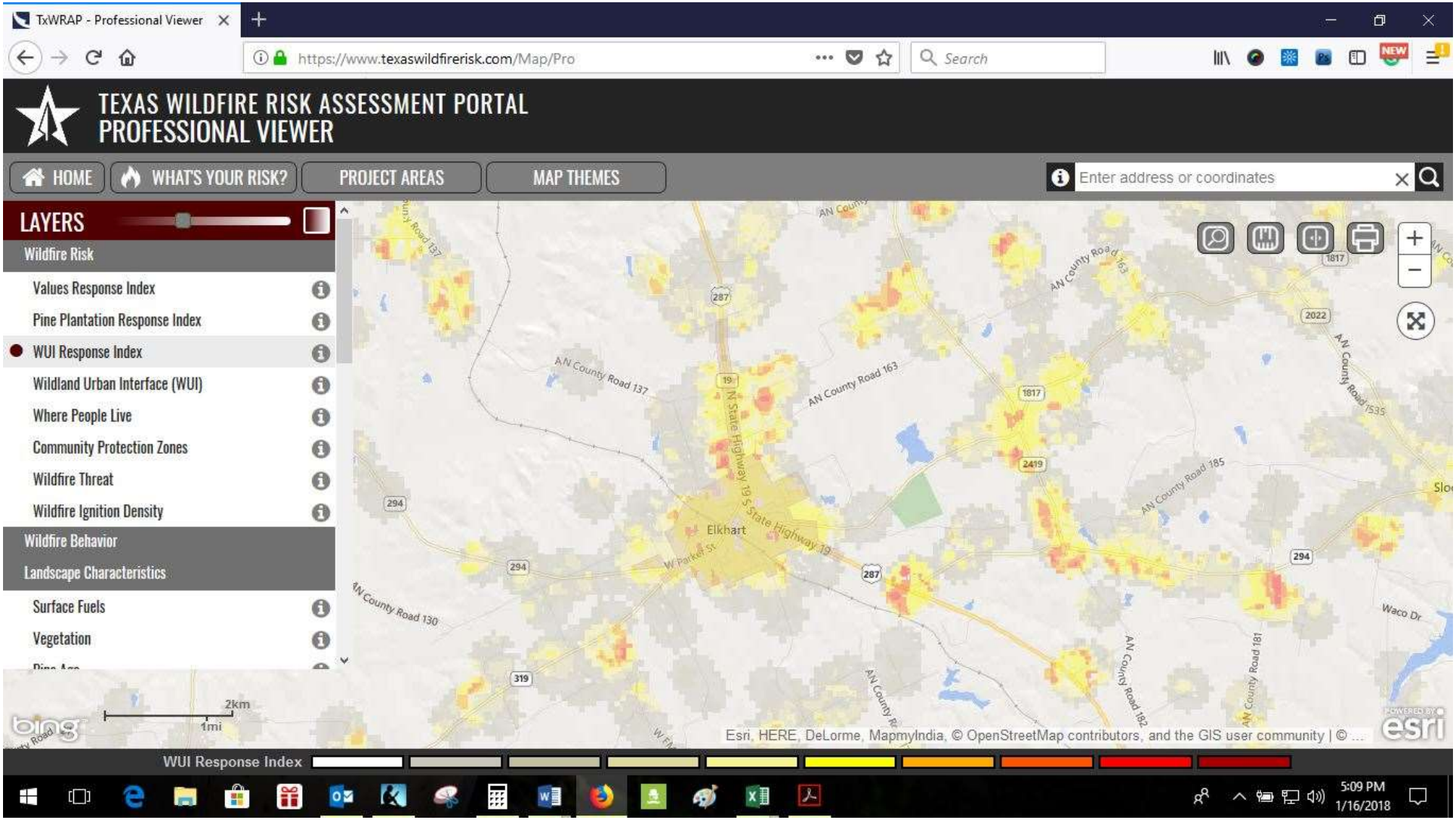
Community protection zones – primary and secondary priorities for planning purposes

The City of Elkhart is shaded light grey.



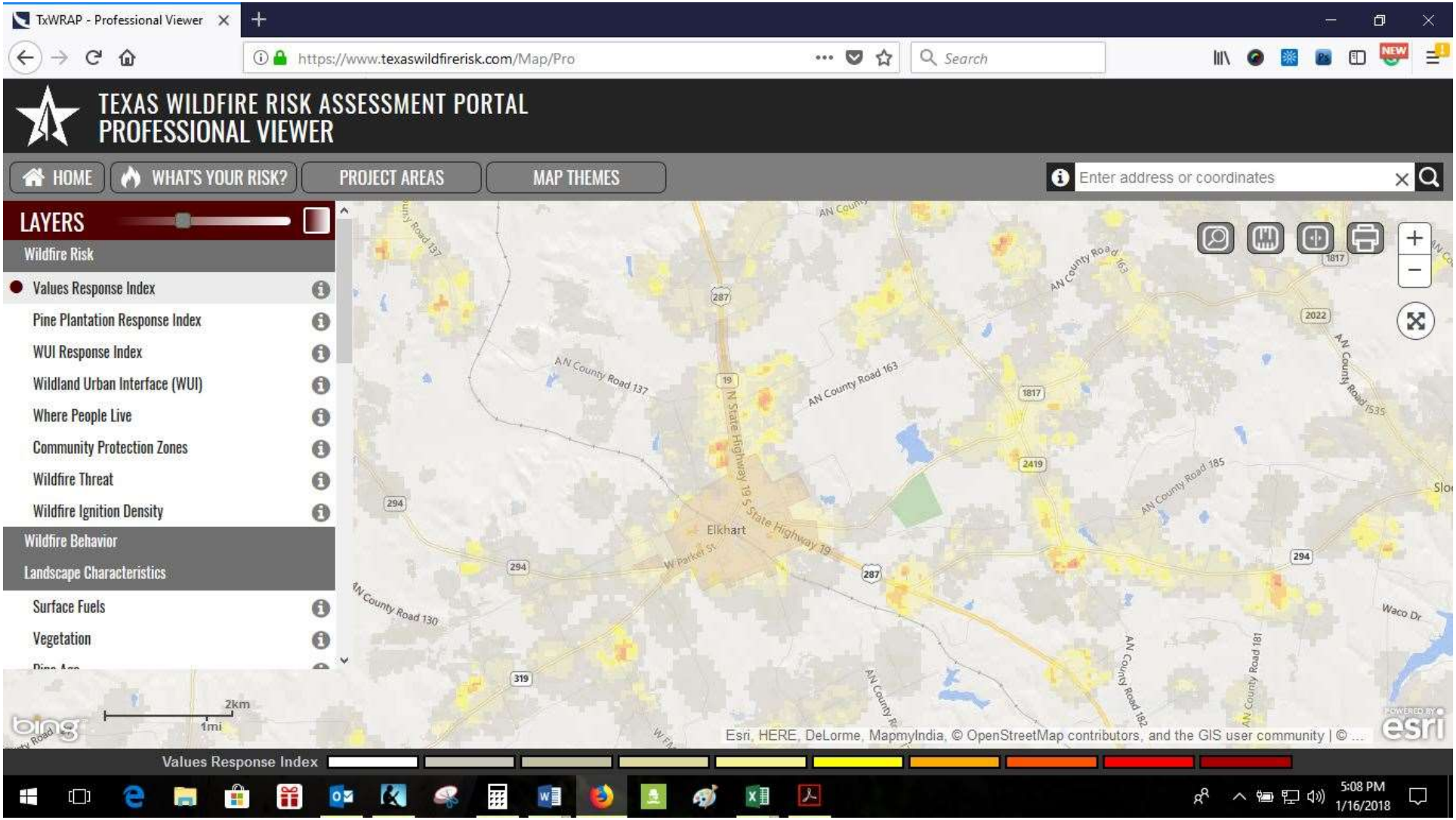
Wildland-Urban Interface (WUI) – depicts where humans and structures meet or intermix with woodland fuels.

The City of Elkhart is shaded light grey.



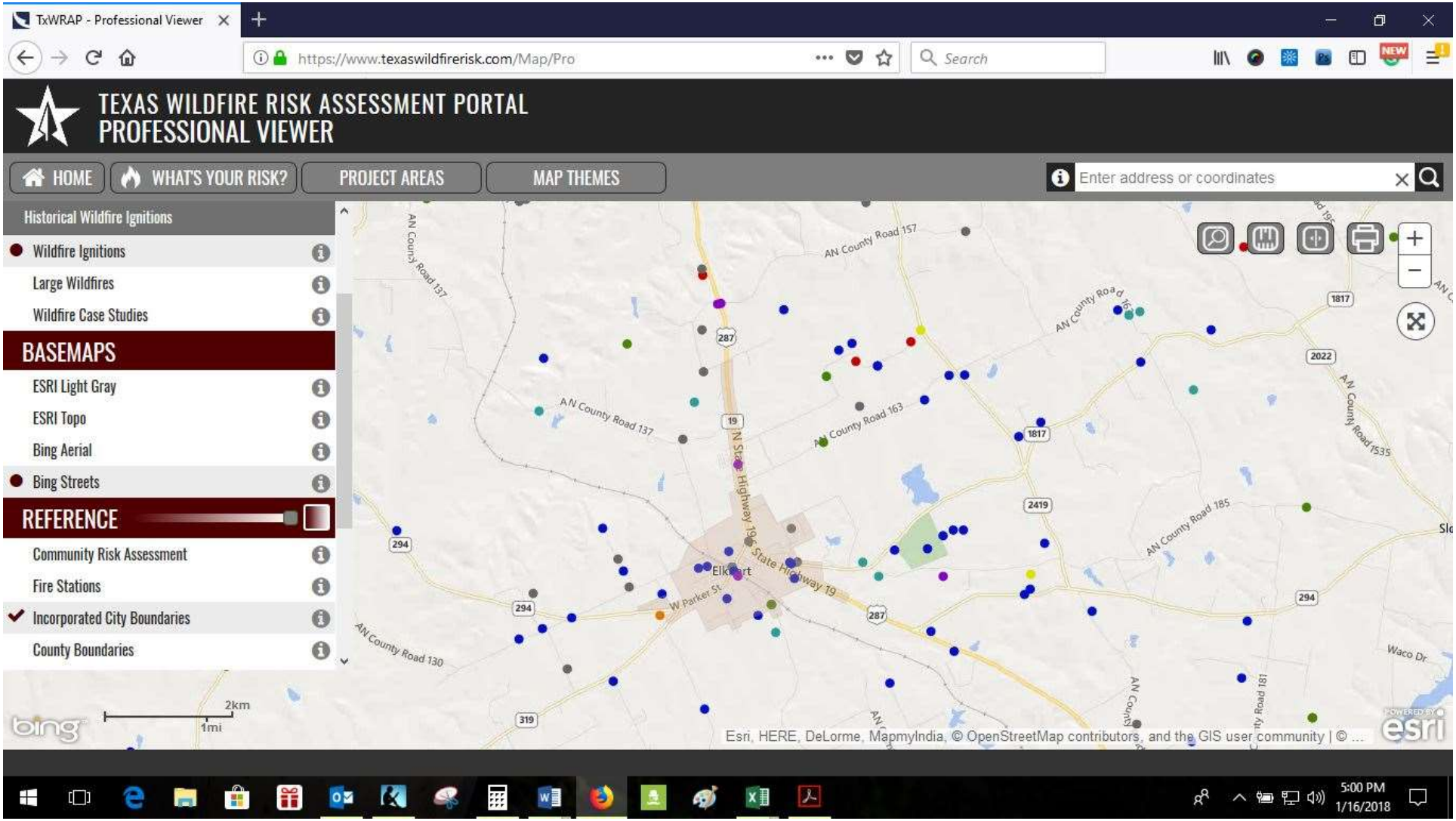
WUI Response Index – represents a rating of the potential impact of wildfire on people and their homes.

The City of Elkhart is shaded light grey.



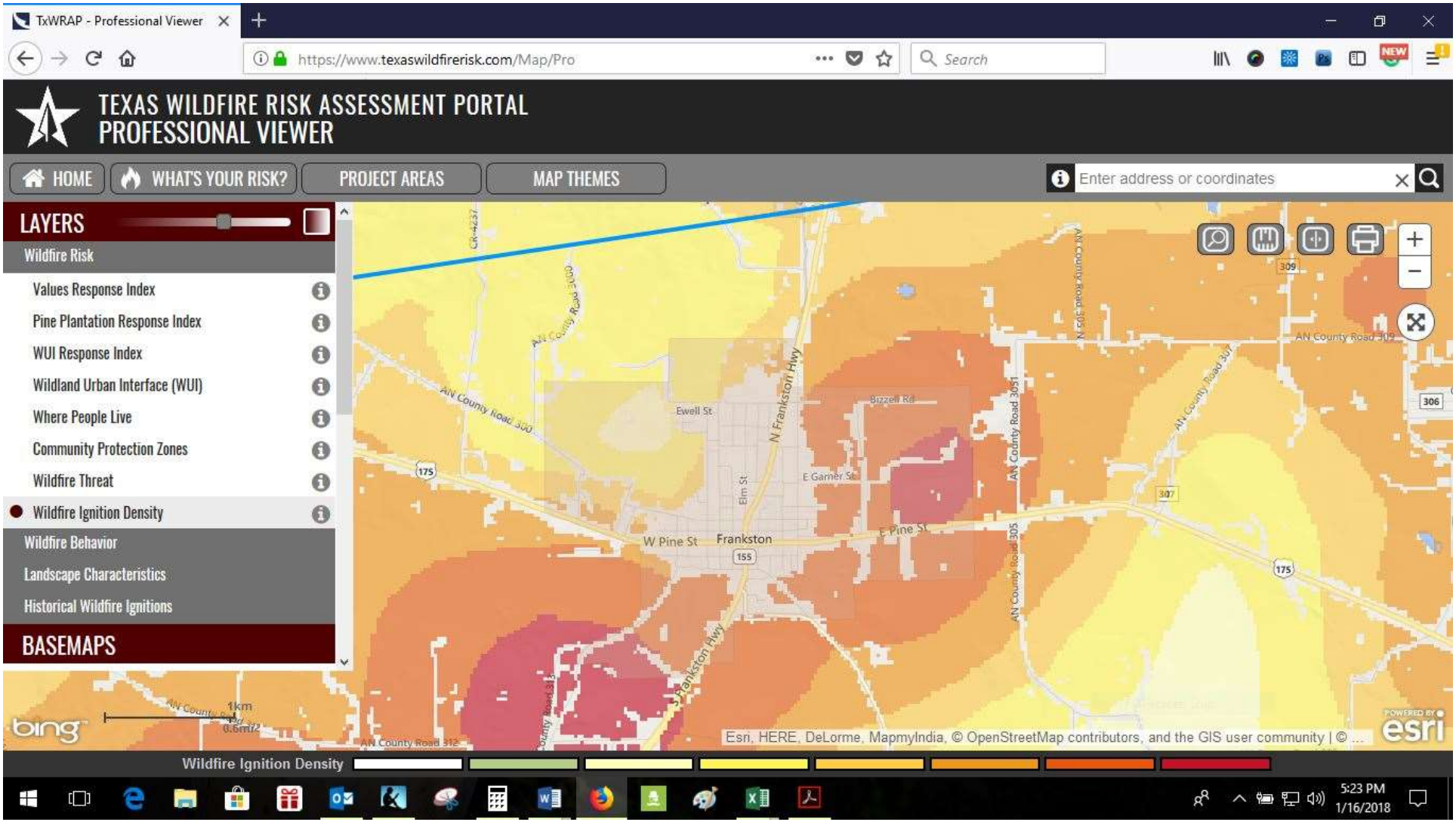
Values Response Index – represents a rating of the potential impact of wildfire on values and assets

The City of Elkhart is shaded light grey.



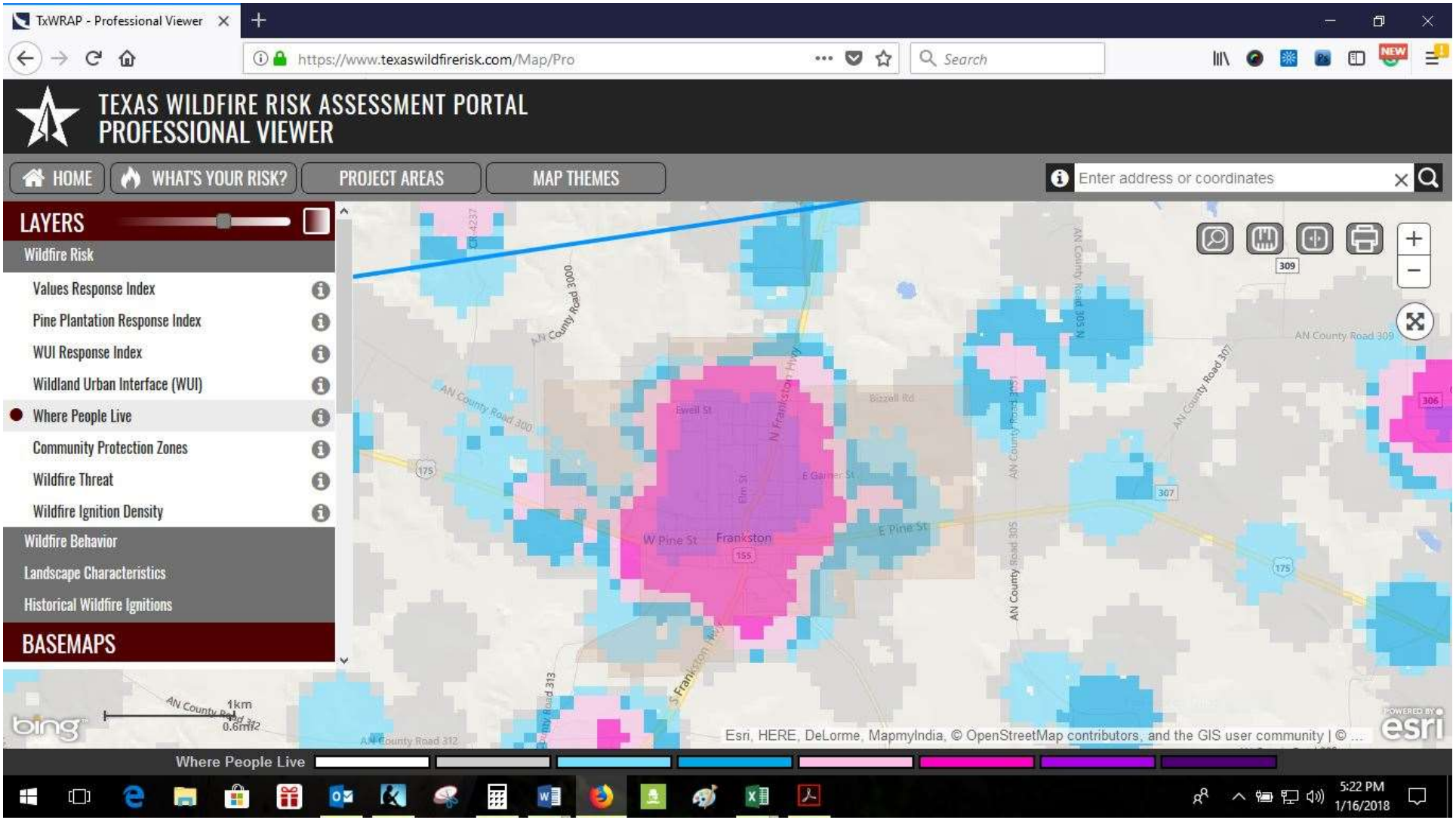
Wildfire locations and causes (2005 – 2015) City of Elkhart

The City of Elkhart is shaded light grey.

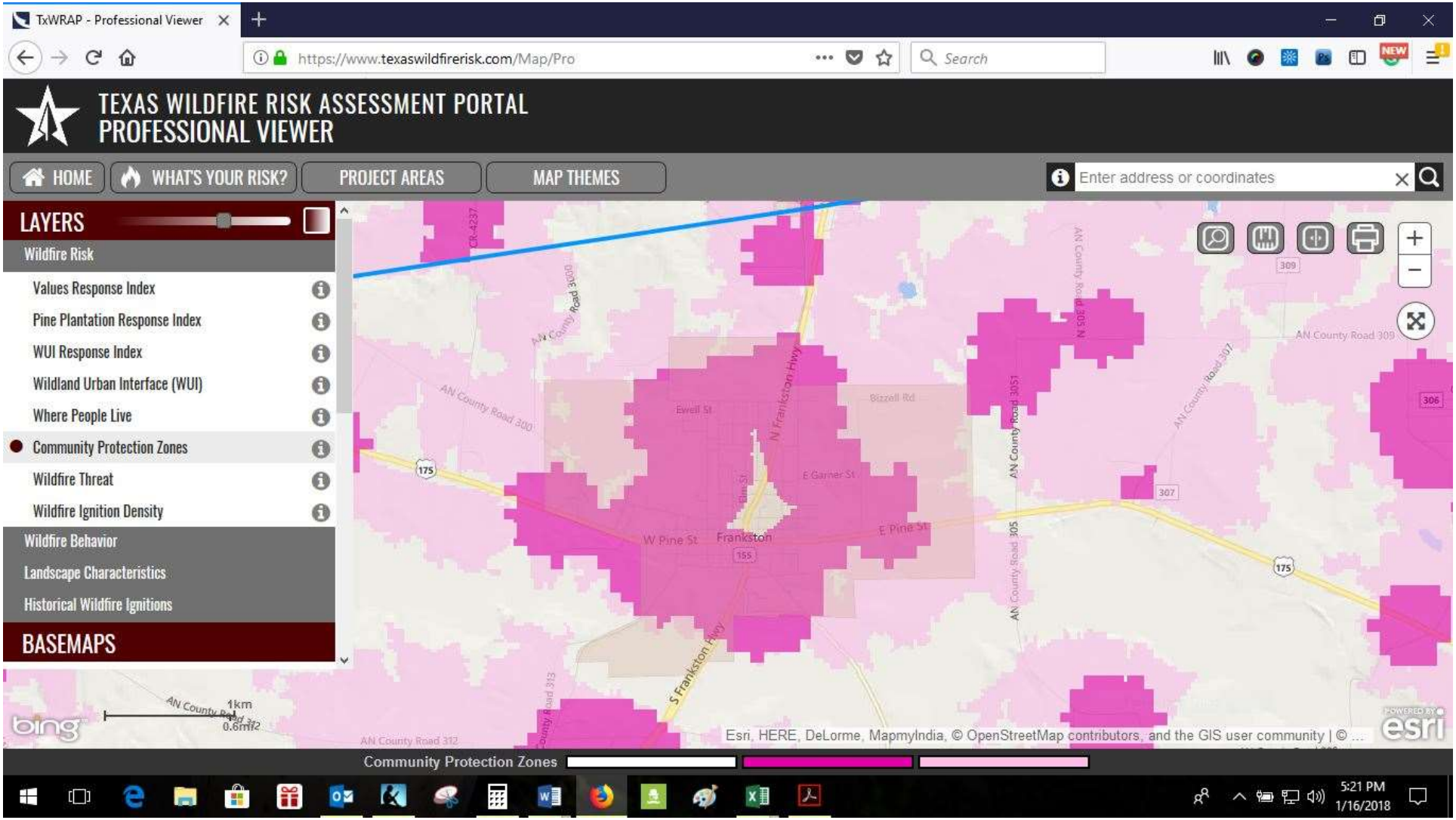


Wildfire Ignition Density – likelihood of a wildfire starting, based on historical ignition patterns

The City of Frankston is shaded light grey.

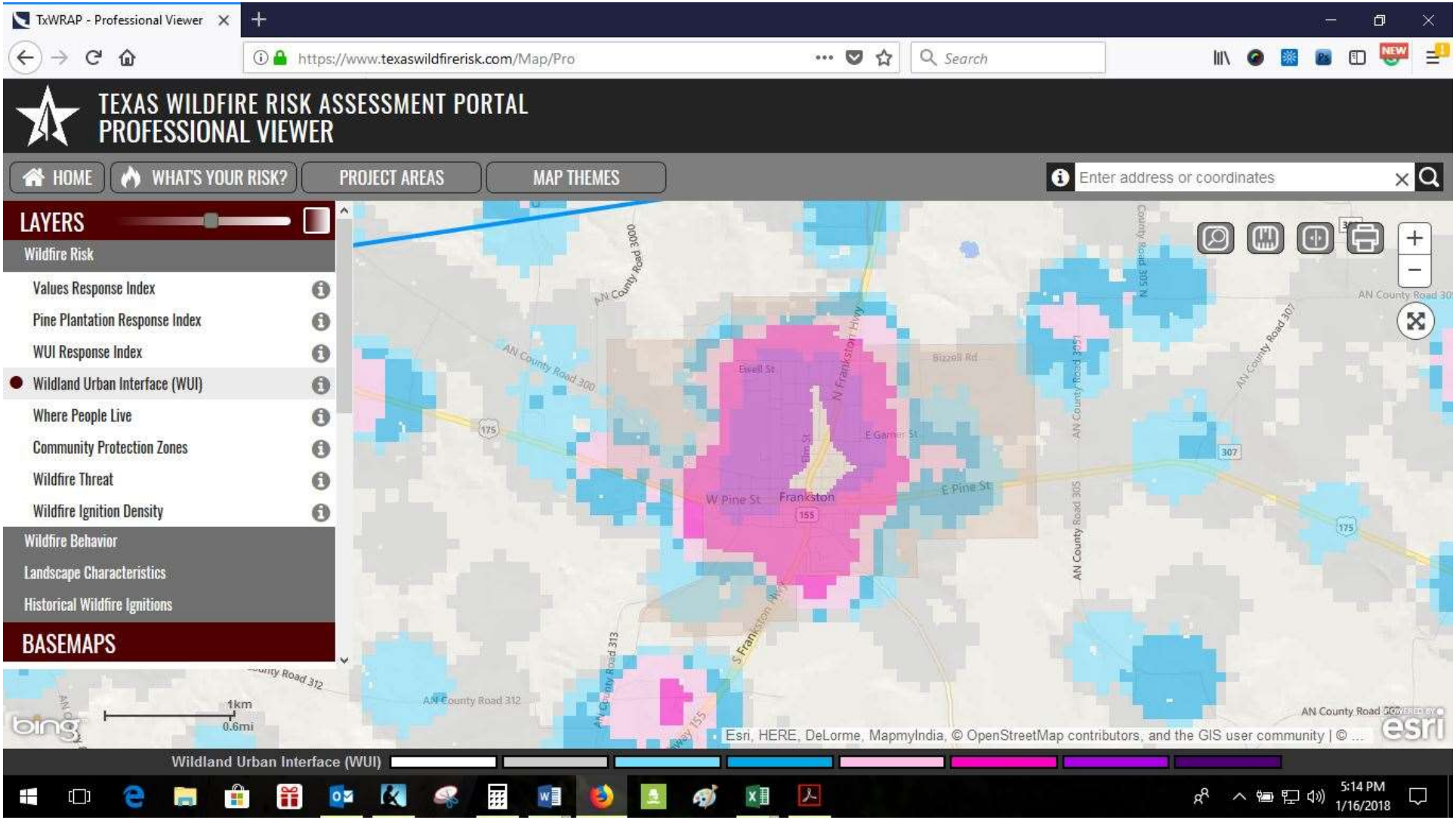


Housing density – shows where people live – compare to historic fire locations
The City of Frankston is shaded light grey.



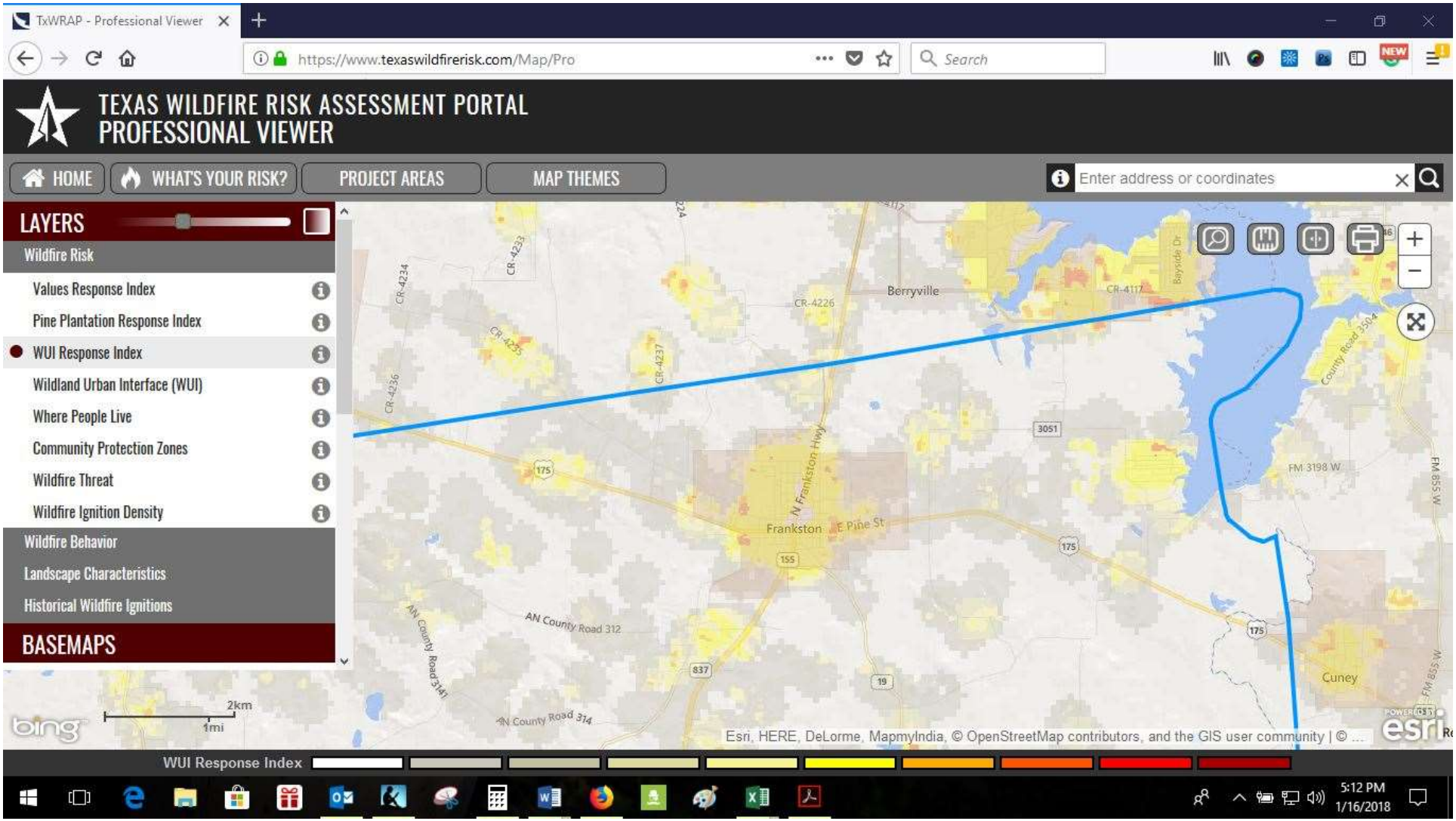
Community protection zones – primary and secondary priorities for planning purposes

The City of Frankston is shaded light grey.



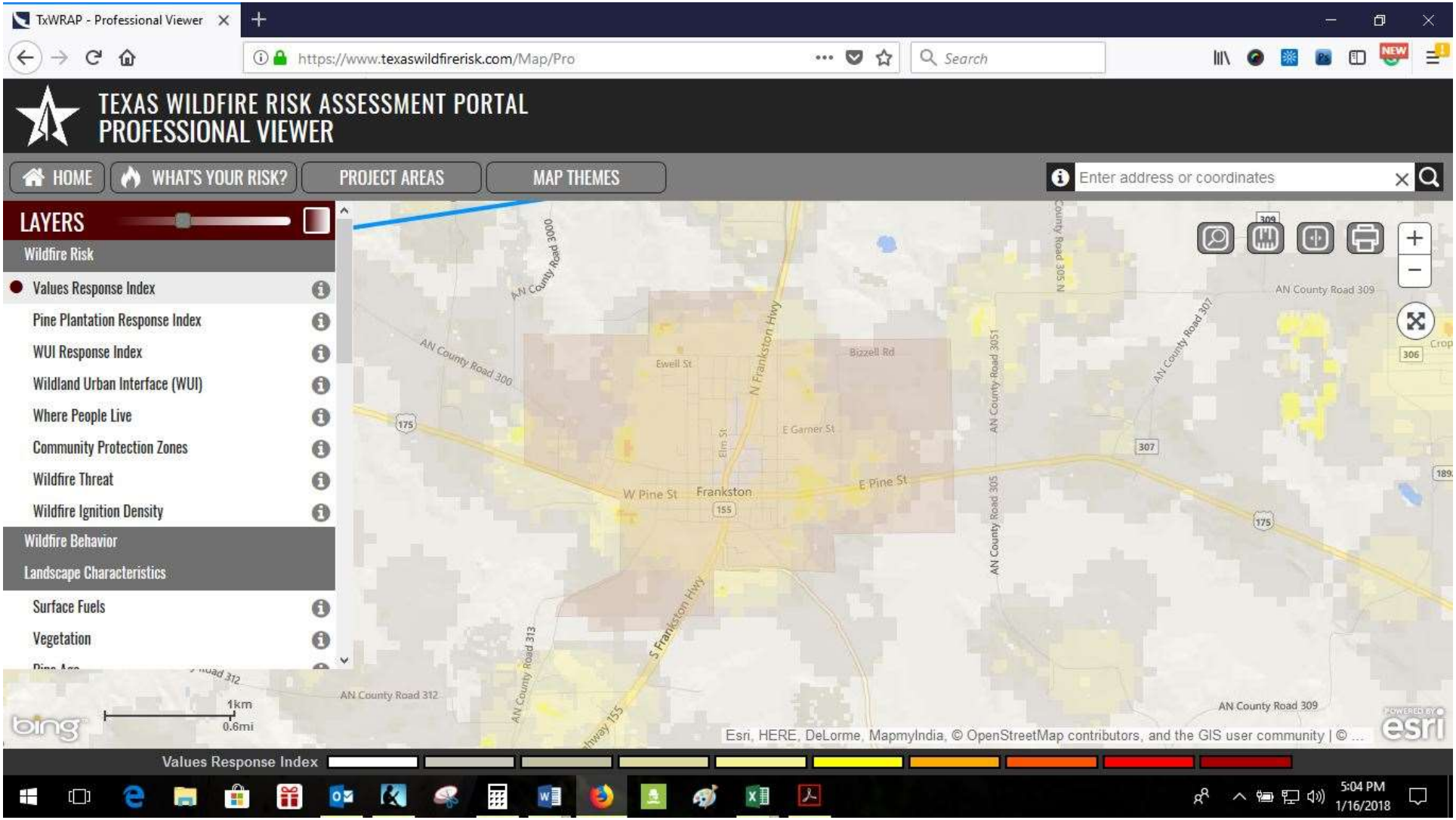
Wildland-Urban Interface (WUI) – depicts where humans and structures meet or intermix with woodland fuels.

The City of Frankston is shaded light grey.



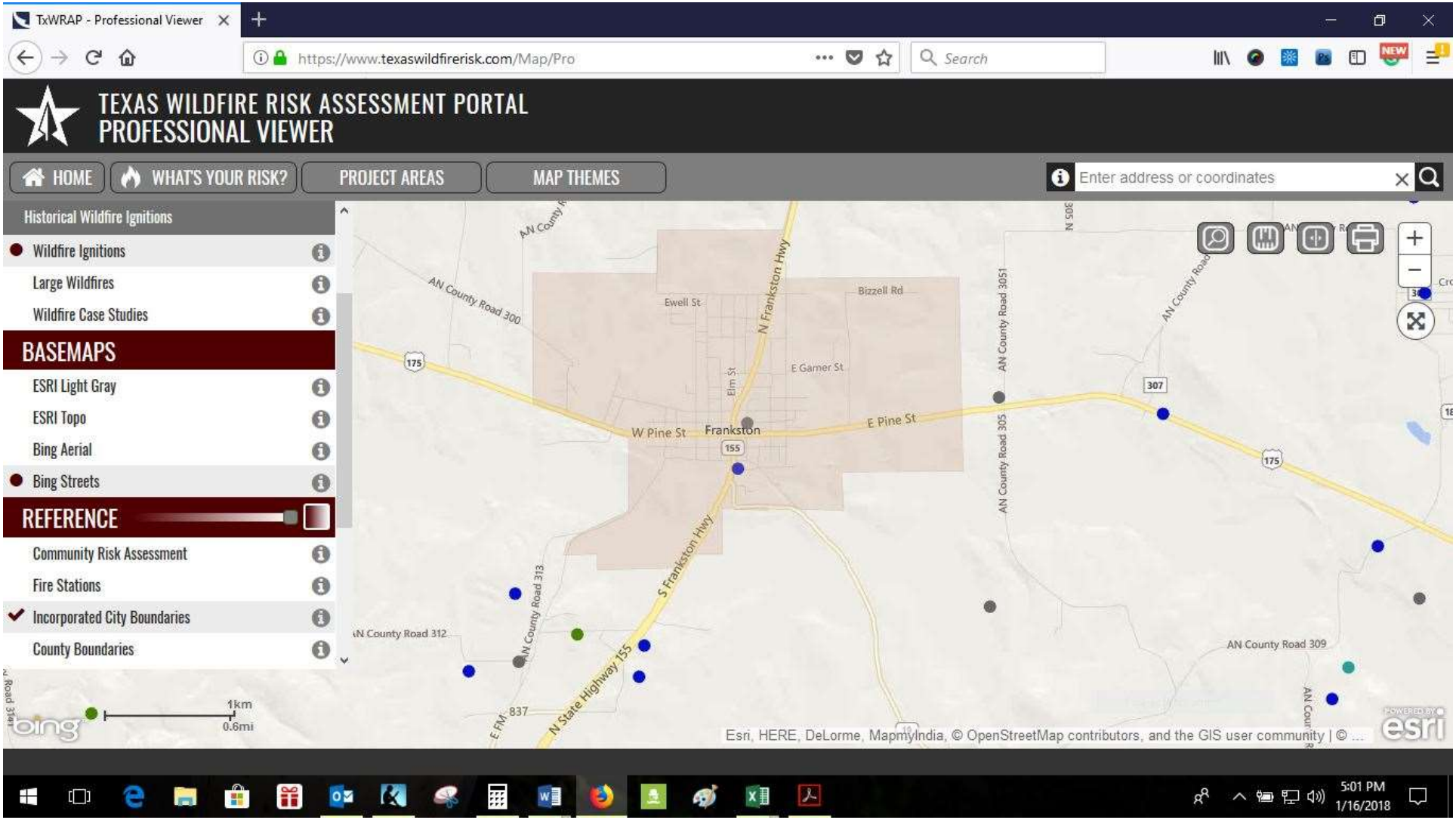
WUI Response Index – represents a rating of the potential impact of wildfire on people and their homes.

The City of Frankston is shaded light grey.



