



CANADIAN COUNTY

Union City Public Schools

2012 Multi-Hazard Mitigation Plan Update



Flanagan & Associates, LLC
Planning Consultants

Acknowledgements

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

Union City School Board

President.....Terry Sweeney
Vice PresidentJohn Everett
Clerk.....David Landry
MemberJon Nelson

Union City School Staff

School Superintendent/High School Principal.....Todd Carel
Elementary Principal.....Kerri Griggs

Union City School Staff Technical Advisory Committee (STAC)

School Superintendent/High School Principal.....Todd Carel
Elementary Principal.....Kerri Griggs

G.10 Union City Public Schools

Union City School District serves southern Canadian County as shown in Locator Map Figure G.10-1. The District's two public schools are in the Town of Union City on a campus at 105 W. Division St. They are built of brick with flat roofs. The Schools have a shelter (downstairs locker rooms) that can accommodate all students and staff, plus up to 100 others. The Schools have automatic fire alarms and NOAA Weather Radios, but are not equipped with sprinklers, hail-resistant windows or roofs, or lightning protection.

Section 1 Introduction

1.1 Services Summary

The District provides public school education services for students from Pre-K through Grade 12.

1.2 Boundaries

At its widest extent, the District reaches from the Canadian River north to Reno Ave. and from Cimarron Rd. in the east to Calumet Rd. in the west – about 85 square miles.

1.3 Population Summary

The District contains a population of 1,643. Table G.10-1 summarizes the enrollment, staff and location for Union City Public Schools for the school year 2010-2011.

Table G.10-1 Union City School Enrollment 2010-2011

School	Address	Grades	Students	Staff
Union City High School	105 W. Division Street	9-12	85	11
Union City Elementary School	105 W. Division Street	Pre-K-8	220	11
TOTALS			305	22

School Demographics

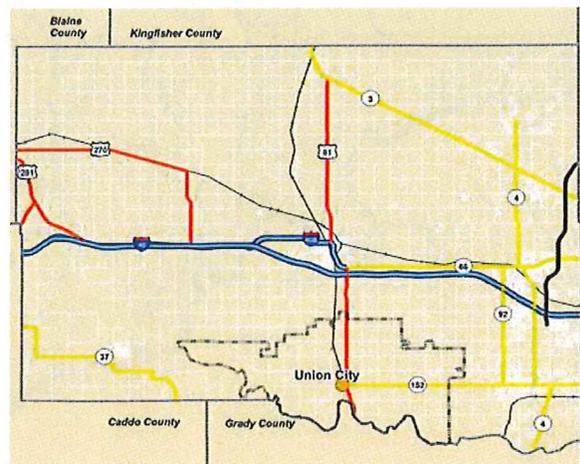
Ethnicity

- Caucasian – 86%
- Native American – 4%
- Hispanic – 9%
- African-American – 0%
- Asian – 1%

