

CANADIAN COUNTY

# Okarche Public Schools

## 2012 Multi-Hazard Mitigation Plan Update



**Flanagan & Associates, LLC**  
Planning Consultants

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# ***Acknowledgments***

Okarche Public Schools Multi-Hazards Mitigation Plan 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 Okarche Public Schools.

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

## **Okarche School Board**

President..... Shawn Vogt  
Vice-President..... Stephanie Jeffrey  
Clerk..... Beth Schieber  
Deputy Clerk..... David Craig  
Parliamentarian ..... Rick Osterholt

## **Okarche School Administration**

School Superintendent/Principal ..... David Glover  
Elementary School Principal..... Cinda Schaefer

## **Okarche School Staff Technical Advisory Committee (STAC)**

School Superintendent/Principal ..... David Glover

## G.8 Okarche School District

Okarche School District is in northern Canadian County as shown in the Locator Map in Figure G.8-1. The District has been consolidating its buildings within about 50 acres of contiguous lands northwest of the intersection of 6th St. and W. Oklahoma in the Town of Okarche. Because the District's facilities are so located, they are essentially subject to the same site-specific hazards, therefore the facilities are treated as a single campus.

### Section 1 Introduction

#### 1.1 Services Summary

The District provides education services for students from Pre-K to Grade 12.

#### 1.2 Boundaries

At its widest extent, the portion of the District within Canadian County extends from the Kingfisher County Line south to 164th St. NE, and from Heaston Rd. in the west to Gregory Rd. NE in the east. Figure G.8-2 is a base map showing the District.

#### 1.3 Population Summary

The School District has a population of 2,026. Table G.8-1 summarizes the enrollment, staff and locations for Okarche Public Schools for the school year 2010-2011.

**Table G.8-1 Okarche School Enrollment 2010-2011**

Map ID	School	Address	Grades	Students	Staff
1	Okarche High School	632 W. Oklahoma Ave., Okarche	10-12	74	16
2	Okarche Junior High School	205 N 4th Street, Okarche	7-9	59	14
3	Okarche Elementary School	315 N 6th Street, Okarche	PK-6	162	9
	TOTALS			295	39