Values Response Index – represents a rating of the potential impact of wildfire on values and assets

The City of Frankston is shaded light grey.



Wildfire locations and causes (2005 – 2015) City of Frankston

The City of Frankston is shaded light grey.

Drought

Drought is a frequent hazard encountered in the Anderson County area. The County is blessed with abundant rainfall, averaging 46.6 inches per year. However, droughts have occurred and have had an impact on the area during 12 of the past 21 years, suggesting that any future year may have about a 50% chance of drought. When considered by month, Anderson County has experienced drought approximately 17.5% of the time (45 months of drought, from a total of 257 months).

After reviewing all historical data concerning drought, the Committee determined that drought would have a limited effect on the local jurisdictions, impacting the economy rather than being a direct hazard to human life.

Limited Characteristics:

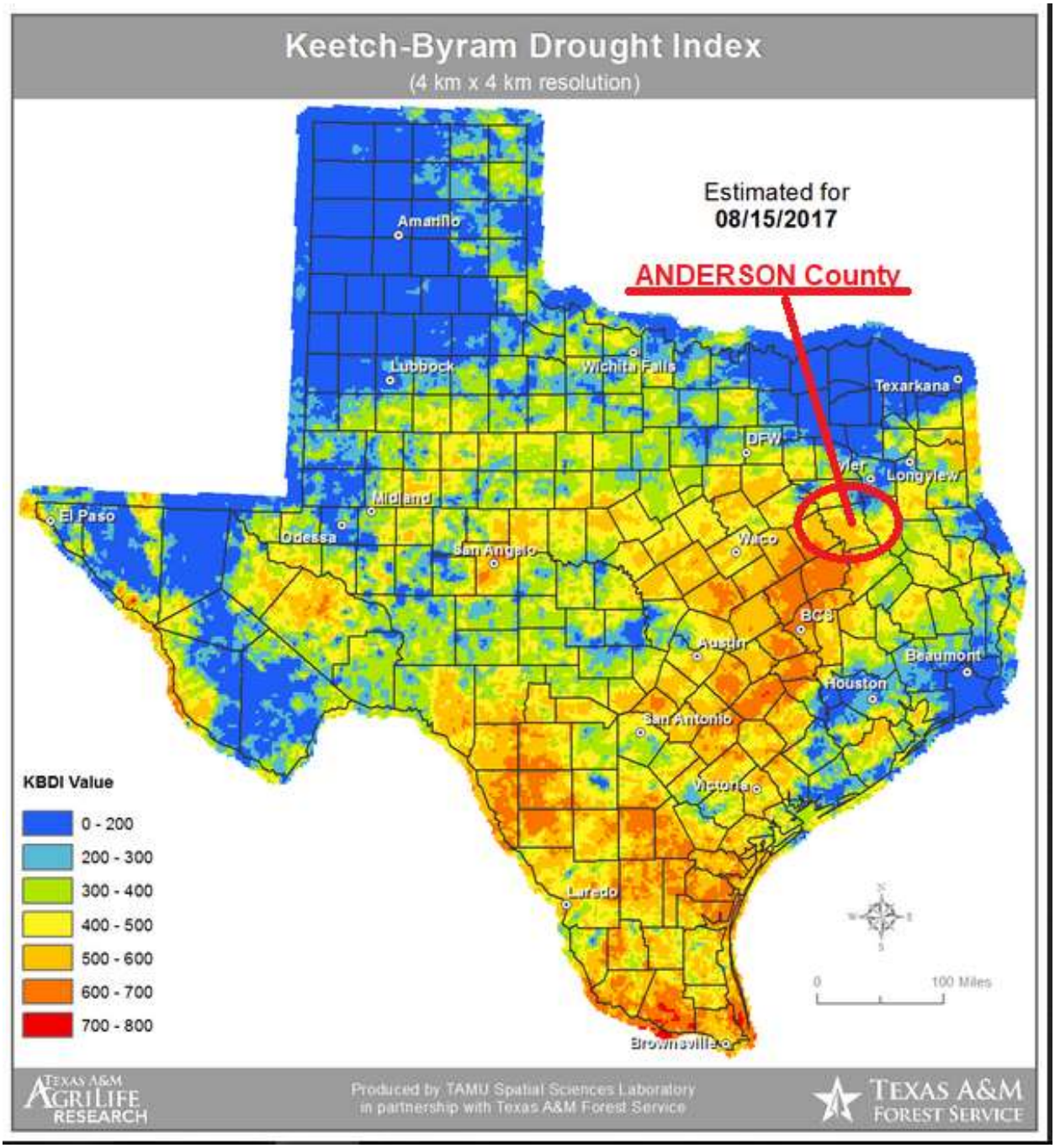
Injuries and illnesses are treatable with first aid;
Minor Quality of Life lost;
Shutdown of critical facilities and services for 24 hours or less;
Less than 10% of property destroyed or with major damage.

DROUGHT	
Category	**Response**
Potential Severity of Impact	Limited
Frequency of Occurrence	Every year or two
Probability of Future Events	Highly Likely
GSeasonal Pattern	All Year, but primarily in the Summer
List of Sources	Committee Input Public Input National Climatic Data Center
Probable Duration	Variable based on several factors
Warning Time	More than 12 hours
Existing Warning Systems	Keetch-Byram Drought Index
Potential Affected Area	Entire County and all participating Cities
Cascading Potential	Damage to crops and agricultural commodities Loss of water supply Increased wildfire potential and intensity Impact on tourism, farming, ranching

The earliest reported drought in Anderson County occurred in August of 1996, with another drought reported in July of 1998; another in August and September of 2000; also July, November and December of 2005; nine months of drought in 2006; also December of 2010; one drought report each month for the entire year of 2011, along with each of the first three months of 2012; five months of drought in 2013; three months of drought in 2014; three months of drought in 2015; and one report for November of 2016. Total property damage of $504,000 and $1,599,000 in crop damage were reported.

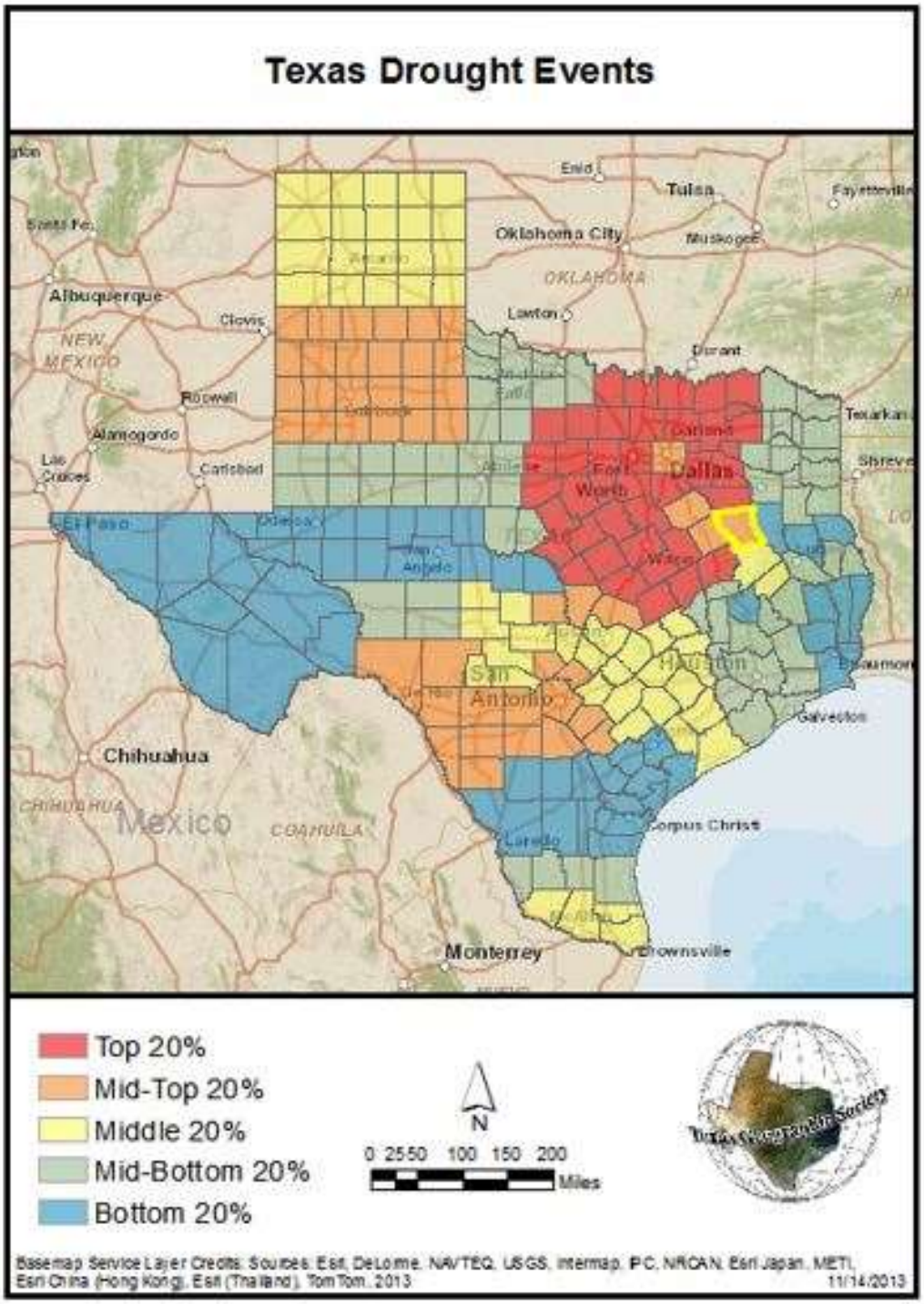
The impact of drought is mostly damage to the local economy, resulting in loss of natural resources and crop production. All types of agricultural products are affected, including hay, grain, orchards, vegetables, beef and other livestock. Horse and cattle breeders find it difficult to obtain hay, and prices skyrocket as hay must be imported from distant areas. Fishing is adversely affected, as the water level drops on area lakes. Tourism declines. Risk of wildfire increases, and the severity of a fire is likely to be much greater in times of drought. The drought year of 2011 saw the most extensive wildfires in the history of Anderson County, with almost 10,000 acres of land and 5 homes being burned in 7 separate fires, 6 of these in the month of August. The total cost of drought is difficult to determine, and losses are seldom reported to the National Climatic Data Center.

The Keetch-Bynum Drought Index is used to measure the severity of drought conditions and may assist in predicting when burn bans should be issued due to drought and consequent severe danger of wildfire. Current KBDI estimates for all locations in the State of Texas may be found at: **http://twc.tamu.edu/kbdi**. A new map is generated each day, showing updated information. Some historical maps may also be viewed. The map below is the KBDI for August 15, 2017, with Anderson County circled in red.



According to the CHAMPS report produced in November of 2013 by the Texas Geographic Society, Anderson County is ranked in the Mid-Top 20% of Texas counties, based on the 22 drought events that were reported over the period studied. The map below displays the number of drought events reported between 1960 and 2010 for all Texas Counties. Anderson County (outlined in yellow highlighter) is colored orange, to

indicate the second tier of 20% (ranking between 21% and 40%) of Texas counties. This means that Anderson County has experienced drought more often than any of the counties which are colored yellow, green or blue on the map. Only the red counties experienced drought more often than Anderson County.



Source: The map above was produced from data collected from several national sources, but primarily from NOAA's National Climatic Data Center (NCDC). The data used is compiled by county and distributed by the Hazards and Vulnerability Research Institute [SHELDUS dataset v.9], University of South Carolina, and was provided to the HMAP Committee by the Texas Geographic Society.

The Anderson County HMAP Committee believes that drought could occur within the next five years, and probably will affect the County and Cities for about 6 of the summer months, based on past averages. Anderson County and the Cities of Palestine, Frankston and Elkhart could experience a KBDI of 700-800 in the future, as happened in 2011. Some economic damage is expected, primarily to agriculture in rural Anderson County, with hay production and all crops being adversely affected. Livestock producers will spend more for hay and feed, due to lack of grass and resulting high prices of hay and possible shortages of forage. In the Cities, water rationing may be required, with subsequent loss of grass and flowers in people's yards, and damage to the landscaping and horticulture industry. No deaths or human illnesses would be expected due to drought, but economic losses could exceed $100,000.

Flood

Anderson County flooding occurs when a high quantity of rain falls in a short time, causing "flash flooding" which ends when the excess rain drains off into nearby watersheds or soaks into the ground. Damage caused by these floods is a result of several issues, usually related to property development. As new developments are constructed, less land is available to absorb water; therefore, more water is forced to other low-lying areas, causing those areas to flood. As forest space and other plant coverage decreases, the amount of run-off and erosion potential increase. Inadequate drainage system capacity can also be a factor, if the system was constructed to meet only the minimum requirements for conditions at the time of construction. Clogged drainage systems may exacerbate flooding, causing water to rise much higher than anticipated.

The HMAP Committee analyzed storm history events as reported by the National Climatic Data Center and used personal experience to profile flooding and determined that the potential severity of impact for flood in Anderson County is Minor.

Minor Characteristics:

- Injures and/or illnesses could result in permanent disability;
- Complete shutdown of critical facilities for more than 1 week could occur;
- More than 10% of property likely to be destroyed or suffer major damage.

FLOOD	
Category	**Response**
Potential Severity of Impact	Minor
Frequency of Occurrence	Once or twice per year, on average
Probability of Future Events	Highly Likely
Seasonal Pattern	Spring and fall
List of Sources	FEMA Flood maps National Climatic Data Center historical data County Road Reports detailing roads that have flooded or have potential to flood
Probable Duration	1 day up to 2 weeks for water to drain away. Road repair after a flood may take several days to complete.
Warning Time	3-6 hours
Existing Warning Systems	TV, Radio, NOAA warning, Internet, storm watchers, CODE RED
Potential Affected Areas	City and County areas identified on FEMA flood maps and specific areas which have flooded in past incidents, identified on maps on the following pages.
Cascading Potential	Loss of electricity; Contamination of water supply; Flooded homes or buildings; Road closures; roads damaged; Bridges closed, damaged or washed away; Vehicles damaged or destroyed; People injured or killed in vehicles, or drowned attempting to escape flood waters; Livestock or pets drowned in flood waters; Property damage in low-lying areas;

FLOOD	
Category	**Response**
	Snakes migrate and mosquitos increase; Debris in transportation paths; Emergency response delays; Disruption of traffic; Impacts to the economy.

Forty-one flash flood events due to heavy rainfall have been reported to the National Weather Service from 1997 through 2017, a period of 21 years. All of the Anderson County jurisdictions combined have averaged one flooding event every 6 to 7 months. Total property damage reported equals $3,364,000. Crop damage of $20,000 has also been reported. Flooding occurs in rural Anderson County about once each year, on average; in Palestine, about once every two years; in Frankston, about once every four years; and in Elkhart, only one incident has been reported in the past eight years.

In 2016, seven deaths due to flooding were reported in three different Anderson County locations. Six of these fatalities occurred during one flood incident on April 29-30, 2016, after seven and a half inches of rain fell in one hour. Five members of the same family (a 64-year-old woman and four children, ages 6-9) drowned while trying to escape their flooded home on Timber Drive in Palestine. Six of 10 homes on the cul-de-sac were completely destroyed by flood waters. Some residents had to be rescued from the roofs of their homes, and the water was reported to be 12 feet deep inside some of these homes. On the same night, a 30-year-old man died in flood waters on Anderson County Road 370, in the Deanwright community.

On June 13, 2016, a 24-year-old man was killed on FM 321 near Tennessee Colony when he lost control of his car in high water on his way to work.

Fatality Details due to Flooding:

Age	Gender	Date	Fatality Location
9	Female	4/29/2016	Outside/Open Areas on Timber Drive in Palestine, while escaping a flooded house.
8	Male	4/29/2016	Outside/Open Areas on Timber Drive in Palestine, while escaping a flooded house.
7	Male	4/29/2016	Outside/Open Areas on Timber Drive in Palestine, while escaping a flooded house.
6	Female	4/29/2016	Outside/Open Areas on Timber Drive in Palestine, while escaping a flooded house.
64	Female	4/29/2016	Outside/Open Areas on Timber Drive in Palestine, while escaping a flooded house.
30	Male	4/29/2016	Outside/Open Areas on Anderson County Road 370, in the Deanwright community
24	Male	6/13/2016	In water on FM 321 near Tennessee Colony

Cars were flooded in downtown Palestine. Businesses and homes in low-lying areas across the city were flooded: 35 homes sustained major damage and 3 businesses in Old Town Palestine were damaged. The railroad tracks at Sycamore and Gillespie streets were washed out. Flooding was also reported at Loop 256 and Highway 84 on the east side of Palestine. To the southwest of Palestine, part of Shamrock Drive was washed out.

According to the National Climatic Data Center, flooding events have occurred in the following specific areas of Anderson County:

Date	Location	Description
2/22/94	Palestine	Heavy rains caused Highway 287 to be flooded and closed at the Trinity River Bridge.
10/8/94	County-wide	Numerous Farm-to-Market Roads were flooded; two miles of FM 430 were washed out.
9/19/95	Palestine	Portions of Highway 19 were flooded.
8/7/97	Palestine	Several roads throughout the county under water after 6.9” of rain fell within 24 hours.
8/7/97	Montalba	Farm-to-Market Road 2054 was reported flooded.
1/6/98	Palestine	Several roads across the county were closed due to high water. A bridge over Catfish Creek had five feet of water over it.

Date	Location	Description
1/7/98	Palestine	Numerous roads remained closed due to high water.
11/13/98	Frankston	Rain produced water that covered FM 19 south of town.
11/13/98	Tennessee Colony	Heavy rains from thunderstorms caused water to cover Highway 321.
1/28/99	County-wide	The Lake Creek Bridge 10 miles northwest of Palestine caved in from high water due to thunderstorm rains
3/14/2001	County-wide	Highway 287 north of Cayuga was closed due to flooding of the Trinity River.
6/7/2001	County-wide	High water was reported on county roads 153, 164, and 2140.
9/4/2001	Palestine	Water from 1 to 1½ feet deep was reported on streets. One foot of water was reported over roads south of town. Several streets were closed and two motorists had to be rescued.
6/17/2006	Tucker	Highway 79 and FM 645 were closed due to high water.
5/2/2007	Frankston	Heavy rain caused a bridge on CR 326 and a culvert on CR 354 to wash out.
5/28/2007	Palestine	CR 425 was underwater and had to be barricaded. In addition, a large section of CR 2232 washed away, leaving residents stranded without another road to use. The flooding broke a large pipe under the road and left a hole about eight feet wide and twelve feet across. The school bus could not pick up children, the mail could not be delivered, and the trash could not be picked up.
6/27/2007	Palestine	County and farm roads were flooded north of Palestine. CR 1229 and CR 1232 near Highway 84 were flooded by Stills Creek due to heavy rains.
7/5/2007	Palestine	Several roads were flooded and closed east of Palestine.
7/6/2007	Palestine	Several roads and highways were closed, including CR 448 in the Montalba area and CR 425 near FM 322. A few bridges were washed out across the county. A 20' x 40' swath of CR 4034 was washed away, stranding several households. A water line servicing about twenty homes was also swept away.
10/6/2008	Frankston	Flood waters were two feet deep near the intersection of Highway 175 and Highway 155 in Frankston.
10/22/2009	Elmwood	Mound Prairie Creek at SH 155 was out of its banks and flooding nearby pastures.

Date	Location	Description
10/22/2009	Frankston	Flooding continued along many creeks, rivers, and streams in the county; especially across the northern half of the county. In particular, heavy flooding was noted along the Mound Prairie Creek from near Elmtown to SH 155, and roads were impassable near the Trinity River in the eastern portions of the county.
10/26/2009	Springfield	Several secondary roads north of Palestine were flooded due to persistent rainfall over several hours.
6/9/2010	Elkhart, Palestine & County-wide	Numerous roads across the county had significant flash flooding. There were several flooded homes and a house rescue conducted in Palestine. Parts of Highway 315 were washed away and a vehicle was stranded near the town of Elmwood. At least 4 feet of water was over County Road 404 12 miles NNW of Palestine. Several roads in the city of Palestine were closed for several days due to damage suffered by the flood waters.
6/10/2010	Tennessee Colony	Residual flooding lasted for many hours after the heavy rain had ended. Farm-to-Market Road 2330 remained closed as did Farm-to-Market Road 315 from Farm-to-Market Road 837 to Highway 175. Several county roads throughout the county also remained closed due to residual flooding.
5/20/2011	Tucker	A segment of Highway 294 was barricaded due to high water flowing over the road near Tucker, 8 miles SW of Palestine.
3/20/2012	Blackfoot	Many roads across the county were closed overnight due to high water.
5/9/2013	Blackfoot	Several roads underwater and impassible due to locally heavy rainfall.

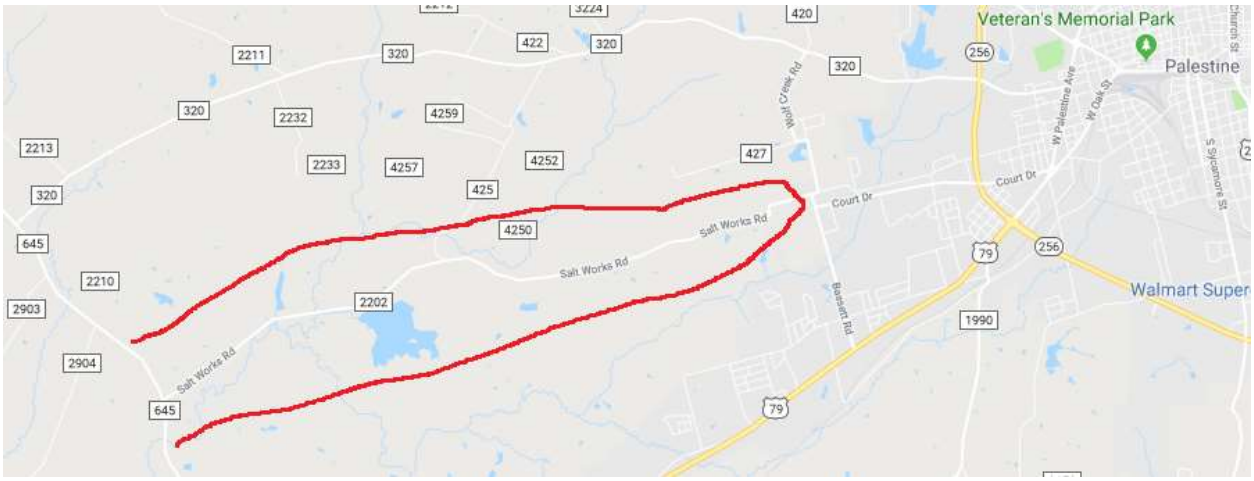
Date	Location	Description
10/31/2013	Massey Lake	Numerous roads closed due to flash flooding after 4-8" of rain fell in less than 8 hours. Portions of Highway 79 in Palestine were closed. Numerous other roads in Palestine were impassable including Reagan, Azell, Bassett, North Sycamore Rd near Ezell and Green Street. CR 2201 at Salt Works Rd, and CR 2715 and 2301 were also closed. One home on CR 2301 was flooded when Lake Creek overflowed its banks. FM 312 in Frankston was washed out. FM 321 at HWY 287 in Tennessee Colony was impassable. FM 321 between Tennessee Colony and Neches was closed in some places. FM 320 was closed near Harmony. A woman was trapped in her vehicle on FM 645 in Tucker due to high water, and FM 645 north of Tucker was also partially closed. Parts of FM 315, US 79 from Westwood to FM 645, FM 645 to FM 320, CR 2054, FM 321 to CR 2706, CRs 2223, 2401, 2504, 2303, & 2311 were closed or damaged. In many locations, water remained over the roads for several days and the roads were closed for at least a week due to damage to the roads and/or culverts.
11/22/2014	Tucker	A bridge washed out on Anderson County Road 2933 just southwest of Palestine.
10/24/2015	Cayuga	Flood waters were reported over a bridge on Highway 287 near Cayuga. High water was also reported on FM 59 north of Cayuga.
10/24/2015	Harmony	Water was over the road on FM 320 east of FM 645 approximately 9 miles west of Palestine, TX.
12/13/2015	Frankston	Flooding occurred across low-lying areas in the county, and along creeks and streams after several inches of rain fell in a short time. Many county roads along creeks and streams were closed, including CRs 468, 463, 321, & 2715.
12/27/2015	Tennessee Colony	FM 321 was closed at Catfish Creek 3 miles northwest of Tennessee Colony due to flooding of the creek.
3/9/2016	Harmony	Water was over the road on FM 320 east of FM 645 approximately 9 miles west of Palestine, TX.

Date	Location	Description
4/29/2016	Palestine	Deadly flash flooding happened in Palestine after 7.5" of water fell in one hour. A family of 5 died on Timber Drive while trying to escape the flood waters. Dead were a 64-year-old woman and 4 children, ages 6-9. Six of 10 homes on the cul-de-sac were completely destroyed. Some residents had to be rescued from the roofs of their homes and water was reportedly 12 feet deep inside some homes.
4/29/2016	Deanwright	A 30-year-old man died in flood waters on Anderson County Road 370.
4/30/2016	Palestine	Nearly 7.5" of rain fell over Palestine in about one hour, causing flooding across the city. Cars were flooded in downtown streets. Businesses and homes in low-lying areas across the city were flooded; 35 homes sustained major damage and 3 businesses were damaged. Railroad tracks at Sycamore and Gillespie streets were washed out. Flooding was reported at Loop 256 and Highway 84 on the east side of Palestine. To the southwest of Palestine, part of Shamrock Drive was washed out.
6/13/2016	Tennessee Colony	Numerous FM and County Roads closed due to flooding. FM 321 was partially washed out in Tennessee Colony. One man was killed when he lost control of his car in high water on his way to work. Spur 324 remained flooded and impassable through mid-morning due to flash flooding from overnight and early morning heavy rain.

(See **Appendix 1 – Historical Storm Event Data** for additional information)

Flood-prone areas in rural Anderson County

The areas of Anderson County most affected by flooding are along Salt Works Road, just west of the City of Palestine, and at the extreme southwestern corner of the county along the Trinity River, an area frequently referred to as "the river bottom." Salt Works Road flood-prone area is shown on the first map below, and "the Trinity River bottom" flood-prone area is shown on the second map; the areas prone to flooding are outlined in red.



Salt Works Road flood-prone area (blank map source: Google maps).

“Trinity River bottom” flood-prone area (blank map source: Google maps)

Minor flooding may also occur at any point along the Trinity River, which makes up the entire western boundary of Anderson County, or along the Neches River, which makes up the entire eastern boundary of Anderson County. Low-lying areas in any portion of the county may experience temporary flash flooding in times of heavy rainfall.

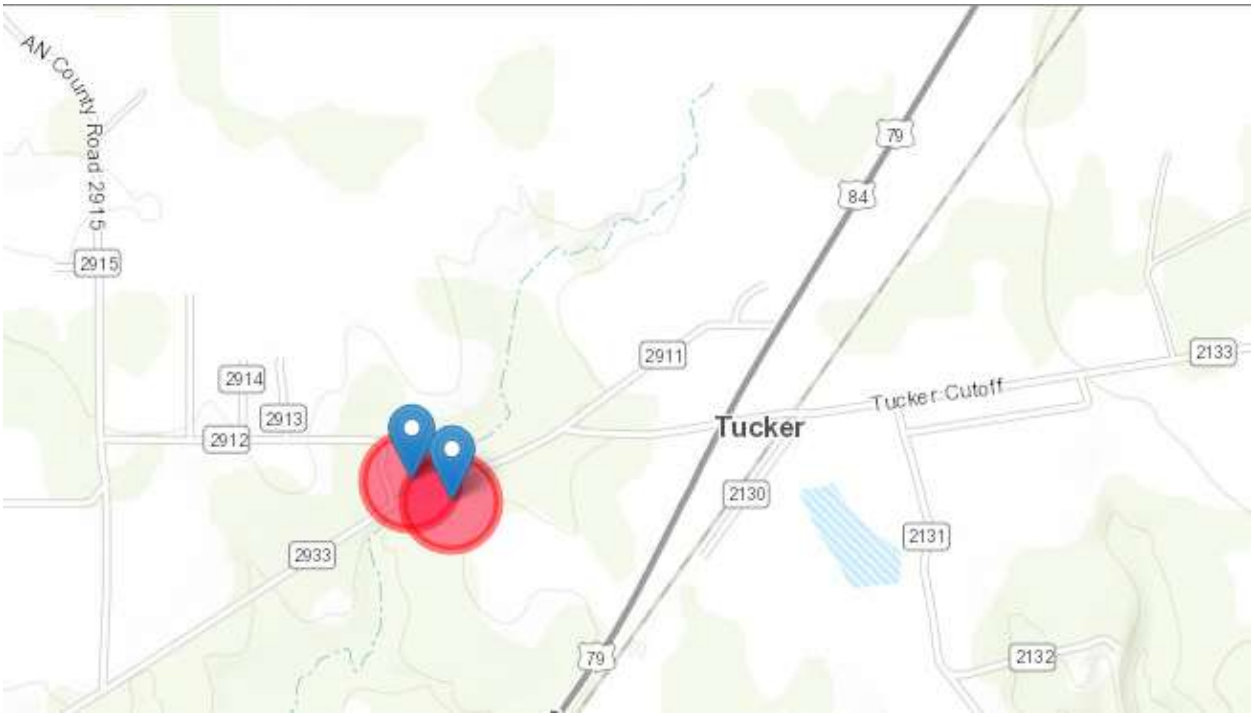
One location which sometimes floods during heavy rains is West FM 321 at Catfish Creek in the Tennessee Colony area, indicated by the red circle on the map above. This is a low area that is considered river bottom. This creek feeds off the Trinity River and tends to stay “full” on regular bases. So it does not take much for this creek to have minor flooding over the roadway. When it does flood over FM 321, it is usually due to excessive rain and the water usually clears / recesses within a day. (*Blank map source: Google maps*)

The following maps and descriptions give details of recent flooding incidents throughout Anderson County.

On April 29, 2016, a 30-year-old man drowned in flood waters on Anderson County Road 370, in the Deanwright community. The man was swept away while rescuers were attempting to assist him to safety. The red circle on the map below indicates the approximate location of this tragic event, which occurred on private property in rural Anderson County. (*Blank map source: Google maps*)

On June 13, 2016, numerous Texas Farm-to-Market Roads and Anderson County Roads were closed due to flooding. FM 321 was partially washed out in Tennessee Colony. One man was killed when he lost control of his car in high water on his way to work. Spur 324 remained flooded and impassable through mid-morning due to flash flooding from overnight and early morning heavy rain.

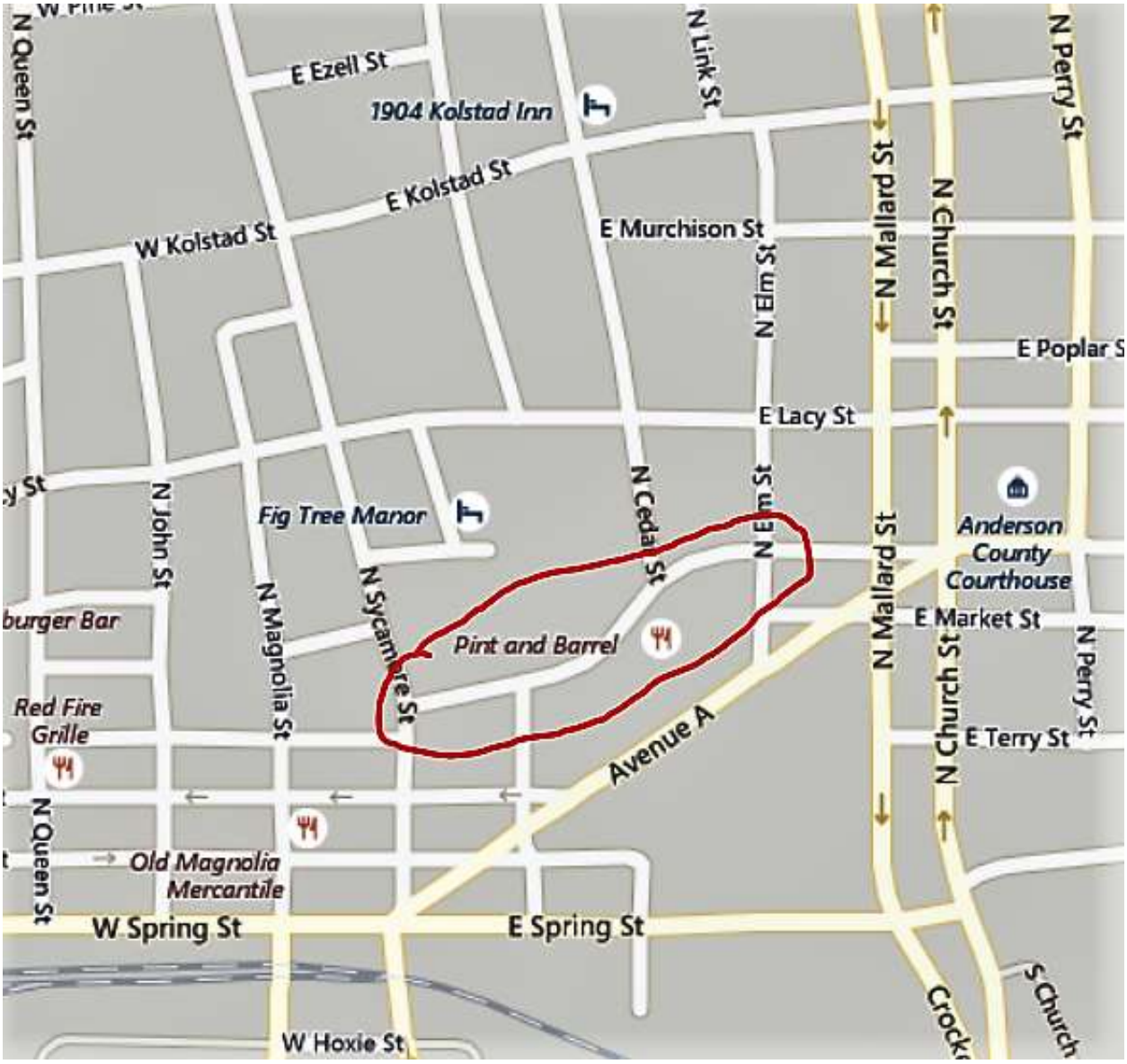
On November 22, 2014, an Anderson County Commissioner reported a bridge washed out on Anderson County Road 2933 just southwest of Palestine, near the Tucker community. Damage was estimated at $15,000.



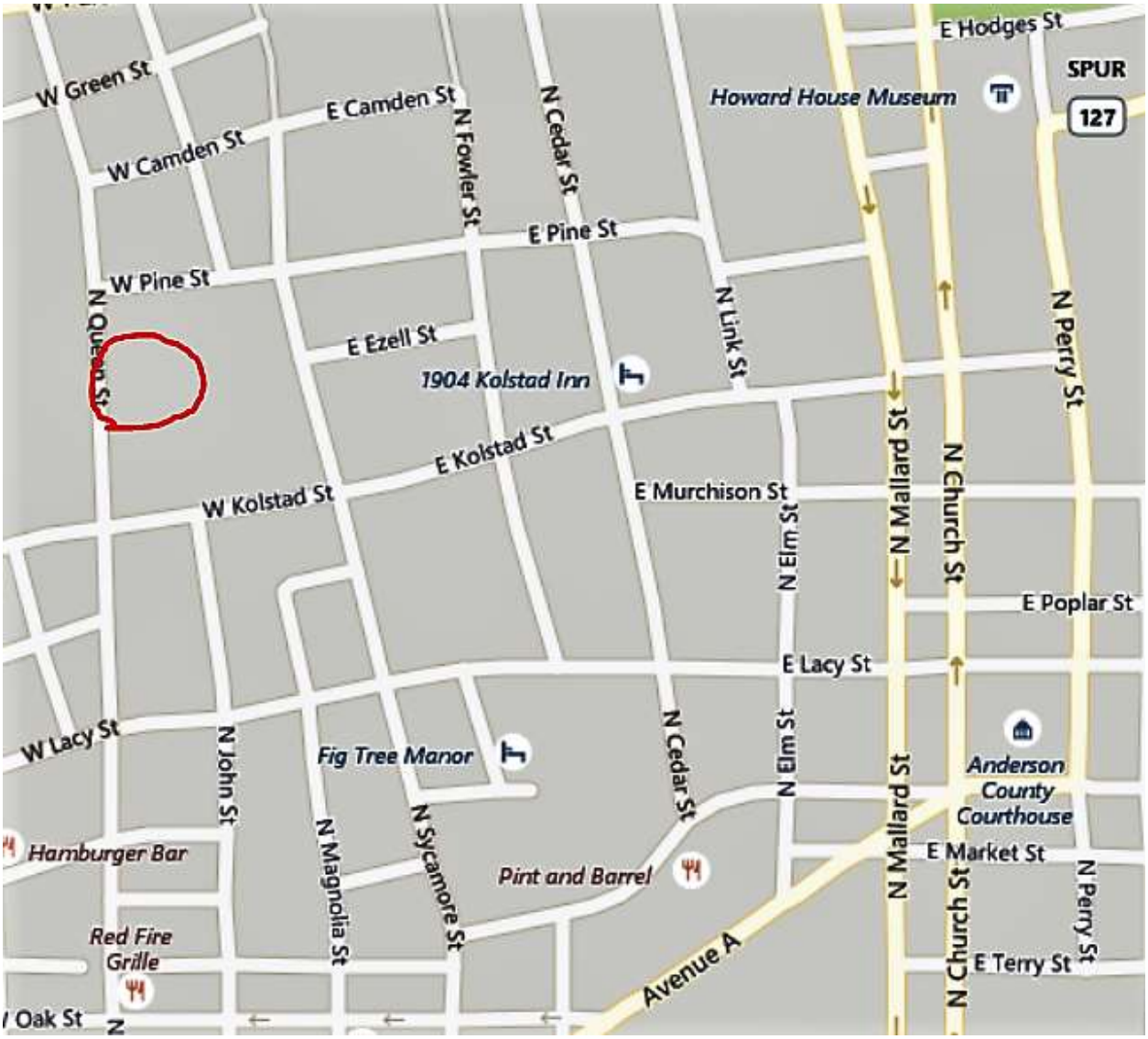
*Source: NCDC Database (**https://www.ncdc.noaa.gov/stormevents/eventdetails.jsp?id=548153**) last accessed 1/18/18.*

Flood-prone areas in the City of Palestine

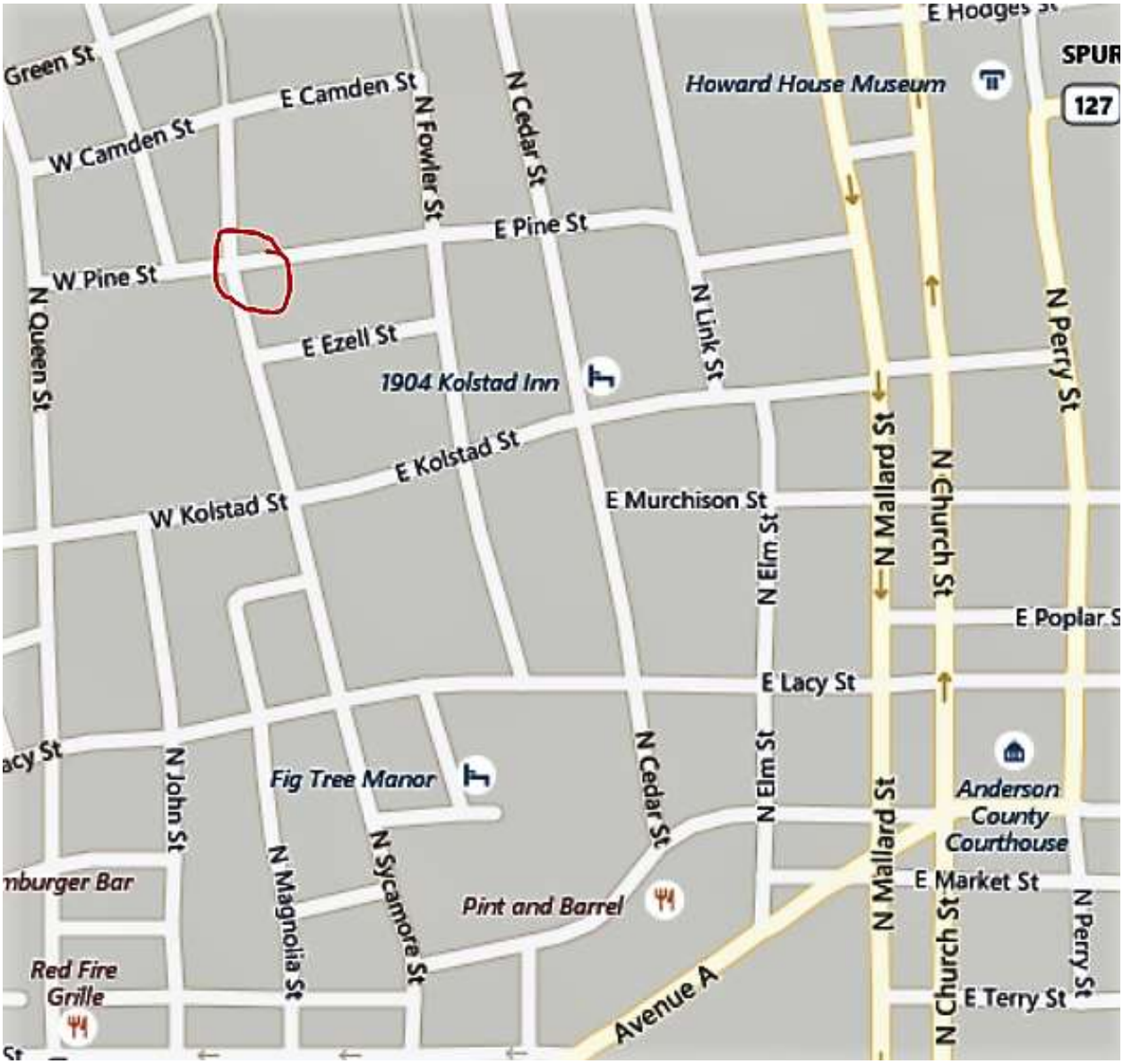
There are five locations within the City of Palestine which are prone to short-term flooding during heavy rains. These are low-lying roads, or roads with limited drainage, and have experienced flooding. It is anticipated that any future flooding would be limited to these locations, affecting only the roads, and would not affect any structures. Each of the five flood-prone locations is shown on one of the following maps, with the area at risk for short-term flooding circled in red.



