

CANADIAN COUNTY

Banner Public School

2012 Multi-Hazard Mitigation Plan Update



Flanagan & Associates, LLC
Planning Consultants

Acknowledgements

Banner Public School Multi-Hazards Mitigation Plan 2012 Update was made possible by a Hazard Mitigation Grant from the Oklahoma Department of Emergency Management and the Federal Emergency Management Agency, with local share funding from Banner Public School.

The Plan was prepared by Canadian County and Banner Public School under the direction of the Canadian County Commissioner's Office, with the participation and assistance of numerous agencies, organizations, and individuals, including:

Banner School Board

President Roy Middleton
Vice-President..... Mike Keller
Clerk L.T. Scott

Banner School Administration

School Superintendent/Principal Larry J. York
Minutes Clerk Cindy Manning

Banner School Staff

Technical Advisory Committee (STAC)

School Superintendent/Principal Larry J. York

G.2 Banner Public School

Banner School District, shown in Locator Map Figure G.2-1, serves students in east-central Canadian County, The School buildings are constructed of cinder block and brick with flat and low-slope metal roofs, one with metal cladding and a peaked metal roof. Of the four additional buildings on the west side of the School, three are portable structures built of wood with wood siding, and one is metal with metal cladding. The School has a basement shelter that can accommodate 75 people. Only the new (northern) part of the School has a sprinkler system. The School does not have a backup generator.

Section 1 Introduction

1.1 Description

Banner Public School provides education for children in Pre-K through Grade 8.

1.2 Boundaries

At its widest, the District reaches from Alfadale Rd. in the west to Frisco Rd. in the east, and from Jones Rd. in the north to SW 29th St. in the south. Figure G.2-2 presents the District Base Map.

1.3 Population Summary

The population living within the District boundaries is 1,685. Table G.2-1 provides enrollment, staff and location for Banner Public School for school year 2010-2011.

Figure G.2-1 Banner School District Locator Map

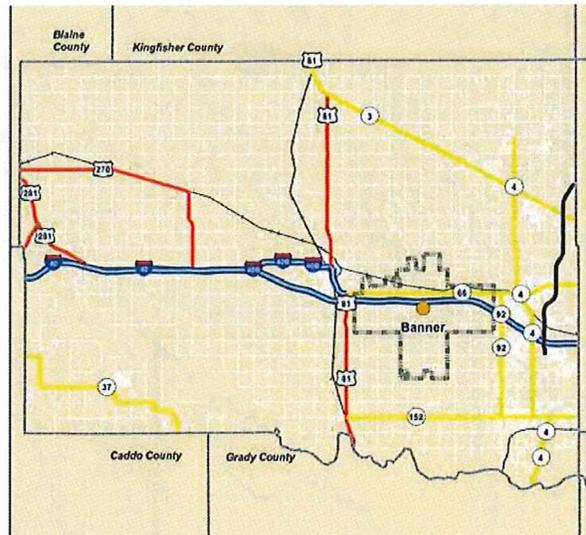


Table G.2-1 Banner School Enrollment, 2010-2011

| School | Address | Grades | Students | Staff |
|----------------------|---|-----------|----------|-------|
| Banner Public School | 2455 N. Banner Road El Reno, OK 73036-9161 | Pre-K-8th | 195 | 12 |