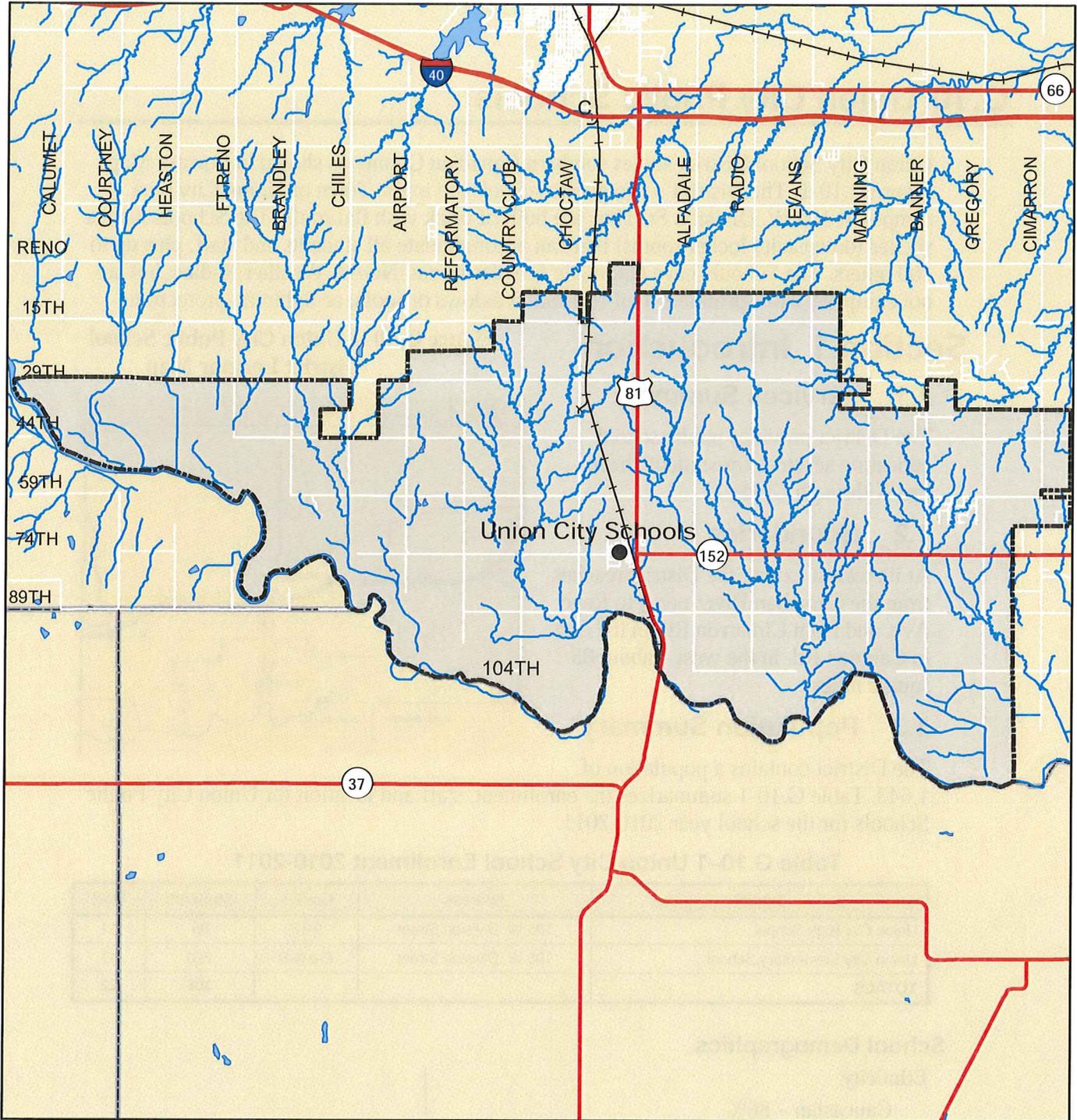
Other Census Data

- Poverty Rate – 11%
- Unemployment Rate – 5%
- Single Parent Families – 29%

Figure G.10-1 Union City Public School District Locator Map



Union City School



LEGEND

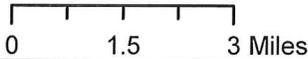
- School Facility
- Highways
- Hydrology
- Water
- ▭ School District



Figure G.10-2

**Union City
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.

Union City Public School District has a bright outlook for the coming five years or so. The District Superintendent reports that the net assessed value is steady after an increase due to oil and gas activity in the district. Additional growth in net assessed value is anticipated due to residential and commercial construction that has been announced.

The District passed a \$1 million bond issue last year which will be used to remodel the elementary school and build a softball field. The elementary school has a basement which, if adequate funds are available, may be made suitable for a safe room. According to the District's Superintendent, the District's patrons have a strong record of supporting bond issues for school improvement purposes.

Union City School District is receiving approximately 70% state aid, 12% federal aid and the balance of its budget from property taxes.

Section 2 Existing Mitigation Strategies

National Flood Insurance Program/Community Rating System. Union City Public Schools are covered by Union City's participation in the NFIP program but they are not participants in the CRS Program.