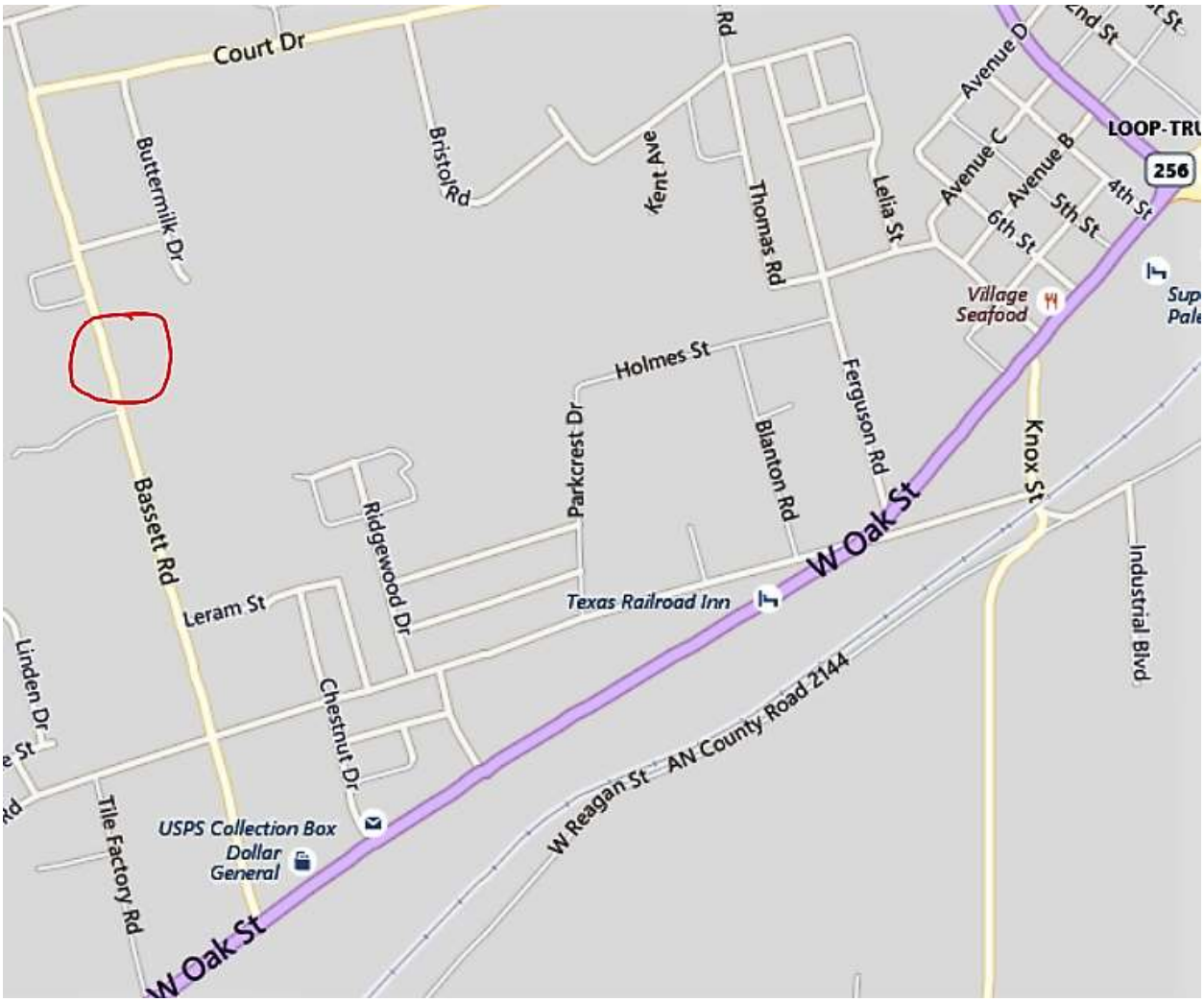
The first area within the City of Palestine which is prone to short-term flooding during heavy rains is the Well's Creek area (Old Town Palestine) – Crawford at North Sycamore Street to Crawford at North Elm Street. (*Blank map source: Google maps*)



The second area within the City of Palestine which is prone to short-term flooding during heavy rains is a short section of Ezell Street between North Queen Street and North John Street. (*Blank map source: Google maps*)

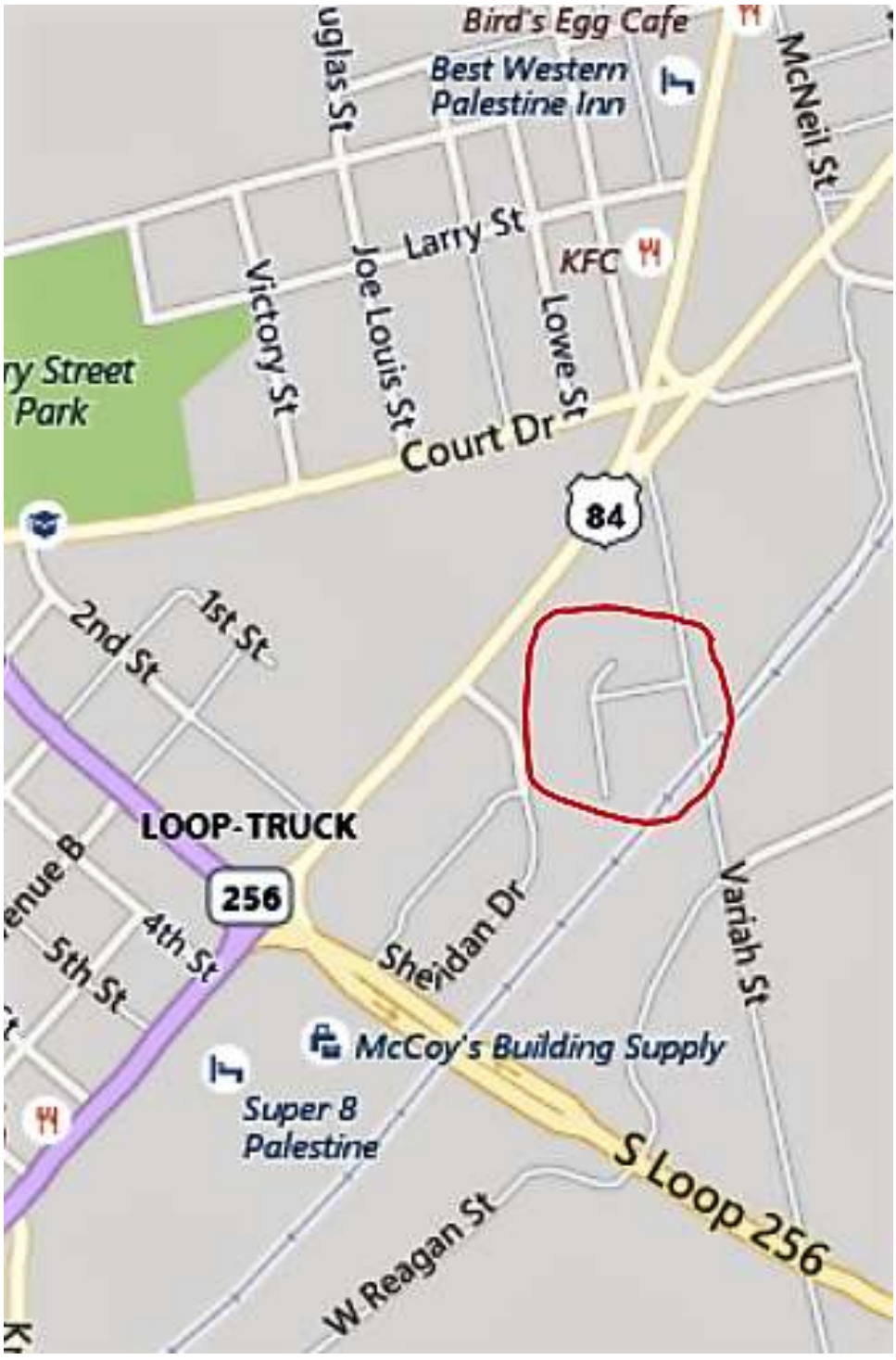


The third area within the City of Palestine which is prone to short-term flooding during heavy rains is a short section of Pine Street near North Sycamore Street. (*Blank map source: Google maps*)



The fourth area within the City of Palestine which is prone to short-term flooding during heavy rains is a short section of Bassett Road between West Point Tap and Court (the low area at bottom of the hills). (*Blank map source: Google maps*)

The fifth area within the City of Palestine where flooding has occurred is Timber Drive and the surrounding area. On April 30, 2016, nearly 7.5" of rain fell over Palestine in about one hour causing flooding across the city. Cars were flooded in downtown streets. Businesses and homes in low-lying areas across the city were flooded and damaged; 35 homes and 3 businesses sustained major damage. A family of five (four children and their grandmother) drowned while attempting to escape their flooded home on Timber Drive.

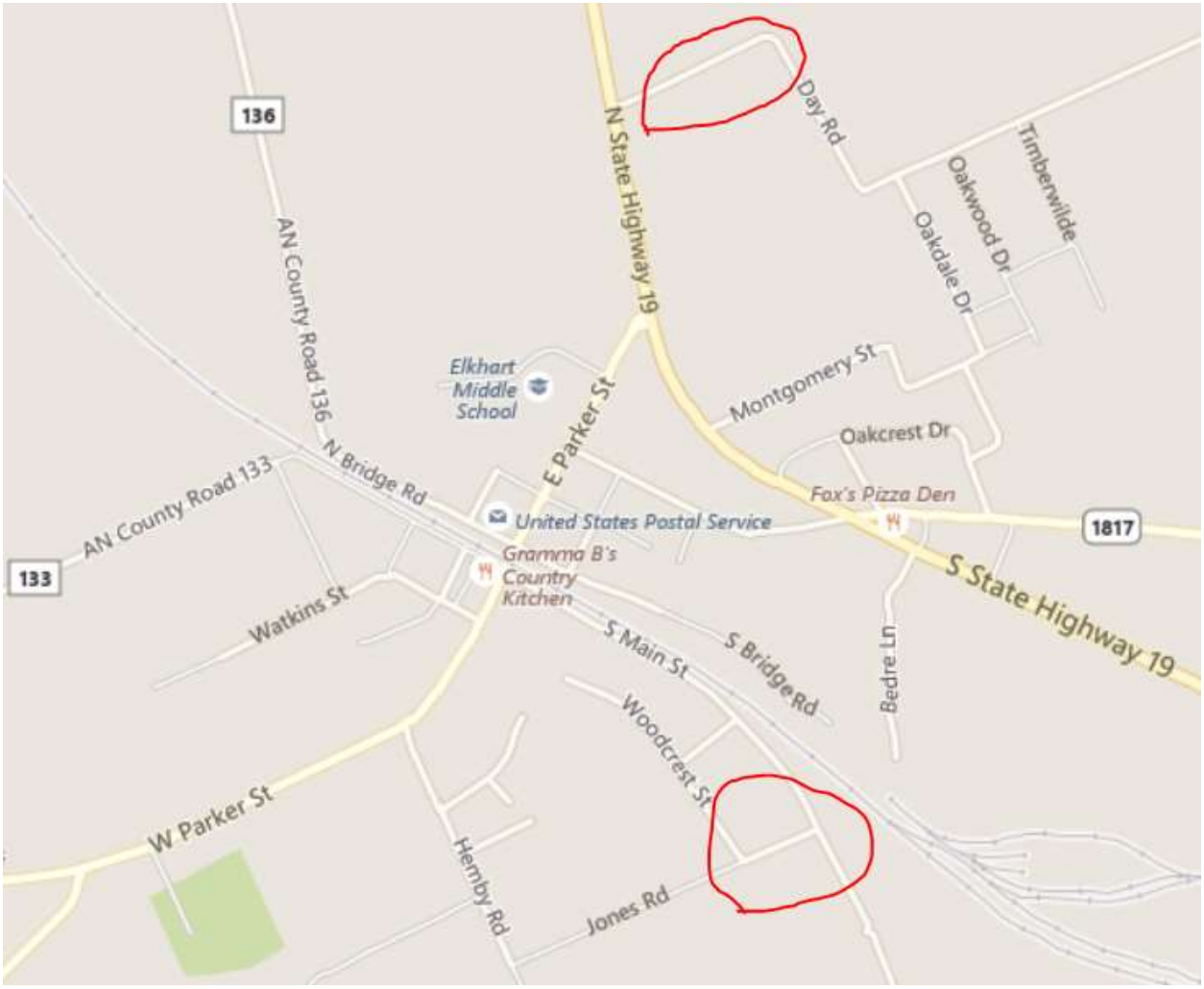


Map showing Timber Drive flood area (circled in red). (*Blank map source: Google maps*)

This is a close-up view of the area circled in red on the previous map. This is the location which flooded on April 30, 2016, causing 5 deaths. Six of the homes on the Timber Drive cul-de-sac were completely destroyed by flood waters. Some residents had to be rescued from the roofs of their homes and the water was reported to be 12 feet deep inside some homes. A 64-year-old woman and 4 children, ages 6-9, drowned while trying to escape their flooded home. (*Blank map source: Google maps*)

Flood-prone areas in the City of Elkhart

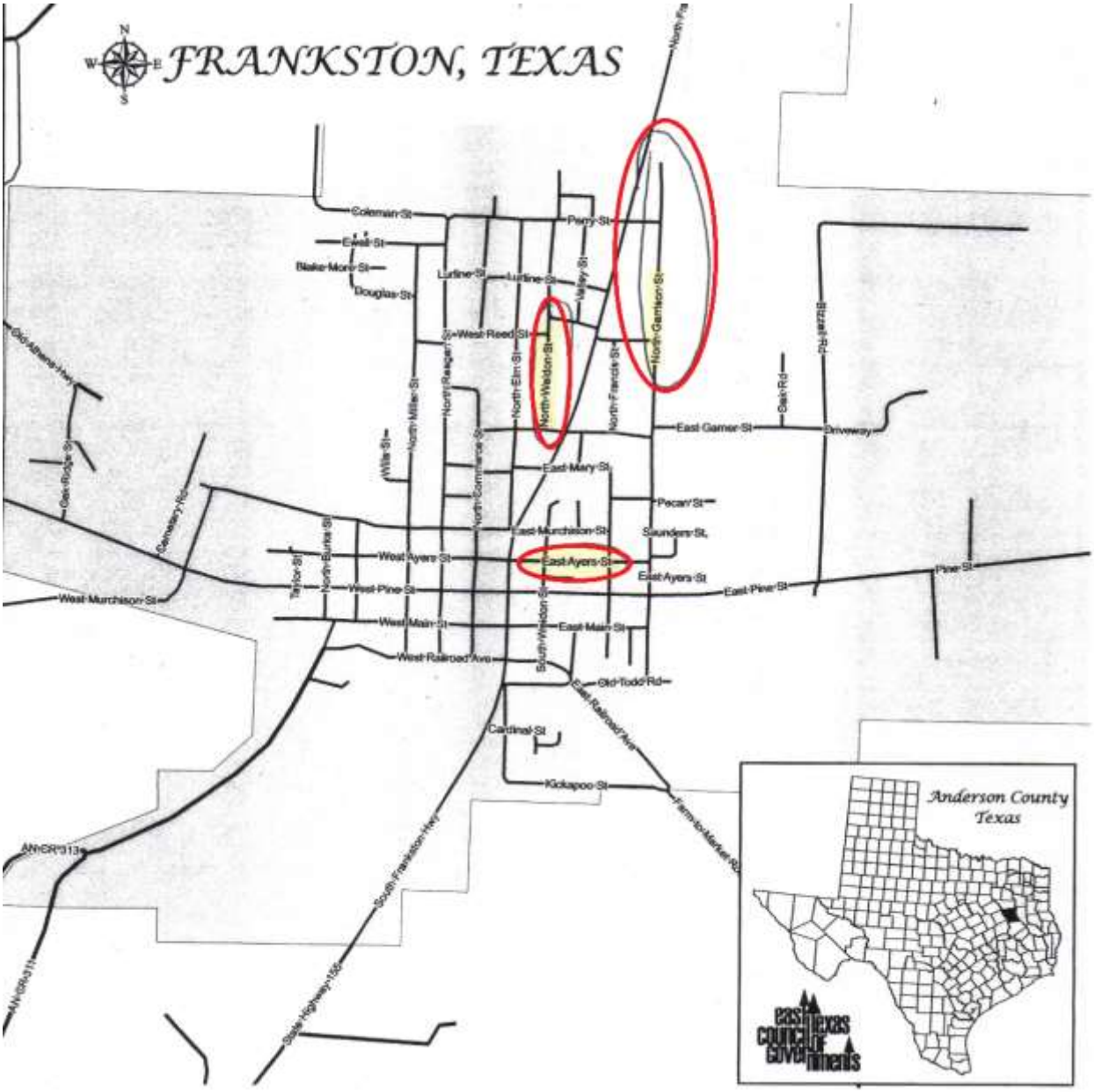
The two areas circled in red on the map below tend to flood in times of heavy rainfall, to a depth of 6” or less.



*Source: Google maps (**https://www.google.com/maps/@31.6337013,-95.5742152,14z?hl=en-US**) last accessed 2/4/18.*

Flood-prone areas in the City of Frankston

The three areas circled in red on the map below tend to flood in times of heavy rainfall, to a depth of 6” or less.



Base Map Source: East Texas Council of Governments, GIS Division

The Anderson County HMAP Committee believes that flooding could occur within the next five years, and probably will affect the County and Cities as follows:

- **Anderson County could experience flooding in the areas indicated on the above maps, to the extents indicated on each.**
- **The City of Palestine could experience flooding in the areas indicated on the above maps, to the extents indicated on each.**
- **The City of Elkhart could experience flooding in the areas indicated on the above map, to the extent indicated (6" or less).**
- **The City of Frankston could experience flooding in the areas indicated on the above map, to the extent indicated (6" or less).**

Dam - Levee Failure

Dam or levee failure is defined as the sudden, uncontrolled release of impounded water typically resulting in downstream flooding, which can affect life and property. Dam or Levee Failures can result from man-made or natural occurrences such as flooding, earthquakes, blockages, landslides, lack of maintenance, improper operation, poor construction or vandalism. **There are no levees in or near Anderson County, or any of its Cities.** There are fifty-four (54) dams located in Anderson County; each retains a small lake. Four dams are located within the City of Palestine; the other 50 are located in the unincorporated areas of the county.

DAM-LEVEE FAILURE AND THE CITY OF PALESTINE

There are four dams located within the City of Palestine:

Name	Location	Description
Blue Lake Dam	Just inside West Loop 256, inside the City of Palestine, east of Upper and Lower City Lakes.	Dam is located on the south shore of the lake. Should Blue Lake Dam fail, its water would run through the natural stream bed of Basset Creek, and would flow under West Stearne Ave. No structures or roads would be threatened except for possible short-term, shallow flooding (2”-4”) of W. Stearne Ave. **No lasting damage would be anticipated.**

Name	Location	Description
Lower City Lake Dam	Just outside West Loop 256, off FM 320, inside the City of Palestine, south of Upper City Lake.	Dam is located on the south shore of the lake. Should Lower City Lake Dam fail, its water would run through a natural stream bed complex of Town Creek and Wolf Creek into a smaller, un-named lake outside the City, and would continue following the stream beds. No structures or roads would be threatened except for possible short-term, shallow flooding (2"-4") of FM 320. **No lasting damage would be anticipated.**
Upper City Lake Dam	Just outside West Loop 256, off FM 320, inside the City of Palestine, north of Lower City Lake.	Dam is located on the south shore of the lake. Should Upper City Lake Dam fail, its water would run into Lower City Lake. No structures or roads would be threatened. **No lasting damage would be anticipated.**
Wolf Creek Lake Dam	West of central Palestine, south of the Palestine Municipal Airport, inside the City Limits.	Dam is located on the south shore of the lake. Should the dam fail, water would drain into Wolf Creek and south toward FM 320. No structures or roads would be threatened. **No lasting damage would be anticipated.**

Each city lake has an emergency plan already in place. None of the dams within the City of Palestine pose a threat to human life, and no lasting damage would be anticipated due to dam failure, should it occur. Therefore, Dam – Levee Failure is not a hazard to be mitigated by the City of Palestine at this time.

DAM-LEVEE FAILURE AND THE CITIES OF ELKHART AND FRANKSTON

Because there are no dams located within the City of Elkhart or the City of Frankston, Dam – Levee Failure is not a hazard to be mitigated by the City of Frankston or the City of Elkhart.

DAM-LEVEE FAILURE IN UNINCORPORATED ANDERSON COUNTY

The following table profiles how dam failures could affect rural Anderson County.

DAM FAILURE	
Category	**Response**
Potential Severity of Impact	Limited
Frequency of Occurrence	Unlikely (has not happened in the past)
Probability of Future Events	Unlikely
Seasonal Pattern	Possibly higher in spring during heavy rains
List of Sources	National Inventory of Dams State of Texas Hazards Analysis Committee Input
Probable Duration	1-8 hours
Warning Time	Minimal to No Warning
Existing Warning Systems	N/A
Potential Affected Area	Flood prone areas downstream of water bodies contained by dams (see individual dam studies) in county only
Cascading Potential	Property damage – structures, roads, crops, livestock Deaths (highly unlikely) Traffic Delays (minimal) Temporary Loss of Electricity

The following table lists all 50 dams located in rural Anderson County, with a brief description of the location of each lake and the extent of any damage to be expected should the dam breach. Of the 50 dams listed, only 12 have the potential to cause property damage in the event of failure. Those are profiled separately, following the table.

ANDERSON COUNTY DAMS

Dam #	Name	Location	Description
1	Bass Haven Lake Dam	Cross Roads	Small, remote lake off CR 489, west of Frankston, near the intersection of Hwy. 19 & FM 2961. No structures or infrastructure in floodplain area, should dam break.
2	**Blackburn Crossing Dam**	Berryville	Southern end of Lake Palestine, northeast corner of Anderson County. Should the dam breach, parts of U.S. Hwy. 175 would be inundated. **Damage could reach $200,000 - $500,000.**
3	**Bomer Lake Dam**	Blackfoot	About 7 miles north of Palestine, east of Hwy. 19 & south of FM 837. Dam is on the west shore of the lake; the inundation area includes agricultural land and one residence. **Possible damage if breach occurs is estimated at $75,000**.
4	Broughton Lake Dam	Northwest of Palestine	About 2.5 miles north of Palestine, in an undeveloped area west of FM 315. Dam is on the east shore of the lake. No structures or infrastructure in floodplain area, should dam break.
5	Broyles Lake Dam	Southeast of Palestine	About 3 miles south of Palestine off Old Elkhart Road. No structures or infrastructure in floodplain area, should dam break.
6	Calhoun Lake Number 1 Dam	Southeast of Palestine	Between Texas State Railroad Park and FM 323. Dam is on the east shore of the lake. No structures or infrastructure in floodplain area, should dam break.
7	Calhoun Lake Number 2 Dam	Southeast of Palestine	Slightly northeast of Calhoun Lake Dam #1, between Texas State Railroad Park and FM 323. Dam is on the south shore of the lake. No structures or infrastructure in floodplain area, should dam break.
8	Carroll Lake Dam (Sometimes called Spring Lake)	Tennessee Colony	About 12 miles west of Palestine, off FM 2803. Dam is on the west shore of the lake. No structures or infrastructure in floodplain area, should dam break.

Dam #	Name	Location	Description
9	Catfish Lake Dam	Cross Roads	About 18 miles northwest of Palestine. Dam is on the southwest shore of the lake. No structures or infrastructure in floodplain area, should dam break.
10	Charles E Ham Lake Dam	Pert	About 5 miles north of Palestine, west of Hwy 155, near the end of CR 4220. Dam is on the north shore of the lake. No structures or infrastructure in floodplain area, should dam break.
11	**Circle R Dam Number 1**	Southeast of Palestine	About 3 miles southeast of Palestine, north of U.S. Hwy. 84. Dam is on the southern shore of Lake #1. Should this dam break, 6 homes could be damaged and U.S. Hwy 84 could be temporarily inundated. **Possible damage is estimated at $150,000**.
12	Circle R Dam Number 2	Southeast of Palestine	About 3 miles southeast of Palestine, north of U.S. Hwy. 84. Dam is on the east side of Lake #2. No structures or infrastructure in floodplain area, should dam break.
13	Cox Lake Dam	Cayuga	About 10 miles northwest of Palestine, just north of FM 2961. Dam is on the south shore of the lake. No structures in the inundation area, should dam break, but FM 2961 would be flooded. Water would be likely to cover the road to a possible depth of 6" – 8." No lasting damage to the road is anticipated.
14	Crystal Lake Dam	Southeast Palestine	About 3 miles east of Palestine and north of US Hwy 84. Dam is on the south shore of the lake. No structures in the inundation area, should dam break, but US Hwy 84 and CR 199 (Gibson Rd.) could be flooded to a possible depth of 2" – 4." No lasting damage to roads is likely.
15	De Young Lake Dam	Northwest Palestine	About 2 miles north of Palestine, just north of Hwy 19. Dam is on the south shore of the lake. No structures in the inundation area, should dam break; water would fill the low-lying land south of the lake and flow southwest in the existing stream. There is a culvert under Hwy 19, which should handle the overflow. No damage expected.
16	Duggey's Lake Dam	Southwest Palestine	About 3 miles west of Palestine on CR 2202 (Salt Works Road). Dam is on the northwest shore of Old Salt Lake. No structures in the inundation area, should dam break; water would cover CR 2202 (Salt Works Road) to a possible depth of 6" – 8." No lasting damage expected.

Dam #	Name	Location	Description
17	**Elkhart Lake Dam**	Southeast Palestine	About ½ mile east of Elkhart on FM 1817. Dam is located on the southwest shore of the lake. Should the dam fail, water would follow a natural creek southwest to FM 1817, near the intersection with CR 164 (Day Road). There is one structure near the northwest end of the dam, one residence on Day Road, and one residence on FM 1817 which could be damaged by water, should the dam fail. **Total damage is not expected to exceed $50,000**.
18	Fisherman's Paradise Lake Dam	Leona SW	Lake is at the extreme southern edge of Anderson County, on FM 3091. Dam is on the south shore of the lake. No structures in the inundation area, should dam break; water would flow south along an existing stream bed, and under FM 3091 through an existing culvert; no damage anticipated.
19	Gator Lake Dam	Cross Roads	About 12 miles northwest of Palestine on FM 2961. Dam is on the east shore of the lake. No structures in the inundation area, should dam break; water would flow into low, open areas and adjoining lakes with no damage expected to structures or infrastructure.
20	**Gooch Lake Dam**	South of Palestine	South of Palestine Loop 256, off Highway 84 southeast of Reagan St. One residence in inundation area; **should dam break, damages are not expected to exceed $20,000**.
21	Grover C Walker Lake Dam	Northeast Palestine	About 2 miles northeast of the Palestine Loop on US Hwy 79. Dam is on the north shore of the lake. No structures in the inundation area, should dam break; water would flow into low, open areas with no damage expected to structures or infrastructure.
22	Harrison Lake Dam	Northwest Palestine	About 5 miles northwest of Palestine near the intersection of CR 340-E and CR 430. Dam is on the south shore of the lake. No structures in the inundation area, should dam break; water would run south into a stream with no damage expected to structures or infrastructure. The end of CR 340-E could be covered in 2" – 4" of water for a short period of time, but no lasting damage to the road would be expected.

Dam #	Name	Location	Description
23	Haverlah Lake Dam	Northeast Palestine	About 2 miles north of Palestine, west of Hwy 155 between CR 358 and FM 315. Dam is on the north shore of the lake. No structures in the inundation area, should dam break; water would flow into low, open areas with no damage expected to structures or infrastructure.
24	**Horn Lake Dam**	LaRue	About 7 miles west of Frankston near CR 486. Dam is on the south shore of the lake. One residence is located off CR 486 at the edge of the inundation area; this residence could sustain minor damage, should the dam break. **Anticipated damage would not be expected to exceed $10,000**. No other structures or infrastructure would be threatened.
25	Hudson Lake Dam	Northeast Palestine	About 2 miles east of Palestine, north of US Hwy 84 off CR 396, west of Williams Lake and north of Crystal Lake. Dam is on the south shore of the lake. No structures in the inundation area, should dam break; water would flow south into Crystal Lake with no damage expected to structures or infrastructure.
26	Ioni Lake Dam	Percilla	About 9 miles southeast of Palestine near the Slocum community, south of Hwy 294 and west of FM 2022. Dam is on the northeast shore of the lake. No structures in the inundation area, should dam break; a small part of FM 2022 could be covered in 2" – 4" of water for a short period of time, but no lasting damage would be expected.
27	John B Jones Lake Dam	Wilkerson Mountain	About 8 miles northwest of Palestine off Hwy. 19 near CR 453. No structures in the inundation area, should dam break; water would flow southeast toward Beaver Marsh. No damage would be expected.
28	Joyce Dam	Northwest Palestine	Just west of the Palestine Loop, south of FM 320, north of FM 2304 and Salt Works Road and west of Chancellor Drive. Dam is on the southeast shore of the lake. No structures in the inundation area, should dam break; water would run into the Town Creek and Woolf Creek basins. A small part of Salt Works Road could be covered in up to 2" of water for a short period of time, but no lasting damage to the road would be expected.

Dam #	Name	Location	Description
29	Killon Lake Dam	Neches	About 4 miles east of Palestine, north of US Hwy 84 near CR 391. Dam is on the south shore of the lake. No structures in the inundation area, should dam break; water would flow south into a natural creek system and would not reach Hwy 84. No damage would be expected.
30	**Lake CWM Dam**	LaRue	About 5 miles west of Frankston, just west of CR 485. Dam is on the southeast shore of the lake. One farm complex, including a residence, located at the southern tip of the dam, could be damaged if the dam failed. **Property damage of approximately $50,000 could result**.
31	Lake Dogwood Dam	Neches	About 8 miles northeast of Palestine, near the Neches community, south of US Hwy 79 and west of CR 355. Dam is on the eastern shore of the lake. No structures in the inundation area, should dam break; water would drain into a natural complex of creeks in the area, and no property damage would be anticipated.
32	**Lake Francis Dam**	Cross Roads	About 9 miles northwest of Palestine off CR 491 near the intersection of FM 2961 and FM 59. Dam is located on the western shore of the lake. Should the dam break, water would flow in and around Catfish Lake, then on to a smaller, unnamed lake to the west. One residential farm complex north of Catfish Lake would be in the inundation area; **damages are not likely to exceed $100,000**.
33	Lake Frankston Dam	Pert	About 8 miles south of Frankston, west of Hwy 155, south of Pineywoods Lake and north of a small, unnamed lake. Dam is on the south shore of the lake. Should the dam fail, water would run south, in and around the smaller lake, fill low-lying land along Hwy 155, and drain to the southeast through culverts under the highway. No lasting damage would be anticipated.
34	Lake JDM Dam	LaRue	About 5 miles west of Frankston near CR 486. Dam is on the south shore of the lake. No structures in the inundation area, should dam break; no lasting damage would be expected.

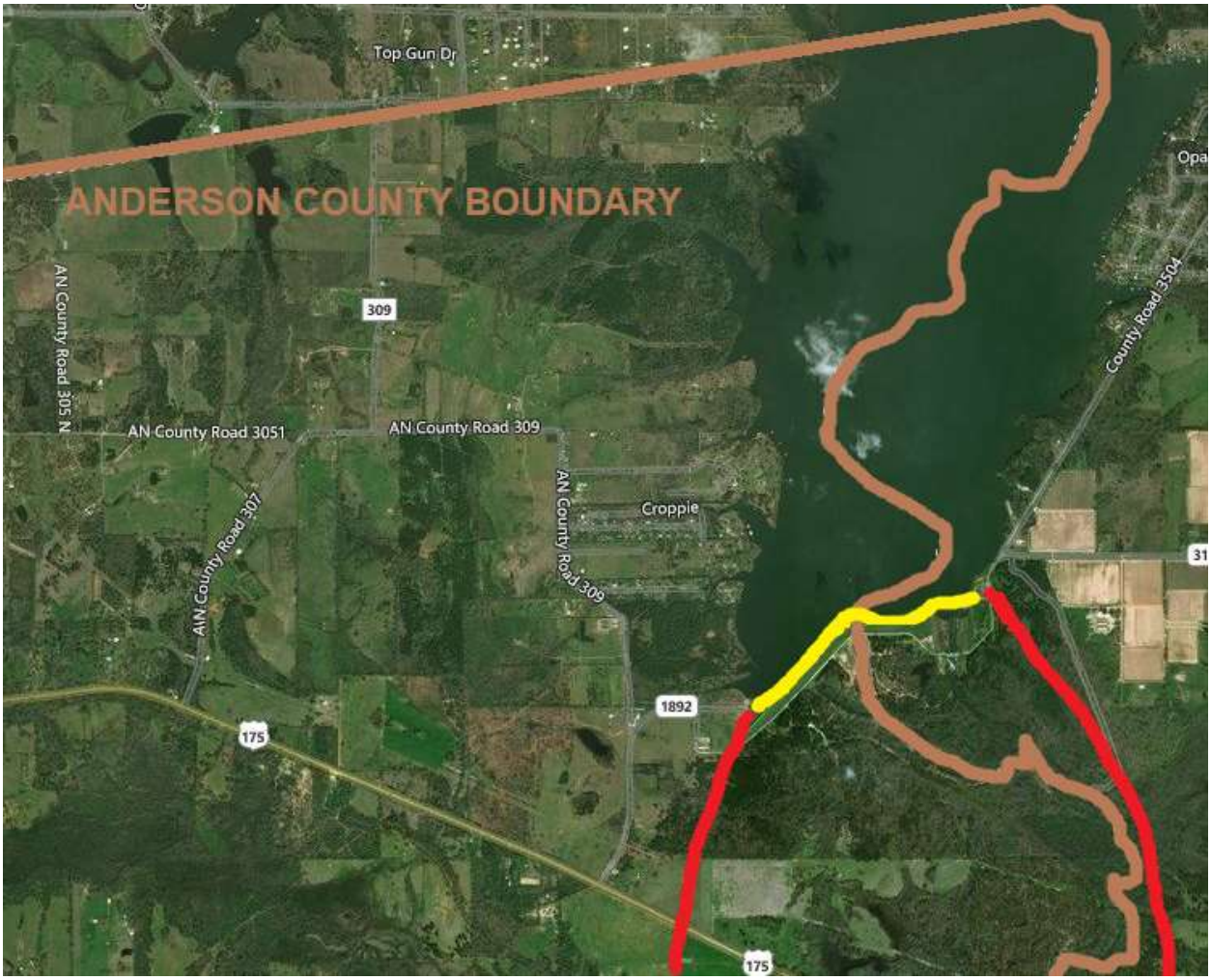
Dam #	Name	Location	Description
35	**Lake Mary Dam**	Southeast Palestine	About 2 miles east of Palestine between CR 151 and CR 153. Dam is on the north shore of the lake. Should the dam fail, water will follow a natural stream to the north, then east. There is one residence near the stream, near CR 153 (Old Boston Road). Rising water could damage that residence; **damages are not likely to exceed $50,000**.
36	Lakeview Methodist Lake Dam	Southwest Palestine	About 3 miles southwest of Palestine, near CR 236 and Hwy 294. Dam is on the northwest shore of the lake. No structures in the inundation area, should dam break; water would run into a natural stream bed and into two small, un-named lakes; no lasting damage would be expected.
37	**Lost Prairie Lake Dam**	Northeast Palestine	This developed, resort lake is about 5 miles northeast of Palestine, off CR 370. CR 376 circles the lakeshore, with about 70 homes and boathouses. Dam is on the northeast shore and the inundation area below the dam is undeveloped, with no structures or infrastructure except that **CR 376, which transits the dam, would cost about $50,000 to replace**.
38	Lucky Lake Dam	Coon Creek Lake	About 12 miles northwest of Palestine off Hwy 19 near CR 468. Dam is on the southwest shore. No structures in the inundation area, should dam break; water would flow into a small lake and follow two natural creek beds into an undeveloped area; no lasting damage would be expected.
39	Lunceford Lake Dam	Coon Creek Lake	About 12 miles northwest of Palestine along Hwy 19 near Lucky Lake. Dam is on the south shore. No structures in the inundation area, should dam break; no lasting damage would be expected.
40	M A Davey Lake Dam	Northeast Palestine	About 5 miles northeast of Palestine, north of US Hwy 79. Dam is on the east shore of the lake. No structures in the inundation area; should the dam break, water would flow south, into an existing creek which flows under Hwy 79; no lasting damage would be expected.
41	McDonald Lake Dam	Northeast Palestine	About 6 miles northeast of Palestine, near the intersection of Hwy 155 and FM 321. Dam is on east shore. No structures in the inundation area, should dam break; no lasting damage would be expected.