### School Demographics

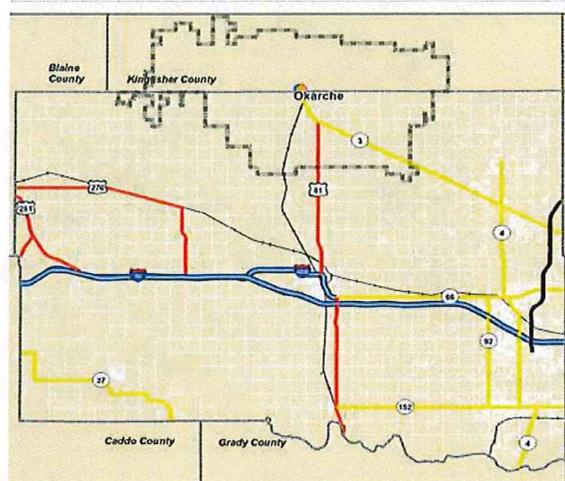
#### Ethnicity

- Caucasian – 86%
- Hispanic – 7%
- Native American – 6%
- African American – 0%

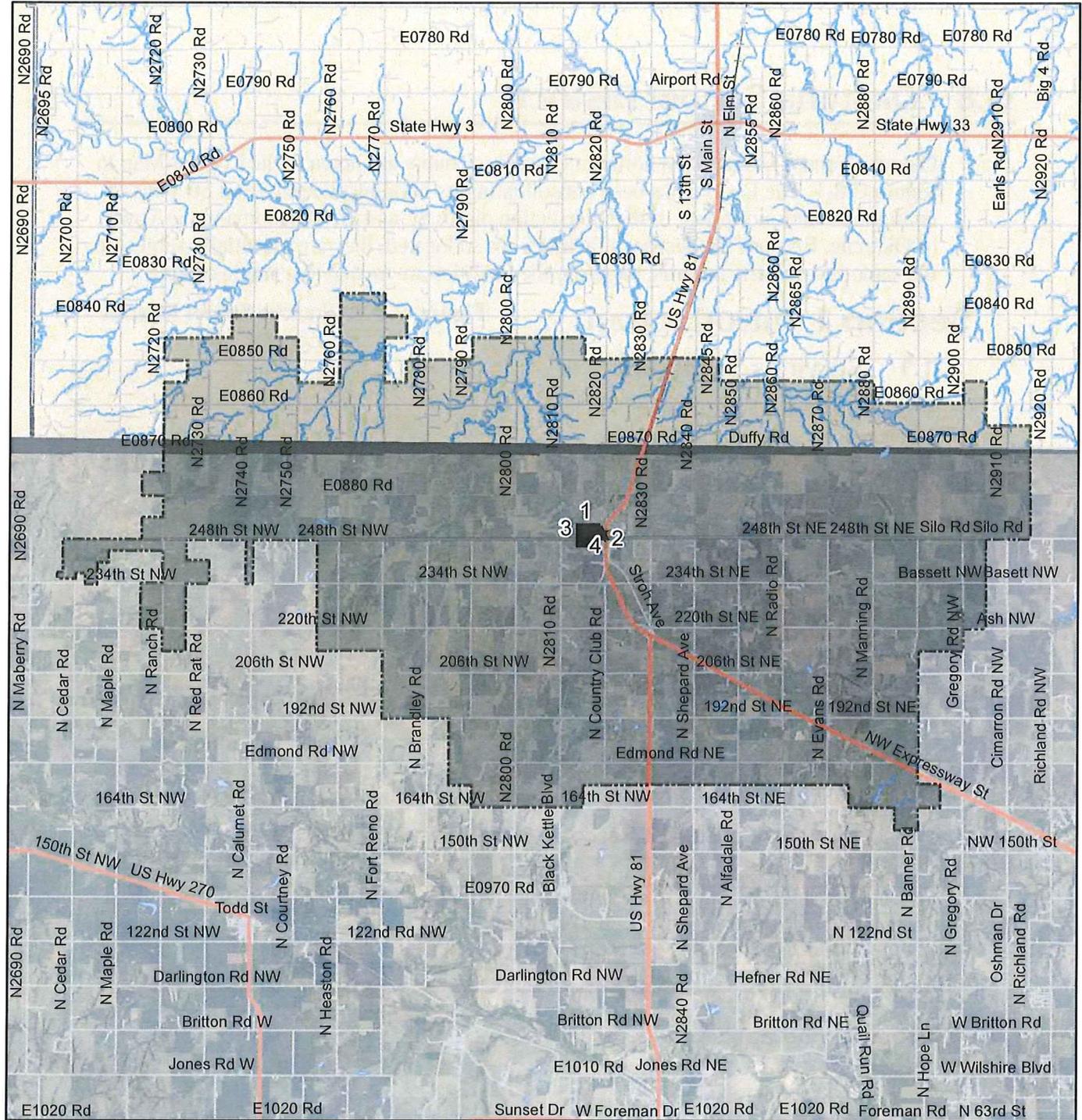
#### Other Census Data

- Poverty Rate – 4%
- Unemployment Rate – 1%
- Single Parent Families – 4%

**Figure G.8-1 Okarche School District Locator Map**



**Okarche Elementary School**



### LEGEND

- Elementary
- High
- ★ Admin.
- ▲ Middle
- ▭ Okarche School Dist.
- Highways
- Roads
- Railroads



0 1.5 3 Miles

Figure G.8-2  
Okarche Public Schools  
Basemap

## 1.4 Economic Summary

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

The Okarche School District has been stable in both population and enrollment for the last several years. The District patrons approved a bond issued in 2009 which funded the first phase of new construction that will ultimately result in a combined campus housing all schools. Property taxes have remained stable, although the Okarche School District expects to benefit by as much as \$1.6 million in annual new revenues as the result of construction of a wind-powered electric generation facility.

The District also benefits from two foundations. The Education Foundation is an active body that is comprised of many Okarche alumni and strongly supports the School District. A second local foundation supports the community in general and has often contributed to the District.

## Section 2 Existing Mitigation Strategies

**National Flood Insurance Program/Community Rating System.** Okarche Public Schools are not covered by the NFIP program and they are not participants in the CRS Program.