Floodplain Management. Union City Public Schools participates in and benefits from unincorporated Mayes County regulations for the floodplains.

StormReady Program. Union City Public Schools is not a StormReady community.

FireWise Program. Union City Public Schools does not participate in the FireWise Program.

Building Codes. Union City Public Schools abides by the codes governing the City of Union City and the states required codes for the schools.

Emergency Services

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

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

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

Ambulance Service. Parkview Hospital provides ambulance service for Union City Public Schools.

Section 3 Hazards

The following subsections discuss hazard information related to the School District as a whole as well as the Campus. Table G.10-2 addresses the general hazards that can potentially affect 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. These general hazards are addressed more fully in Chapter 4.

Table G.10-2 Union City 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
Union City Public Schools	X	X	X	X	X	X	X	X	X	X	X	X	X		X

3.1 Flood

The Union City Public School District is affected by the Canadian River and an unnamed tributary to the Canadian that passes from north to south through the eastern side of Union City on the east side of the Union Pacific railroad until it reaches Pine St. and the Town's wastewater lagoons. This drainage way is normally dry, but is flood-prone during heavy rains. The SFHA of this tributary touches several buildings on the east side of the Union City School Campus. The impact of flooding on school facilities is explained in Chapter 4. Union Public School District consider a flood event with a depth of less than three feet of water on a one story building to be a minor severity event and a flood event with a depth greater than three feet on a one story building to be a major severity event for both urban and flash flooding. The basements of all facilities on site flood frequently due to excessive rainfall or rapid accumulations of precipitation. The Campus is considered to be of Moderate vulnerability to and High probability of the Flood Hazard.

3.2 Tornado

Tornadoes are a random hazard that can strike anywhere in Canadian County, including Union City 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 Union City Schools. According to the School Superintendent, several small tornadoes have touched down in the surrounding area in the past few years with minimal damage to the community and no significant damage to the school structures. An EF5 tornado like the one that passed through El Reno and Piedmont in May 2011 would completely destroy Union City Schools. As mentioned in the school description above, there is a shelter on site large enough to accommodate all students, faculty and staff, and an additional 100 occupants during a tornado event. More information on the impact of this hazard to school facilities can be found in Chapter 4. Union School District considers a minor severity tornado to be a tornado of EF1 or less on the Fujita Scale and a major severity

tornado to be a tornado greater than EF1 on the Scale. Union City Schools have 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 throughout Canadian County. The County reported 73 high wind events from 1995 through 2010. Winds as high as 92 mph have been reported at nearby Mustang, Canadian County – and Union City Schools – can expect about five potentially damaging high wind events each year. As indicated in Chapter 4, high wind events can completely destroy structural components of schools, such as glass windows, doors, and skylights, and render the facility non-operational until repairs can be made. Union City Schools do not have wind-resistant glass in the school buildings. All sites in the district have been affected by high wind damage; damages include roof, roof vent cap, HVAC roof top equipment, outside scoreboard damage, and fence damage. The light poles at the baseball field have been knocked down in the past and are unable to be repaired. Union School District considers a minor severity wind force to be a wind force on the Beaufort Scale of 9 (55 mph) or below, and a majority severity wind force to be a wind force of greater than 9 on the Scale. Union City Public Schools has a High vulnerability to and High probability of the High Wind hazard.

3.4 Lightning

Lightning is another 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, Union City Schools can expect about five lightning events per year. The impact of this hazard on school structures is described in Chapter 4. Union public Schools are not equipped with lightning protection or lightning warning systems, leaving any students, faculty and staff, and bystanders vulnerable to loss of life if outdoors during the onset of a thunderstorm. Lack of lightning protection, such as conductors or surge protection, leaves the school facilities and critical infrastructure at risk of damage or complete destruction. Based on the information provided by the National Weather Service, Chapter 4, Union City 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 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. The Schools 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, Union City Schools can expect about seven hail events each year. Union City Schools do not have hail-resistant windows and roofs on the buildings. The school facilities remain vulnerable to substantial or complete roof damage as a result of a hail event. In the past, hail has caused roof damage, vent cap damage, and HVAC roof top unit damage. As mentioned in

Chapter 4, hail can cause damages to school busses and render them non-operational. Union Public Schools do not have a bus barn leaving the district school busses vulnerable to damages. Union School District considers a minor severity hail storm to be a hail storm of H2 or lower on the Combined NOAA/TORRO Hailstorm Intensity Scale, and a major severity hail storm to be a hailstorm greater than an H2 on the Scale. The Schools are considered to have a High vulnerability to and High probability of the Hail hazard.