Dam #	Name	Location	Description
42	Murphy Lake Dam	Percilla	About 4 miles southeast of Elkhart. Dam is on the northwest shore. No structures in the inundation area, should dam break; water would drain through an undeveloped area into an existing stream; no lasting damage would be expected.
43	Pat Morris Dam	Southwest Palestine	About 4 miles west of the central City of Palestine, outside the city limits, on the north side of Salt Works Road. Dam is on the south shore of the lake. Should the dam fail, water would be carried through the spillway into the Basset Creek basin. In the event of a sudden, catastrophic dam failure, Salt Creek Road could be temporarily submerged, but no lasting damage would be expected. There are no structures at risk.
44	**Pineywoods Lake Dam**	Pert	About 8 miles south of Frankston, west of Hwy 155, north of Lake Frankston and a small, unnamed lake. Dam is on the south shore of the lake. Should the dam fail, much of the water would run south, into Lake Frankston and the surrounding area. The terrain surrounding the lake is very steep, with CR 322 rising and falling significantly in elevation. CR 332 would probably be submerged for about ¼ mile to either side of the dam, which is the lowest elevation of the road. The road would also be submerged at the northeast end of the lake, and all along the crossing below the Pineywoods Lake dam. The area south of Pineywoods Lake (and around Lake Frankston) is a developed vacation area with about 100 homes. About 35 of these homes could be damaged by high water, should the Pineywoods Lake Dam fail. There are about 150 boathouses along the shore of Lake Frankston, and all of these would likely sustain damage if the Pineywoods Lake Dam failed. **Estimated total damage from a catastrophic failure of Pineywoods Lake dam could be over $10 million**.
45	Ranch House Lake Dam	Cross Roads	About 12 miles northwest of Palestine, off FM 2961, just east of Gator Lake. Dam is on the east shore. No structures in the inundation area, should dam break; water would drain into an undeveloped area east of the lake; no lasting damage would be expected.

Dam #	Name	Location	Description
46	Soil Conservation Service Site 1 Dam	Tennessee Colony	About 8 miles west of Palestine near the intersection of FM 645 and CR 2809. Dam is on the south shore of the reservoir. No structures or infrastructure in the inundation area, should dam break; water would drain into Spring Lake to the southwest, and toward Soil Conservation Service Site 2 to the southeast. CR 2809 could be partially submerged to a depth of about 2" for a short period, but no lasting damage would be expected.
47	Soil Conservation Service Site 2 Dam	Tennessee Colony	About 8 miles west of Palestine near the intersection of FM 645 and CR 2809. Dam is on the south shore of the reservoir. No structures or infrastructure in the inundation area, should dam break; no lasting damage would be expected.
48	WA Smith Lake	Neches	About 8 miles northeast of Palestine, near the Neches community, south of US Hwy 79 and west of CR 355, north of Lake Dogwood. Dam is on the south side of the lake. Should the dam fail, water would flow south into Lake Dogwood; no damage would be expected.
49	Williams Lake Dam	Northeast Palestine	About 2 miles east of Palestine, north of US Hwy 84 off CR 396, east of Hudson Lake and north of Crystal Lake. Dam is on the south shore of the lake. No structures in the inundation area, should dam break; water would flow south into Crystal Lake with no damage expected to structures or infrastructure.
50	**Wilson Lake Dam**		About 8 miles south of Palestine, near the intersection of CR 2136 and CR 2137. Dam is on the south shore of the lake. Should the dam fail, water would run into an existing creek and drain to the southwest through a culvert under CR 2136. No damage should result, unless a sudden, catastrophic dam failure released a flow of water which was too great for the culvert, in which case, **CR 2136 could sustain light damage, not expected to exceed about $35,000 in repair costs**.

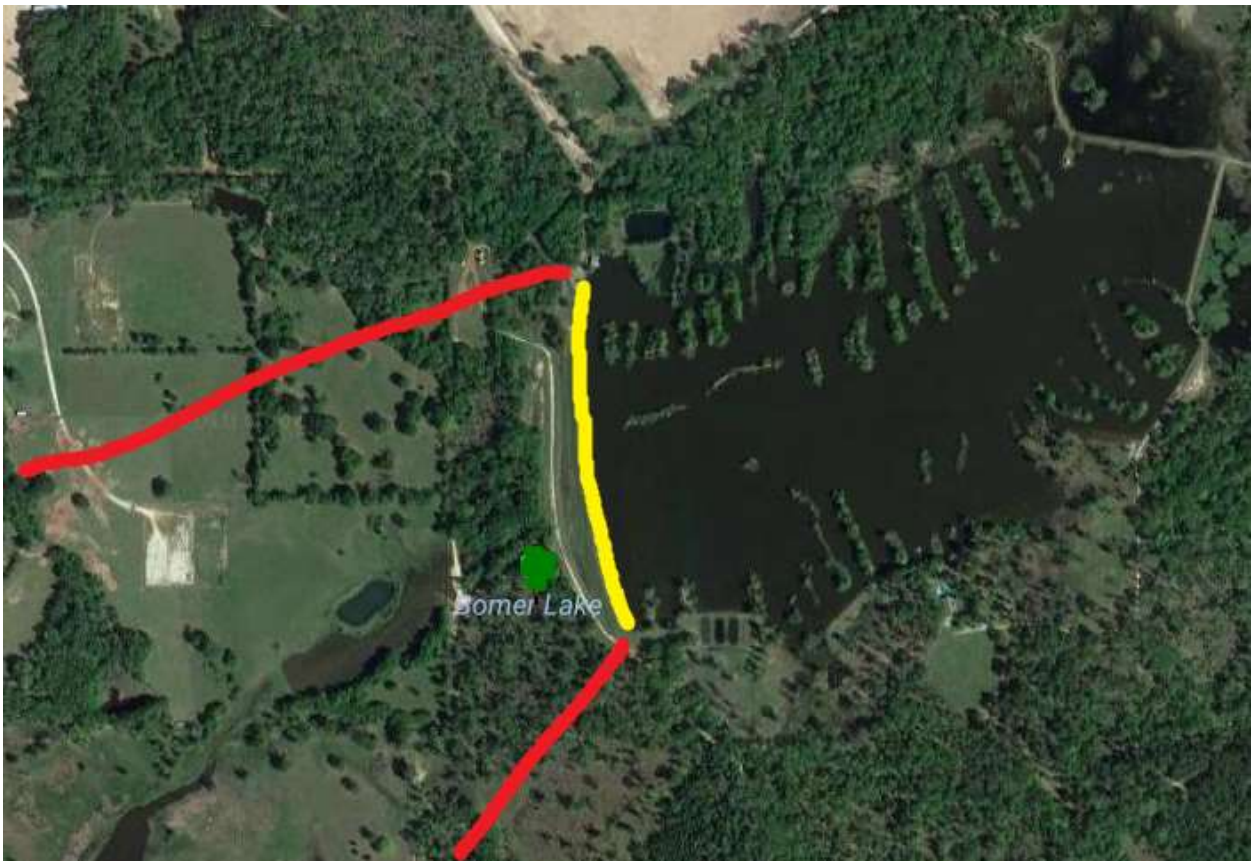
Each of the 12 potentially hazardous dams is profiled below, including inundation area maps and the potential extent of damage expected if any dam should fail.

BLACKBURN CROSSING DAM



Located at the southern end of Lake Palestine, in the extreme northeast corner of Anderson County. The floodplain below the dam has been well-managed and is relatively undeveloped. Should the dam breach, parts of U.S. Hwy. 175 would be inundated. Most of the water would flow into a network of creeks in the Neches River basin, and into numerous smaller lakes in the area. **Damage could reach $200,000 - $500,000**.

BOMER LAKE DAM



Located about 7 miles north of Palestine, east of Hwy. 19 & south of FM 837. Dam is on the west shore of the lake; the inundation area includes agricultural land and one residence. **Possible damage if breach occurs is estimated at $75,000**.

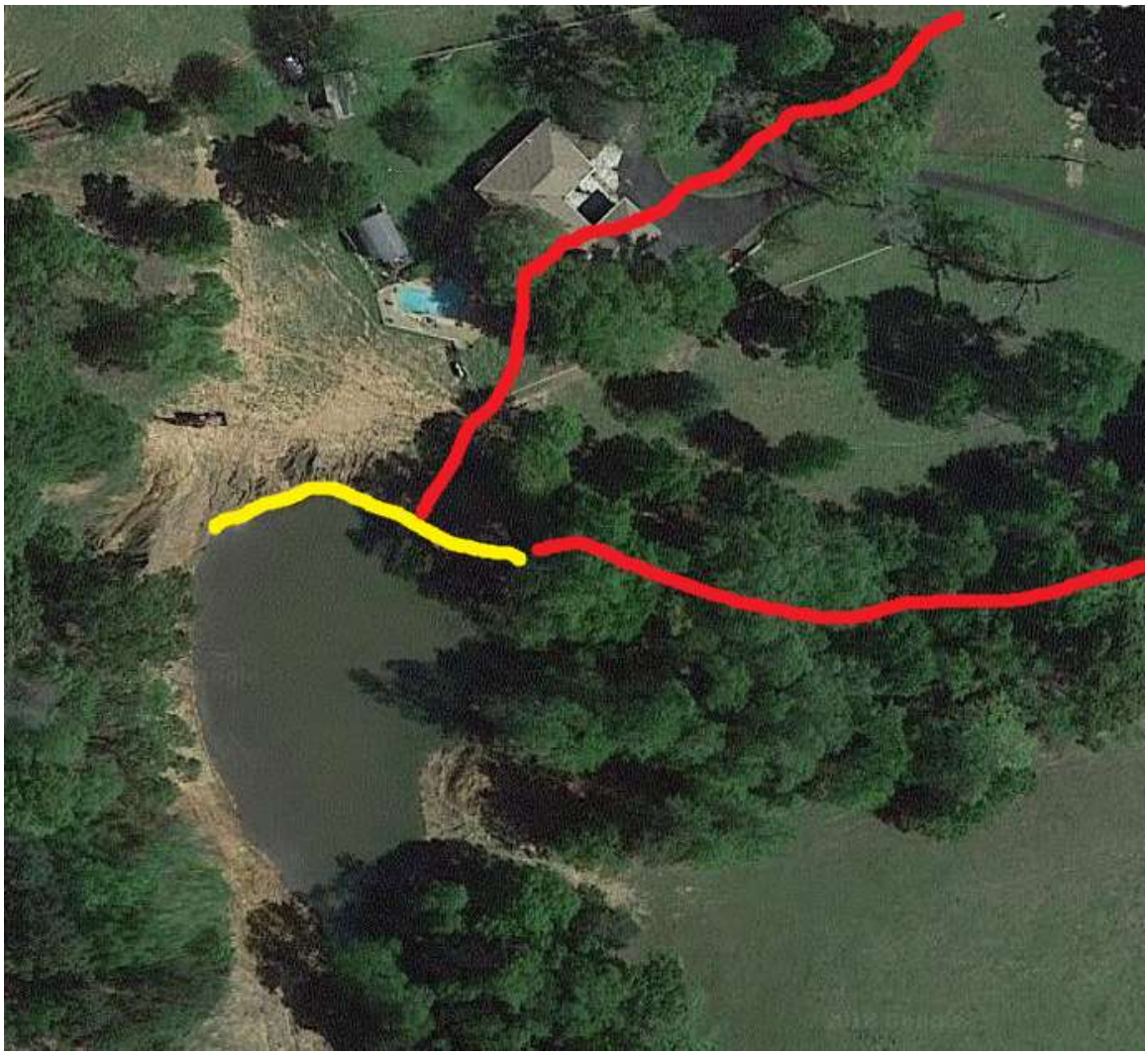
CIRCLE R LAKE #1 DAM

Located about 3 miles southeast of Palestine, north of U.S. Hwy. 84. Dam is on the southern shore of Lake #1. Should this dam break, 6 homes could be damaged and U.S. Hwy 84 could be temporarily inundated. **Possible damage is estimated at $150,000**.

ELKHART LAKE DAM

Located about ½ mile east of Elkhart on FM 1817. Dam is located on the southwest shore of the lake. Should the dam fail, water would follow a natural creek southwest to FM 1817, near the intersection with CR 164 (Day Road). There is one structure near the northwest end of the dam, one residence on Day Road, and one residence on FM 1817 which could be damaged by water, should the dam fail. **Total damage is not expected to exceed $50,000**.

GOOCH LAKE DAM

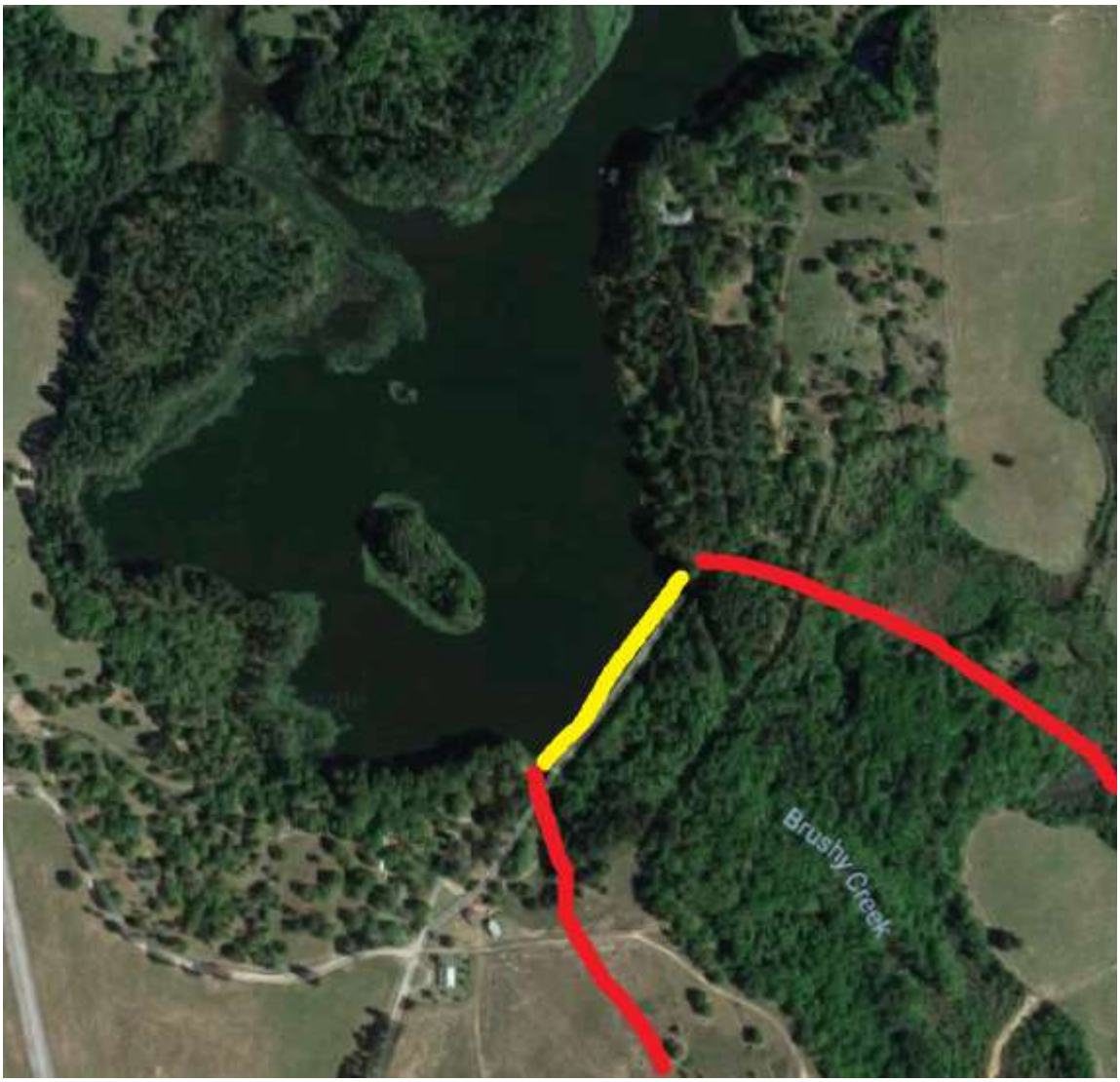


Gooch is a very small lake located south of Palestine Loop 256, off Highway 84, southeast of Reagan St. There is one residence in the possible inundation area; should the dam break, **damages are not expected to exceed $20,000**.

HORN LAKE DAM

Located about 7 miles west of Frankston near CR 486. Dam is on the south shore of the lake. Should the dam fail, water would flow south and follow Wolf Creek. One residence is located off CR 486 at the edge of the inundation area; this residence could sustain minor damage, should the dam break. **Anticipated damage would not be expected to exceed $10,000.** No other structures or infrastructure would be threatened.

LAKE CWM DAM

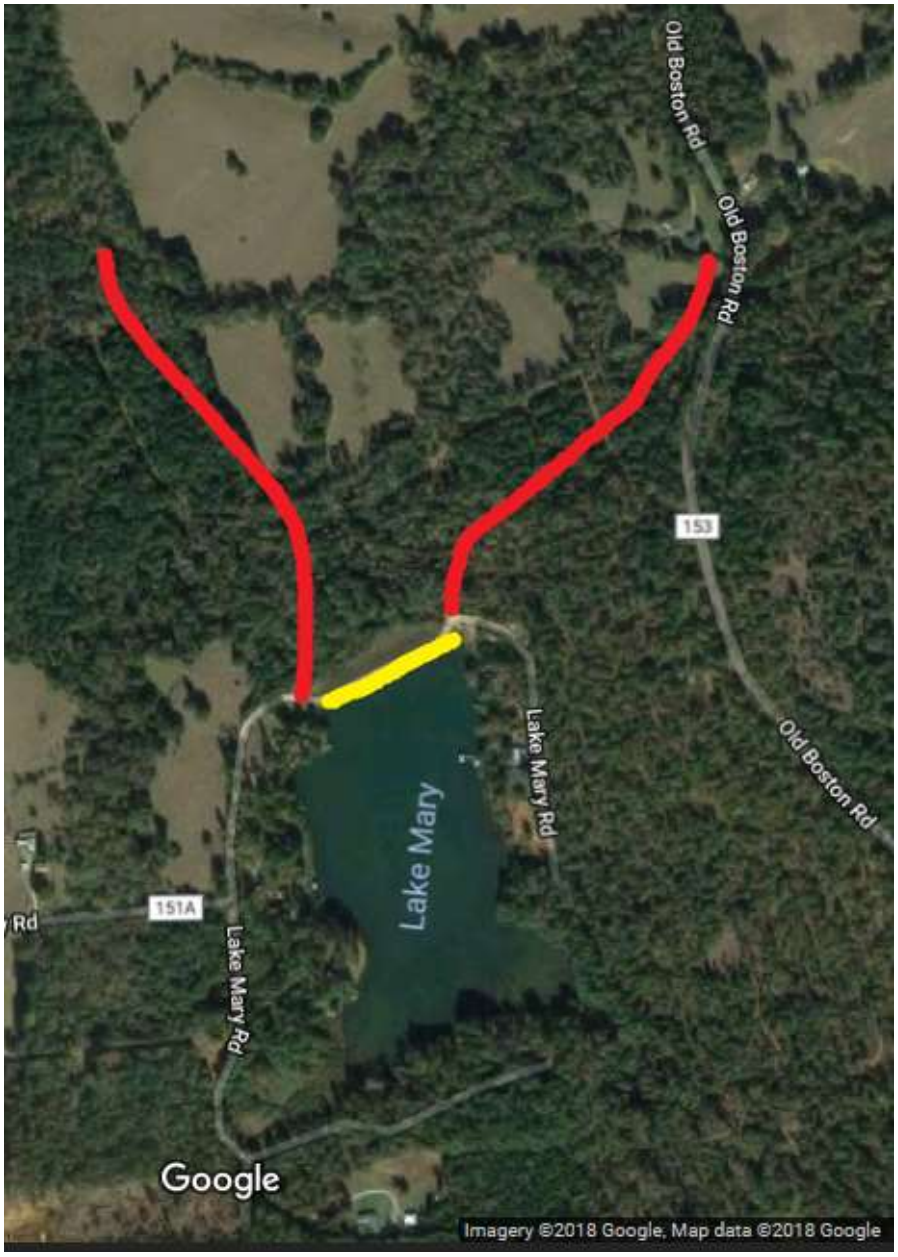


Located about 5 miles west of Frankston, just west of CR 485. Dam is on the southeast shore of the lake. One farm complex, including a residence, located at the southern tip of the dam, could be damaged if the dam failed. **Property damage of approximately $50,000 could result.**

LAKE FRANCIS DAM

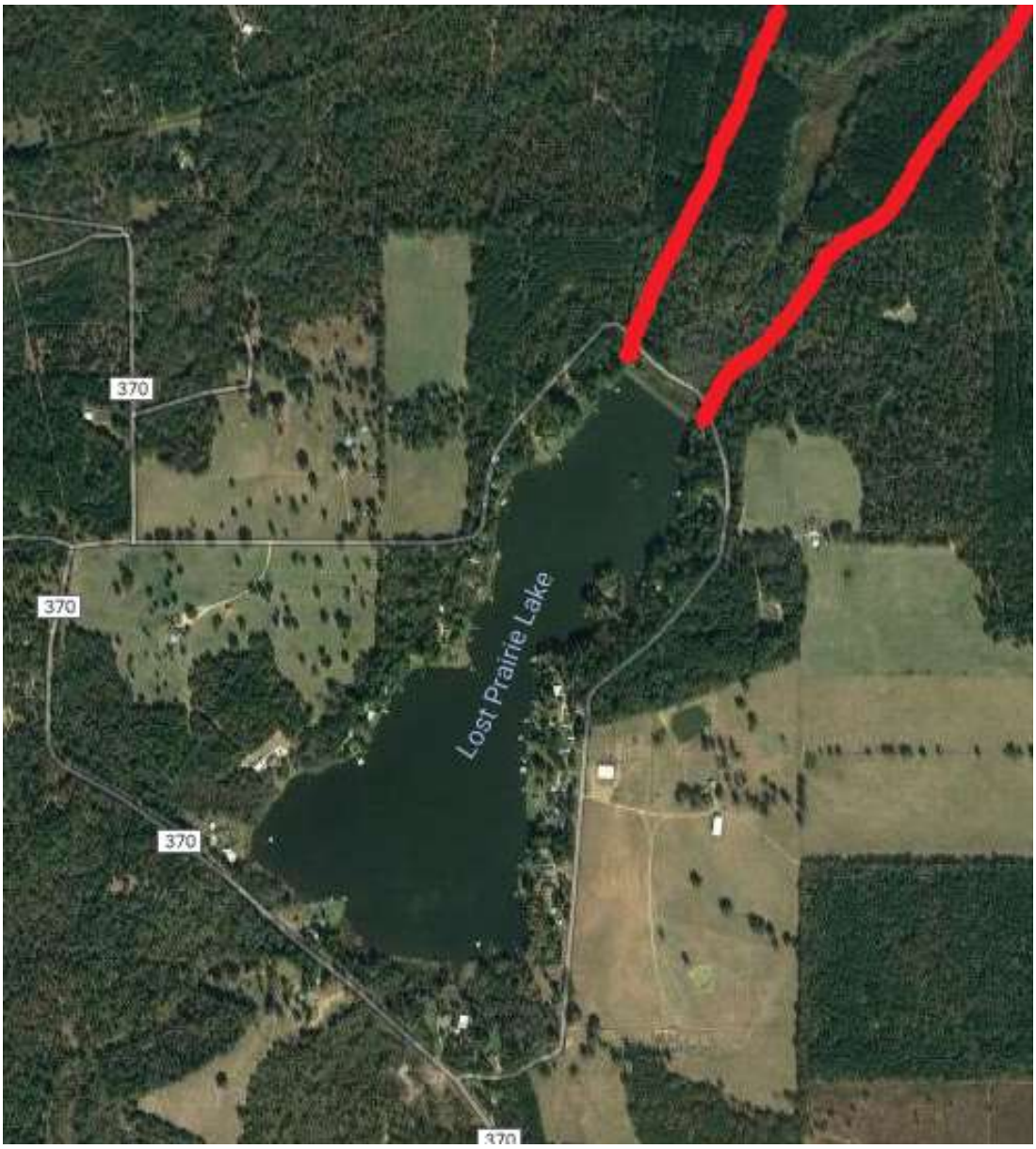
Located about 9 miles northwest of Palestine off CR 491 near the intersection of FM 2961 and FM 59. Dam is on the western shore of the lake. Should the dam break, water would flow in and around Catfish Lake, then on to a smaller, unnamed lake to the west. One residential farm complex north of Catfish Lake would be in the inundation area; **damages are not likely to exceed $100,000**.

LAKE MARY DAM



Located about 2 miles east of Palestine between CR 151 and CR 153. Dam is on the north shore of the lake. Should the dam fail, water will follow Snake Creek to the north, then east. There is one residence near the creek, near CR 153 (Old Boston Road). Rising water could damage that residence, but **damages are not likely to exceed $50,000**.

LOST PRAIRIE LAKE DAM



This developed, resort lake is about 5 miles northeast of Palestine, off CR 370. CR 376 circles the lakeshore, with about 70 homes and boathouses. Dam is on the northeast shore and the inundation area below the dam is undeveloped, with no structures or infrastructure except that CR 376, which transits the dam, would cost **about $50,000** to replace.

PINEYWOODS LAKE DAM

Pineywoods Lake is about 8 miles south of Frankston, west of Hwy 155, north of Lake Frankston. Dam is on the south shore of the lake. Should the dam fail, water would run south, into Lake Frankston and the surrounding area. CR 332 would probably be submerged for about ¼ mile to either side of the dam, which is the lowest elevation of the road. The road would also be submerged at the northeast end of Lake Frankston, and all along the crossing below the Pineywoods Lake dam. Lake Frankston is a developed vacation resort area with about 100 homes. About 35 of these homes could be damaged by high water, should the Pineywoods Lake Dam fail. There are about 150 boathouses along the shore of Lake Frankston, and all of these would likely sustain damage if the Pineywoods Lake Dam failed. **Estimated total damage from a catastrophic failure of Pineywoods Lake dam could be over $10 million**.

WILSON LAKE DAM

Wilson Lake is located about 8 miles south of Palestine, near the intersection of CR 2136 and CR 2137. Dam is on the south shore of the lake. Should the dam fail, water would run into an existing creek and drain to the southwest through a culvert under CR 2136. No damage should result, unless a sudden, catastrophic dam failure released a flow of water which was too great for the culvert, in which case, CR 2136 could sustain light damage, not expected to exceed about **$35,000 in repair costs**.

ASSESSING VULNERABILITY

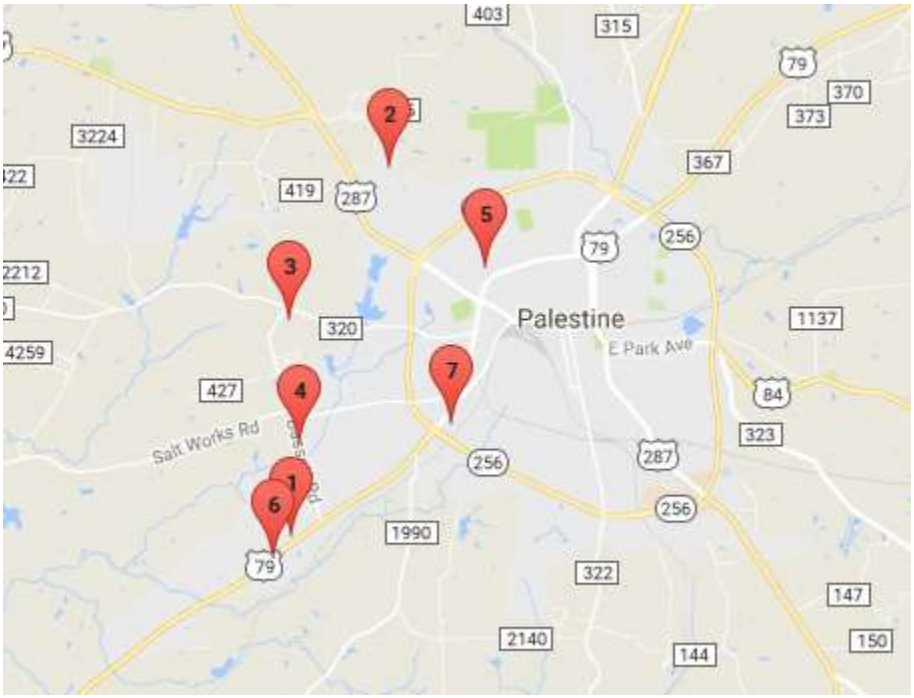
The Committee used the Vulnerability and Risk Assessment Worksheet as provided by the Texas Department of Public Safety, Division of Emergency Management, to determine vulnerability to each hazard.

The entire county is at risk for Tornado, Windstorm, Hailstorm, Lightning, Severe Winter Storm, and Drought, including the Cities of Elkhart, Frankston and Palestine. Mobile home and RV parks are most vulnerable to damage from tornados and windstorms. Unsheltered vehicles and equipment, glass windshields and windows, and older buildings, built before 1980 and to a lesser standard, are more vulnerable to hailstorms. Communication towers, taller buildings, and buildings with tall trees nearby are more vulnerable to lightning. Wildfire can be expected anywhere in the rural county, but is more likely a threat in certain areas, as previously described and mapped. Only certain areas are at risk from Flood or Dam-Levee Failure, as previously described and mapped.

Residential Property Values

There are approximately 10,856 housing units in rural Anderson County, outside the Cities of Elkhart, Frankston and Palestine. This figure includes approximately 6,935 site-built homes, with a total value of $1,179,084,401; and about 3,921 mobile homes or manufactured housing, valued at $237,746,248. This is the most recent official estimate, as of March 2018. The median value for site-built homes is approximately $137,500. According to the US Census Bureau, approximately 81.2% of the residential structures (approximately 5,631 homes) in Anderson County were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant hail events. In addition, all manufactured housing is particularly vulnerable to hail damage as well as windstorm or tornado damage.

There are approximately 5,525 housing units within the City of Palestine. 44 single-family homes have been built since 2010. The median value for all homes in the city is approximately $72,440. All manufactured housing will be particularly vulnerable to hail damage as well as windstorm or tornado damage. Please see the map below, showing 7 mobile home parks in the City of Palestine. These locations will be particularly vulnerable to hail, windstorm and tornado damage.



There are approximately 395 housing units within the City of Elkhart. 15 single-family homes have been built since 2010. The median value for all homes in the city is approximately $57,230. The new homes built since 2010 cost an average of $69,030. According to the US Census Bureau, approximately 81.2% of the residential structures (approximately 321 homes) in the City of Elkhart were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant hail events. In addition, all manufactured housing is particularly vulnerable to hail damage as well as windstorm or tornado damage. There are no mobile home parks in the City of Elkhart, but a few residents live in manufactured housing, mobile homes or RVs.

There are approximately 443 housing units within the City of Frankston. 20 single-family homes have been built since 2010. The median value for all homes in the city is approximately $72,350. The new homes built since 2010 have an average cost of $87,490. According to the US Census Bureau, approximately 81.2% of the residential structures (approximately 360 homes) in the City of Frankston were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant hail events. In addition, all manufactured housing is particularly vulnerable to hail damage as well as windstorm or tornado damage. There is one mobile home park, on the north side of Frankston, which contains 9 mobile homes with 37 residents. Please see map below for its location.

Commercial Property Values

There are 1,154 commercial buildings in Anderson County, and 57 industrial plants. These buildings have a total value of $569,319,031, and contain equipment valued at approximately $566,110,448. The median value is approximately $77,670. There are 775 commercial buildings in the City of Palestine, with a total value of $223,250,398, containing property valued at $65,732,541. The 43 industrial sites within the City are valued at $4,178,554, with equipment valued at $136,856,358. The median value for these buildings is approximately $83,910.

Lightning is of special concern to the City of Palestine. There are 14 FCC registered communications towers in the Palestine, which are vulnerable to lightning. Electrical transmission lines, telephone poles, flagpoles, and tall trees are also vulnerable; when these are near buildings, or part of a critical infrastructure system, a lightning strike can be devastating. The map below shows the locations of the towers in Palestine.

There are 70 commercial buildings in the City of Elkhart, with a total value of $5,063,010, containing property valued at $1,002,909, with equipment valued at $138,855. The median value for these buildings is approximately $18,370.

There are 110 commercial buildings in the City of Frankston, with a total value of $12,560,682, containing property valued at $8,195,182. The 1 industrial site within the City is valued at $74,253, with equipment valued at $15,321,186. The median value for these buildings is approximately $33,760.

ANALYZING DEVELOPMENT TRENDS – CITY OF PALESTINE

The City of Palestine's population has increased by about 6% over the past 20 years. The 2000 Census reported 17,616 people inhabited the City, while the 2010 Census found 18,712 inhabitants. The City of Palestine encompasses 7,832 residential dwellings, of which about 62% are owner-occupied and about 38% are rental properties. In February of 2018 88% of these properties were occupied, and about 12% were available for purchase or rent.

Palestine boasts 1,182 businesses with 11,519 employees. In 2017, the leading industries in Palestine were health care and social services, retail, public administration, and accommodation and food services. Health care and social services employs 2,843 people at 197 establishments; 192 retail stores employ 2,029 people; 90 public administration locations employ 1,090 people; and 77 accommodation and food services establishments employ 1,017 people. The Palestine Economic Development Department oversees a 352-acre business park. Palestine is also home to over 1,800 historic sites. The City of Palestine adopted the ICC International Building Code, 2012 Edition, the NCC National Electrical Code, 2011 edition, and the ICC International Plumbing Code, 2012 edition, on June 10, 2013; and adopted the International Residential Code, 2015 edition, on August 8, 2016. Permits are required to build within the City. Article 3.05: Flood Damage Prevention designates the chief building official as the floodplain administrator to administer and implement the provisions of this article and other appropriate sections of 44 CFR (National Flood Insurance Program regulations) pertaining to floodplain management. **The City of Palestine is a participant in the National Flood Insurance**

Program. **There are no structures located within the floodplain, and no repetitive loss properties within the City.**

ANALYZING DEVELOPMENT TRENDS – CITY OF ELKHART

The City of Elkhart has increased almost 10% in population over the last 20 years, as the 2000 Census reported 1,251 people inhabited the City, while the 2010 Census found 1,371 inhabitants. Elkhart is home to 471 households. There are 520 houses in Elkhart (454 occupied: 309 owner-occupied, 144 renter-occupied) with an estimated median value of $76,732. There has been no recent development. **The City of Elkhart is a participant in the National Flood Insurance Program**. **There are no structures located within the floodplain, and no repetitive loss properties within the City.**

ANALYZING DEVELOPMENT TRENDS – CITY OF FRANKSTON

The City of Frankston has remained stable in population over the last 20 years, as the 2000 Census reported 1,229 people inhabited the City, while the 2010 Census found 1,229 inhabitants, an increase of about 2%. There are 560 houses in the City of Frankston (394 occupied: 282 owner-occupied, 109 renter-occupied) with an estimated median value of $126,190. There has been no recent development. **The City of Frankston is not a participant in the National Flood Insurance Program**. **There are 5 homes located within the floodplain, placing 12 people at risk. There are no repetitive loss properties within the City.**

ANALYZING DEVELOPMENT TRENDS – ANDERSON COUNTY

Anderson County's population has increased by about 6% from 55,109 in 2000 to 58,458 in 2010. The most current official estimate (2014) is 58,262. In comparison, the State of Texas has increased in population by about 48% over the same period.

Anderson County is a participant in the National Flood Insurance Program. **There are 53 homes located within the floodplain, placing 137 people at risk. There are**

two repetitive loss properties, both single-family dwellings, with a total of four losses (two each) in the County. Property #1 had losses of $1,560.57 in 1995 and $1,457.52 in 1998, for a total loss of $3,018.09. This home was valued at $22,400; therefore, the total loss was 13.47% of the value. Property #2 suffered a loss of $37,774.91 (building) and $9,909.02 (contents) in 2013, with a second loss of $8,834.35 (building) in 2016, making the total of both losses $56,518.28. This home has a total value of $248,747.00; therefore, the total loss was 22.7% of the value.

All four Anderson County jurisdictions restrict development within floodplain areas. Each jurisdiction has and enforces a floodplain management ordinance. Each jurisdiction has a designated floodplain manager: for Anderson County, Elkhart and Frankston, it is the Anderson County EMC; for the City of Palestine, it is the chief building official.

None of the changes outlined above are predicted to increase or decrease the vulnerability of the population or built environment for any of the participating jurisdictions.