School Demographics

Ethnicity

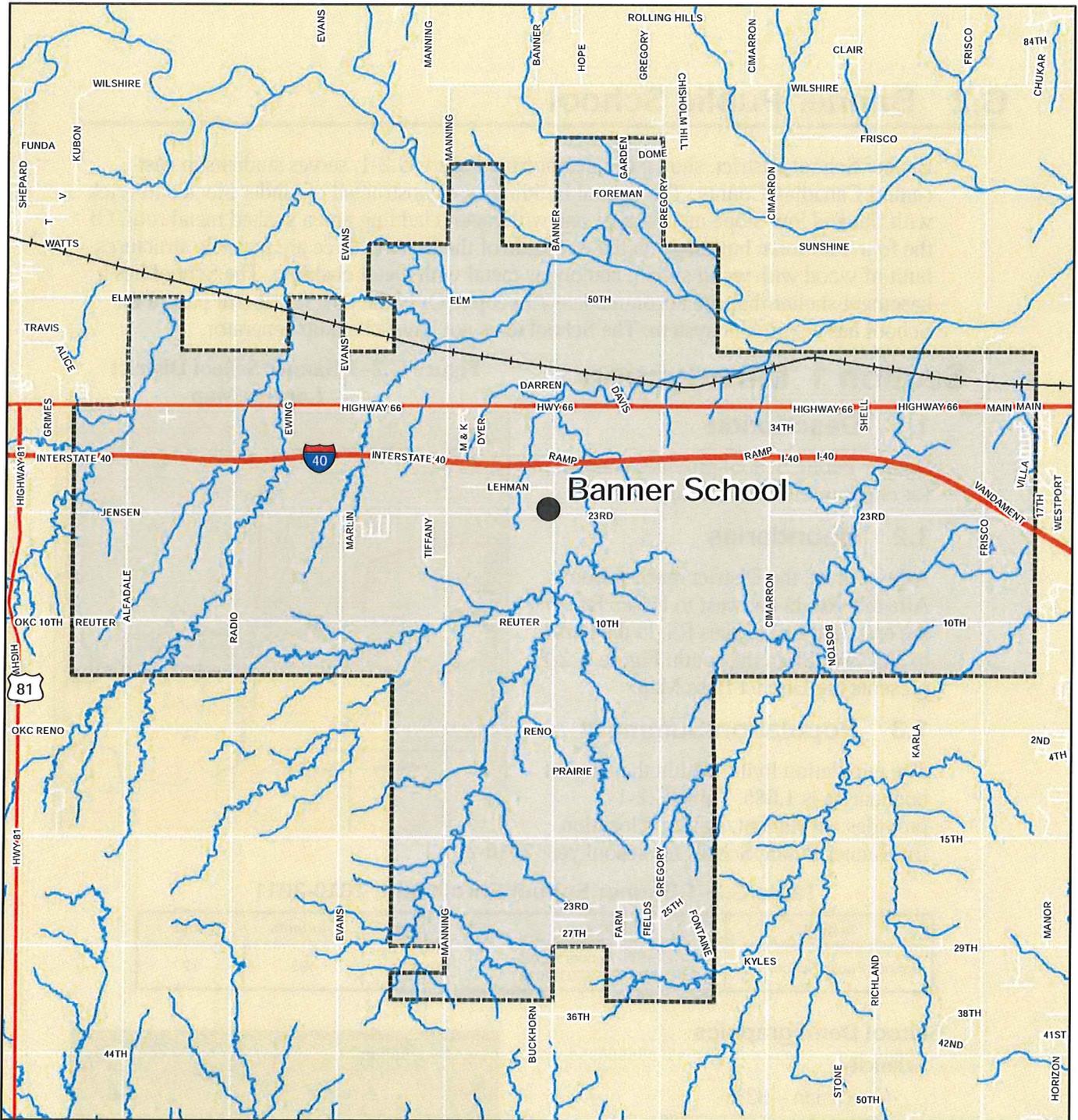
- Caucasian – 82%
- Native American – 12%
- Hispanic – 6%
- African American – 0%

Other Census Data

- Poverty Rate – 4%
- Unemployment Rate – 2%
- Single Parent Families – 12%



Banner Public School



LEGEND

- School Facility
- Highways
- Hydrology
- Water
- ▭ School District



Figure G.2-2
Banner Public Schools
Basemap



0 1 2 Miles

1.4 Economic Summary

Chapter 2.2.1 expresses the general governing, financing and policy-making authority of public boards of education in Oklahoma.

Banner School District is experiencing growth in population and in net assessed valuation of the District, which translates to an increase in property tax revenue available for the School.

At the writing of this plan, the District has a healthy building fund, even after several years of new construction activity. According to the District's Superintendent, the District's patrons have a strong record of supporting bond issues for school improvement purposes.