**Floodplain Management.** Okarche Public Schools has no regulations for the floodplains.

**StormReady Program.** Okarche Public Schools is not a StormReady community.

**FireWise Program.** Okarche Public Schools does not participate in the FireWise Program.

**Building Codes.** Okarche Public Schools abides by the states required codes for the schools.

### Emergency Services

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

**Fire Protection.** The fire department of Okarche would be responsible for responding to a fire at Okarche Public Schools.

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

**Ambulance Service.** Parkview Hospital provides ambulance service for Okarche Public Schools.

## Section 3 Hazards

The following subsections discuss hazard information related to the School District as a whole as well as the Campus. The accompanying maps provide site-specific information with relationship to the District and the Campus.

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. A summary of the hazards as they relate to the School Campus appear in Table G.8-2. These general hazards are addressed more fully in Chapter 4.

**Table G.8-2 Okarche Public Schools 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
Okarche High School		X	X	X	X	X	X	X	X	X		X	X		X
Okarche Junior High School		X	X	X	X	X	X	X	X	X		X	X		X
Okarche Elementary School		X	X	X	X	X	X	X	X	X	X	X			

### 3.1 Flood

The Okarche Public Schools are located in the urban core of the Town of Okarche at about elevation 1,230. The land slopes away from the Town center in all directions into tributary streams of Uncle John's Creek and Dead Indian Creek, both tributaries of Kingfisher Creek and the Cimarron River. There are, at present, no designated 100-year floodplains in Okarche. There have been no flood events in the urban core of Okarche in the past 15 years. Okarche Public Schools have 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 Okarche Public Schools. Canadian 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 the Okarche School District and its facilities. The School District has not been directly impacted by tornadoes in the past. Depending on the event severity, a tornado can cause significant damages to any Okarche Public School facility. Specific impact and vulnerability information is included in Chapter 4. A tornado like the EF5 in May 2011 would completely destroy Okarche Schools and the District Administration Office. The population of the school district is also vulnerable as the district does not have a tornado safe room on site. Lack of adequate shelter leaves the students, faculty, and staff of Okarche Public Schools at risk of loss of life or injury during a tornado event of any magnitude. Okarche Public School District considers a minor severity tornado to be a tornado of EF1 level or lower on the Fujita Scale, and a major severity tornado to be a

tornado greater than an EF1 level. The District 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 gusts as high as 95 mph have been reported in the County. Based on this data, Canadian County – and all of Okarche’s schools – can expect about five potentially damaging high wind events each year. The schools have not reported high wind damages in the past. Okarche Public School District considers a wind force on the Beaufort Scale of 9 (55 mph) or below to be a minor severity wind force and a wind force of greater than 9 to be a major severity wind force. All three Okarche Schools, along with the Administration Office, have 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 thunderstorms that passed through the area. Given this frequency, Okarche Public Schools and Administrative Offices can expect about five lightning events per year. The School District 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. Also vulnerable are any critical electronics not equip with surge protection. All school sites have been affected by lightning strikes in the past that have caused power failure or equipment damage. Based on the information provided by the National Weather Service, Chapter 4, Okarche Public School 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 a minor severity lightning event; and a positive cloud-to-ground flash with a continuous or high peak current, that causes loss of life and/or injury and more than \$1,000 property damage, to be a major severity lightning event. All four District buildings have 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, Okarche Public Schools can expect about seven hail events each year. As indicated in Chapter 4, hail can cause significant structural damage to school facilities; particularly vulnerable are windows, glass doors, skylights, and the school roofing system. The school has a bus barn which enables their school busses to remain un-harmed and operational after an event, so long as the facility is utilized and busses are not en route during the incidents onset. The District has not been directly impacted by hail damage in the past. Okarche Public School District considers a minor severity hail storm to be H2 or lower on the Combined NOAA/ TORRO Hailstorm Intensity Scale, and a major severity hail storm to

be greater than H2 on the Combined NOAA/ TORRO Hailstorm Intensity Scale. The School District 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 all three Okarche Public Schools and the Administrative Office have also experienced 35 ice and snow events in this period. 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. Okarche Schools are not equipped with back-up generators. Loss of power could result to extended closure of school facilities. In the past, Okarche has shut down school due to bad country roads or slick roads in and around the town of Okarche. Also, power outages have occurred due to ice and wind.