Critical Facilities at Risk

Description	Anderson County	City of Elkhart	City of Frankston	City of Palestine
Airport	3	0	0	1
Ambulance service	0	0	0	1
Child care	3	0	0	1
Nursery school	0	1	0	0
Special school	0	0	0	1
Church	110	14	15	80
Clinic	2	1	1	2
Dentist	2	1	1	14
Fire station	16	0	2	4

Description	Anderson County	City of Elkhart	City of Frankston	City of Palestine
Government office - state	0	0	0	5
Government office - county	5	3	1	9
Government office - city	2	1	2	11
Hospital	0	0	0	3
Nursing home	2	1	1	2
Pharmacy	1	0	1	0
Physician's office	0	1	1	35
Police station	0	0	1	4
Sheriff	2	0	1	1
Schools	15	1	1	1
College	1	0	0	2
Newspaper	0	0	1	1
Veterinarian	2	0	1	4
Animal hospital	1	0	1	0

Transportation

Description	Anderson County	City of Elkhart	City of Frankston	City of Palestine
Road: Miles	2,241.6	16.88	24.08	211.99
Railroad: Miles	193.52	1.25	2.09	32.17
Stream Crossings	530	2	7	30
Bridges: TXDoT	94	1	2	18
Bridges: Local	49	0	1	8

Vulnerable and High-Risk Facilities

HOSPITALS:

Palestine Regional Medical Center (main hospital) 2900 S Loop 256, Palestine, Texas

PRMC (west campus) 4000-4002 S. Loop 256, Palestine, Texas

Willow Creek Surgery Center, 300 Willow Creek Pkwy Ste 100, Palestine, Texas

CLINICS:

Christus Trinity Clinic Magnolia Medical Plaza, 3201 S Loop 256, Palestine, Texas

Christus Urgent Care, 3201 S Loop 256, Palestine, Texas

Texas Spine and Joint Urgent Care, 2211 S Loop 256, Palestine, Texas

PRMC Wound Care, 4002 S Loop 256, Palestine Texas

Texas Oncology 3415 S Loop 256, Palestine, Texas

NURSING HOMES:

Facility	Address	Phone	# of residents	Ages
Elkhart Oaks	214 Jones Rd Elkhart, TX	903-764-2291	102	65+
Frankston Assisted Living and Memory Care		903-273-4505	76	65+
Brookdale	101 Trinity Ct Palestine, TX	903-729-1900	39	65-100
The Legacy at Town Creek	2212 W. Reagan St. Palestine, TX	903-727-8500	152	67-103
Dogwood Trails	1625 W Spring Palestine, TX	877-648-1198	48	55-95
Greenbrier Nursing Home	2404 Hwy. 155 Palestine, TX	903-729-6024	53	50-90
Palestine Healthcare	1816 Tile Factory Palestine, TX	903-729-2261	87	40-95

Facility	Address	Phone	# of residents	Ages
TRU Care	2265 S. Sycamore Palestine, TX	903-723-2592		
Windermere Assisted Living at Cartmell	30 Variah St. Palestine, TX	903-727-8600		

LAW ENFORCEMENT

Anderson County Sheriff's Office, 1200 E. Lacy St., Palestine, TX

Anderson County Jail, 1200 E. Lacy St., Palestine, TX

Anderson County Extension, 120 Watkins, Elkhart, TX

Frankston Police Department, 204 Main St., Frankston, TX

Palestine Police Department, 604 N. Queen St., Palestine, TX

GOVERNMENT OFFICES:

Anderson County Appraisal District, 801 N. Perry St., Palestine, TX

Anderson County Auto Dept., 500 N. Church St., Palestine, TX

Anderson County Barn Pct. 1, S. Gammage, Elkhart, TX

Anderson County Barn Pct. 2, 906 E. Market St., Palestine, TX

Anderson County Barn Pct. 4, Highway 19 at FM 321, Palestine, TX

Anderson County Constable Pct. 1, 120 Watkins St., Elkhart, TX

Anderson County Constable Pct 2, 703 N. Mallard St., Palestine, TX

Anderson County Constable Pct 3, 703 N. Mallard St., Palestine, TX

Anderson County Constable Pct 4, 703 N Mallard St., Palestine TX

Anderson County Courthouse Annex, 703 N. Mallard St., Palestine, TX

Anderson County Garage, 906 E. Market St., Palestine, TX

Anderson County Historical Society, 101 W. Oak St., Palestine, TX

Anderson County Justice of the Peace, Pct. 1, 120 Watkins St., Elkhart, TX

Anderson County Justice of the Peace, Pct. 2, 703 N Mallard St., Palestine, TX

Anderson County Justice of the Peace, Pct. 3, 703 N Mallard St., Palestine, TX
Anderson County Landfill, 30440 Hwy. 79 E., Palestine, TX
Anderson County Our Place, 904 E. Market St., Palestine, TX
Animal Control, 504 N. Queen St., Palestine, TX
Birth & Death Records, 504 N. Queen St., Palestine, TX
Building Permits, 504 N. Queen St., Palestine, TX
City Sanitation, 504 N. Queen St., Palestine, TX
Elkhart City Office, 110 W. Parker, Elkhart, TX
Frankston City Hall, 204 Main St., Frankston, TX
Finance Director, 504 N. Queen St., Palestine, TX
Maintenance Facility Warehouse, 201 E. Coronaca St., Palestine, TX
Palestine Animal Shelter, 333 Armory Rd., Palestine, TX
Palestine City Accounts Payable, 504 N. Queen St., Palestine, TX
Palestine City Office, 1601 N. Queen St., Palestine, TX
Palestine City Secretary, 504 N. Queen St., Palestine, TX
Pardons & Paroles Board, 118 S. Royall St., Palestine, TX
Personnel Department, 504 N. Queen St., Palestine, TX
Purchasing Agent, 504 N. Queen St., Palestine, TX
State Senator, P.O. Box 2208, Palestine, TX
Texas Agricultural Extension Service, 101 E. Oak St., Palestine, TX
Texas Department of Transportation, 4089 S. State Hwy. 19, Palestine TX
WIC Clinic, 100 W. Brazos St., Palestine, TX

SCHOOLS:

Cayuga Independent School District, Hwy. 287, Cayuga, TX
Elkhart Independent School District, Parker St., Elkhart, TX
Frankston Independent School District, State Hwy. 155, Frankston, TX
Neches Independent School District, FM 2574, Neches, TX
Slocum Independent School District, State Hwy. 294, Slocum, TX
Palestine Independent School District, 1600 S. Loop 256, Palestine, TX

Westwood Independent School District, 4524 W. Oak St., Palestine, TX
University of Texas Innovation Academy 1820 W Spring, Palestine, TX

DAYCARE AND CHILDCARE CENTERS:

ABC Learning Academy, 1002 E. Palestine Ave., Palestine, TX
Acorn Tree, 4279 S. State Hwy. 19, Elkhart, TX
Barber's Creekside Kids, 569 ACR 2711, Tennessee Colony ,TX
Candy Cane Corner Childcare, 4011 W. Oak St., Palestine, TX
Day Spring Preschool & Care, 2720 S. Loop 256, Palestine, TX
Elkhart Head-start East Texas, 301 E. Parker, Elkhart, TX
Evangelistic Temple Church Daycare Center, 3011 N. Loop 256, Palestine, TX
Family Outreach & Resources, 910 Court Dr., Palestine, TX
First Presbyterian Preschool, 410 Avenue A, Palestine, TX
First United Methodist Church Preschool, 422 S Magnolia, Palestine, TX
Gingerbread House Daycare, 504 Ferris Rd., Palestine, TX
Jack & Jill Early Learning, 1901 W. Point Tap Rd., Palestine, TX
Little Kid's Preschool, 23459 ACR 4117, Frankston, TX
Nadeau Learning Center, 112 Pinetree Dr., Palestine, TX
Palestine Special Education, 1306 Royall St., Palestine, TX
Palestine Y Daycare, 3500 N Loop 256, Palestine, TX
Precious Angels Daycare, 102 Francis St., Frankston, TX
Sam Houston Early Learning Center, 1000 E. Lamar St., Palestine, TX
Southside Baptist Childcare, 1500 Crockett Rd., Palestine, TX
Sunshine Preschool and Daycare, 924 N. Esplanade St., Palestine, TX

Public Buildings and Critical Infrastructure: City of Elkhart

Description	Location	Building Value	Contents Value
Water Building	Sheridan St.	$10,400	$17,000
City Hall	110 Parker St.	$65,640	$20,000

Description	Location	Building Value	Contents Value
Public Works	100 Hwy. 287 N.	$22,672	$5,000
Plumbers Supplies	108-C W. Parker	$17,726	$10,000
Senior Citizen Center	309 W. Parker	$88,166	$10,000
Lift Station / Pump house	110 Jones Rd.	$44,500	$3,000
Lift station	Day Road	$15,000	
Lift station	Reliable	$15,000	
Lift station	Hemby St.	$568,000	
Waste water treatment plant	Hemby St.	$20,500	
Lift station / Pump house	Hemby St.	$1,700	
Fencing	Watkins	$17.590	$10,000
Storage	School St.	$26,750	
20K gallon water storage tank	Newsome	$50,000	
Water well	Day Road	$50,000	
Water well	School St.	$50,000	
School well	Parker St.	$167,400	
55K gallon water storage tank	Day Road	$113,130	
Stand pipe	Newsome Well	$136,000	
Stand pipe	School St.	$35,250	
30K gallon water storage tank	School St.	$4,809	
Chlorine Building	School St.	$4,535	
Pump Station	Day Road	$2,418	
Pump Station	Newsome Well	$1,539	

Description	Location	Building Value	Contents Value
Chlorine Building	Newsome Well	$300	

Public Buildings and Critical Infrastructure: City of Palestine

Description	Location	Year Built	Building Value	Contents Value
Sewer Plant	Wells Creek	1999	$16,274	
Sewer Pump Control / Chlorinator	Neches	1994	$61,398	$136,000
City Administration	504 N. Queen St.	1914	$224,435	$10,000
Museum	1011 N. Perry St.	1851	$118,065	$50,000
Fire Station #2	7th Street	1965	$234,131	$13,000
Fire Station #1	Avenue A	1965	$355,955	$13,000
Sewer Plant	2.5 miles E. of Palestine Water Treatment	1966	$686,243	$371.000
Airport Office	Airport	2000	$197,528	$40,000
Airport Hangar	Airport	1980	$143,254	
Police Station	504 N. Queen St.	1974	$1,453,693	$500,000
Parks & Recreation Gazebo	Reagan Park	1975	$34,264	
Civic Center	1201 Hwy. 287	1980	$2,353,904	$125,000
Fire Station	Benbrook Drive	1981	$178,553	$13,000
Water Pump House	E of S Loop256		$13,000	$10,000
Water Pump House	W of Palestine		$13,000	$10,000
Parks & Recreation Concession Bldg.	Armory Road	1982	$74,439	$1,500
Parks & Recreation Concession Bldg.	Calhoun Park	1975	$24,490	$1,500

Description	Location	Year Built	Building Value	Contents Value
Senior Citizen Center	Kickapoo Street	1982	$314,824	$50,000
Library	Cedar Street	1855	$1,241,539	$1,000,000
Fire Station – Training Center	Hwy. 287 W.	1986	$219,545	$13,000
Garage Vehicle Maintenance	Coronaca St.	1960	$423,207	$16,000
City Office	Debard St.	1974	$98,580	$38,000
Storage Bldg.	Coronaca St.	1985	$37,554	$1,000
Town Creek Sewer Plant	1.5 miles W. of Palestine		$73,570	$30,000
150K gallon elevated water storage tank	N. Jackson		$268,600	
750K gallon water storage tank	N. Jackson		$237,000	
Water Pump House	N. Jackson	1985	$10,014	$27,000
1M gallon water storage tank	S. Sycamore		$369,560	
519K gallon water storage tank	S. Sycamore		$254,475	
300K gallon elevated water storage tower	Sterne Ave.		$391,000	
300K gallon elevated water storage tower	2.5 miles E. of Palestine Water Treatment		$337,000	
Concession	Greens Park	1975	$42,790	$1,500
Water Pump Bldg for Chlorinator	Greens Park	1975	$1,000	$2,000

Description	Location	Year Built	Building Value	Contents Value
Museum	Reagan Center	1935	$1,775,204	
Parks & Recreation Swimming Pool	East Loop 256		$204,000	
Parks & Recreation Bath House	East Loop 256	1998	$159,232	
Parks & Recreation Fence	East Loop 256		$11,000	
Parks & Recreation 3 Baseball Backstops	East Loop 256		$30,000	
Parks & Recreation Boardwalk	East Loop 256		$75,000	
1M gallon water storage tank	2.5 miles E. of Palestine Water Treatment		$273,750	
1M gallon water storage tank concrete	2.5 miles E. of Palestine Water Treatment		$481,750	
Water Tower with PAC Equipment	2.5 miles E. of Palestine Water Treatment		$16,288	
Shed Office	Town Creek Sewer Plant	1997	$23,144	$1,000
Sewer Lab Building	Town Creek Sewer Plant	1994	$71,432	$7,600
Maintenance Shop	Town Creek Sewer Plant	1997	$17,597	
Sewer Centrifuge Building	Town Creek Sewer Plant	1997	$30,336	
Sewer Chemical Building	Town Creek Sewer Plant	1997	$33,921	

Description	Location	Year Built	Building Value	Contents Value
Water Pump House	S. Sycamore	1969	$10,401	$10,000
Parks & Recreation Concession	Armory Road	1998	$112,261	$2,000
Smoke House / Fire Station #4	Hwy. 287 W.	1986	$47,184	
Parks & Recreation Pavilion	Calhoun Park	1995	$6,672	
Parks & Recreation Shelter / Restroom	Reagan Center	1985	$72,222	
Parks & Recreation Pavilion	Reagan Park	1990	$7,128	
Parks & Recreation Pavilion	Reagan Park	1990	$7,128	
Parks & Recreation Concession / RR / Abatement Office	Reagan Park	1975	$33,294	
Automatic Weather Operating Tower	Airport		$60,000	
Housing Residence	Airport	1965	$71,089	
Beacon with Antenna	Airport	2001	$14,300	
6K gallon fuel tank	Airport	1994	$10,000	
Parks & Recreation Swimming Pool	Greens Park	1975	$100,000	
Water Meters / Equipment		2002	$1,650,000	
Vacant Railroad Depot	Reagan Park	1890	$44,000	
Public Works Offices	201 E. Coronaca St.	2003	$250,000	$20,000

Description	Location	Year Built	Building Value	Contents Value
Public Works Chemical Bldg	201 E. Coronaca St.	2003	$5,000	$2,500
Parks & Recreation Pavilion	W. Spring Farmer's Market	1999	$75,000	$1,000
Parks & Recreation Pavilion	W. Spring Farmer's Market	1999	$5,000	$1,000
TOTAL			**$16,490,587**	**$2,517,500**

Anderson County Bridges Capitalization

Bridge I.D.	Date Built	Useful Life (Years)	Replacement Cost
Kennedy Creek	1991	50	$65,396
Box Creek	2000	50	$40,872
Box Creek	1991	50	$76,840
Box Creek	1995	50	$768,336
Manson Creek	1998	50	$36,785
Loni Creek	1997	12	$34,620
Squirrel Creek	1985	12	$20,972
Neches River	1986	50	$114,442
Loni Creek	1978	12	$23,302
Cedar Creek	1991	50	$73,570
Snake Creek	1965		
Stills Creek	1953		
Stills Creek	1953	50	$12,619
Stills Creek	1953	50	$10,795
Stills Creek	1953	50	$17,525
Stills Creek	1953	50	$15,773
Stills Creek	1953	50	$8,412

Bridge I.D.	Date Built	Useful Life (Years)	Replacement Cost
Stills Creek	1953	50	$18,927
Stills Creek	1953	50	$15,773
Stills Creek	1953	50	$12.338
Stills Creek	1953	50	$9,814
Stills Creek	1953	50	$15,142
Stills Creek	1953	50	$17,525
Stills Creek	1953	50	$14,020
Stills Creek	1953	50	$14,720
Stills Creek	1953	50	$14,721
Stills Creek	1953	50	$12,338
Stills Creek	1953	50	$8,412
Stills Creek	1953	50	$14,525
Stills Creek	1953	50	$9,814
Stills Creek	1953	50	$12,338
Stills Creek	1953	50	$14,020
Stills Creek	1953	50	$5,889
Stills Creek	1953	50	$5,048
Stills Creek	1953	50	$11,041
Stills Creek	1953	50	$12,338
Stills Creek	1953	50	$15,773
Stills Creek	1953	50	$7,852
Stills Creek	1953	50	$21,030
Stills Creek	1953	50	$9,814
Stills Creek	1953	50	$11,216
Stills Creek	1953	50	$14,020
Stills Creek	1953	50	$17,525
Stills Creek	1953	50	$5,833

Bridge I.D.	Date Built	Useful Life (Years)	Replacement Cost
AA0305-01	1965	50	$25,466
AA0307-01	1960	50	$7,990
AA0309-01	1971	50	$25,965
AA0456-01	1991	50	$232,017
AA0320-01	1969	50	$23,302
AA0320-02	1960	50	
AA0320-03	1960	50	
AA0320-04	1960	50	
AA0334-01	1960	50	
AA0335-01	2002	50	$852,358
AA0335-02	1983	50	$247,957
AA0336-02	2002	50	$190,396
AA0323-01	1960	50	
AA0323-02	1960	50	
AA0326-01	1988	50	$9,321
AA0353-01	1969	50	$26,631
AA0355-01	1961	50	$23,665
AA0355-02	1961	12	$22,885
AA0228-01	1961	12	$23,302
AA0358-01	1960	20	$
AA0370-01	1964	12	$26,631
AA0316-01	1960	50	$14,306
AA4801-01	1965	50	$14,306
AA0482-01	1969	12	$23,302
AA0483-01	1968	12	$14,980
AA0485-01	1967	50	$9,464
AA0486-01	1969	12	$23,302

Bridge I.D.	Date Built	Useful Life (Years)	Replacement Cost
AA4361-01	1972	12	$9,987
Keechie Creek		50	$18,393
Five Mile Creek		50	$12,875
Five Mile Creek		50	$8,412
Five Mile Creek		50	$12,262
Five Mile Creek		50	$39,674
Five Mile Creek		50	$24,524
Five Mile Creek		50	$43,923.78
Five Mile Creek		50	$
Beaver Creek		50	$24,524
Otter Creek		50	$
Otter Creek		50	$12,875
Otter Creek		50	$18,642
Otter Creek		50	$37,449
Otter Creek		50	$29,964
Otter Creek		50	$31,878
Otter Creek		50	$30,000
Otter Creek		50	
Otter Creek		50	$16,349

Estimating Potential Losses

Possible Tornado Magnitude and Extent of Loss: Although Anderson County and any of its Cities could be affected by an F4 tornado, most occurrences are F1 or F2, at a frequency of one every year or two. When a smaller tornado strikes, a small portion of the population will be without power and other utilities for a period of up to 72 hours; limited tree debris may be found in the area; roofs on some buildings may be damaged. In rare cases, a limited number of buildings may be structurally damaged or destroyed. Four F3 tornados have occurred in rural Anderson County, causing 1 death, 71 injuries, and $25.5 million in property damage. All four of the jurisdictions collectively have experienced a total of 34 reported tornados over the 56-year period between 1953 and 2008; these tornados caused 2 deaths, 87 injuries, and total reported property damage of $30,657,500.00 (averaging over $900,000 per storm). Since October 6, 2008, no tornado has touched ground in Anderson County; however, another tornado could occur at any time.

A tornado striking the City of Palestine or one of the other cities would cause more damage than one affecting the rural areas of the county. Frankston suffered an F1 tornado in 1993, which caused $500,000 in property damage. Elkhart has survived two tornados: an F1 in 1997, which caused 4 injuries and $50,000 in property damage; and an F0 in 2002, with no reported damage. Palestine has reportedly suffered four tornados: two F0 storms in 1999, causing a reported $5,000 in property damage; and two F1 tornados in 2006, which caused $230,000 in property damage. Tornados are capable of destroying anything in their path, but mobile homes, RV units and manufactured housing are particularly vulnerable. **Any of the Anderson County jurisdictions could experience an F4 tornado, which could cause multiple deaths and injuries, as well as millions of dollars in property damage.**

Possible Windstorm Magnitude and Extent of Loss: Severe windstorms usually move through Anderson County rapidly with a duration of approximately 30 minutes to one hour. Sporadic power outages affecting up to one-quarter of the county can be expected to last four to eight hours. All critical facilities have auxiliary power, and the power outages caused by these storms is usually just an inconvenience for residents and local businesses. In most cases, damage is limited to fallen trees and branches, sometimes blocking a roadway, or causing limited structural damage to residential and out buildings. The accompanying wind, most often in the 50 – 65 knots range, may cause damage to metal or shingle roofing on structures. Anderson County experiences several windstorms per year, but on average, only three or four fall into the "severe storm" category. Financial losses (including cleanup costs) per severe storm can be expected to run $15,000 - $100,000 county-wide.

Storms which affect the City of Palestine or one of the other cities would be expected to have a higher potential to injure people, and to cause more property damage than storms which affect the rural areas of the county. Since 1994, Frankston has experienced 11 windstorms, ranging from 50-60 knot winds, which caused $67,000 in property damage. Since 1995, Elkhart has reported 12 events, with 50-60 knot winds, causing $143,500 in damage. Since 1993, Palestine has suffered 53 windstorms, ranging from 50-70 knot winds, which caused $777,700 in property damage. Mobile homes, RV units and manufactured housing are particularly vulnerable to windstorms. **Any of the Anderson County jurisdictions could experience storm winds of up to 80 knots, which could cause deaths or injuries and many thousands of dollars in property damage.**

Possible Hailstorm Magnitude and Extent of Loss: Hailstorms usually move through Anderson County rapidly, with a duration of less than 30 minutes. Sporadic power outages affecting up to one-quarter of the county can be expected to last four to eight hours. All critical facilities have auxiliary power, and the power outages caused by these storms is usually just an inconvenience for residents and businesses. Most damage is limited to dented vehicles, roof damage, and fallen trees and branches, sometimes blocking a roadway, or causing limited structural damage to buildings. Hail may cause

damage to vehicles or other equipment, crops, animals that have no shelter, and to roofing on structures. On average, Anderson County experiences about three serious hailstorms per year. Financial losses (including cleanup costs) can be expected to run $5,000 - $10,000 county-wide, with storms which affect one of the cities generally likely to cause more property damage than storms which affect the rural areas of the county. As previously noted, older structures (pre-1980) are more likely to be vulnerable to hail damage, and approximately 81.2% of all homes in Anderson County (approximately 5,631 homes) were built in 1980 or earlier. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant hail events. In addition, all manufactured housing is particularly vulnerable to hail damage.

Since 1993, the City of Frankston has reported 11 hailstorms, with hail ranging from .75" to 1.75" in diameter, which caused $15,000 in reported damage. According to the US Census Bureau, approximately 81.2% of the residential structures (approximately 360 homes) in the City of Frankston were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant hail events. In addition, all manufactured housing is particularly vulnerable to hail damage.

Since 1994, Elkhart has experienced 17 hailstorms, with hail ranging from .75" to 1.75" in diameter, which caused $26,000 in reported damage. According to the US Census Bureau, approximately 81.2% of the residential structures (approximately 321 homes) in the City of Elkhart were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant hail events. In addition, all manufactured housing is particularly vulnerable to hail damage.

Since 1994, the City of Palestine has reported 33 hailstorms, with hail ranging from .75" to 1.5" in diameter, but no damage has been reported to NCDC. **Any of the Anderson County jurisdictions could experience hail of up to 4" in diameter, which could cause death to people or animals and many thousands of dollars in property damage.**

Possible Lightning Magnitude and Extent of Loss: Thunderstorms, which produce Lightning, usually move through Anderson County rapidly, with a duration of less than 30 minutes. Sporadic power outages affecting up to one-quarter of the county can be expected to last four to eight hours. All critical facilities have auxiliary power, and the power outages caused by these storms is usually just an inconvenience for residents and businesses. Lightning is expected to strike somewhere in rural Anderson County about 17,000 times per year; in Palestine about 300 times per year; in Elkhart about 24 times per year; and in Frankston about 40 times per year. Since 1999, a period of 18 years, five (5) lightning strikes have been reported to NCDC in the City of Palestine, which have caused $418,000 in reported damages. During the same period, three (3) lightning strikes in rural Anderson County have caused a reported $360,000 in damages. No damage due to lightning strikes has been reported to NCDC from Elkhart or Frankston; these cities have chosen not to mitigate lightning. **Any of the Anderson County jurisdictions could experience lightning strikes, which could cause death to people or animals and thousands of dollars in property damage.**

Possible Severe Winter Storm Magnitude and Extent of Loss: A severe winter storm could result in some parts of the county being without power due to accumulated ice on power lines and overhanging trees. Some roadways may ice over and become impassable for a short period of time. A limited number of motorists may attempt to negotiate iced roads and may become stranded or involved in automobile accidents. Actual storm damage will be limited to utilities and trees, and in rare cases, structures. All vulnerable facilities are adequately prepared to cope with winter storms. The most significant financial loss is to utilities, and costs for repairing power and telephone lines can vary greatly. On average, Anderson County experiences one severe winter storm every year or two; when this occurs, the entire county and all of the cities are affected, along with other nearby counties. Nineteen (19) such storms have been reported over the past 24 years, with a total of over $15 million in damages reported. All populations, buildings, critical facilities, and infrastructure in the entire Anderson County planning area are vulnerable to Severe Winter Storm events. People and animals are subject to health

risks from extended exposure to cold air. Elderly people are at greater risk of death from hypothermia during these events, especially in the rural areas of the County where populations are sparse, icy roads may impede travel, and there are fewer neighbors to check in on the elderly. According to the U.S. Center for Disease Control, every year hypothermia kills about 600 Americans, half of whom are 65 years of age or older. The population over age 65 in the Anderson County planning area is estimated at 12.6% of the total population or an estimated total of 4,640 potentially vulnerable residents in the rural areas of the county, 18.3% or 242 residents in the City of Elkhart, 22.4% or 269 residents in the City of Frankston, and 14.2% or 2,610 residents in the City of Palestine, based on age. Loss of power poses the most significant threat to critical emergency response and medical care facilities. Power is critical for continuity of critical services and potentially life-saving measures. In addition, all critical facilities could suffer damages to roofs and/or burst pipes, potentially closing the damaged facility and temporarily causing the jurisdiction to lose the use of that facility. **Any of the Anderson County jurisdictions could experience severe winter storms resulting in up to 6" accumulations of ice and snow, which could cause traffic accidents, utility outages, and thousands of dollars in property damage.**

Possible Wildfire Magnitude and Extent of Loss: Although Anderson County experiences numerous grass and brush fires each year, few (if any) qualify as true wildfires. Until August of 2011, no wildfires had ever been reported to NCDC from Anderson County. However, in 2011, 6 reports were made to NCDC of different fires which reportedly burned a total of 9,683 acres of land, consuming 5 homes, 5 barns, a deer camp, some outbuildings and 100 bales of hay, with a total value of over $1.2 million.. One firefighter suffered heat exhaustion and smoke inhalation and was taken to the hospital. In 2015, 2 reports were made to NCDC of fires which burned a total of 175 acres. All eight of these fires were reported in rural Anderson County, but **any of the Anderson County jurisdictions could experience wildfires resulting in deaths or injuries, utility outages, and thousands of dollars in property damage.**

Possible Drought Magnitude and Extent of Loss: On average, Anderson County and its cities experience about one month of drought every two years. However, 9 months of drought were reported in 2006, and 16 months of drought in a row were reported from December of 2010 through March of 2012. Reported crop losses over the 9-year period from 2006-2014 exceed $2 million. Damage is primarily limited to agricultural losses, in the rural portions of the county. While the Cities of Palestine, Elkhart and Frankston may need to institute water conservation policies in a time of drought, losses within the city should be limited to landscape plantings. However, as crop production suffers during extreme drought conditions, fresh local food supplies become limited, driving up costs and negatively impacting the local economy. Drought could also adversely affect neighborhood cooperative farming projects in the cities. Habitat damage is a vulnerability of the environment during periods of drought, for both aquatic and terrestrial species. The environment also becomes vulnerable during periods of extreme or prolonged drought due to severe erosion and land degradation. As resources are depleted, potable water is in short supply and overall water quality can suffer, elevating health concerns for all residents but especially for the most vulnerable populations – typically children, the elderly, and the ill. Potable water is also used for drinking, sanitation, patient care, sterilization of equipment, maintaining heating and cooling systems, and many other essential functions in medical facilities. Populations over age 65 in the Anderson County planning area are estimated at 12.6% of the total population and children under the age of 5 are estimated at 5.4% percent, for an estimated total of 18%, or 6,629 potentially vulnerable residents in rural Anderson County. There are 328 potentially vulnerable residents in the City of Elkhart, representing 24.8% of the population; 363 in the City of Frankston, representing 32.2% of the population; and an estimated 4,228 potentially vulnerable residents in the City of Palestine, representing 23% of the population, based on age. **Any of the Anderson County jurisdictions could experience drought of 700-800 on the KBDI scale, requiring water conservation efforts and resulting in thousands of dollars in property damage.**

Possible Flood Magnitude and Extent of Loss: Flooding occurs in Anderson County and its cities along low-lying roadways during heavy rain. Such flooding should not be severe, although some lower-lying roadways may become submerged and impassable. A limited number of motorists may become stranded due to flooded roadways. In rare cases, rising lake levels could result in flooding of residential and commercial structures near the lakeshores. No vulnerable facilities are located in areas threatened by flood. The cities of Palestine and Elkhart have no structures within the floodplain. The City of Frankston has 5 homes within the 100-year floodplain, with a total value of $242,470. Rural Anderson County has about 50 homes within the 100-year floodplain, the total value of which is estimated to be about six million dollars. **Any of the Anderson County jurisdictions could experience flood waters up to 8" deep in the low-lying areas which have been designated on the preceding maps. This could cause damage to public roads. Some homes could be damaged by flood in Palestine, Frankston or in rural Anderson County. Total anticipated damage from any one flood event (other than a major dam failure) is not expected to exceed $50,000.**

Possible Dam-Levee Failure Magnitude and Extent of Loss:

There are no levees within Anderson County, and no dams inside the the city limits of Frankston or Elkhart. While the City of Palestine includes several lakes, each is well-managed, the dams are properly maintained, and each lake has an emergency management plan in place. There are no structures in the inundation area, should any of these dams fail, and no lasting damage would be anticipated. **Dam Failure is a not hazard requiring mitigation inside the city limits of Palestine, Frankston or Elkhart**. **Rural Anderson County contains 50 dams, 12 of which could cause damage and are candidates for mitigation. Risk for each dam has been detailed in the previous section; for the 12 dams posing risk, potential property damage ranges from $35,000 or less for some of the smaller dams to over $10 million for Pineywoods Lake Dam**.

Prioritizing Hazards

The Hazard Mitigation Planning Team for each jurisdiction used a matrix system to assist in prioritizing each hazard. The matrix is a method of using frequency and severity (as defined on pages 41-42) to categorize each hazard into a risk classification that assists in ranking hazards by level of potential impact.

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

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

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.

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

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 require consideration for further mitigation and planning.

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

Classification D: Low-risk condition, with possible additional mitigation contingency planning needed (advisory in nature).

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

2018 Anderson County Risk Assessment Priority

Hazard	Class A	Class B	Class C	Class D	Priority
Tornado	A				1
Wildfire	A				2
Drought		B			3
Severe Winter Storm		B			4
Flood			C		5
Wind Storm				D	6
Hail Storm				D	7

2018 City of Palestine Risk Assessment Priority

Hazard	Class A	Class B	Class C	Class D	Priority
Tornado	A				1
Flood		B			2
Lightning		B			3
Wildfire		B			4
Drought			C		5
Severe Winter Storm				D	6
Wind Storm				D	7

2018 City of Elkhart Risk Assessment Priority

Hazard	Class A	Class B	Class C	Class D	Priority
Tornado	A				1
Drought	A				2
Wildfire		B			3
Severe Winter Storm			C		4
Flood			C		5
Wind Storm			C		6
Hail Storm				D	7

2018 City of Frankston Risk Assessment Priority

Hazard	Class A	Class B	Class C	Class D	Priority
Tornado	A				1
Drought	A				2
Wildfire		B			3
Severe Winter Storm			C		4
Flood			C		5
Wind Storm			C		6
Hail Storm				D	7

HAZARD MITIGATION STRATEGY

The purpose of hazard mitigation is to reduce property damage and risks to human life prior to the hazard event. Plan goals describe the overall direction that Anderson County, the City of Palestine, City of Elkhart, City of Frankston, community organizations, businesses, and citizens can take to work toward mitigating risks that derive from natural hazards. Actions are specific tasks which the jurisdictions plan to accomplish over the next five years, to reach the stated objectives and attain the stated goals.

Hazard Mitigation Goals

Goal 1: Protect Life and Property

Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to losses from hazards. Improve data collection and hazard assessments to make improvements to regulatory measures regarding new development, and to identify and retro-fit existing structures to reduce repetitive damage.

Goal 2: Increase Public Awareness

Implement public outreach and education programs to increase public awareness of the risks associated with natural hazards. Provide information on resources and funding sources to assist in implementing mitigation activities

Goal 3: Preserve and Protect Natural Resources

Take advantage of opportunities to improve long-range management and use of flood prone areas by using multi-objective approaches. For example, to preserve open space or create parkland by applying for funding to acquire land in the floodplain, while at the same time accomplishing the goal to ensure that development occurs outside the floodplain.

Goal 4: Develop Effective Partnerships for Mitigation Action Implementation

Strengthen communication and coordinate participation among business owners, citizens, community organizations, and public agencies to gain a vested interest in implementing mitigation measures. Organize public and private partnerships to assist with the implementation of specific mitigation action items.

Goal 5: Improve Efficiency in Delivery of Emergency Services

Strengthen emergency operations by increasing collaboration and coordination with State and Federal programs to improve training, provide communication improvements, equipment and mapping improvements. Coordinate and integrate mitigation activities, where appropriate, with emergency operation plans and procedures.

Relationship to the State Hazard Mitigation Plan

The State of Texas has developed the following goals:

1. Reduce or eliminate hazardous conditions that may cause loss of life.
2. Reduce or eliminate hazardous conditions that may inflict injuries.
3. Reduce or eliminate hazardous conditions that can cause property damage.
4. Reduce or eliminate hazardous conditions that degrade important natural resources.
5. Reduce or eliminate repetitive losses due to frequent probability of occurrence.
6. Lessen economic impact within communities when hazards occur.

Source: State of Texas Hazard Mitigation Plan 2010-2013, page 187, found at: **http://www.dps.texas.gov/dem/documents/txhazmitplan.pdf** *and State of Texas Hazard Mitigation Plan, 2013 Update, pages 189-190, found at* ***http://www.dps.texas.gov/dem/downloadable forms.htm#mitigation****.*

The hazard mitigation goals of Anderson County and the Cities of Palestine, Elkhart and Frankston agree with and complement the State mitigation goals.

Relationship to the National Flood Insurance Program

This Hazard Mitigation Action Plan supports the objectives of the National Flood Insurance Program, to enable property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods. Participation in the NFIP is based on an agreement between local communities and the Federal Government which states that, if a community will adopt and enforce a floodplain management ordinance to reduce future flood risks to new construction in Special Flood Hazard Areas, the Federal Government will make flood insurance available within the community as a financial protection against flood losses.