Section 2 Existing Mitigation Strategies

National Flood Insurance Program/Community Rating System. Banner Public Schools are covered by the unincorporated area of the county's participation in the NFIP program but they are not participants in the CRS Program.

Floodplain Management. Banner Public Schools participates in and benefits from unincorporated Canadian County regulations for the floodplains.

StormReady Program. Banner Public Schools is not a StormReady community.

FireWise Program. Banner Public Schools does not participate in the FireWise Program.

Building Codes. Banner Public Schools abides by the codes governing the county and the states required codes for the schools.

Emergency Warnings Emergency warnings consist of the following signals.

Fire – 3 Short Rings Tornado – 1 Long Ring Lock Down – Continuous Bell

Emergency Services

Security. Banner Public Schools has authorized the Superintendent or Principal of the school to enforce security.

Fire Protection. The fire departments of El Reno and Yukon would be responsible for responding to a fire at Banner Public Schools.

Hospitals. The closest hospital is Parkview Hospital in El Reno.

Ambulance Service. Parkview Hospital provides ambulance service for Banner Public Schools.

Section 3 Hazards

The following subsections discuss hazard information for the School District and the School site. The maps show site-specific hazard data in relationship to the School District as a whole and site specific hazard information for the School.

General natural hazards, such as Tornadoes, High Winds, Lightning, Hail, Winter Storms, Extreme Heat, Drought, and Earthquakes, affect the County more or less randomly and equally, with little difference between a particular school district and the County as a whole. These general hazards, including the impact on public schools, are addressed more fully in Chapter 4.

Table G.2–2 Banner School Hazards Summary

| Name | Floods | Tornadoes | High Winds | Lightning | Hail | Winter Storms | Extreme Heat | Drought | Expansive Soils | Urban Fires | Wildfires | Earthquakes | Hazardous Material Sites | Dam Failures | Transportation Hazards |
|----------------------|--------|-----------|------------|-----------|------|---------------|--------------|---------|-----------------|-------------|-----------|-------------|--------------------------|--------------|------------------------|
| Banner Public School | | X | X | X | X | X | X | X | X | X | X | X | | | X |

3.1 Flood

The Banner Public School is in the North Canadian River and Purcell Creek drainage basins. Purcell Creek flows north into the North Canadian River at elevation 1,280 about a half mile east of Banner School. The School is at elevation 1,312, well above the floodplain of Purcell Creek. The District has not been impacted by riverine or flash flooding events in the past. There have been no reports of flooding impacting the school district in the past. Banner School has no vulnerability to and no probability of the Flood hazard.

3.2 Tornado

Tornadoes are a random hazard that can strike anywhere in Canadian County, including Banner Public School. The County experienced 34 tornadoes between 1995 and 2010, including a devastating EF5 tornado in May 2011. Given these frequencies, the County can expect 2.3 tornadoes each year, any one of which could impact Banner School. The 34 tornadoes were not reported to have impacted Banner Schools. The School has in the past lost power due to a tornado event in a nearby location. The School has a basement shelter that can accommodate 75 people. Banner School has a basement shelter that can hold about 75 students. School structures face the same impacts from tornadoes as other structures identified in Chapter 4. Three of the schools facilities are portable structures built of wood with wood siding. As mentioned in Chapter 4, portable classrooms are particularly vulnerable to tornadoes. A tornado such as the EF5 that passed through El Reno and Piedmont in May 2011 would completely destroy any Banner School facility. Banner Public Schools consider a minor severity tornado to be less than an EF2 on the Enhanced Fujita Scale and a major severity to be an EF2 or higher. The School has a High vulnerability to and High probability of the Tornado hazard.

3.3 High Wind

Like Tornadoes, High Wind is a general hazard that occurs commonly and randomly throughout Canadian County. The County reported 73 high wind events from 1995 through 2010, with winds as high as 95 mph. The County and the School can expect about five potentially damaging high wind events each year. Banner school facilities did not report damages from the 73 high wind events that occurred in the county from 1995 through 2010; however, the superintendent mentioned a roof was blown off about 20 years ago as a result of a high wind event. The date of the damage and event was unspecified. As indicated in Chapter 4, high winds can cause major damages to public school facilities. Banner School has installed wind-resistant glass in its buildings, lessening the impact of high winds. Banner Public Schools considers a minor severity wind event to be a 9 or lower on the Beaufort Scale (Strong Gale, below 54 mph), and a major severity storm to be above 9 on the Beaufort Scale (Whole Gale/Storm) with winds 55-mph and higher. The School has a High vulnerability to and High probability of the High Wind hazard.