Okarche Public School District considers a minor severity winter storm to be a winter storm that results in no loss of life, no loss of electricity or water service, and no transportation interruptions, and a major severity winter storm to be a winter storm that causes personal injury or death, water or power outages, damage to private property and public infrastructure, and travel disruptions. All District buildings and populations have a High vulnerability to and High probability of the Winter Storm hazard.

### **3.7 Extreme Heat**

During the period 1996 through 2011, Canadian County experienced 4 extreme heat events, or an average of one every 3.7 years. Because of the general and geographically extensive nature of heat waves, it is assumed that all three Okarche Public Schools, along with the Administrative Office, experienced the same number of extreme heat events as the rest of the County. As a rule, public schools are not in session during the peak of the extreme heat season. The most vulnerable populations of Okarche Schools would be students participating in summer sports practice, as discussed in Chapter 4. In the past, extreme heat has caused power outages in the district. Okarche Public School District considers minor severity extreme heat to be extreme heat of 95°F or less on the NOAA Heat Index (see Chapter 4.7.1), and major severity extreme heat to be extreme heat of greater than 95°F on the NOAA Heat Index that lasts for more than two weeks. Okarche Public Schools have a Moderate vulnerability to and High probability of the Extreme Heat hazard.

### **3.8 Drought**

Canadian County experienced 4 droughts from 1996 to 2011. Given the widespread nature of the hazard, it is assumed that Okarche Public Schools experienced the same number of droughts. The Town of Okarche draws its water from three wells about 13 miles west of town. The drought of 2010-2011, which caused water shortages in Oklahoma City and Yukon, did not directly impact the Okarche School District populations. Drought events have in the past caused tree loss, loss of shrubs and other vegetation. Okarche Public School District considers a minor severity drought to be greater than a -2 on the Palmer Drought Index and a major severity event to be -2 or

lower. The Scale goes from -4 to +4, with lower numbers indicating greater drought. See Chapter 4-8 for a discussion of this and other drought indexes. Because schools are out of session in summer, when droughts have their peak impacts, all Okarche Schools and the Administrative Offices are considered to have a Moderate vulnerability to and Moderate probability of the Drought hazard.

### **3.9 Expansive Soils**

Okarche's three Schools and Administrative Offices are situated on Low expansive soils. There have been no reported impacts to the District's structures because of expansive soils. Okarche Public School District considers a shrink-swell level of Moderate and below based upon the NRCS soil data base to be of minor severity and a shrink-swell level of High or Very High based upon NRCS soil data base to be of major severity. Okarche Public Schools have a Low vulnerability to and Low probability of the Expansive Soils hazard.

### **3.10 Urban Fire**

Okarche's Volunteer Fire Department has 20 fire fighters. Equipment includes two pump engines, one tanker truck, three brush pumpers, one command vehicle, and one rescue vehicle. Fire hydrants are located within 200 feet of District's three schools and the Administrative Offices. Okarche schools are constructed of non-combustible cement block and brick, and are equipped with an automatic fire alarm and NOAA Weather Radios. The buildings do not have lightning protection or backup generators. The District has not been impacted by this hazard in the past. Information regarding the vulnerability of structures to urban fires is included in Chapter 4. Okarche Public School District considers a minor severity urban fire to be an urban fire that results in no loss of life or injury and/or \$5,000 or less in damages, and a major severity urban fire to be an urban fire that causes loss of life or injury and/or more than \$5,000. Okarche Public Schools are considered to have a Low vulnerability to and Low probability of the Urban Fire hazard.

### **3.11 Wildfire**

Okarche Public Schools are located on a sprawling, semi-contiguous campus that reaches from 4th St. west to what would be Lawrence Dr., if that road continued south. The Okarche Middle School and Administrative Offices are surrounded by streets and neighborhoods, and these structures have no vulnerability to the Wildfire hazard. Okarche Elementary School and the Okarche High School have undeveloped land behind them. Okarche Public Schools consider a reading of Moderate and below on the USDA Fire Danger Rating System to be a minor severity condition, and a rating of above Moderate on the USDA Fire Danger Rating System to be a condition of major severity. As the multi-facility campus continues to be developed, the Elementary School and the High School will be buffered from the approach of wildfire by parking lots, access roads and landscaped playing fields. The District has not been impacted by the Wildfire hazard in the past. Until the campus development is complete, the Elementary School and High School are considered to have a Low vulnerability to and Low probability of the Wildfire hazard.