Anderson County, the City of Palestine and the City of Elkhart are participants in the National Flood Insurance Program, and plan to continue compliance and participation. The City of Frankston is not currently a participant in the NFIP. **Each jurisdiction has and enforces a floodplain management ordinance. Each jurisdiction has a designated floodplain manager: for Anderson County, Elkhart and Frankston, it is the Anderson County EMC; for the City of Palestine, it is the chief building official.**

Mitigation Action Items

Hazard	Anderson County Actions	Responsible Agency	Anticipated Cost
Tornado, Windstorm, Severe Winter Storm, Flood & Dam Failure	Plan and implement a new publicity campaign to expand enrollment in CODE RED notification system; use CODE RED to warn of impending hazard events.	EMC	N/A
Tornado, Windstorm, Hailstorm & Severe Winter Storm	Hold annual Storm Spotter's classes to educate the public about the danger of storms and to inform residents of mitigation actions to reduce risk to citizens, public infrastructure, private property owners, businesses and schools.	EMC	N/A
Tornado, Windstorm, Hailstorm, Severe Winter Storm, Drought, Flood, Dam Failure & Lightning	Develop, enhance and implement education programs to increase awareness of natural hazards and to inform residents of mitigation actions to reduce risk to citizens, public infrastructure, private property owners, businesses and schools.	EMC	N/A
Tornado & Windstorm	Establish program to assist local residents by paying half the cost of residential storm shelters.	Administration, EMC	Pending grant funding
Drought	Develop and implement a plan to install low-flow fixtures in all county facilities.	Maintenance	$300 per fixture replaced
Wildfire	Develop and implement a program to mow vacant land and trim brush or trees as needed to reduce risk of fire in wildland-urban interface areas owned by the county.	Road & Bridge	N/A

Hazard	Anderson County Actions	Responsible Agency	Anticipated Cost
Wildfire	Develop and implement new procedures to better use media to publicize burn bans throughout the county. Increase visibility on county websites, facebook and twitter.	Commissioners Court, EMC	N/A
Wildfire	Work with the VFD's and Texas Forest Service to educate the public in all rural communities to increase awareness about the hazard of wildfire around the homes and to inform residents of mitigation actions to reduce risk.	EMC	N/A
Flood	Widen culverts to mitigate against future drainage issues that lead to flooding.	Road & Bridge Dept.	$800 per culvert replaced
Flood	Educate homeowners to increase awareness about the hazard of flooding and to inform residents of mitigation actions to reduce risk..	EMC	N/A
Flood	Ensure that structures are not built in flood zone areas.	Administration, Floodplain Mgr.	N/A
Lightning	Install lightning arrestors on public buildings and other critical infrastructure.	EMC, Public Works, Administration	About $250 per installed lightning arrestor
Dam-Levee Failure	Work with dam owners to keep dams in excellent condition by visiting dam locations and doing inspections with owners to ensure that dams are properly maintained and failure possibilities are greatly reduced.	EMC	N/A

Hazard	Anderson County Actions	Responsible Agency	Anticipated Cost
Severe Winter Storm	Develop and implement a program to mitigate winter storm damage by removing trees and brush from county right-of-way.	County Road & Bridge Dept.	N/A
Hailstorm	Review and update existing subdivision rules and regulations to mitigate hailstorm damage.	Administration, EMC	N/A

Hazard	City of Elkhart Actions	Responsible Agency	Anticipated Cost
Tornado, Windstorm, Severe Winter Storm & Flood	Plan and implement a new publicity campaign to expand enrollment in CODE RED notification system; use CODE RED to warn of impending hazard events.	EMC	N/A
Tornado, Windstorm, Hailstorm, Severe Winter Storm, Drought & Flood	Develop, enhance and implement education programs to increase awareness of natural hazards and to inform residents of mitigation actions to reduce risk to citizens, public infrastructure, private property owners, businesses and schools.	EMC	N/A
Tornado & Windstorm	Establish program to assist local residents by paying half the cost of residential storm shelters.	Administration, EMC	Pending grant funding
Wildfire	Develop and implement a program to mow vacant lots and trim brush or trees as needed to reduce risk of fire.	Administration, Public Works.	N/A
Wildfire	The City of Elkhart will increase outreach efforts to mitigate against wildfires by posting “Burn Ban in Effect” signs to inform residents when Anderson County is under a Burn Ban.	Administration, Police Dept.	N/A
Flood	Enlarge drainage culverts.	Public Works Dept.	$800 per culvert replaced
Flood	Participate in the “Turn Around, Don’t Drown” campaign.	EMC	N/A
Drought	Update and implement City Emergency Plan for Drought Response and use as needed when drought conditions appear.	Administration and EMC	N/A

Hazard	City of Elkhart Actions	Responsible Agency	Anticipated Cost
Drought	Update and implement city ordinance on water rationing and controlled usage during a drought.	Administration and EMC	N/A
Severe Winter Storm	Develop and implement a program to mitigate winter storm damage by removing trees and brush from county right-of-way.	Public Works	N/A
Hailstorm	Update building codes and ordinances to reflect latest improvements to increase resilience to hail storms.	Administration	N/A

Hazard	City of Frankston Actions	Responsible Agency	Anticipated Cost
Tornado, Windstorm, Severe Winter Storm & Flood	Plan and implement a new publicity campaign to expand enrollment in CODE RED notification system; use CODE RED to warn of impending hazard events.	EMC	N/A
Tornado & Windstorm	Educate residents about tornadoes and windstorms and how to prepare for them.	EMC	N/A
Tornado & Windstorm	Establish program to assist local residents by paying half the cost of residential storm shelters.	Administration, EMC	Pending grant funding
Wildfire	The City of Frankston will increase enforcement of its city ordinance that regulates against debris in yards inside the city limits. Develop and implement a program to mow vacant lots and trim brush or trees as needed to reduce risk of fire.	Administration, Public Works.	N/A
Wildfire	The City will post “Burn Ban in Effect” signs to inform residents when Anderson County is under a Burn Ban.	Administration, Police Dept.	N/A
Wildfire	Educate the community to increase awareness about the hazard of wildfire around the homes and to inform residents of mitigation actions to reduce risk and what individuals can do to prevent wildfires.	Administration, EMC	N/A
Flood	Enlarge drainage culverts.	Public Works Dept.	$800 per culvert replaced

Hazard	City of Frankston Actions	Responsible Agency	Anticipated Cost
Flood	The City will provide public education on the dangers of flash flooding, and to inform residents of mitigation actions to reduce risk to citizens, public infrastructure, private property owners, businesses and schools including participation in the “Turn Around, Don’t Drown” campaign.	EMC	N/A
Drought	Work with the county on educating the public about the dangers associated with drought and to inform residents of mitigation actions to reduce risk to citizens, public infrastructure, private property owners, businesses and schools.	Administration and EMC	N/A
Drought	Update City Emergency Plan for Drought Response and use as needed when drought conditions appear.	Administration and EMC	N/A
Drought	Update city ordinance on water rationing and controlled usage during a drought; enforce as needed when drought conditions appear.	Administration and EMC	N/A
Severe Winter Storm	Work with the County EMC to educate the community on the danger of severe winter storms and to inform residents of mitigation actions to reduce risk to citizens, public infrastructure, private property owners, businesses and schools. Encourage all residents to sign up for CODE RED notifications.	Administration	N/A
Severe Winter Storm	Develop and implement a program to mitigate winter storm damage by removing trees and brush from county right-of-way.	Public Works	N/A
Hailstorm	Conduct public outreach to educate homeowners on hail mitigation measures for their homes.	EMC	N/A

Hazard	City of Frankston Actions	Responsible Agency	Anticipated Cost
Hailstorm	Update building codes and ordinances to reflect latest improvements to increase resilience to hail storms.	Administration	N/A

Hazard	City of Palestine Actions	Responsible Agency	Anticipated Cost
Tornado, Windstorm, Severe Winter Storm & Flood	Plan and implement a new publicity campaign to expand enrollment in CODE RED notification system; use CODE RED to warn of impending hazard events.	EMC	N/A
Tornado, Windstorm, Severe Winter Storm, Flood, Drought, Wildfire & Lightning	Develop and implement a public education campaign to increase awareness of natural hazards, including Tornado, Windstorm, Severe Winter Storm, Flood, Drought, Wildfire & Lightning, to inform residents of mitigation actions which can be taken to reduce risk to citizens, public infrastructure, private property owners, businesses and schools.	EMC	N/A
Tornado & Windstorm	Establish program to assist local residents by paying half the cost of residential storm shelters.	Administration, EMC	Pending grant funding
Flood	Increase drainage capacity where needed.	EMC, Public Works, Administration	$800 per culvert replaced
Lightning	Install back-up power sources, generators and lightning arrestors in public buildings and other critical infrastructure. Ensure that entities with such equipment have a routine maintenance and testing plan.	EMC, Public Works, Administration	About $100 per backup power unit; $1,500 per generator; $250 per installed lightning arrestor

Hazard	City of Palestine Actions	Responsible Agency	Anticipated Cost
Wildfire	Increase enforcement of city ordinance that regulates against debris in yards inside the city limits. Develop and implement a program to mow vacant lots and trim brush or trees as needed to mitigate damage due to wildfire.	EMC, Public Works, Administration	N/A
Drought	Update City Emergency Plan for Drought Response and use as needed when drought conditions appear.	Administration and EMC	N/A
Severe Winter Storm	Educate the public to increase awareness about the hazard of severe winter storms and to inform residents of mitigation actions to reduce risk and be ready for winter storms.	Administration and EMC	N/A
Severe Winter Storm	Develop and implement a program to mitigate winter storm damage by removing trees and brush from county right-of-way.	Public Works	N/A

Implementation of Action Items

The Mitigation Planning Team prioritized the actions using the STAPLE+E criteria, a planning tool used to evaluate alternative actions. The following table explains the STAPLE+E criteria.

STAPLE+E	Criteria Explanation
S – Social	Mitigation actions are acceptable to the community if they do not adversely affect a particular segment of the population, do not cause relocation of lower income people, and if they are compatible with the community's social and cultural values.
T – Technical	Mitigation actions are technically most effective if they provide long-term reduction of losses and have minimal secondary adverse impacts.
A – Administrative	Mitigation actions are easier to implement if the jurisdiction has the necessary staffing and funding.
P – Political	Mitigation actions can truly be successful if all stakeholders have been offered an opportunity to participate in the planning process and if there is public support for the action.
L – Legal	It is critical that the jurisdiction or implementing agency have the legal authority to implement and enforce a mitigation action.
E – Economic	Budget constraints can significantly deter the implementation of mitigation actions. Hence, it is important to evaluate whether an action is cost-effective, as determined by a cost benefit review, and possible to fund.
E – Environmental	Sustainable mitigation actions that do not have an adverse effect on the environment, that comply with Federal, State, and local environmental regulations, and that are consistent with the community's environmental goals, have mitigation benefits while being environmentally sound.

The jurisdictions each selected the action items felt to be most relevant and practical for implementation. The mitigation actions with highest priority were the most cost effective and most compatible with the communities' social and cultural values. The team selected

the actions for the initial implementation phase of the plan based on the hazard priority ranking, ease of implementation and available funding.

Items rated A are anticipated to be completed within the first year of plan implementation; items rated B will require two to three years; items rated C are expected to require four years or more to complete. Within each category, numbers reflect priority; thus, A-1 will be implemented prior to A-2, and so on down the list.

The following charts show the priority of implementation of action items, the responsible agency, and the anticipated cost. A notation of N/A in the cost column means that the action item will not add a measurable amount of expense to the jurisdiction's budget, but will be incorporated into the responsible agency's daily duties.

Priority	Hazard	Anderson County Actions	Responsible Agency	Anticipated Cost
C-3	Tornado, Windstorm, Severe Winter Storm, Flood & Dam Failure	Plan and implement a new publicity campaign to expand enrollment in CODE RED notification system; use CODE RED to warn of impending hazard events.	EMC	N/A
A-2	Tornado, Windstorm, Hailstorm & Severe Winter Storm	Hold annual Storm Spotter's classes to educate the public about the danger of storms and to inform residents of mitigation actions to reduce risk to citizens, public infrastructure, private property owners, businesses and schools.	EMC	N/A

Priority	Hazard	Anderson County Actions	Responsible Agency	Anticipated Cost
C-4	Tornado, Windstorm, Hailstorm, Severe Winter Storm, Drought, Flood, Dam Failure & Lightning	Develop, enhance and implement education programs to increase awareness of natural hazards and to inform residents of mitigation actions to reduce risk to citizens, public infrastructure, private property owners, businesses and schools.	EMC	N/A
A-1	Tornado & Windstorm	Establish program to assist local residents by paying half the cost of residential storm shelters.	Administration, EMC	Pending grant funding
C-6	Drought	Develop and implement a plan to install low-flow fixtures in all county facilities.	Maintenance	$300 per fixture replaced
A-6	Wildfire	Develop and implement a program to mow vacant land and trim brush or trees as needed to reduce risk of fire in wildland-urban interface areas owned by the county.	Road & Bridge	N/A
A-3	Wildfire	Develop and implement new procedures to better use media to publicize burn bans throughout the county. Increase visibility on county websites, facebook and twitter.	Commissioners Court, EMC	N/A

Priority	Hazard	Anderson County Actions	Responsible Agency	Anticipated Cost
B-1	Wildfire	Work with the VFD's and Texas Forest Service to educate the public in all rural communities to increase awareness about the hazard of wildfire around the homes and to inform residents of mitigation actions to reduce risk.	EMC	N/A
C-2	Flood	Widen culverts to mitigate against future drainage issues that lead to flooding.	Road & Bridge Dept.	$800 per culvert replaced
C-1	Flood	Ensure that structures are not built in flood zone areas.	Administration, Floodplain Mgr.	N/A
B-2	Lightning	Install lightning arrestors on public buildings and other critical infrastructure.	EMC, Public Works, Administration	About $250 per installed lightning arrestor
C-5	Dam-Levee Failure	Work with dam owners to keep dams in excellent condition by visiting dam locations and doing inspections with owners to ensure that dams are properly maintained and failure possibilities are greatly reduced.	EMC	N/A
A-4	Severe Winter Storm	Develop and implement a program to mitigate winter storm damage by removing trees and brush from county right-of-way.	County Road & Bridge Dept.	N/A
A-5	Hailstorm	Review and update existing subdivision rules and regulations to mitigate hailstorm damage.	Administration, EMC	N/A

Priority	Hazard	City of Elkhart Actions	Responsible Agency	Anticipated Cost
C-1	Tornado, Windstorm, Severe Winter Storm & Flood	Plan and implement a new publicity campaign to expand enrollment in CODE RED notification system; use CODE RED to warn of impending hazard events.	EMC	N/A
C-2	Tornado, Windstorm, Hailstorm, Severe Winter Storm, Drought & Flood	Develop, enhance and implement education programs to increase awareness of natural hazards and to inform residents of mitigation actions to reduce risk to citizens, public infrastructure, private property owners, businesses and schools.	EMC	N/A
A-1	Tornado & Windstorm	Establish program to assist local residents by paying half the cost of residential storm shelters.	Administration, EMC	Pending grant funding
A-2	Wildfire	Develop and implement a program to mow vacant lots and trim brush or trees as needed to reduce risk of fire.	Administration, Public Works.	N/A
A-3	Wildfire	The City of Elkhart will increase outreach efforts to mitigate against wildfires by posting “Burn Ban in Effect” signs to inform residents when Anderson County is under a Burn Ban.	Administration, Anderson Co. Sheriff’s Office, Constable Pct. 1 (no PD in Elkhart)	N/A
B-1	Flood	Enlarge drainage culverts.	Public Works Dept.	$800 per culvert replaced
B-2	Flood	Participate in the “Turn Around, Don’t Drown” campaign.	Public Works Dept.	N/A

Priority	Hazard	City of Elkhart Actions	Responsible Agency	Anticipated Cost
B-3	Drought	Update and implement City Emergency Plan for Drought Response and use as needed when drought conditions appear.	Administration and EMC	N/A
B-4	Drought	Update and implement city ordinance on water rationing and controlled usage during a drought.	Administration and EMC	N/A
C-3	Severe Winter Storm	Develop and implement a program to mitigate winter storm damage by removing trees and brush from county right-of-way.	Public Works Dept.	N/A
A-4	Hailstorm	Update building codes and ordinances to reflect latest improvements to increase resilience to hail storms.	Administration	N/A

Priority	Hazard	City of Frankston Actions	Responsible Agency	Anticipated Cost
C-1	Tornado, Windstorm, Severe Winter Storm & Flood	Plan and implement a new publicity campaign to expand enrollment in CODE RED notification system; use CODE RED to warn of impending hazard events.	EMC	N/A
C-2	Tornado & Windstorm	Educate residents about tornadoes and windstorms and how to prepare for them.	EMC	N/A
A-1	Tornado & Windstorm	Establish program to assist local residents by paying half the cost of residential storm shelters.	Administration, EMC	Pending grant funding
A-2	Wildfire	The City of Frankston will increase enforcement of its city ordinance that regulates against debris in yards inside the city limits. Develop and implement a program to mow vacant lots and trim brush or trees as needed to reduce risk of fire.	Administration, Public Works.	N/A
A-3	Wildfire	The City will post “Burn Ban in Effect” signs to inform residents when Anderson County is under a Burn Ban.	Administration, Police Dept.	N/A
B-3	Wildfire	Educate the community to increase awareness about the hazard of wildfire around the homes and to inform residents of mitigation actions to reduce risk and what individuals can do to prevent wildfires.	Administration, EMC	N/A
B-1	Flood	Enlarge drainage culverts.	Public Works Dept.	$800 per culvert replaced

Priority	Hazard	City of Frankston Actions	Responsible Agency	Anticipated Cost
B-2	Flood	The City will provide public education on the dangers of flash flooding, and to inform residents of mitigation actions to reduce risk to citizens, public infrastructure, private property owners, businesses and schools including participation in the “Turn Around, Don’t Drown” campaign.	EMC	N/A
C-3	Drought	Work with the county on educating the public about the dangers associated with drought and to inform residents of mitigation actions to reduce risk to citizens, public infrastructure, private property owners, businesses and schools.	Administration and EMC	N/A
B-4	Drought	Update City Emergency Plan for Drought Response and use as needed when drought conditions appear.	Administration and EMC	N/A
B-5	Drought	Update city ordinance on water rationing and controlled usage during a drought; enforce as needed when drought conditions appear.	Administration and EMC	N/A

Priority	Hazard	City of Frankston Actions	Responsible Agency	Anticipated Cost
C-4	Severe Winter Storm	Work with the County EMC to educate the community on the danger of severe winter storms and to inform residents of mitigation actions to reduce risk to citizens, public infrastructure, private property owners, businesses and schools. Encourage all residents to sign up for CODE RED notifications.	Administration	N/A
C-5	Severe Winter Storm	Develop and implement a program to mitigate winter storm damage by removing trees and brush from county right-of-way.	Public Works	N/A
C-6	Hailstorm	Conduct public outreach to educate homeowners on hail mitigation measures for their homes.	EMC	N/A
A-4	Hailstorm	Update building codes and ordinances to reflect latest improvements to increase resilience to hail storms.	Administration	N/A

MITIGATION ACTIONS IMPLEMENTATION TABLE: CITY OF PALESTINE

Priority	Hazard	Action	Responsible Agency	Anticipated Cost
C-1	Tornado, Windstorm, Severe Winter Storm & Flood	Plan and implement a new publicity campaign to expand enrollment in CODE RED notification system; use CODE RED to warn of impending hazard events.	EMC	N/A
C-2	Tornado, Windstorm, Severe Winter Storm, Flood, Drought, Wildfire & Lightning	Develop and implement a public education campaign to increase awareness of natural hazards, including Tornado, Windstorm, Severe Winter Storm, Flood, Drought, Wildfire & Lightning, and to inform residents of mitigation actions which can be taken to reduce risk to citizens, public infrastructure, private property owners, businesses and schools.	EMC	N/A
A-1	Tornado & Windstorm	Establish program to assist local residents by paying half the cost of residential storm shelters.	Administration, EMC	Pending grant funding
A-2	Flood	Increase drainage capacity where needed.	EMC, Public Works, Administration	$800 per culvert replaced
A-3	Lightning	Install back-up power sources, generators and lightning arrestors in public buildings and other critical infrastructure. Ensure that entities with such equipment have a routine maintenance and testing plan.	EMC, Public Works, Administration	About $100 per backup power unit; $1,500 per generator; $250 per installed lightning arrestor

Priority	Hazard	Action	Responsible Agency	Anticipated Cost
A-4	Wildfire	Increase enforcement of city ordinance that regulates against debris in yards inside the city limits. Develop and implement a program to mow vacant lots and trim brush or trees as needed to mitigate damage due to wildfire.	EMC, Public Works, Administration	N/A
A-5	Drought	Update City Emergency Plan for Drought Response and use as needed when drought conditions appear.	Administration and EMC	N/A
C-3	Severe Winter Storm	Educate the public to increase awareness about the hazard of severe winter storms and to inform residents of mitigation actions to reduce risk and be ready for winter storms.	Administration and EMC	N/A
A-6	Severe Winter Storm	Develop and implement a program to mitigate winter storm damage by removing trees and brush from county right-of-way.	Public Works	N/A

Funding to meet the costs of the above action items is expected to be raised through a combination of sources, including but not limited to: local funding from tax revenues and any other available sources; a specific bond issue if needed for any given project; public-private partnerships; state grants; FEMA grants such as HGMP; and any other source which may become available.

Projects Completed Under Expiring Plan

Anderson County

1. Anderson County has adopted Code Red emergency notification system, and uses it when needed. The Anderson County website **(http://www.co.anderson.tx.us/)** includes a link for citizens to register their telephone numbers, to ensure prompt notification in times of emergency.

2. The County EMC also uses a facebook page to post public notices: **https://www.facebook.com/Anderson-County-Texas-Emergency-Management-Office-704414209589773/**

3. The County EMC also uses Twitter to communicate with the public: **https://twitter.com/?lang=en**

4. Anderson County issues Burn Ban notices when conditions warrant; these notices are posted in a prominent position on the County website; burn bans are enforced by the Sheriff's Office and Constable.

5. National Weather Service SKYWARN classes were held in Palestine on January 22, 2013, January 21, 2014, January 20, 2015, January 19, 2016, January 17, 2017, and January 17, 2018, sponsored by Anderson County Emergency Management.

6. Tennessee Colony VFD purchased a new brush truck in 2016.

7. Westside VFD received a grant for new tanker in 2017.

8. Slocum VFD received a new engine and is currently building a substation (2017-18).

9. Bethel-Cayuga VFD received new wild land gear in 2017.

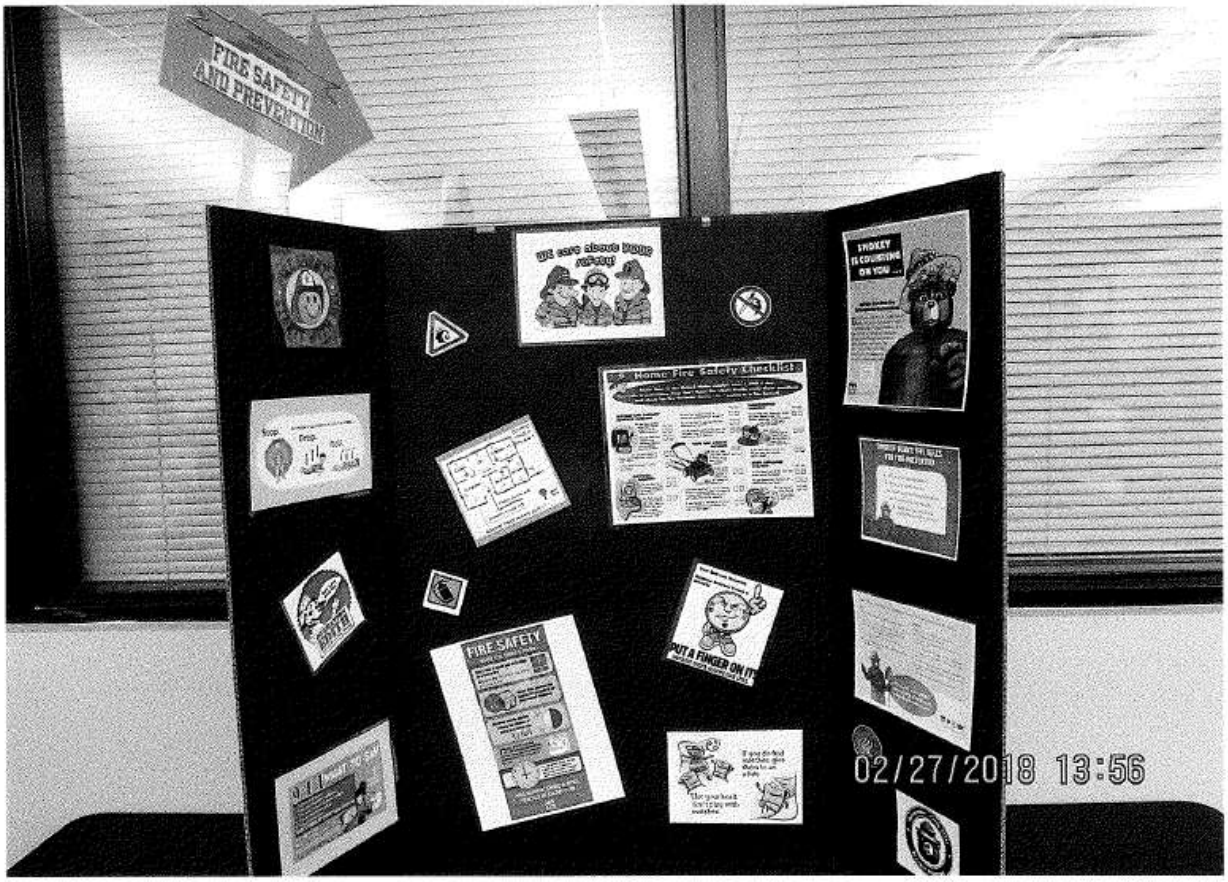
10. Palestine-Southside VFD received a new brush truck in 2017.

11. 84 East VFD received a grant for a new tanker and bought a new (used) fire engine in 2017.

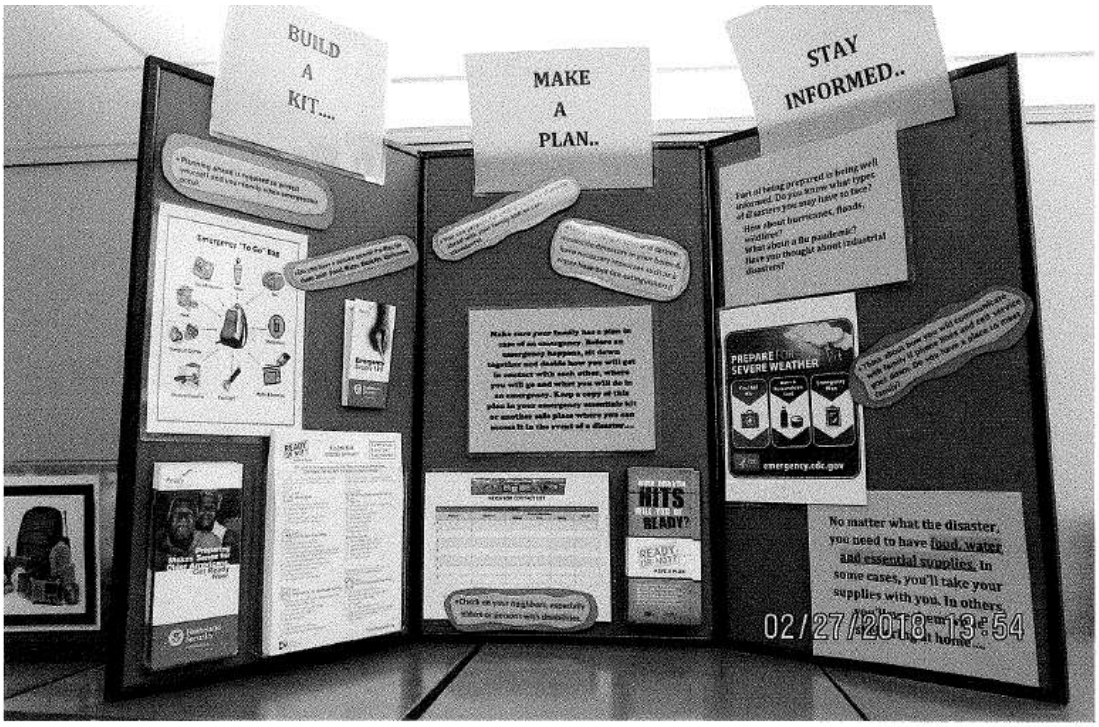
12. Anderson County Sheriff's Office received a Homeland Security grant for new dispatch consoles in 2017.

13. The Anderson County EMC's office maintains a bulletin board at the Annex which is changed monthly to provide current hazard information. Example: "February is Winter Weather Month." The Emergency Management Assistant updates this bulletin board each month to provide specific public awareness information.

14. The Anderson County EMC's office creates various displays which are presented at community events such as health fairs, Fire Prevention Week, National Night Out, Senior Citizen Group Presentations – Silver Sneakers Group / Resource Center and other public gatherings. The EMC and Assistant distribute flyers, guides, brochures and checklists related to the mitigation of natural hazards, all around Anderson County. Displays are placed in the Library, Court House, Annex, Vet Clinics in Palestine and Frankston, local Doctor's offices, Palestine Resource Center, etc. Handouts include information about all types of disasters; how to prepare, plan for, and recover from fire, floods, pandemics, heat, cold/winter, all weather-related events such as hurricane, tornado, lightning, etc.



15. The Anderson County EMC's office distributes information on how to plan for pet preparedness, create go kits, go bags and supply lists. All the above public education, training and fairs are done in various locations within the cities of Palestine, Elkhart, and Frankston, as well as in the rural areas of Anderson County.



16. The following Volunteer Fire Departments in rural Anderson County maintain facebook pages to facilitate public communication:
    a. Tucker VFD
    b. 84 East VFD
    c. Tennessee Colony VFD
    d. Westside Fire Department
    e. Slocum VFD
    f. Neches Volunteer Fire Department
    g. Montalba VFD
    h. Elmwood VFD
    i. Palestine Southside VFD

17. The 13 Volunteer Fire Departments in Anderson County are continuously updating communication equipment and bunker gear through grants.

18. The 13 Volunteer Fire Departments in Anderson County VFD's participate in training and exercises with local agencies including Texas A&M fire school, TEEX and TDEM classes.

City of Elkhart

1. The City of Elkhart has adopted Code Red emergency notification system, and uses it when needed.

2. The City of Elkhart also uses its website to communicate with its citizens, at: **http://www.thecityofelkhart.com**.

3. The City of Elkhart applied for and received a FEMA Homeland Security grant in 2016, which enabled the City to purchase and install two warning sirens.

4. NFIP participation continues; the City of Elkhart participates in the National Flood Insurance Program.

5. The Elkhart Volunteer Fire Department communicates with the public via its faceook page: **https://www.facebook.com/ElkharttxVfd/**.

6. Elkhart Volunteer Fire Department received a grant for a new large brush truck in 2017.

City of Frankston

1. The City of Frankston has adopted Code Red emergency notification system, and uses it when needed.

2. The City of Frankston also uses its website to communicate with its citizens, at: **http://www.frankstontexas.com**.

3. The Frankston Volunteer Fire Department communicates with the public via its faceook page: **https://www.facebook.com/frankstonvfd/**.

4. City of Frankston upgraded the first responder's ambulance.

5. Frankston VFD received new bunker gear from a grant in 2016.

City of Palestine

1. The City of Palestine has adopted Code Red emergency notification system, and uses it when needed. The Palestine Fire Department's web page **(http://www.Palestinetexas.com/departments/fire-department)** includes a link for citizens to register their telephone numbers, to ensure prompt notification in times of emergency.

2. The Palestine Fire Department uses facebook (**https://www.facebook.com/PalestineFireRescue/**) and Twitter (**https://twitter.com/PalestineTXEM**) to connect with citizens and post public notices.

3. The City of Palestine Fire Department purchased a new ladder Truck in 2016.

4. The City of Palestine (**https://www.facebook.com/cityofPalestine/**) also uses facebook to connect with citizens and post public notices.

5. The City of Palestine adopted the ICC International Building Code, 2012 Edition, the NCC National Electrical Code, 2011 edition, and the ICC International Plumbing Code, 2012 edition, on June 10, 2013; and adopted the International Residential Code, 2015 edition, on August 8, 2016. Permits are required to build within the City. Article 3.05: Flood Damage Prevention designates the chief building official as the floodplain administrator to administer and implement the provisions of this article and other appropriate sections of 44 CFR (National Flood Insurance Program regulations) pertaining to floodplain management.

6. The City uses code enforcement to require the mowing of weeds, to prevent the spread of fire. There is a new City Ordinance on burning, which is posted on the City's website. The entire current version of the Code of Ordinances for the City of Palestine may be found on the internet at: **http://z2codes.franklinlegal.net/franklin/Z2Browser2.html?showset=Palestineset**.

The following table lists all Mitigation Action Items found in the 2012 Anderson County HMAP, and describes what has been done to implement those actions.

Action Item	Result
Thunder Storm	
Thunder Storm #1. Improve ability to warn citizens prior to, during or after hazard events by operating and maintaining an audible siren system within the City of Palestine, and providing funding for and operating "Code Red" or similar 911 recall alert system.	Done: Code Red is in place, and is used when needed, throughout Anderson County and all subject jurisdictions. Also, the City of Elkhart received a FEMA grant in 2016 to purchase two warning sirens, which have now been installed and are ready for use. Palestine and Frankston do not use warning sirens.
Thunder Storm #2. Partner with local television/radio meteorologist to enlist their citizen "weather watchers" to pass emergency information to Anderson County 911 Dispatch Center as well as to their sponsoring broadcast station.	Done: "Weather Watchers" program is ongoing. National Weather Service SKYWARN classes were held at the Anderson county Annex in Palestine, Texas on 1/22/13, 1/21/14, 1/20/15, 1/19/16, 1/17/17, and 1/17/18, sponsored by Anderson County Emergency Management.
Thunder Storm #3. Cities of Palestine, Elkhart and Frankston adopt building code requiring lightning arrestors on all existing and newly constructed public buildings.	Not done: Proposal was tabled.
Thunder Storm #4. Anderson County and City of Palestine fund operation of "Code Red" or similar reverse 911 warning system.	Done: Code Red is in place, and is used when needed, throughout Anderson County and all subject jurisdictions.
Tornado	
Tornado #1. Improve ability to warn citizens prior to, during or after hazard events funding and operating an audible siren system in the City of Palestine, and funding operating "Code Red" or similar reverse 911 warning system.	Done: Code Red is in place, and is used when needed, throughout Anderson County and all subject jurisdictions. Also, the City of Elkhart received a FEMA grant in 2016 to purchase two warning sirens, which have now been installed and are ready for use. Palestine and Frankston do not use warning sirens.

Action Item	Result
Tornado #2. Partner with local television/radio meteorologist to enlist their citizen "weather watchers" to pass emergency information to Anderson County 911 Dispatch Center as well as to their sponsoring broadcast station for accompanied TV and radio announcement.	Done: "Weather Watchers" program is ongoing. National Weather Service SKYWARN classes were held at the Anderson county Annex in Palestine, Texas on 1/22/13, 1/21/14, 1/20/15, 1/19/16, 1/17/17, and 1/17/18, sponsored by Anderson County Emergency Management.
Tornado #3. Develop and maintain a current operations plan for tornado response.	Done: Plan is on file along with other Emergency Management Plans, in the EMC's office, Fire Dept., Sheriff's Office, Police Dept., and EOC.
Wildfire	
Wildfire #1. Improve ability to warn citizens prior to and during wildfire events by funding and operating "Code Red" or similar reverse 911 alert system.	Done: Code Red is in place, and is used when needed, throughout Anderson County and all subject jurisdictions. Also, the City of Elkhart received a FEMA grant in 2016 to purchase two warning sirens. The Anderson County facebook page is used to inform citizens of areas to stay away from due to fires. Also used to inform citizens of areas that are scheduled for a prescribed burn and when burn bans are enacted or dismissed.
Wildfire #2. The Cities of Palestine, Frankston and Elkhart Code Enforcement Officer and the Anderson County Environmental Enforcement Officer will monitor trash, dangerously dense undergrowth, and other potential wildfire fuel sources and will coordinate with local fire marshal, fire departments, and private property owners enforcing regulations and ordinances to insure removal of possible fuel supplies and reducing risk to existing structures.	Done: City of Palestine Ordinance #O-39A-06 Ch.46-52, City of Frankston Ordinance #12-6-01 and City of Elkhart Ordinance 110 "Code enforcement inside the City of Elkhart," make it illegal to allow weeds to grow higher than 12"; this is enforced by the City, with notices given to property owners or residents, followed by a citation if the area is not mowed within 10 days. Mowing is done by City employees, if needed, and costs are billed to the property owner. County Road and Bridge crews mow right-of-way areas along county roads, and notify the Constable if trash is seen to an extent that a citation needs to be issued.

Action Item	Result
Drought	
Drought #1. Develop, enhance and implement education programs aimed at mitigating effects of drought hazard for farmers and ranchers.	Done by Texas A&M Agricultural Extension Agent for Anderson County, who works with citizens in all jurisdictions, both rural and City.
Drought #2. Cities of Palestine, Frankston and Elkhart will pass ordinance providing for implementation of mandatory water rationing during drought conditions. Anderson County Commissioners Court issue mandatory water conservation orders during drought conditions.	Palestine – Ordinance # O-0707 Ch. 38.170 specifies water rationing within the city for residential and commercial in times of drought. Frankston – Has a draft developed which is to be reviewed by the council. Elkhart – water drought ordinance # 20908072000. County – decided it was not feasible to try to have water restrictions out in the rural areas of the county at this time.
Flooding	
Flooding #1. In the early spring of each year, the Anderson County Hazard Mitigation Officer, and Emergency Management Coordinators for the Cities of Palestine, Frankston and Elkhart will each conduct a visual survey of low-lying bridges and highway culverts within their jurisdiction to determine if brush and debris would block the flow of up-coming rains. If debris is present, the County Road and Bridge Department, or the City Street Department, will be notified and clearing of the debris will be requested.	Done regularly, as part of standard operating procedures.
Flooding #2. In the early spring of each year, the Anderson County Road and Bridge Department, and the Street Departments of the Cities of Palestine, Frankston and Elkhart will inventory barricade supplies and insure that adequate materials are on hand to block off and barricade temporarily flooded roadways.	Done regularly, as part of standard operating procedures.

Action Item	Result
Flooding #3. Improve ability to warn citizens prior to, during or after hazard events. Anderson County and City of Palestine provide funding for and operation of "Code Red" or similar reverse 911 warning system.	Done: Code Red is in place, and is used when needed, throughout Anderson County and all subject jurisdictions. The Anderson County facebook page is used when county roads are flooded, to inform citizens not to drive in that area. Also, the City of Elkhart received a FEMA grant in 2016 to purchase two warning sirens, which have now been installed and are ready for use.
Flooding #4. The Cities of Palestine, Frankston and Elkhart will adopt zoning ordinances which regulate development in identified flood hazard zones. Anderson County adopt subdivision regulations that regulate development in identified flood-hazard areas.	Done: all jurisdictions have zoning ordinances or subdivision regulations that restrict development in FEMA-identified flood hazard zones.
Flooding #5. Upon approval and adoption of this plan, the Anderson County Hazard Mitigation Officer will coordinate Anderson County participation in the National Flood Insurance Program with the County Judge and the Anderson County Commissioners	Done: Anderson County continues to participate in the NFIP, along with the Cities of Palestine and Elkhart.
Flooding #6. The Cities of Palestine and Elkhart will continue to participate in NFIP. The City of Frankston will coordinate with the County Hazard Mitigation Officer and will place participation in the NFIP on the agenda for a city council meeting, and the council will consider participation in the NFIP.	Palestine – NFIP participation continues. Elkhart – NFIP participation continues. Frankston – Not done; action tabled by council as "not feasible at this time." Frankston formerly participated in the NFIP, but withdrew on 12/13/89.
Winter Storm	
Winter Storm #1. Improve ability to warn citizens prior to, during or after hazard events by funding and operating "Code Red" or similar 911 reverse alert system.	Done: Code Red is in place, and is used when needed, throughout Anderson County and all subject jurisdictions. The County EMC uses facebook to help prepare communities for storms and to share weather updates from the National Weather Service.

Action Item	Result
Winter Storm #2. Partner with local television/radio meteorologist to enlist their citizen "weather watchers" to pass emergency information to Anderson County 911 Dispatch Center as well as to their sponsoring broadcast station.	Done: "Weather Watchers" program is ongoing. National Weather Service SKYWARN classes were held at the Anderson county Annex in Palestine, Texas on 1/22/13, 1/21/14, 1/20/15, 1/19/16, 1/17/17, and 1/17/18, sponsored by Anderson County Emergency Management.
Winter Storm #3. Develop a debris management plan addressing the relationship between winter storm damage and debris management, and providing for reduction and removal of such debris resulting in reduction of risk to existing structures.	Done regularly, as part of standard operating procedures.
Dam Failure	
Dam Failure #1. Improve ability to warn citizens prior to, during or after hazard events by funding and operating "Code Red" or similar reverse 911 alert system.	Done: Code Red is in place, and is used when needed, throughout Anderson County and all subject jurisdictions. Also, the City of Elkhart received a FEMA grant in 2016 to purchase two warning sirens.
Dam Failure #2. Anderson County Sub-Division Regulations will be utilized to insure that construction does not take place within the inundation area below any dam in the county.	Done: Sub-divisions in the county must show plats with flood areas and this must be approved by Anderson County Commissioners court before permits are issued to build in the County.
Dam Failure #3. The Anderson County Hazard Mitigation Officer will conduct an annual survey of each of the dams in the County during early spring to insure that no obvious weaknesses are present. If weaknesses are found to exist, the owner of the dam will be contacted and advised to repair the dam before spring rains.	Done: The Anderson County EMC has met with several homeowners' associations and individuals who own dams and has held tabletop exercises on preparing and maintaining their dam structure. Also discussed actions for dam failure and safety issues. Dam owners regularly inspect their dams to make sure proper structure and operations are maintained.

Changes in Priorities Since Previous Plan Adoption

1. The Thunderstorm hazard has been separated into its component parts of Windstorm, Hailstorm and Lightning, which are now treated as separate hazards for mitigation.
2. The hazards of coastal erosion, expansive soil and land subsidence had not been considered in the past, but are now required to be considered for mitigation by the State of Texas; these hazards were discussed and evaluated, but were not selected for mitigation at this time, for reasons stated elsewhere in this Plan.

PLAN REVIEW, EVALUATION, AND IMPLEMENTATION

Monitoring, Evaluation and Updating

The Anderson County Emergency Management Department will be responsible to monitor and evaluate the Hazard Mitigation Action Plan throughout the year, with the assistance of other members of the Hazard Mitigation Planning Committee. The Anderson County EMC will monitor, record and evaluate the planning process, public involvement, how hazards change, previous occurrence data, changes in vulnerability and impacts, the integration process, changing goals, and any changes in risk assessment. All these aspects will be discussed by the Committee at its annual meeting each January. Throughout the implementation, monitoring and evaluation phases, the public will be invited and encouraged to comment on the Plan, and to assist in its implementation, evaluation and revision.