3.4 Lightning

Lightning is another general hazard that accompanies severe thunderstorms, particularly in the spring and autumn months. Canadian County reported nine damaging lightning events between 1995 and 2010 generated by the approximately 76 severe thunderstorms that passed through the area. Given this frequency, Banner School can expect about five lightning events per year. There have been no reports of lightning incidents impacting Banner Public Schools in the past. The School does not have lightning protection equipment or warning systems, leaving those persons participating in outdoor activities such as physical education class or school sporting events, vulnerable to loss of life or injury. Based on the information provided by the National Weather Service, Chapter 4, Banner Public Schools considers a negative cloud-to-ground flash with multiple return strokes, that causes no loss of life or injury and less than \$1,000 in property damage, to be Banner Public Schools has a High vulnerability to and High probability of the Lightning hazard.

3.5 Hail

Hail is a general hazard that strikes randomly and more or less equally throughout the County, along with lightning, high winds and tornadoes. From 1995 through 2010, Canadian County reported 105 separate hail events. Given this frequency, Banner School can expect about seven hail events each year. Reports of hail damages to Banner Schools in the past include a new roof; the date of this event was not included. Banner School has installed hail-resistant glass and metal roofing on its buildings. The School does not have a bus barn leaving its most critical functioning transportation method at risk of being rendered non-operational as a result of a hail event. Banner Public School considers a minor severity to be an H2 or lower on the Combined NOAA/TORRO Hailstorm Intensity Scales, and a major severity to be an H3 or higher. Banner School is considered to have a High vulnerability to and High probability of the Hail hazard.

3.6 Severe Winter Storm

From 1995 through 2010 Canadian County experienced 35 ice and snow events, or an average of 2.3 winter storms each year. Because of the general and widespread nature of winter storms, it is assumed that Banner School has also experienced 35 ice and snow events in this period. Specific damages to Banner Public Schools during winter storm events were not reported during the planning process. As indicated in Chapter 4 of this plan, public schools are in any case not in session during severe winter storms due to an allotted number of snow days so the populations are not immediately at risk. According to the School Superintendent, Banner does not usually have to close during winter weather events and if they do, they re open sooner than other Districts in the impacted area. Banner School is not equipped with a back-up generator. Loss of power and heavy snow accumulation making the schools inaccessible could result to extended closure of school facilities. Banner Public School considers a minor severity winter storm to be a Level 2 event or below (ice accumulation of less than ¼ inch—see Table 4-21), and a major severity event to be Level 3 and above (ice accumulation above ¼ inch) resulting in power outages and hazardous travel conditions. Banner School has a High vulnerability to and High probability of the Severe Winter Storm hazard.

3.7 Extreme Heat

During the period 1996 through 2011, Canadian County experienced four extreme heat events or an average of one every 3.7 years. Because of the general and widespread nature of heat waves, it is assumed that Banner School experienced the same number of extreme heat events as the rest of the County. Generally, public schools are not in session during the peak of the extreme heat season. The School has not been impacted by this hazard in the past. The most vulnerable populations of Banner Schools would be students participating in summer sports practice, as discussed in Chapter 4. Banner Public Schools considers a minor severity heat event to be a heat index of 95 or less and a major severity to be a heat index greater than 95 for a period of two or more weeks. Banner Public School has a Low vulnerability to and High probability of the Extreme Heat hazard.