### **3.12 Earthquake**

Earthquakes are a general hazard, and occur more or less randomly throughout Canadian County. Of the 28 earthquakes reported between 1995 and 2010, one was in Okarche, and three were near by, south and southwest of town. Only one of these was a “felt” event. As mentioned in Chapter 4, according to HAZUS an earthquake would have minimal impact on any public school facilities in Canadian County. Okarche Public School District considers an earthquake of 4.8 magnitude and less on the Richter Scale a minor severity earthquake and an earthquake of a 4.8 magnitude or more on the Scale to be an event of major severity. Okarche Public School facilities have a Low vulnerability to and Low probability of the Earthquake hazard.

### **3.13 Hazardous Materials**

There are two Tier II facilities within Okarche which contain extremely hazardous materials: Partners/Agrilience Co-Op and the municipal swimming pool. There have been no reported releases in the past 15 years from either facility. Two of Okarche’s Public Schools facilities are within a quarter mile of one or both of these Tier II sites: Okarche Middle School and the Districts Administrative Offices. The Elementary School and High School are just beyond the quarter mile impact area of a hypothetical release from one of these Tier II sites. A hazardous materials incident could call for implementation of evacuation or shelter-in-place procedures. The District has not been impacted by this hazard in the past.

Okarche Public School District considers a minor severity fixed-site Hazardous Materials incident to be a release of a toxic chemical that is unlikely to cause severe casualties and/or which meets the *Emergency Response Guidebook* definition of a “small spill,” and a major severity fixed-site Hazardous Materials incident to be the release of a toxic chemical which has the likelihood of producing serious injury or death and/or which meets the definition of a “large spill” for a particular chemical, according to the most current edition of the *Guidebook*. The School District has a Low vulnerability to and Low probability of the Fixed-Site Hazardous Materials hazard.

### **3.14 Dam Failure**

There are no dams whose failure would impact Okarche School District. Okarche Public Schools are considered to have no vulnerability to and no probability of the Dam Failure hazard.

### **3.15 Transportation**

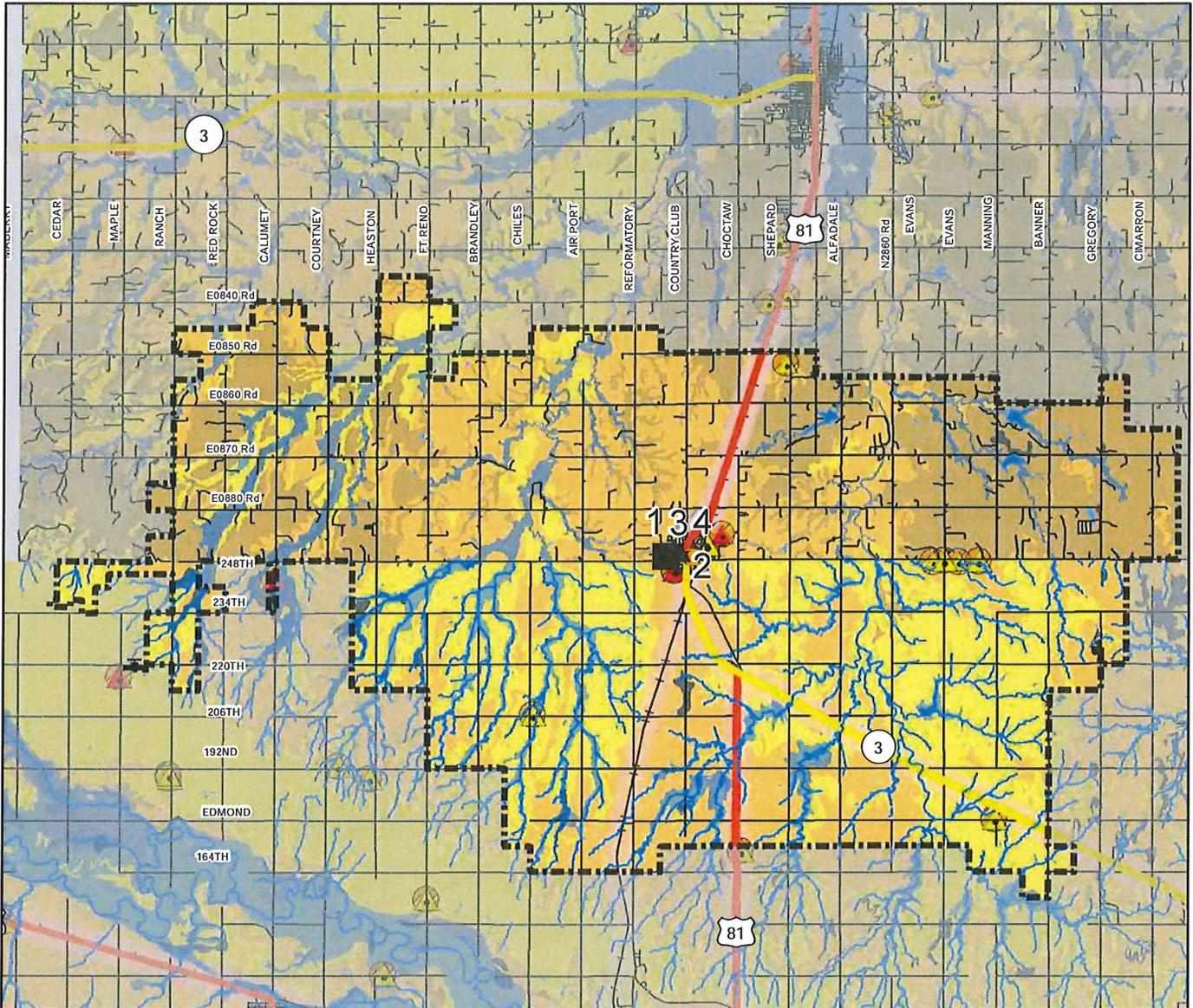
All of Okarche’s Public Schools are located within a quarter mile of US Highway 81. Additionally, Okarche Middle School is within a quarter mile of the Union Pacific railroad right-of-way. US Highway 81 carries about 8,000 vehicles per day through Okarche, including tanker trucks hauling toxic and volatile materials. The Union Pacific railroad also hauls toxic and volatile materials through the community, sometimes at high speeds. 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. None of the school facilities have been impacted by the Transportation hazard in the past. Okarche Elementary School is considered to have a Low vulnerability to and Low probability of