The Anderson County EMC will monitor the implementation of mitigation actions identified in the Plan. To facilitate plan maintenance, the Anderson County EMC will be the point of contact for hazard mitigation-related issues and serve as the coordinator on the plan

update. During the five-year planning cycle, the Anderson County EMC will undertake the following initiatives:

- Maintain and update a mitigation action table showing all Action Items and progress.
- Conduct annual site visits and obtain or develop reports of completed or initiated mitigation actions to incorporate in the plan revision as needed.
- Monitor and document any natural disasters affecting the jurisdictions during the planning cycle and incorporate into a revised Risk Assessment section as needed.
- Organize annual January meetings with the Mitigation Planning Committee to discuss relevant hazard mitigation issues, provide status updates, and discuss available grant opportunities.
- Watch for and disseminate hazard mitigation funding information and applications.
- Convene a meeting of the Committee following a natural disaster or when funding is announced to prioritize and submit potential mitigation actions for funding.
- Watch for information about any training from TDEM or FEMA in hazard mitigation planning, and for any new requirements that may be announced.
- Post a copy of the current Plan on the Anderson County website, and deliver paper copies to the local library, the Courthouse, the Tax Assessor's Office, the Chamber of Commerce, each of the three City Halls, public libraries, and other public places. Include information about how interested persons can participate in Plan implementation and revision.

The Anderson County EMC will compile, document, and incorporate all changes derived from the activities listed above into a revised plan document which will be submitted to TDEM for review prior to the end of the fifth year of the plan.

Evaluation

The Plan will be evaluated annually by the Anderson County EMC to determine the effectiveness of its projects, programs, and policies. The EMC will be responsible for scheduling and organizing the Committee meetings, collecting, analyzing and incorporating annual reports, and providing revised drafts to the Committee. Each year, at a minimum during the January meeting, the EMC and Committee members will assess the current version of the Plan and determine the improvements necessary for the plan update. The EMC will also evaluate the Committee itself, to determine if other agencies or individuals should be added to the planning team. The public will be invited to attend these annual meetings. Those who attend will be welcomed and encouraged to actively participate.

A thorough examination of the Plan will take place during the January meeting of the third year of the process to ensure an updated plan at the end of the planning cycle. At this meeting, the EMC and committee will review the goals and action items to determine their relevance to changing local situations, as well as changes in state or federal policy, and to ensure they are addressing current and expected conditions. The Committee will look at any changes in local resources that may influence the plan implementation (such as funding) and program changes to determine need for reassignment. The Committee will review all portions of the Plan to determine if this information should be updated or modified, given any new available data. The Committee will evaluate the content of the Plan using the following criteria:

- Are the mitigation actions effective?
- Are there any changes in land development that affect mitigation priorities?
- Do the goals, objectives, and action items meet social, technical, administrative, political, legal, economic, and environmental criteria as defined in FEMA's STAPLE-E analysis?
- Are the goals, objectives, and mitigation actions relevant, given any changes in the local area?

- Are the goals, objectives, and mitigation actions relevant, given any changes to state or federal regulations or policy?
- Is there any new data that affects the Risk Assessment portion of the Plan?
- Do any additional hazards pose a threat to the jurisdictions which should be mitigated?

If it appears necessary to hire a contractor to assist in Plan revisions, funding should be sought during the third year of the planning cycle, so that the contractor can be hired and revisions can be made during the fourth year. The completed document should be submitted to TDEM as soon as possible, ideally by the end of the fourth year, so that TDEM and FEMA approval may be obtained before the end of the fifth year of the planning cycle.

Update and Revision

The Planning Team will review the Plan every year during the January meeting, and will note any updates needed to reflect the results of the annual reports and on-going plan evaluation by the EMC. Throughout the planning cycle, the EMC will compile new information and incorporate it into the Plan. The EMC will also assess and incorporate recommendations expressed by TDEM or FEMA into the plan revision. In January of the third year of the planning cycle, the entire Plan will be evaluated and the need for revisions assessed. If it appears necessary to hire a contractor to assist in Plan revisions, funding should be sought during the third year of the planning cycle, so that the contractor can be hired and revisions can be made during the fourth year. The completed document should be submitted to TDEM as soon as possible, ideally by the end of the fourth year, so that TDEM and FEMA approval may be obtained before the end of the fifth year of the planning cycle. After FEMA has approved the Plan, the jurisdictions will again formally adopt the Plan by Resolution.

Incorporation into Existing Planning Mechanisms

Anderson County

The Anderson County Hazard Mitigation Action Plan is used to aid the development of the Anderson County Emergency Management Plan, **Annex P, Hazard Mitigation**. The Plan is used by the County Commissioners Court at any time when zoning is being considered.

City of Palestine

The City of Palestine has adopted the International Building Code, 2012 Edition, the NCC National Electrical Code, 2011 edition, and the ICC International Plumbing Code, 2012 edition, on June 10, 2013; and adopted the International Residential Code, 2015 edition, on August 8, 2016. Permits are required to build within the City. Article 3.05: Flood Damage Prevention designates the chief building official as the floodplain administrator to administer and implement the provisions of this article and other appropriate sections of 44 CFR (National Flood Insurance Program regulations) pertaining to floodplain management. The current Code of Ordinances for the City of Palestine may be found at the following internet location: **http://z2codes.franklinlegal.net/franklin/Z2Browser2.html?showset=Palestineset.**

The City of Palestine's Comprehensive Plan "Palestine 2040" was adopted by the City Council on June 31, 2014 as an update to the previous 1997 plan. The purpose of the Comprehensive Plan is to provide guidance to public policy relating to economic development, future land use, neighborhood planning, parks and recreation, and housing needs. It is a statement of community values, a guide for the city's future growth and development created by the community, stakeholders, and the city.

The City of Palestine Comprehensive Plan includes one specific goal related to hazard mitigation: “GOAL LU6: ENCOURAGE THE PRESERVATION OF FLOODPLAIN AREAS AS RIPARIAN BUFFERS PROVIDING WILDLIFE CORRIDORS AND OUTDOOR RECREATION.” The Land Use Plan includes a paragraph about restriction of development in “Greenway / Floodplain” areas, and a map (reproduced on the next page) showing where those areas are located. The 2018 HMAP will be used during any revisions of the Palestine Comprehensive Plan that occur within the next five years.

City officials will review the recommendations contained in this Plan and update development ordinances to ensure that the city can continue to prevent development in the floodplain, promote sound planning practices regarding subdivision design, and require best management practices wherever possible.

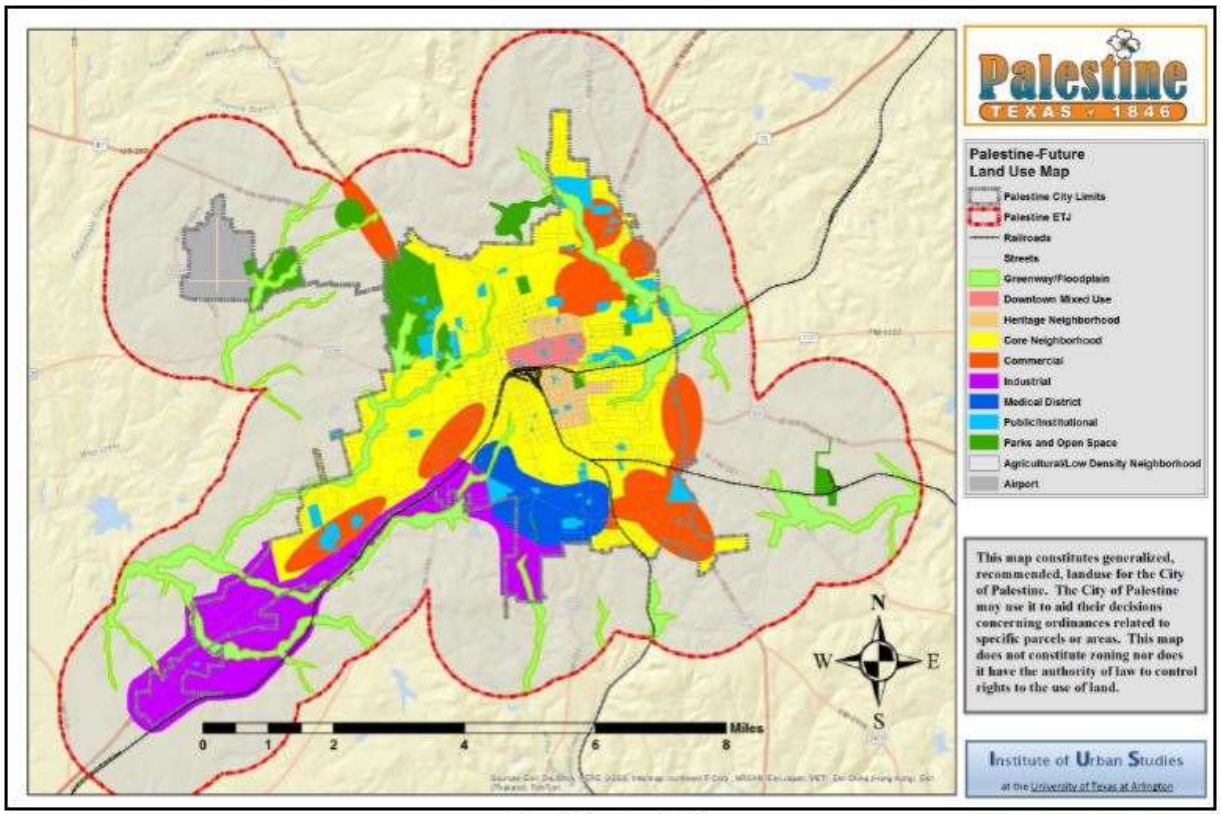


FIGURE 28: FUTURE LAND USE MAP

City of Elkhart

City of Elkhart Ordinance 110 makes it illegal to allow weeds to grow higher than 12”; this is enforced by the City, with notices given to property owners or residents, followed by a citation if the area is not mowed within 10 days. Mowing is done by City employees, if needed, and costs are billed to the property owner.

City of Frankston

City of Frankston Ordinance #12-6-01 makes it illegal to allow weeds to grow higher than 12”; this is enforced by the City, with notices given to property owners or residents, followed by a citation if the area is not mowed within 10 days. Mowing is done by City employees, if needed, and costs are billed to the property owner.

The following table further details how the Cities and County will incorporate this Plan into their existing planning mechanisms, and describes future expansive capabilities.

Planning Mechanism	Incorporation Process	Expansive Capabilities
City and County Staff	The City and County staff are highly involved in the planning process and the implementation of identified hazard mitigation actions.	Hire a new staff member to Mitigation Planning team
City Public Works departments; Anderson County Road & Bridge	The managers of these divisions will use this plan to improve preparedness and plan for better service delivery during emergency situations.	Train managers and staff in emergency preparedness and mitigation techniques; hire additional staff as budget allows.

Planning Mechanism	Incorporation Process	Expansive Capabilities
Floodplain development City Ordinances and County Floodplain Management Plan	The Plan will be used in updating and maintaining the City's floodplain management program. The Plan will be consulted for NFIP compliance, flood risk, and extent. Information from these sections will be reviewed for inclusion in other plans. Anderson County will review the HMAP prior to revising its Floodplain Management Plan and/or when developing any new plans.	Participate in the NFIP's Community Rating System, which could result in lower flood insurance costs for homeowners within the participating jurisdictions.
Annual Budget Review – Cities and County	The Cities and County will review the Plan and consider mitigation actions when conducting annual budget reviews. When allocating funds for upcoming operating and construction budgets, high priority mitigation actions will be reviewed during City Council / Commissioners Court meetings. Each identified staff member/planning Team member will be responsible for bringing mitigation actions to the meeting to discuss feasibility of the potential project in terms of the availability of funds, grant assistance, and preliminary cost benefit review. Mitigation actions will be implemented whenever possible, within budgetary constraints.	Increase budget for mitigation activities, which could include hiring Mitigation staff, planning, developing and carrying out mitigation projects. Apply for grant funding to carry out mitigation projects.

Planning Mechanism	Incorporation Process	Expansive Capabilities
Emergency Operations Procedures – Cities and County	Anderson County and the Cities of Palestine, Elkhart and Frankston have a state-approved Emergency Management Plan, which is updated regularly. This HMAP is referred to and included in Emergency Management Plan, Annex P, and is incorporated therein by reference. This Plan will be consulted during updates to the local Emergency Management Plan for the City and County. Risk assessment and vulnerability data will be analyzed in conjunction with the review, renewal, and re-writing of the Emergency Operations procedures and Emergency Management Plan.	Increased training in emergency management and hazard mitigation for current staff members; hiring and training new staff members. Anderson County and the Cities of Palestine, Elkhart and Frankston need to revise Annex P of their Emergency Management Plan to reflect the changes and updates in this revised HMAP.
Grant Applications	The Plan will be consulted when grant funding opportunities arise, and funding will be sought for mitigation projects whenever possible.	Training in grant writing for current staff members; hiring a new staff member with grant writing experience, or hiring a contractor to write grant applications for mitigation projects.
Capital Improvement Plans	Anderson County and the Cities of Palestine, Elkhart and Frankston do not have a CIP in place. County and City departments will review the risk assessment and mitigation strategy sections of the HMAP prior to adopting any proposed CIP.	The jurisdictions could develop Capital Improvement Plans.

Planning Mechanism	Incorporation Process	Expansive Capabilities
Comprehensive Plans	Anderson County has a Long-term Comprehensive Development Plan in place. The mitigation vision and goals of the HMAP will be reviewed in any future revision of the Anderson County Comprehensive Plan. The City of Palestine has a Comprehensive Plan which was adopted in 2014. The mitigation vision and goals of this HMAP will be reviewed in any future revision of the City's Comprehensive Plan.	Elkhart and Frankston could develop Comprehensive Plans.

Once this revised HMAP is adopted, Anderson County and participating jurisdictions will implement the listed actions based on priority and the availability of funding. The County currently implements policies and programs to reduce loss to life and property from hazards. The mitigation actions developed for this Plan enhance this ongoing effort and will be implemented through other program mechanisms where possible.

Anderson County and the Cities of Palestine, Elkhart and Frankston will integrate implementation of their mitigation actions with other plans and policies such as construction standards and emergency management plans, and ensure that these actions, or proposed projects, are reflected in other planning efforts. Coordinating and integrating components of other plans and policies into goals and objectives of the Plan will further maximize funding and provide possible cost-sharing of key projects, thereby reducing loss of lives and property and mitigating hazards affecting the area.

Planning team members from each participating jurisdiction will work to integrate the hazard mitigation strategies into other plans and codes as they are developed. Participating team members will conduct periodic reviews of plans and policies, once per year at a minimum, and analyze the need for amendments.

Anderson County and the Cities of Palestine, Elkhart and Frankston will review and revise, as necessary, the long-range goals and objectives in strategic plan and budgets to ensure that they are consistent with this mitigation action plan. Additionally, the County and Cities will work to advance the goals of this hazard mitigation plan through their routine, ongoing, long-range planning, budgeting, and work processes.

The step-by-step process for implementation of any policy change at the local government level in Anderson County or any of the participating cities is as follows:

1. Change is proposed by an elected official or other interested party.
2. Proposal is placed on the local agenda of the governing body.
3. Agenda is published at least 10 days in advance of the meeting at which it will be discussed, so members of the public have an opportunity to attend the discussion meeting. Publication is made by posting the agenda on a public bulletin board in the City Hall or County Courthouse and by posting on the agency's website. Notice may also be printed in the local newspaper.
4. Proposal is discussed at the public meeting, including any comments by members of the public in attendance.
5. Proposal is voted on by the governing body.
6. If the proposal is passed, the change is implemented by the appropriate local authority.

Continued Public Involvement

Anderson County and the Cities of Palestine, Elkhart and Frankston are dedicated to public involvement during the implementation, monitoring and evaluation phases of this Hazard Mitigation Action Plan. Copies of the 2018 Plan will be available for public review and comment at the County Courthouse; at City Hall in Palestine, Elkhart and Frankston; at public library; at the ETCOG office; on the Anderson County website; on the City of Palestine website; and on the ETCOG website. The websites will include contact information and a link to a survey form which people can use to direct their comments, concerns and suggestions to the Planning Committee.

Anderson County will hold an annual public meeting to discuss the Plan, with stakeholders from all participating jurisdictions and from surrounding jurisdictions invited to attend. Each participant will be encouraged to contribute to Plan improvement. The date, time and location of each annual meeting will be publicized well in advance, via notice printed in the local paper, posted on the local jurisdictions' websites, and posted on public bulletin boards at the Courthouse, at City Hall, and at the public library, encouraging all interested persons to attend. Those who attend will be welcomed and encouraged to actively participate in the discussions. The HMAP planning process will emphasize public participation. Neighboring administrators, EMCs and other stakeholders will be personally invited to attend the annual HMAP planning meetings, by individual e-mail or telephone invitations, as well as by publication of the meeting agenda in the usual places.

DOCUMENTATION OF THE PLANNING PROCESS

Throughout the planning process, efforts were made to solicit input from the general public; from neighboring community leaders; from first responders; from non-profit organizations and volunteer groups such as the Red Cross and Salvation Army; from local industry professionals; and from all levels of government within Anderson County and the Cities of Palestine, Elkhart and Frankston. Two public meetings were held, with agendas publicized in advance. These agendas were posted at City Hall and in the County Courthouse, as well as on the County and City websites, and were printed in the local newspaper. The following people participated in this revision:

Name	Title, Agency	Jurisdiction	Contributions to HMAP revision
Christina Crockett	EMC for Anderson County, City of Elkhart and City of Frankston	Anderson County, City of Elkhart, City of Frankston	Collected data from all jurisdictions. Coordinated both public meetings. Participated in the first public meeting; completed worksheets ranking hazards to be mitigated for the County, and for Elkhart and Frankston. Researched historical data. Selected action items for the County, and for Elkhart and Frankston.
Mathew Davis	Director, Palestine EMS	Palestine region EMS	Participated in the second public meeting; discussed hazards to be mitigated; completed worksheets ranking hazards to be mitigated; suggested action items.
Shannon Davis	Fire Chief, Palestine Fire Department	City of Palestine	Participated in both public meetings; discussed hazards to be mitigated; completed worksheets ranking hazards to be mitigated; suggested action items.

Name	Title, Agency	Jurisdiction	Contributions to HMAP revision
Errin Deer	HS Principal, Slocum ISD	Slocum ISD	Participated in the second public meeting; discussed hazards to be mitigated; completed worksheets ranking hazards to be mitigated; suggested action items.
Ray DeSpain	Superintendent, Elkhart ISD	Elkhart ISD	Participated in the second public meeting; discussed hazards to be mitigated; completed worksheets ranking hazards to be mitigated; suggested action items.
Misty Ellison	Assistant EMC, Anderson County	Anderson County	Collected data from all jurisdictions. Coordinated both public meetings. Personally invited stakeholders to attend public meetings. Participated in both public meetings. Researched historical data. Provided photos and maps that were used in the document.
Michael Hatten	Public Works Director, City of Frankston Water & Sewer Department	City of Frankston	Participated in the second public meeting; discussed hazards to be mitigated; completed worksheets ranking hazards to be mitigated; suggested action items for City of Frankston; provided data about City of Frankston.
John Herod	EMC (2018), City of Palestine	City of Palestine	Participated in the second public meeting; completed worksheets ranking hazards to be mitigated for the City of Palestine. Provided data about City of Palestine. Selected action items for City of Palestine.
Kelly Hughes	Fire Marshal, City of Palestine	City of Palestine	Participated in both public meetings; completed worksheets ranking hazards to be mitigated for the City of Palestine. Provided data about City of Palestine. Suggested action items for City of Palestine.

Name	Title, Agency	Jurisdiction	Contributions to HMAP revision
Doug Lightfoot	Constable, Anderson County	Anderson County	Participated in the second public meeting; discussed hazards to be mitigated; completed worksheets ranking hazards to be mitigated; suggested action items.
H.L. Linam, IV	Investigator, Anderson County Sheriff's Office	Anderson County	Participated in the first public meeting; discussed hazards to be mitigated; completed worksheets ranking hazards to be mitigated; suggested action items.
Jeannie McCarty	District Program Director, American Red Cross	Northeast Texas	Participated in the second public meeting; discussed hazards to be mitigated; completed worksheets ranking hazards to be mitigated; suggested action items.
Angela Norton	Emergency Management Planner	East Texas Council of Governments	Reviewed the expiring document and the 2013 CHAMPS report for Anderson County; researched historical data for all participating jurisdictions; collected data from all jurisdictions. Led discussions at both public meetings; described revision process; provided list and descriptions of 15 hazards to be considered for mitigation; answered questions about worksheets ranking hazards to be mitigated; discussed categories of action items and the need for multiple, specific mitigation actions of different types for each hazard to be mitigated. Created tables, charts and graphs used in the updated document. Wrote the updated document.
Scott Parkhurst	EMC (2017), City of Palestine	City of Palestine	Participated in the first public meeting; completed worksheets ranking hazards to be mitigated for the City of Palestine. Provided data about City of Palestine.

Name	Title, Agency	Jurisdiction	Contributions to HMAP revision
Steve Presley	Mayor, City of Palestine	City of Palestine	Participated in the second public meeting; completed worksheets ranking hazards to be mitigated for the City of Palestine. Provided data about City of Palestine. Selected action items for City of Palestine. Provided information regarding existing city plans and ordnances that the HMAP could integrate into.
James Sharp	Justice of the Peace, Anderson County	Anderson County	Participated in the second public meeting; discussed hazards to be mitigated; completed worksheets ranking hazards to be mitigated; suggested action items.
Carla Sheridan	City of Elkhart Secretary	City of Elkhart	Discussed hazards to be mitigated; completed worksheets ranking hazards to be mitigated; suggested action items.
Stephanie Walker	Asst. Dir. Public Health EM Preparedness, City of Palestine	City of Palestine	Participated in the second public meeting; discussed hazards to be mitigated; completed worksheets ranking hazards to be mitigated; suggested action items.
Jewel Wilcher	Administrative Asst., Cayuga ISD	Cayuga ISD	Participated in the second public meeting; discussed hazards to be mitigated; completed worksheets ranking hazards to be mitigated; suggested action items.

The primary authors of this revised HMAP are Christina Crockett, who is the EMC for Anderson County as well as the EMC for the City of Elkhart and EMC for the City of Frankston; and Angela Norton, the contracted plan writer. Each of the people named above attended at least one meeting to discuss the details of this HMAP. Each person contributed information that was used in this revision: opinions as to which hazards should be included, how the hazards should be ranked, what mitigation actions their jurisdiction could take, which agencies should carry out the actions, possible cost of the actions, how

the public could be involved, how the Plan could be publicized, and what mitigation actions each jurisdiction had completed over the past five years.

The following stakeholders were invited but did not participate in this revision:

Name	Title	Agency	Location	How invited
Robert Johnson	County Judge	Anderson County	Palestine, Tx	Email
Robert Frakes	CID	Sheriff Office	Palestine, Tx	Email
Herman Linam	CID	Sheriff Office	Palestine, Tx	Email
Eugene Brooks	Mayor	City of Frankston	Frankston, Tx	Email
Darren Goodman	Chief of Police	City of Frankston	Frankston, Tx	Email
Mike Gordon	Mayor	City of Elkhart	Elkhart, Tx	Email
Rashad Mims	Commissioner	Anderson County	Palestine, Tx	Email
Kenneth Dickson	Commissioner	Anderson County	Palestine, Tx	Email
Joey Hill	Commissioner	Anderson County	Palestine, Tx	Email
Greg Chapin	Commissioner	Anderson County	Palestine, Tx	Email
Shannon Davis	Fire Chief	City of Palestine	Palestine, Tx	Email
Jeffery Watson	Provost	Trinity Valley Community College	Palestine, Tx	Email
Michelle Parker	RG II Risk Mgmt	TDCJ	Palestine, Tx	Email
Truman Lamb	County Ext Agent	Ag Extention	Palestine, Tx	Email
Holly Black	4-H Coordinator	Ag Extention	Palestine, Tx	Email
Greg Taylor	Sheriff	Anderson County	Palestine, Tx	Email
Deaun Stinecipher	DDC	DPS	Tyler, Tx	Email
Kevin Warren	VFD President	Southside VFD	Palestine, Tx	Email
James Sharp	JP	Anderson County	Palestine, Tx	Email
Carl Davis	JP	Anderson County	Palestine, Tx	Email

Name	Title	Agency	Location	How invited
Kim Holliday	Constable	Anderson County	Palestine, Tx	Email
James Muniz	Constable	Anderson County	Palestine, Tx	Email
David Franklin	Constable	Anderson County	Palestine, Tx	Email
Rick Webb	Superintendent	Cayuga ISD	Cayuga, Tx	Email
Nicci Cook	Admin Asst - ISD	Frankston ISD	Frankston, Tx	Email
Randy Snider	Superintendent	Neches ISD	Neches, Tx	Email
Jason Marshall	Superintendent	Palestine ISD	Palestine, Tx	Email
Lisa Edge	Super-Secretary	Palestine ISD	Palestine, Tx	Email
Cliff Lasiter	Superintendent	Slocum ISD	Slocum, Tx	Email
Wade Stanford	Superintendent	Westwood ISD	Palestine, Tx	Email
Kevin Willmott	Pastor	Dogwood Hills Baptist	Palestine, Tx	Email
Tony Watson	Pastor	First Baptist	Palestine, Tx	Email
James Warren	EMS	PRMC	Palestine, Tx	Email

During future revisions, each identified stakeholder will again be personally invited by e-mail and/or telephone, and asked to attend a meeting or send a representative, and/or review the document and send comments or suggestions.

Appendix I: National Climatic Data Center Weather History

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
ANDERSON CO.	11/19/1953	12:50	Tornado	F2	0	0	$25,000.00
ANDERSON CO.	8/31/1954	13:45	Tornado	F1	0	0	$25,000.00
ANDERSON CO.	4/12/1955	11:30	Tornado	F3	0	7	$250,000.00
ANDERSON CO.	8/24/1964	15:45	Tornado	F1	0	0	$25,000.00
ANDERSON CO.	6/3/1973	18:30	Tornado	F1	0	0	$250,000.00
ANDERSON CO.	10/31/1974	8:50	Tornado	F3	0	4	
ANDERSON CO.	10/31/1974	10:30	Tornado	F1	0	0	$25,000.00
ANDERSON CO.	5/11/1978	19:51	Tornado		0	0	$2,500.00
ANDERSON CO.	6/6/1979	10:05	Tornado	F1	0	0	$25,000.00
ANDERSON CO.	10/16/1980	8:00	Tornado	F2	0	1	$25,000.00
ANDERSON CO.	5/9/1981	14:10	Tornado	F3	0	0	$250,000.00
ANDERSON CO.	5/9/1981	14:30	Tornado	F2	0	0	$25,000.00
ANDERSON CO.	2/11/1984	19:20	Tornado	F2	0	3	$2,500,000.00
ANDERSON CO.	5/2/1984	15:30	Tornado	F0	0	0	
ANDERSON CO.	3/17/1987	5:20	Tornado	F1	1	3	$25,000.00
ANDERSON CO.	11/15/1987	15:03	Tornado	F3	1	59	$25,000,000.00
ANDERSON CO.	12/6/1987	13:36	Tornado	F1	0	0	$250,000.00
ANDERSON CO.	4/1/1988	16:35	Tornado	F1	0	1	$250,000.00

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
ANDERSON CO.	5/17/1989	7:30	Tornado	F1	0	0	
ANDERSON CO.	4/27/1990	17:30	Tornado	F1	0	0	
ANDERSON CO.	11/19/1991	11:30	Tornado	F1	0	0	$25,000.00
Frankston	5/9/1993	17:02	Tornado	F1	0	0	$500,000.00
Cayuga	11/4/1994	17:50	Tornado	F1	0	0	$500,000.00
MONTALBA	4/28/1996	19:22	Tornado	F0	0	0	
ELKHART	1/23/1997	17:23	Tornado	F1	0	4	$50,000.00
TENNESSEE COLONY	4/26/1999	8:35	Tornado	F0	0	1	$30,000.00
PALESTINE	4/26/1999	8:40	Tornado	F0	0	0	$5,000.00
TENNESSEE COLONY	5/4/1999	17:38	Tornado	F1	0	4	$300,000.00
PALESTINE	5/4/1999	18:14	Tornado	F0	0	0	
ELKHART	3/30/2002	16:24	Tornado	F0	0	0	
BETHEL	12/29/2006	16:55	Tornado	F0	0	0	$10,000.00
PALESTINE	12/29/2006	17:50	Tornado	F1	0	0	$200,000.00
PALESTINE	12/29/2006	19:30	Tornado	F1	0	0	$30,000.00
TENNESSEE COLONY	10/6/2008	19:29	Tornado	EF0	0	0	$55,000.00
TOTALS:	**34 events**	**57 years**	**Tornado**		**2 deaths**	**87 injured**	**$30,657,500.00**
ANDERSON CO.	3/31/1959	23:00	Wind		0	0	
ANDERSON CO.	10/31/1959	7:45	Wind		0	0	
ANDERSON CO.	4/18/1965	19:30	Wind	52 kts.	0	0	
ANDERSON CO.	4/19/1965	16:30	Wind		0	0	
ANDERSON CO.	8/23/1965	17:15	Wind		0	0	
ANDERSON CO.	7/16/1969	18:30	Wind		0	0	

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
ANDERSON CO.	11/18/1969	15:30	Wind		0	0	
ANDERSON CO.	4/19/1970	0:05	Wind		0	0	
ANDERSON CO.	7/25/1970	13:30	Wind		0	0	
ANDERSON CO.	7/25/1970	15:00	Wind		0	0	
ANDERSON CO.	5/10/1971	10:00	Wind	65 kts.	0	0	
ANDERSON CO.	6/15/1971	15:39	Wind		0	0	
ANDERSON CO.	10/31/1974	8:40	Wind		0	0	
ANDERSON CO.	11/19/1979	17:30	Wind		0	0	
ANDERSON CO.	5/12/1980	10:30	Wind		0	0	
ANDERSON CO.	7/27/1981	15:00	Wind		0	0	
ANDERSON CO.	10/13/1981	14:00	Wind		0	0	
ANDERSON CO.	5/18/1983	14:30	Wind		0	0	
ANDERSON CO.	5/19/1983	19:20	Wind		0	0	
ANDERSON CO.	11/23/1983	0:30	Wind		0	0	
ANDERSON CO.	11/23/1983	0:30	Wind		0	2	
ANDERSON CO.	11/23/1983	1:30	Wind		0	0	
ANDERSON CO.	11/23/1983	1:30	Wind		0	0	
ANDERSON CO.	11/23/1983	1:30	Wind		0	0	
ANDERSON CO.	8/14/1984	14:30	Wind		0	0	

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
ANDERSON CO.	8/7/1985	17:15	Wind		0	0	
ANDERSON CO.	8/7/1985	18:00	Wind		0	0	
ANDERSON CO.	11/30/1985	20:30	Wind		0	0	
ANDERSON CO.	11/30/1985	23:40	Wind		0	0	
ANDERSON CO.	6/17/1987	18:00	Wind		0	0	
ANDERSON CO.	6/17/1987	18:20	Wind		0	0	
ANDERSON CO.	9/15/1987	18:30	Wind		0	0	
ANDERSON CO.	12/19/1987	11:20	Wind		0	0	
ANDERSON CO.	12/19/1987	11:50	Wind		0	0	
ANDERSON CO.	7/4/1988	7:40	Wind		0	0	
ANDERSON CO.	6/4/1989	23:25	Wind		0	0	
ANDERSON CO.	6/7/1989	18:30	Wind		0	0	
ANDERSON CO.	6/13/1989	19:10	Wind		0	0	
ANDERSON CO.	6/13/1989	20:00	Wind		0	0	
ANDERSON CO.	6/13/1989	20:00	Wind		0	0	
ANDERSON CO.	2/9/1990	16:15	Wind		0	0	
ANDERSON CO.	2/9/1990	16:30	Wind		0	0	
ANDERSON CO.	5/2/1990	0:30	Wind		0	0	
ANDERSON CO.	5/12/1990	4:30	Wind		0	0	

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
ANDERSON CO.	5/12/1990	4:50	Wind		0	0	
ANDERSON CO.	5/12/1990	5:10	Wind		0	0	
ANDERSON CO.	5/12/1990	16:25	Wind		0	0	
ANDERSON CO.	5/16/1990	22:00	Wind		0	0	
ANDERSON CO.	6/3/1990	17:05	Wind	52 kts.	0	0	
ANDERSON CO.	6/3/1990	17:25	Wind	52 kts.	0	0	
ANDERSON CO.	6/3/1990	17:30	Wind		0	0	
ANDERSON CO.	8/31/1990	15:30	Wind		0	0	
ANDERSON CO.	2/19/1991	0:30	Wind	52 kts.	0	0	
ANDERSON CO.	4/18/1991	20:20	Wind	56 kts.	0	0	
ANDERSON CO.	4/26/1991	17:00	Wind		0	0	
ANDERSON CO.	5/4/1991	18:10	Wind		0	0	
ANDERSON CO.	11/19/1991	13:10	Wind		0	0	
ANDERSON CO.	3/17/1992	13:00	Wind		0	0	
ANDERSON CO.	3/24/1992	21:00	Wind		0	0	
ANDERSON CO.	8/11/1992	14:30	Wind		0	0	
Slocum	8/29/1993	18:30	Wind		0	0	$5,000.00
Slocum	8/29/1993	18:30	Wind		0	0	$5,000.00
Palestine	8/29/1993	18:45	Wind		0	0	$500.00
Palestine	5/2/1994	20:15	Wind		0	0	$5,000.00
Palestine	5/13/1994	15:15	Wind		0	0	$50,000.00
Denson Springs	5/27/1994	21:55	Wind		0	0	$5,000.00

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
Frankston	5/29/1994	12:00	Wind		0	0	$5,000.00
Neches	5/29/1994	12:07	Wind		0	0	$5,000.00
ANDERSON CO.	10/16/1994	23:00	Wind		0	0	$50,000.00
Cayuga	10/21/1994	19:34	Wind	52 kts.	0	0	$5,000.00
Bethel	10/21/1994	19:38	Wind	52 kts.	0	0	$5,000.00
Cayuga	11/4/1994	20:40	Wind		0	0	$50,000.00
Elkhart	3/13/1995	6:35	Wind		0	0	$50,000.00
Neches	3/13/1995	6:45	Wind		0	0	$75,000.00
Elkhart	5/31/1995	18:10	Wind		0	0	
Palestine	6/11/1995	1:10	Wind		0	0	$15,000.00
Frankston	11/10/1995	22:56	Wind		0	0	
PALESTINE	4/28/1996	20:00	Wind		0	0	$5,000.00
PALESTINE	6/1/1996	12:30	Wind		0	0	$12,000.00
BRUSHY CREEK	6/1/1996	13:20	Wind		0	0	$2,000.00
PALESTINE	6/1/1996	13:28	Wind		0	0	$2,000.00
PALESTINE	6/1/1996	13:28	Wind		0	0	$2,000.00
ELKHART	7/23/1996	17:30	Wind		0	0	$25,000.00
BRUSHY CREEK	7/26/1996	18:04	Wind		0	0	
PALESTINE	10/21/1996	20:21	Wind	52 kts.	0	0	
TENNESSEE COLONY	11/7/1996	2:15	Wind		0	0	
PALESTINE	11/7/1996	2:25	Wind		0	0	$500,000.00
PALESTINE	11/7/1996	2:28	Wind	52 kts.	0	0	
PALESTINE	6/14/1997	1:00	Wind	52 kts.	0	0	

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
NECHES	6/26/1997	16:30	Wind	52 kts.	0	0	
PALESTINE	7/15/1997	14:53	Wind		0	0	
TENNESSEE COLONY	1/5/1998	21:30	Wind		0	0	$15,000.00
MONTALBA	1/5/1998	21:35	Wind	52 kts.	0	0	
PALESTINE	2/26/1998	0:25	Wind		0	0	
PALESTINE	2/26/1998	0:37	Wind		0	0	$5,000.00
PALESTINE	3/30/1998	17:00	Wind	52 kts.	0	0	
NECHES	4/8/1998	5:15	Wind		0	0	
MONTALBA	6/4/1998	22:00	Wind		0	0	
ELKHART	7/17/1998	16:15	Wind		0	0	$15,000.00
PALESTINE	3/8/1999	12:50	Wind		0	0	$200.00
PALESTINE	3/8/1999	13:00	Wind		0	0	$1,000.00
PALESTINE	4/4/1999	15:30	Wind		0	0	$500.00
TENNESSEE COLONY	4/26/1999	8:20	Wind		0	0	$100.00
PALESTINE	5/10/1999	4:10	Wind	52 kts.	0	0	
TUCKER	5/11/1999	21:00	Wind	52 kts.	0	0	$4,000.00
TENNESSEE COLONY	5/11/1999	21:35	Wind		0	0	$5,000.00
NECHES	5/17/1999	18:30	Wind	52 kts.	0	0	
SLOCUM	8/14/1999	16:12	Wind		0	0	$5,000.00

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
TENNESSEE COLONY	4/7/2000	19:55	Wind	52 kts. E	0	0	
FRANKSTON	6/19/2000	3:20	Wind		0	0	$1,000.00
ELKHART	9/2/2000	14:50	Wind		0	0	$15,000.00
PALESTINE ARPT	5/1/2003	22:10	Wind	64 kts. MS	0	0	
PALESTINE	6/12/2003	1:15	Wind	52 kts. ES	0	0	
ELKHART	7/11/2003	11:42	Wind	52 kts. ES	0	0	$2,000.00
PALESTINE	7/23/2003	5:00	Wind	61 kts. ES	0	0	$5,000.00
CAYUGA	5/31/2004	16:29	Wind	52 kts. ES	0	0	
CAYUGA	6/1/2004	22:05	Wind	64 kts. MS	0	0	
PALESTINE ARPT	6/1/2004	22:09	Wind	51 kts. MS	0	0	$25,000.00
PALESTINE	6/7/2004	13:25	Wind	52 kts. ES	0	0	$5,000.00
FRANKSTON	4/5/2005	19:10	Wind	50 kts. ES	0	0	
PALESTINE	5/8/2005	8:09	Wind	52 kts. ES	0	0	
MONTALBA	5/8/2005	8:12	Wind	61 kts. ES	0	0	$1,000.00
COUNTYWIDE	5/8/2005	8:21	Wind	52 kts. ES	0	0	$5,000.00
PALESTINE	5/8/2005	8:30	Wind	52 kts. ES	0	0	$10,000.00
FRANKSTON	5/25/2005	15:00	Wind	50 kts. ES	0	0	$30,000.00
MONTALBA	5/25/2005	15:15	Wind	50 kts. ES	0	0	
PALESTINE	5/28/2005	16:22	Wind	52 kts. ES	0	0	