3.8 Drought

Canadian County experienced four droughts from 1996 through 2011. Given the widespread nature of the hazard, it can be assumed that Banner School has experienced the same number of droughts. Specific damages as a result of drought have not been reported in the district. The School receives its water from the Canadian County Water Authority. The drought of 2010-2011, did not directly impact Banner School. Banner Public School considers a minor severity drought to be mild or moderate on the Palmer Index, and a major severity event to be a Severe or Extreme drought on the Index, which results in crop loss or restrictions on water use. The School is considered to have a Low vulnerability to and Moderate probability of the Drought hazard.

3.9 Expansive Soils

Banner Public School is situated on Moderate expansive soils. There have been no reported impacts to the School because of the soils on which it is constructed. It is not likely expansive soils will have a future impact on the school district. The School has not been impacted by Expansive Soils in the past. School sidewalks and parking lots are

exposed to damages from expansive soils. Other cases of damage might involve increases of moisture volume from broken or leaking water and sewer lines or cracks to the foundation of the school overtime. Banner Public School considers a shrink-swell level of moderate and below to be a minor severity and a shrink-swell level of high and above to be a major severity. Banner School has a Low vulnerability to and Low probability of the Expansive Soils hazard.

3.10 Urban Fire

The School is located in the Yukon Fire District. The Fire District has two stations and 30 full-time fire fighters. The Yukon Fire Department has an ISO rating of 5. There is a fire hydrant located across from the School on Banner Rd. There have been no reports of fires at Banner Public Schools. As indicated in Chapter 4, urban fires could cause complete structural loss to a school district. Banner Public School considers an event of minor severity to be \$5,000 or less in damages and no loss of life or injury and a major severity event to be more than \$5,000 in damages and/or loss of life or injury. The School has not been impacted by an urban fire incident in the past. Due to adequate fire hydrant placement and fire suppression capabilities, Banner School is considered to have a Low vulnerability to and Low probability of the Urban Fire hazard.

3.11 Wildfire

Banner School is located on the northwest corner of Banner Rd. and Jensen Rd. E. The School is buffered east and south by roads and to the west by playgrounds. Across Jensen Rd. is a small area where the School was once located that is occasionally overgrown and could present a minor wildfire hazard. Other than this patch, the School is surrounded by agricultural land. The school has adequate on site fire hydrant placements and is within the jurisdiction of Yukon Fire Department. None of the wildfire events recorded in Canadian County have damaged Banner Public Schools. Banner Public Schools considers a reading of moderate and below on the Fire Danger Rating system (Table 4-36) to be a minor severity level and a rating of high and above to be of major severity. Banner School is considered to be at Low vulnerability to and Low probability of the Wildfire hazard.

3.12 Earthquake

Earthquake is considered a general hazard that is relatively unpredictable and not site-specific, since it usually impacts a wide area. Canadian County recorded 28 earthquakes between 1995 and 2009, followed by cluster of 11 quakes on March 11-12, 2010. Thirteen of these events were in or very close to El Reno. The greatest recorded quake in Oklahoma, a 5.6 event, occurred recently (November 2011) in Lincoln County. Prior to this quake, the highest magnitude tremor (5.5) was at El Reno in 1952. Only a few Canadian County earthquakes have been "felt" events. None of the earthquake events in Canadian County have impacted Banner Public Schools. As mentioned in Chapter 4, according to HAZUS an earthquake would have minimal impact on any public school facilities in Canadian County. Banner Public School considers a reading of 4.8 and below on the Richter Scale a minor severity quake and a reading above 4.8 to be one of major severity. Banner School is considered to have a Low vulnerability to and Low probability of the Earthquake hazard.

3.13 Hazardous Materials

Although there are eight fixed Tier II sites within the Banner Public School District, none is within one mile of Banner School itself. No hazardous material events have occurred within the district or impacted the school in the past. Banner School is considered to have no vulnerability to and no probability of the Fixed-Site Hazardous Materials hazard.

3.14 Dam Failure

There are no dams whose failure would impact Banner School. Banner Public School has not been impacted directly or indirectly by dam failure in the past. Banner Public School is considered to have no vulnerability to and no probability of the Dam Failure hazard.