the Transportation hazard. The Middle School, High School, and District Administrative Offices have a Moderate vulnerability to and High probability of the Transportation hazard due the proximity of the schools to US Highway 81.

### **3.16 Hazards Summary**

To provide a visual perspective of all potential hazards within the boundaries of the entire Okarche School District, a District-wide Hazards Composite Map is presented in Figure G.8-3.

Figure G.8-4 focuses on the campus 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.8-4 to identify individual hazards and be aware that the colors may appear different due to the number of other colors in the map that have been overlaid representing other potential hazards, thus creating a campus-site composite.



**Figure G.8-3:**

**Okarche School District  
Hazard Composite**

**Schools**

- Elementary School
- ▲ Middle School
- High School
- ★ Public Schools Admin

**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**

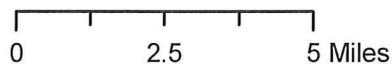
- ▬ Interstate
- ▬ US Highway
- ▬ State Highway
- ▬ Turnpike
- ▬ Local or Rural Road
- ▬ Railroads

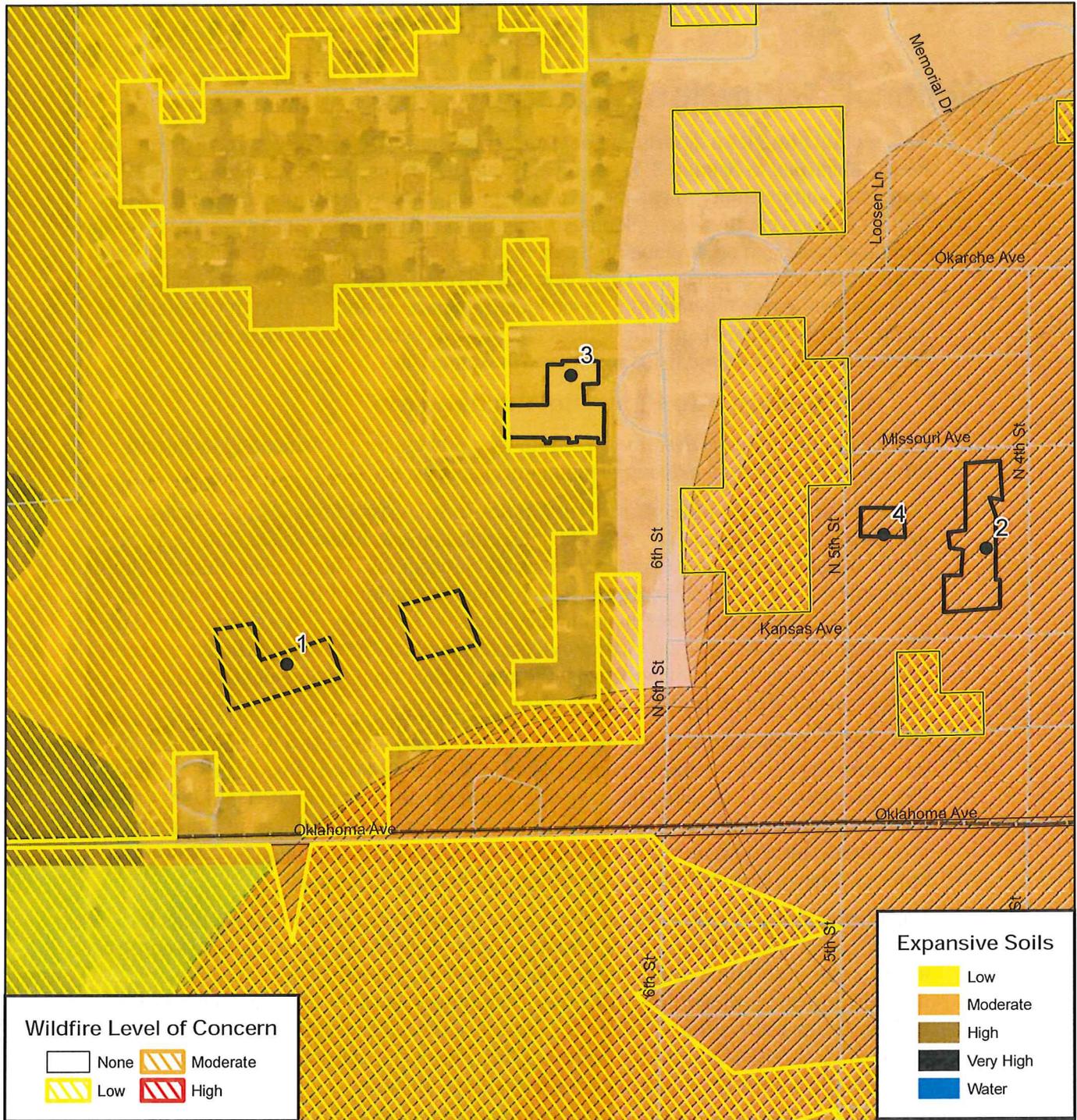
**Boundaries**

- ▬ Okarche School District



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**LEGEND**

● School	▲ 2010 EHS Tier II
— Highways	▲ 2010 non EHS Tier II
— Roads	▨ 2010 TierII 1/4mi Buffer
— Railroads	■ 100yr Floodplain
— 1/4Mi Transport Buffer	■ 500yr Floodplain
▭ Okarche Schools	

0 145 290 Feet

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**Figure G.8-4**  
**Okarche Public Schools**  
**Detail Composite**

## Section 4 Mitigation Strategy

This section provides a description of Okarche 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 Okarche Public Schools incorporate 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 Okarche 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

Okarche 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 Okarche Public Schools emergency operations plans and procedures. The Okarche Public Schools Superintendent is responsible for overseeing implementation of the hazard mitigation plan and integration into other planning mechanisms. 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 schools 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 long range 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.

Long range planning in the district is currently geared towards sheltering options for students, faculty, staff and visitors. Okarche Public School District has plans to construct a new gymnasium and a new cafeteria; the mitigation plan will be reviewed in determining the location of the structures. Preliminary plans for the new buildings will include design criteria from *FEMA 361, Design and Construction Guidance for Community Safe Rooms, Second Edition, 2008*. This is just one example of how mitigation is incorporated into district development planning.

### 4.2 Prioritization Process of Mitigation Measures

Okarche Public Schools identified 20 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.