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
PALESTINE	7/7/2005	11:30	Wind	39 kts. ES	0	0	$5,000.00
ELKHART	7/7/2005	11:45	Wind	50 kts. ES	0	0	
PALESTINE	4/21/2006	4:41	Wind	50 kts. ES	0	0	
PALESTINE	4/29/2006	4:50	Wind	65 kts. ES	0	0	$40,000.00
PALESTINE	6/25/2006	14:20	Wind	61 kts. ES	0	0	$20,000.00
PALESTINE	7/17/2006	16:45	Wind	52 kts. ES	0	0	
ANDERSON (ZONE)	11/15/2006	14:00	Wind	40 kts. EG	0	0	$5,000.00
PALESTINE	12/29/2006	18:20	Wind	50 kts. EG	0	0	$20,000.00
CAYUGA	6/3/2007	10:19	Wind	50 kts. EG	0	0	$20,000.00
PALESTINE	6/8/2007	17:19	Wind	50 kts. EG	0	0	
ANDERSON (ZONE)	6/20/2007	18:00	Wind	45 kts. EG	0	0	$1,000.00
ANDERSON (ZONE)	1/29/2008	10:00	Wind	46 kts. MG	0	0	$200,000.00
TUCKER	2/5/2008	16:30	Wind	50 kts. EG	0	0	$15,000.00
DEANWRIGHT	3/3/2008	6:30	Wind	52 kts. EG	0	0	$10,000.00
TUCKER	5/7/2008	17:32	Wind	52 kts. EG	0	0	
ELKHART	5/7/2008	17:47	Wind	50 kts. EG	0	0	$2,000.00
ELKHART	5/7/2008	17:50	Wind	50 kts. EG	0	0	
ANDERSON (ZONE)	6/4/2008	16:35	Wind	30 kts. MG	0	0	$3,000.00
PALESTINE	6/17/2008	13:18	Wind	50 kts. EG	0	0	$10,000.00

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
ELKHART	6/17/2008	13:47	Wind	50 kts. EG	0	0	$2,000.00
TENNESSEE COLONY	10/6/2008	19:22	Wind	61 kts. EG	0	0	$35,000.00
MONTALBA	10/6/2008	19:28	Wind	61 kts. MG	0	0	
FRANKSTON	10/6/2008	20:25	Wind	50 kts. EG	0	0	$25,000.00
FRANKSTON	10/6/2008	20:29	Wind	52 kts. EG	0	0	
MONTALBA	2/10/2009	23:09	Wind	56 kts. EG	0	0	
PALESTINE	2/10/2009	23:10	Wind	52 kts. EG	0	0	
ELKHART	2/10/2009	23:28	Wind	52 kts. EG	0	0	
TENNESSEE COLONY	5/3/2009	4:55	Wind	52 kts. EG	0	0	$3,000.00
ELKHART	5/3/2009	4:57	Wind	61 kts. EG	0	0	$30,000.00
SALMON	5/3/2009	5:05	Wind	61 kts. EG	0	0	$25,000.00
PALESTINE	5/3/2009	5:08	Wind	52 kts. EG	0	0	$8,000.00
CAYUGA	6/10/2009	20:21	Wind	52 kts. EG	0	0	$3,000.00
TENNESSEE COLONY	6/11/2009	4:32	Wind	56 kts. EG	0	0	$1,000.00
PALESTINE	6/11/2009	4:45	Wind	50 kts. EG	0	0	$5,000.00
TENNESSEE COLONY	6/11/2009	10:20	Wind	61 kts. EG	0	0	$25,000.00
TENNESSEE COLONY	7/5/2009	15:48	Wind	52 kts. EG	0	0	$1,000.00
PALESTINE ARPT	7/5/2009	16:05	Wind	52 kts. EG	0	0	$10,000.00
ELKHART	7/5/2009	16:05	Wind	55 kts. EG	0	0	$2,000.00

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
ELMWOOD	7/5/2009	16:05	Wind	52 kts. EG	0	0	$3,000.00
SLOCUM	8/26/2009	18:25	Wind	50 kts. EG	0	0	$500.00
BRADFORD	1/20/2010	18:05	Wind	55 kts. EG	0	0	$30,000.00
FRANKSTON	4/24/2010	1:22	Wind	61 kts. EG	0	0	$1,000.00
PALESTINE	6/2/2010	20:25	Wind	56 kts. EG	0	0	$5,000.00
PALESTINE ARPT	6/2/2010	20:48	Wind	50 kts. EG	0	0	$5,000.00
ELKHART	8/18/2010	14:40	Wind	56 kts. EG	0	0	$500.00
FRANKSTON	10/23/2010	16:55	Wind	55 kts. EG	0	0	$5,000.00
PALESTINE	10/23/2010	17:15	Wind	69 kts. EG	0	0	$400,000.00
CAYUGA	10/24/2010	18:27	Wind	61 kts. EG	0	0	$6,000.00
ELKHART	1/30/2011	16:50	Wind	50 kts. EG	0	0	
MONTALBA	4/25/2011	13:49	Wind	55 kts. EG	0	0	$1,000.00
PALESTINE	4/26/2011	20:05	Wind	50 kts. EG	0	0	
MONTALBA	6/22/2011	0:45	Wind	52 kts. EG	0	0	$15,000.00
BRUSHY CREEK	7/2/2011	15:15	Wind	56 kts. EG	0	0	
TENNESSEE COLONY	7/2/2011	15:39	Wind	56 kts. EG	0	0	$8,000.00
MONTALBA	7/3/2011	17:05	Wind	60 kts. EG	0	0	
PERT	7/5/2011	17:27	Wind	56 kts. EG	0	0	$5,000.00
PALESTINE	7/5/2011	17:40	Wind	56 kts. EG	0	0	

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
HARMONY	7/5/2011	18:20	Wind	65 kts. EG	0	0	
BETHEL	1/25/2012	8:05	Wind	87 kts. EG	0	0	$110,000.00
ELMWOOD	1/25/2012	8:43	Wind	52 kts. EG	0	0	$1,000.00
SALMON	1/25/2012	9:05	Wind	52 kts. EG	0	0	$2,000.00
CAYUGA	4/8/2012	16:25	Wind	56 kts. EG	0	0	$3,000.00
FRANKSTON	7/21/2012	18:20	Wind	52 kts. EG	0	0	
FRANKSTON	7/21/2012	19:02	Wind	52 kts. EG	0	0	
SPRINGFIELD	8/8/2012	14:40	Wind	52 kts. EG	0	0	$5,000.00
KOSSUTH	8/8/2012	15:30	Wind	52 kts. EG	0	0	$1,000.00
NECHES	12/19/2012	23:47	Wind	50 kts. EG	0	0	
ELKHART	12/19/2012	23:52	Wind	50 kts. EG	0	0	
PALESTINE	1/29/2013	19:01	Wind	65 kts. EG	0	0	$10,000.00
PALESTINE	1/29/2013	19:05	Wind	61 kts. EG	0	0	$15,000.00
CAYUGA	5/15/2013	19:15	Wind	61 kts. EG	0	0	$80,000.00
PALESTINE	7/23/2014	19:55	Wind	48 kts. EG	0	0	$1,000.00
NECHES	10/2/2014	18:35	Wind	50 kts. EG	0	0	
PALESTINE ARPT	10/13/2014	5:00	Wind	59 kts. MG	0	0	
DEANWRIGHT	5/10/2015	23:30	Wind	50 kts. EG	0	0	
ELMTOWN	5/25/2015	17:24	Wind	50 kts. EG	0	0	

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
PALESTINE	11/5/2015	17:15	Wind	43 kts. EG	0	0	$500.00
PALESTINE	1/2/2017	6:35	Wind	52 kts. EG	0	0	
PALESTINE	2/20/2017	2:30	Wind	50 kts. EG	0	0	$5,000.00
PALESTINE ARPT	2/20/2017	2:50	Wind	59 kts. MG	0	0	
TOTALS:	**206 events**	**59 years**	**Wind**		**No deaths**	**2 injured**	**$2,272,800.00**
ANDERSON CO.	5/26/1955	21:30	Hail	0.75 in.	0	0	
ANDERSON CO.	5/21/1959	16:00	Hail	2.00 in.	0	0	
ANDERSON CO.	11/19/1979	17:40	Hail	1.00 in.	0	0	
ANDERSON CO.	3/23/1980	17:12	Hail	0.75 in.	0	0	
ANDERSON CO.	4/11/1980	9:00	Hail	0.75 in.	0	0	
ANDERSON CO.	4/12/1980	17:56	Hail	1.00 in.	0	0	
ANDERSON CO.	12/10/1983	17:30	Hail	1.75 in.	0	0	
ANDERSON CO.	4/2/1984	14:30	Hail	0.75 in.	0	0	
ANDERSON CO.	4/28/1985	5:45	Hail	1.75 in.	0	0	
ANDERSON CO.	4/28/1985	6:52	Hail	1.75 in.	0	0	
ANDERSON CO.	4/28/1985	8:15	Hail	1.75 in.	0	0	
ANDERSON CO.	11/30/1985	23:40	Hail	0.75 in.	0	0	
ANDERSON CO.	11/15/1987	15:12	Hail	1.00 in.	0	0	

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
ANDERSON CO.	5/9/1988	20:35	Hail	2.75 in.	0	0	
ANDERSON CO.	5/9/1988	20:55	Hail	1.75 in.	0	0	
ANDERSON CO.	11/15/1988	20:30	Hail	0.75 in.	0	0	
ANDERSON CO.	11/15/1988	20:45	Hail	0.75 in.	0	0	
ANDERSON CO.	12/7/1988	17:15	Hail	0.88 in.	0	0	
ANDERSON CO.	12/7/1988	17:40	Hail	0.75 in.	0	0	
ANDERSON CO.	12/7/1988	18:10	Hail	1.75 in.	0	0	
ANDERSON CO.	4/28/1989	20:45	Hail	1.75 in.	0	0	
ANDERSON CO.	4/29/1989	22:00	Hail	1.75 in.	0	0	
ANDERSON CO.	4/29/1989	22:25	Hail	0.75 in.	0	0	
ANDERSON CO.	4/29/1989	22:30	Hail	4.50 in.	0	0	
ANDERSON CO.	5/4/1989	10:25	Hail	0.88 in.	0	0	
ANDERSON CO.	5/4/1989	23:41	Hail	1.75 in.	0	0	
ANDERSON CO.	5/15/1989	17:05	Hail	0.75 in.	0	0	
ANDERSON CO.	5/17/1989	7:30	Hail	1.75 in.	0	0	
ANDERSON CO.	2/9/1990	16:05	Hail	1.75 in.	0	0	
ANDERSON CO.	4/27/1990	16:58	Hail	0.75 in.	0	0	
ANDERSON CO.	4/27/1990	17:30	Hail	1.75 in.	0	0	
ANDERSON CO.	4/27/1990	18:00	Hail	1.75 in.	0	0	

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
ANDERSON CO.	2/18/1991	12:45	Hail	1.25 in.	0	0	
ANDERSON CO.	4/19/1991	6:35	Hail	1.75 in.	0	0	
ANDERSON CO.	4/19/1991	6:55	Hail	1.50 in.	0	0	
ANDERSON CO.	4/26/1991	17:22	Hail	2.75 in.	0	0	
ANDERSON CO.	4/28/1991	14:15	Hail	0.75 in.	0	0	
ANDERSON CO.	5/3/1991	17:30	Hail	1.75 in.	0	0	
ANDERSON CO.	10/26/1991	13:40	Hail	1.50 in.	0	0	
ANDERSON CO.	11/19/1991	11:25	Hail	1.50 in.	0	0	
ANDERSON CO.	11/19/1991	13:05	Hail	1.75 in.	0	0	
ANDERSON CO.	3/24/1992	15:11	Hail	1.50 in.	0	0	
ANDERSON CO.	3/24/1992	15:35	Hail	0.75 in.	0	0	
ANDERSON CO.	5/25/1992	17:45	Hail	1.00 in.	0	0	
ANDERSON CO.	5/27/1992	19:18	Hail	1.75 in.	0	0	
ANDERSON CO.	6/18/1992	17:35	Hail	1.75 in.	0	0	
ANDERSON CO.	10/7/1992	20:00	Hail	1.75 in.	0	0	
Pert	2/15/1993	13:00	Hail	1.75 in.	0	0	
Frankston	2/15/1993	15:00	Hail	0.75 in.	0	0	
Pert	4/11/1994	18:22	Hail	0.88 in.	0	0	
Neches	5/2/1994	16:15	Hail	0.75 in.	0	0	

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
Palestine	5/2/1994	16:20	Hail	0.75 in.	0	0	
Palestine	5/2/1994	16:25	Hail	0.75 in.	0	0	
Jonesboro	5/14/1994	16:25	Hail	1.00 in.	0	0	
Slocum	5/14/1994	16:45	Hail	1.00 in.	0	0	
Denison Springs	5/14/1994	16:46	Hail	1.00 in.	0	0	
Elkhart	5/14/1994	16:46	Hail	1.00 in.	0	0	
Denson Springs	5/27/1994	21:55	Hail	2.75 in.	0	0	
Montalba	1/18/1995	5:50	Hail	1.75 in.	0	0	
Frankston	4/20/1995	13:44	Hail	1.00 in.	0	0	
Montalba	4/20/1995	13:44	Hail	0.75 in.	0	0	
Frankston	4/20/1995	14:05	Hail	1.75 in.	0	0	
Elkhart	4/20/1995	14:35	Hail	1.75 in.	0	0	
PALESTINE	3/17/1996	17:35	Hail	1.00 in.	0	0	
PALESTINE	3/17/1996	17:40	Hail	1.00 in.	0	0	
BETHEL	3/24/1996	19:27	Hail	1.00 in.	0	0	
CAYUGA	3/24/1996	19:27	Hail	1.00 in.	0	0	
FRANKSTON	4/12/1996	20:13	Hail	0.75 in.	0	0	
PALESTINE	4/28/1996	19:29	Hail	1.00 in.	0	0	
PERT	4/28/1996	19:50	Hail	1.00 in.	0	0	

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
PALESTINE	4/28/1996	20:30	Hail	0.75 in.	0	0	
PALESTINE	10/21/1996	20:47	Hail	0.75 in.	0	0	
ELKHART	1/23/1997	17:23	Hail	1.00 in.	0	0	
CAYUGA	6/14/1997	0:15	Hail	0.75 in.	0	0	
PALESTINE	6/14/1997	1:00	Hail	1.00 in.	0	0	
BOIS D ARC	6/14/1997	1:00	Hail	0.75 in.	0	0	
CAYUGA	1/5/1998	21:20	Hail	1.75 in.	0	0	
CAYUGA	2/10/1998	9:21	Hail	1.00 in.	0	0	
TENNESSEE COLONY	1/29/1999	18:52	Hail	0.75 in.	0	0	
PALESTINE	4/4/1999	15:15	Hail	1.00 in.	0	0	
SLOCUM	4/4/1999	16:25	Hail	1.25 in.	0	0	
PALESTINE	3/10/2000	14:45	Hail	0.75 in.	0	0	
NECHES	3/26/2000	3:45	Hail	1.75 in.	0	0	
FRANKSTON	3/28/2000	21:40	Hail	1.50 in.	0	0	
PALESTINE	4/2/2000	20:28	Hail	0.75 in.	0	0	
FRANKSTON	4/7/2000	19:45	Hail	1.00 in.	0	0	
PALESTINE	5/3/2000	20:08	Hail	1.00 in.	0	0	
PALESTINE	5/3/2000	20:25	Hail	1.50 in.	0	0	
SLOCUM	5/3/2000	21:25	Hail	0.75 in.	0	0	

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
ELKHART	3/30/2002	16:24	Hail	1.00 in.	0	0	
PALESTINE	12/23/2002	20:30	Hail	1.00 in.	0	0	
CAYUGA	5/16/2003	17:24	Hail	1.75 in.	0	0	
NECHES	5/16/2003	18:20	Hail	0.88 in.	0	0	
TUCKER	5/16/2003	19:05	Hail	0.88 in.	0	0	
ELKHART	4/7/2004	15:33	Hail	0.75 in.	0	0	
ELKHART	4/7/2004	15:45	Hail	1.50 in.	0	0	
NECHES	4/7/2004	15:50	Hail	1.00 in.	0	0	
CAYUGA	4/30/2004	21:14	Hail	1.00 in.	0	0	
PALESTINE	5/31/2004	15:45	Hail	0.75 in.	0	0	
MONTALBA	5/31/2004	16:39	Hail	1.75 in.	0	0	
BRUSHY CREEK	4/5/2005	19:13	Hail	1.75 in.	0	0	
MONTALBA	5/25/2005	15:11	Hail	1.00 in.	0	0	
SLOCUM	6/6/2005	16:28	Hail	1.00 in.	0	0	
ELKHART	3/9/2006	6:15	Hail	1.25 in.	0	0	
PALESTINE	4/2/2006	10:47	Hail	1.00 in.	0	0	
CAYUGA	4/19/2006	19:54	Hail	1.00 in.	0	0	
PALESTINE	4/25/2006	19:56	Hail	1.00 in.	0	0	
PALESTINE	4/25/2006	20:02	Hail	1.00 in.	0	0	

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
FRANKSTON	5/14/2006	6:10	Hail	1.75 in.	0	0	$5,000
CAYUGA	5/14/2006	8:42	Hail	1.00 in.	0	0	
CAYUGA	5/14/2006	9:02	Hail	0.75 in.	0	0	
ELKHART	2/5/2008	16:36	Hail	1.00 in.	0	0	
KOSSUTH	2/5/2008	16:52	Hail	1.25 in.	0	0	
ELMWOOD	3/29/2008	18:45	Hail	1.00 in.	0	0	
ELKHART	3/29/2008	18:45	Hail	1.75 in.	0	0	$5,000
ELKHART	5/7/2008	17:50	Hail	0.88 in.	0	0	
TENNESSEE COLONY	10/6/2008	19:25	Hail	2.00 in.	0	0	$10,000
TENNESSEE COLONY	10/6/2008	19:28	Hail	1.00 in.	0	0	
MONTALBA	10/6/2008	19:45	Hail	1.25 in.	0	0	
MONTALBA	12/9/2008	6:36	Hail	0.88 in.	0	0	
PALESTINE	2/1/2009	21:25	Hail	1.25 in.	0	0	
MONTALBA	2/1/2009	22:11	Hail	1.75 in.	0	0	$500
ELMWOOD	2/1/2009	22:23	Hail	1.00 in.	0	0	
ELMWOOD	2/1/2009	22:26	Hail	0.88 in.	0	0	
TUCKER	2/1/2009	22:35	Hail	0.75 in.	0	0	
MONTALBA	2/10/2009	23:12	Hail	0.88 in.	0	0	
TENNESSEE COLONY	7/5/2009	15:48	Hail	0.75 in.	0	0	

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
FRANKSTON	7/19/2009	17:06	Hail	1.75 in.	0	0	$1,000
TUCKER	3/10/2010	17:29	Hail	0.75 in.	0	0	
TUCKER	3/10/2010	17:31	Hail	0.88 in.	0	0	
LONG LAKE	3/10/2010	17:32	Hail	1.00 in.	0	0	
SLOCUM	3/10/2010	18:12	Hail	0.75 in.	0	0	
PALESTINE ARPT	4/23/2010	18:40	Hail	0.88 in.	0	0	
TENNESSEE COLONY	5/20/2010	17:26	Hail	1.00 in.	0	0	
PALESTINE ARPT	5/20/2010	17:54	Hail	1.00 in.	0	0	
FRANKSTON	10/11/2010	15:20	Hail	0.75 in.	0	0	
SPRINGFIELD	10/24/2010	18:33	Hail	1.00 in.	0	0	
BRADFORD	10/24/2010	18:41	Hail	1.75 in.	0	0	$13,000
BRUSHY CREEK	10/24/2010	19:01	Hail	1.00 in.	0	0	
FRANKSTON	10/24/2010	19:05	Hail	1.75 in.	0	0	$3,000
SALMON	11/2/2010	0:55	Hail	1.00 in.	0	0	
MONTALBA	1/30/2011	16:29	Hail	0.88 in.	0	0	
ELMWOOD	1/30/2011	16:46	Hail	0.75 in.	0	0	
PALESTINE	1/30/2011	17:09	Hail	1.00 in.	0	0	
TUCKER	1/30/2011	17:16	Hail	1.00 in.	0	0	
KOSSUTH	1/30/2011	17:25	Hail	1.75 in.	0	0	$1,000

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
BRADFORD	3/26/2011	17:40	Hail	0.75 in.	0	0	
FRANKSTON	4/25/2011	14:42	Hail	1.75 in.	0	0	$6,000
TUCKER	4/25/2011	19:00	Hail	0.88 in.	0	0	
ELKHART	4/25/2011	19:08	Hail	0.88 in.	0	0	
ELKHART	4/25/2011	19:27	Hail	1.75 in.	0	0	$15,000
ELKHART	4/25/2011	19:52	Hail	0.88 in.	0	0	
ELKHART	4/25/2011	19:55	Hail	1.75 in.	0	0	$2,000
ELKHART	4/25/2011	19:58	Hail	1.75 in.	0	0	$4,000
DEANWRIGHT	4/26/2011	15:43	Hail	1.00 in.	0	0	
NECHES	7/5/2011	17:27	Hail	0.75 in.	0	0	
PALESTINE	7/5/2011	17:59	Hail	0.88 in.	0	0	
TUCKER	4/3/2012	18:50	Hail	1.50 in.	0	0	$1,000
LONG LAKE	4/3/2012	18:52	Hail	1.00 in.	0	0	
PALESTINE	4/3/2012	19:18	Hail	1.00 in.	0	0	
CAYUGA	4/8/2012	16:12	Hail	0.88 in.	0	0	
CAYUGA	4/8/2012	16:14	Hail	1.75 in.	0	0	$7,000
CAYUGA	4/8/2012	16:25	Hail	2.00 in.	0	0	$10,000
TENNESSEE COLONY	4/8/2012	16:50	Hail	0.75 in.	0	0	
TENNESSEE COLONY	4/8/2012	16:52	Hail	4.25 in.	0	0	$10,000

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
NECHES	6/12/2012	16:20	Hail	0.88 in.	0	0	
TENNESSEE COLONY	11/3/2012	14:55	Hail	1.00 in.	0	0	
PALESTINE	12/25/2012	8:25	Hail	0.88 in.	0	0	
SLOCUM	12/25/2012	8:30	Hail	1.00 in.	0	0	
PALESTINE	2/10/2013	5:56	Hail	0.75 in.	0	0	
ELKHART	4/28/2014	0:46	Hail	0.88 in.	0	0	
TUCKER	4/28/2014	0:50	Hail	1.25 in.	0	0	
PALESTINE	4/28/2014	0:52	Hail	0.88 in.	0	0	
PALESTINE ARPT	5/9/2014	16:40	Hail	1.00 in.	0	0	
PALESTINE	5/9/2014	16:50	Hail	1.00 in.	0	0	
PALESTINE	5/9/2014	17:05	Hail	0.75 in.	0	0	
BETHEL	8/11/2014	13:10	Hail	1.00 in.	0	0	
PALESTINE	10/6/2014	7:40	Hail	1.00 in.	0	0	
PALESTINE ARPT	5/1/2016	23:10	Hail	1.00 in.	0	0	
PALESTINE	5/1/2016	23:12	Hail	1.00 in.	0	0	
ELKHART	5/23/2017	15:30	Hail	1.00 in.	0	0	
NECHES	5/28/2017	15:49	Hail	1.00 in.	0	0	
TOTALS:	**182 events**	**62 years**	**Hail**				**$93,500.00**

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
ANDERSON (ZONE)	2/8/1994		Ice Storm		0	0	
ANDERSON (ZONE)	11/24/1996	14:00	Winter Storm		0	0	
ANDERSON (ZONE)	1/12/1997	20:00	Winter Weather		0	0	
ANDERSON (ZONE)	12/22/1998	0:00	Ice Storm		0	0	
ANDERSON (ZONE)	1/25/2000	0:00	Winter Storm		0	0	
ANDERSON (ZONE)	12/12/2000	18:00	Winter Storm		0	0	
ANDERSON (ZONE)	12/25/2000	0:00	Winter Storm		0	0	
ANDERSON (ZONE)	12/31/2000	0:00	Winter Storm		0	0	
ANDERSON (ZONE)	1/1/2001	0:00	Heavy Snow		0	0	
ANDERSON (ZONE)	2/24/2003	11:20	Winter Storm		0	0	$15,000,000
ANDERSON (ZONE)	12/22/2004	0:01	Winter Weather		0	0	
ANDERSON (ZONE)	12/7/2005	22:00	Winter Storm		0	0	
ANDERSON (ZONE)	1/14/2007	20:00	Ice Storm		0	0	$50,000
ANDERSON (ZONE)	1/17/2007	4:00	Ice Storm		0	0	$5,000
ANDERSON (ZONE)	2/11/2010	15:30	Winter Weather		0	0	$7,000
ANDERSON (ZONE)	2/23/2010	7:45	Heavy Snow		0	0	$250,000
ANDERSON (ZONE)	2/3/2011	22:00	Winter Weather		0	0	$50,000
ANDERSON (ZONE)	1/1/2015	4:00	Winter Weather		0	0	$15,000
ANDERSON (ZONE)	3/5/2015	13:07	Heavy Snow		0	0	

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
TOTALS:	**19 events**	**24 years**	**Winter Storm**				**$15,377,000**
ANDERSON (ZONE)	8/12/2011	11:33	Wildfire		0	0	$75,000
ANDERSON (ZONE)	8/15/2011	11:44	Wildfire		0	1	$750,000
ANDERSON (ZONE)	8/30/2011	13:35	Wildfire		0	0	$400,000
ANDERSON (ZONE)	9/4/2011	11:00	Wildfire		0	0	$25,000
ANDERSON (ZONE)	9/5/2011	9:00	Wildfire		0	0	
ANDERSON (ZONE)	9/5/2011	23:02	Wildfire		0	0	$25,000
ANDERSON (ZONE)	10/15/2015	14:00	Wildfire		0	0	
TOTALS:	**7 events**	**5 years**	**Wildfire**				**$1,275,000**
ANDERSON (ZONE)	8/1/1996	0:00	Drought		0	0	
ANDERSON (ZONE)	7/1/1998	0:00	Drought		0	0	
ANDERSON (ZONE)	8/1/2000	0:00	Drought		0	0	
ANDERSON (ZONE)	9/1/2000	0:00	Drought		0	0	
ANDERSON (ZONE)	7/1/2005	0:00	Drought		0	0	
ANDERSON (ZONE)	11/1/2005	0:00	Drought		0	0	
ANDERSON (ZONE)	12/1/2005	0:00	Drought		0	0	
ANDERSON (ZONE)	1/1/2006	0:00	Drought		0	0	

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
ANDERSON (ZONE)	2/1/2006	0:00	Drought		0	0	
ANDERSON (ZONE)	3/01/2006	0:00	Drought		0	0	
ANDERSON (ZONE)	6/6/2006	0:00	Drought		0	0	
ANDERSON (ZONE)	7/1/2006	0:00	Drought		0	0	
ANDERSON (ZONE)	8/1/2006	0:00	Drought		0	0	
ANDERSON (ZONE)	9/1/2006	0:00	Drought		0	0	
ANDERSON (ZONE)	10/1/2006	0:00	Drought		0	0	$1,000,000
ANDERSON (ZONE)	11/1/2006	0:00	Drought		0	0	$800,000
ANDERSON (ZONE)	12/5/2010	0:00	Drought		0	0	$10,000
ANDERSON (ZONE)	1/1/2011	1:00	Drought		0	0	$5,000
ANDERSON (ZONE)	2/1/2011	0:00	Drought		0	0	$15,000
ANDERSON (ZONE)	3/1/2011	0:00	Drought		0	0	$8,000
ANDERSON (ZONE)	4/1/2011	0:00	Drought		0	0	$40,000
ANDERSON (ZONE)	5/1/2011	0:00	Drought		0	0	$25,000
ANDERSON (ZONE)	6/1/2011	0:00	Drought		0	0	$30,000
ANDERSON (ZONE)	7/1/2011	0:00	Drought		0	0	$20,000
ANDERSON (ZONE)	8/1/2011	0:00	Drought		0	0	$35,000
ANDERSON (ZONE)	9/1/2011	0:00	Drought		0	0	$30,000
ANDERSON (ZONE)	10/1/2011	0:00	Drought		0	0	$20,000

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
ANDERSON (ZONE)	11/1/2011	0:00	Drought		0	0	$15,000
ANDERSON (ZONE)	12/1/2011	0:00	Drought		0	0	$10,000
ANDERSON (ZONE)	1/1/2012	0:00	Drought		0	0	$8,000
ANDERSON (ZONE)	2/1/2012	0:00	Drought		0	0	$2,000
ANDERSON (ZONE)	3/1/2012	0:00	Drought		0	0	
ANDERSON (ZONE)	5/1/2013	0:00	Drought		0	0	$2,000
ANDERSON (ZONE)	6/1/2013	0:00	Drought		0	0	$4,000
ANDERSON (ZONE)	7/1/2013	0:00	Drought		0	0	$2,000
ANDERSON (ZONE)	8/1/2013	0:00	Drought		0	0	$5,000
ANDERSON (ZONE)	8/1/2013	0:00	Drought		0	0	$3,000
ANDERSON (ZONE)	9/1/2013	0:00	Drought		0	0	$3,000
ANDERSON (ZONE)	3/25/2014	0:00	Drought		0	0	$2,000
ANDERSON (ZONE)	4/1/2014	0:00	Drought		0	0	$1,000
ANDERSON (ZONE)	6/1/2014	0:00	Drought		0	0	$3,000
ANDERSON (ZONE)	8/11/2015	0:00	Drought		0	0	
ANDERSON (ZONE)	9/1/2015	0:00	Drought		0	0	$1,000
ANDERSON (ZONE)	10/1/2015	0:00	Drought		0	0	$4,000
ANDERSON (ZONE)	11/1/2016	0:00	Drought		0	0	
TOTALS:	**45 events**	**21 years**					**$2,013,000**

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
County-wide	10/8/1994	0:30	Flash Flood		0	0	$50,000
MONTALBA	8/7/1997	5:35	Flash Flood		0	0	$0
FRANKSTON	11/13/1998	9:15	Flash Flood		0	0	$0
TENNESSEE COLONY	11/13/1998	9:15	Flash Flood		0	0	$0
COUNTYWIDE	1/28/1999	22:30	Flash Flood		0	0	$0
ANDERSON (ZONE)	3/14/2001	6:00	Flood		0	0	$0
COUNTYWIDE	6/7/2001	22:05	Flash Flood		0	0	$0
TUCKER	6/17/2006	9:45	Flash Flood		0	0	$0
ELMWOOD	10/22/2009	5:45	Flash Flood		0	0	$0
SPRINGFIELD	10/26/2009	9:27	Flood		0	0	$5,000
TENNESSEE COLONY	6/10/2010	10:00	Flood		0	0	$0
TUCKER	5/20/2011	19:45	Flash Flood		0	0	$0
BLACKFOOT	3/20/2012	3:30	Flood		0	0	$0
BLACKFOOT	5/9/2013	17:54	Flash Flood		0	0	$20,000
MASSEY LAKE	10/31/2013	0:39	Flash Flood		0	0	$150,000
TUCKER	11/22/2014	10:30	Flood		0	0	$15,000
CAYUGA	10/24/2015	10:14	Flash Flood		0	0	$50,000
HARMONY	10/24/2015	10:45	Flash Flood		0	0	$0
CAYUGA	10/24/2015	13:30	Flood		0	0	$0

Location	Date	Time	Type	Mag	Deaths	Injuries	Property or Crop Damages
TENNESSEE COLONY	12/27/2015	16:00	Flood		0	0	$0
HARMONY	3/9/2016	9:00	Flood		0	0	$0
DEANWRIGHT	4/29/2016	23:00	Flash Flood		1	0	$0
TENNESSEE COLONY	6/13/2016	4:00	Flash Flood		1	0	$15,000
TENNESSEE COLONY	6/13/2016	6:00	Flash Flood		0	0	$0
TOTALS:	**24 events**	**24 years**	**Flood**				**$305,000**
CAYUGA	1/21/1999	23:00	Lightning		0	0	50.00K
PALESTINE	5/25/2005	15:00	Lightning		0	0	15.00K
PALESTINE ARPT	1/8/2008	10:08	Lightning		0	0	200.00K
PALESTINE	8/30/2010	18:00	Lightning		0	0	3.00K
NECHES	5/31/2012	3:15	Lightning		0	0	250.00K
PALESTINE	5/31/2012	8:30	Lightning		0	0	175.00K
PALESTINE	6/12/2012	16:45	Lightning		0	0	25.00K
SLOCUM	7/11/2012	16:05	Lightning		0	0	60.00K
TOTALS:	**8 events**	**19 years**	**Lightning**				**$778,000**

The above table contains all data provided on the NCDC website "Storm Events Database" for all of the Anderson County jurisdictions as of 2/20/2018, found at: (https://www.ncdc.noaa.gov/stormevents/).

Appendix II: Additional Verification of Participation

PUBLIC MEETING

Anderson County Emergency Management will be hosting a Public Meeting on April 26, 2017 at 1:00 pm in Room 103 at the Anderson County Annex, 703 N. Mallard St., Palestine, TX. The reason for this public meeting is to discuss Anderson County's Hazard Mitigation Action Plan, which includes Cities of Palestine, Frankston and Elkhart. This is a FEMA Official document that is required to be updated every five years. This meeting will be to go over the plan and see what hazards and threats listed in our current plan may need to be updated for this new plan.


Anderson County will be hosting a PUBLIC meeting is to discuss updating Anderson County's Hazard Mitigation Action Plan.
Location: Anderson County Annex --Room 103
703 N Mallard St. Palestine, Tx
Date: April 26, 2017
Time: 1:00 pm

Anderson County Hazard Mitigation Open Meeting
April 26, 2017

	Name	Agency	Phone	Address
1	[illegible]	EMC	[illegible]	[illegible]
2	T. L. Lucas III	Anderson CO 50	903-922-2236	1200 E Lacy St, Pal, TX, 75801
3	[illegible]	Palestine EMC	903-731-8165	504 N Queen St, Palestine
4	[illegible]	Palestine Fire Dept	903-731-8464	504 N Queen St, Palestine, TX 75801
5	[illegible]	[illegible]	[illegible]	[illegible]
6	Christian Crockett	Anderson Co. EMC	903-723-7512	Palestine Email
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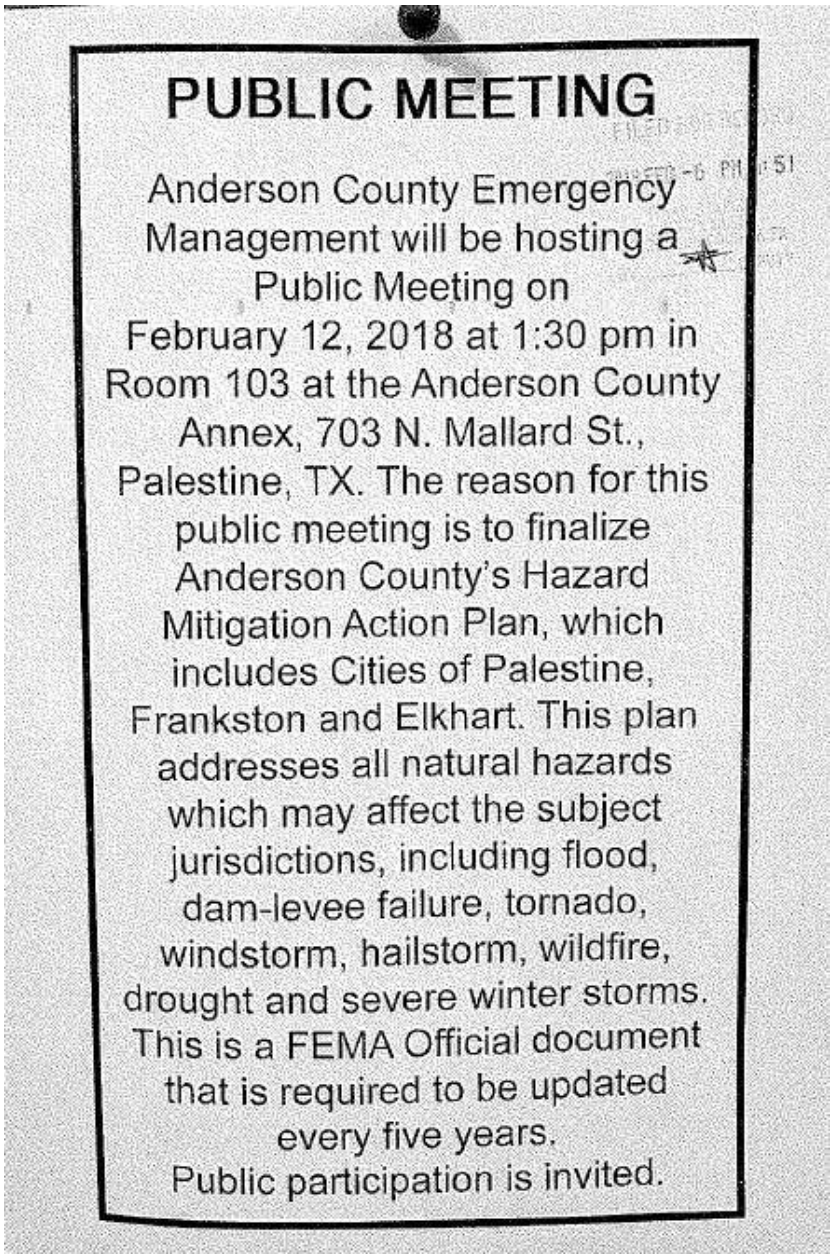
PUBLIC MEETING

Anderson County Emergency Management will be hosting a Public Meeting on February 12, 2018 at 1:30 pm in Room 103 at the Anderson County Annex, 708 N. Mallard St., Palestine, TX. The reason for this public meeting is to finalize Anderson County's Hazard Mitigation Action Plan, which includes Cities of Palestine, Frankston and Elkhart. This plan addresses all natural hazards which may affect the subject jurisdictions, including flood, dam-levee failure, tornado, windstorm, hailstorm, wildfire, drought and severe winter storms. This is a FEMA Official document that is required to be updated every five years.
Public participation is invited.



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Public participation is invited.

Anderson County Hazard Mitigation Plan Meeting 2/12/2018

	PRINT NAME	*SIGNATURE*	AGENCY	EMAIL ADDRESS	PHONE
1	Misty Ellison		EMC	MEllison@co.anderson.tx.us	903-723-7813
2	Jeannie McCarty		Red Cross	jeannie.mccarty@redcross.org	214-914-3496
3	James Sharp		TPW	James.sharp@txdot.gov	903-724-7111
4	Sandi Wilhelm		Cayuga ISD	swilhelm@cayugaisd.com	903-928-2211
5	Michael Hatter		City of Frankston	city.hall@frankstontx.us	903-876-2211
6	Doug Lightfoot		Anderson Co.	dlightfoot@co.anderson.tx.us	903 725 7853
7	Elton Dees		Slocum ISD	edees@slocumisd.org	903 478 3621
8	Ray Dorsey		Elkhart ISD	rdorsey@elkhartisd.org	903 764 2722
9	Steve Pooley		City of Palestine	tx4pharmacy@gmail.com	903 731 3302
10	Billy Hollis		City of Palestine		903 731 8469
11	John Mercer		City of Palestine OEM	johnmercer@palestinetx.org	903-731-8469
12	Stephanie Wilkes		Northwest	stephanie.wilkes@nwtc.edu	903 729 7742
13	Matthew Davis		PEMC EMS	matthew.davis@pemcems.com	903 731 5318
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