3.15 Transportation

Banner School is a half mile south of I-40, and one mile south of OK Highway 66. Banner Rd. is a major access point for I-40 between US Highway 81 at El Reno and Cimarron Rd. south of Yukon. Interstate-40 and OK Highway 66 are major highways over which hazardous materials are transported. Their distance from the School, along with the generally prevailing south winds, reduces the risk of a transport accident on these highways impacting the School. Banner Public Schools has not been impacted by transportation incidents in the past. The greatest impact would be students outside exposed to lofting chemicals, sheltering in place may be required if the incident is unable to be contained. Banner Public School considers a minor severity Transportation incident to be one that results in inconvenience (such as traffic delays), minor injury, and some financial loss (less than \$50,000), and a major severity event to be one that requires immediate intervention to save lives and property, and/or results in serious injury or death, or significant financial loss (greater than \$50,000). Banner School is considered to have a Low vulnerability to and Low probability of the Transportation hazard.

3.16 Hazards Summary

A visual perspective of potential hazards within the boundaries of the Banner Public School District is the Hazards Composite Map presented in Figure G.2-3.

Figure G.2-4 focuses on the School site itself and illustrates the specific hazards and their individual level of potential impact on the buildings and their immediately surrounding area. Please note the legend accompanying Figure G.2-4 to identify individual hazards and be aware that the colors in the map may appear different due to the number of other colors that have been overlaid representing other potential hazards, thus creating a School-site composite.

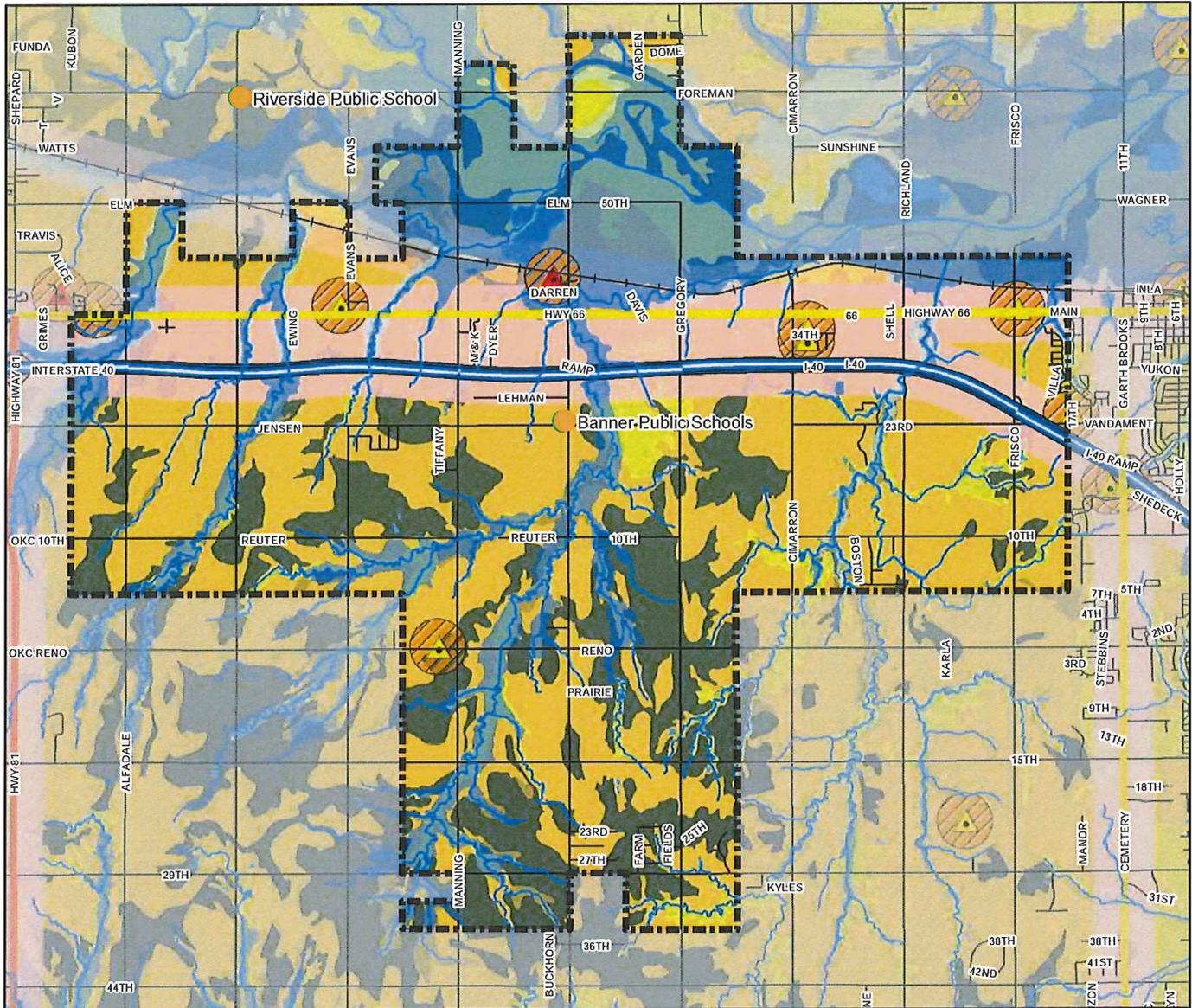


Figure G.2-3:

**Banner School District
Hazard Composite**

- PreK
- Elementary School
- Middle School
- ◆ High School
- Rural School
- Public School Admin
- Development Center
- Other

Hazard Overlays

- ▲ 2009 EHS Tier 2
- ▲ 2009 non EHS Tier 2
- ▨ Tier2 1/4mi Buffer
- 100yr Floodplain
- 500yr Floodplain
- Quarter Mile Transportation Buffer

Expansive Soils

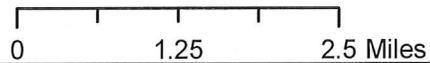
- Low
- Moderate
- High
- Very High
- Water

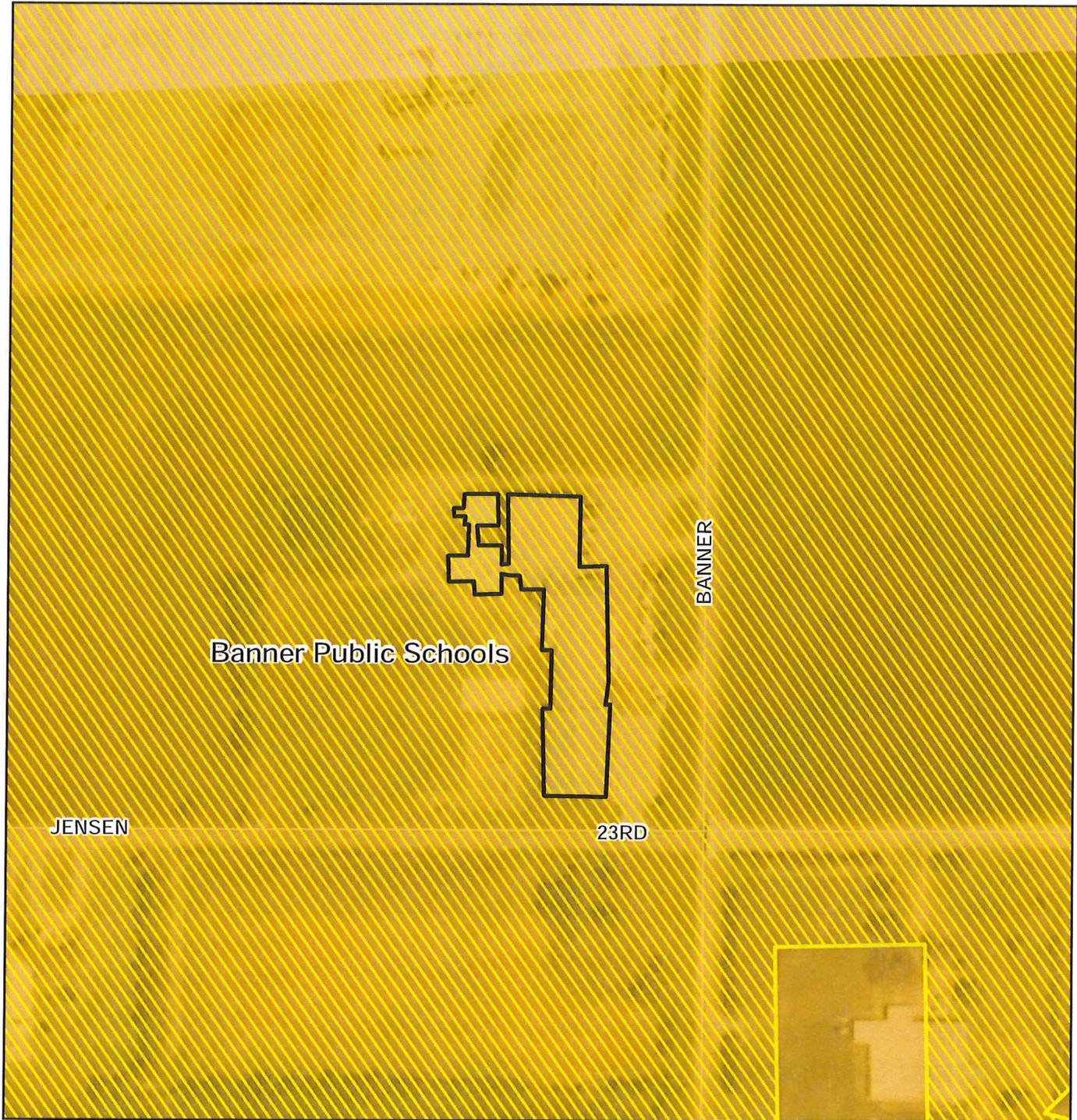
Transportation

- ▬ Interstate
- ▬ US Highway
- ▬ State Highway
- ▬ Turnpike
- ▬ Local or Rural Road
- ▬ Railroads

Boundaries

- ▭ Banner School District





LEGEND

- | | |
|----------------------------------|---------------------|
| Interstate | Expansive Soils Low |
| US Highway | Moderate |
| State Highway | High |
| Turnpike | Very High |
| Wildfire Level of Concern | |
| None | Moderate |
| Low | High |
| Water | |

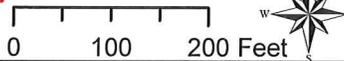


Figure G.2-4
Banner Public Schools
Composite Map

Section 4 Mitigation Strategy

This section provides a description of Banner Public Schools ability to reduce potential losses, identified in Section 3, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools. Included in this section is a process by which Banner Public School incorporates the requirements of the mitigation plan into other planning mechanisms such as emergency action plans or long range plans, when appropriate. Goals and objectives of Banner Public Schools to reduce or avoid long-term vulnerabilities to the identified hazards are included in Chapter 5. A comprehensive range of specific actions and projects being considered to reduce the effects of each hazard are listed in Chapter 6, Action Plan.

4.1 Integration into Planning Mechanisms

Banner Public Schools described the following process for implementing its hazard mitigation plan through existing planning mechanisms:

Upon formal adoption of the *Canadian County Multi-Jurisdictional Multi-Hazard Mitigation Plan*, mitigation goals will be incorporated into future versions of Banner Public Schools emergency operations plans and procedures. Meetings of the School Board of Education and public hearings will provide an opportunity for district officials to report back on the progress made on the integration of mitigation planning elements into District planning documents and procedures.

The superintendent may use this hazard mitigation plan as a reference tool when recommending school improvement projects to the school board of education. As the District continues to develop, the hazard mitigation plan may be integrated into development plans to determine the site of new facilities and prevent development in more hazard prone areas. Structural recommendations in new construction may also be followed in order to create a higher resiliency to natural and man-made hazards.

4.2 Prioritization Process of Mitigation Measures

Banner Public Schools identified 17 mitigation measures, specific to their jurisdiction, during the *Canadian County Multi-Hazard Mitigation Plan Update* process. The mitigation measures will be prioritized using the STAPLEE process as recommended by FEMA, included in Chapter 5, Table 5-1. Complete detailed information for each mitigation measure is included in Chapter 6.