3.6 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 Union City Schools have also experienced 35 ice and snow events in this period. In the past, schools have been shut down due to inaccessibility to the site from high drifting snow, multiple layers of ice or ice under snow pack, power outages from ice and wind, and frozen pipes causing water damage. Future events could result in similar damages. 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. Union Schools are not equipped with back-up generators. Loss of power could result to extended closure of school facilities.

Union School District considers a minor severity winter storm to be a winter storm that results in no loss of life and/or 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 and/or one that water or power outages, causes travel disruptions, and damage to private property and public infrastructure. Union Public School District is considered to 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 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 Union City Schools will experience the same number of extreme heat events as the rest of the County. School populations most vulnerable to extreme heat are student athletes participating in summer practices, addressed more fully in Chapter 4. Union School District considers minor severity extreme heat to be extreme heat of 95°F or less on the NOAA Heat Index, 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. Since public schools are not in session during the peak of the extreme heat season, Union City Schools are considered to have a Low 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 can be assumed that Union City School has experienced the same number of droughts. The School receives its water from the Union City Municipal Authority. The drought of 2010-2011, which caused water shortages in Oklahoma City and Yukon, did not directly impact Union City Schools. Though the school did not experience water shortage, drought has caused loss of trees, shrubs, other vegetation and

sod; it is likely the school will experience the same impacts as a result of drought in the future. Union 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. Union City Schools are considered to have a Low vulnerability to and Moderate probability of the Drought hazard.

3.9 Expansive Soils

Union City Public Schools are situated on Moderate expansive soils. In the past, soil expansion has caused structure shifting resulting in doors being off track and difficult to lock and unlock; similar damages are likely in the future. Union Public School District considers a minor severity shrink-swell level to be a shrink-swell level of Moderate and below on the USDA soil data base, and a severe shrink-swell level to be a shrink-swell level of High or Very High on the USDA soil data base. The schools are considered to have a Moderate vulnerability to and Moderate probability of the Expansive Soils hazard.

3.10 Urban Fire

Union City Schools have not been impacted by an urban fire event in the past. Fire drills are in place and occur regularly to ensure students and staff are aware of evacuation procedures. The Union City Schools are in the Union City Fire District, which is stationed in the Town of Union City. There is one station in the main part of the Town and a substation at SW 29th and Manning Rd. The Department is equipped with two pump engines, three tankers, and three brush pumpers. There are 14 Volunteers, with 11 First Responders and three EMTs. The Department's ISO rating is 6. Fire hydrants are located near the School Campus. The impact of urban fires on school facilities is discussed in Chapter 4. Union Public School District considers a minor severity structure fire to be a structure fire that results in no injury or loss of life and/or \$5,000 or less in damages, and a major severity structure fire to be a structure fire that causes injury or loss of life and/or more than \$5,000 in damages. Union City Schools are considered to have a Low vulnerability to and High probability of the Urban Fire hazard.

3.11 Wildfire

Union City Schools are located in the Town of Union City's urban core. The School District has not been impacted by wildfires in the past. It is not likely a wildfire would get close enough to the school structures themselves to cause damage. Union City 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. Union City Schools have a Low vulnerability to and Low probability of the Wildfire hazard.

3.12 Earthquake

Earthquakes are 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 in November 2011 in Lincoln County. Prior to this

quake, the highest magnitude tremor (5.5) was at El Reno in 1952. The most recent activity appears to be related to the Wilzetta fault northwest of Prague. Only a few of Canadian County earthquakes have been "felt" events. Union City Schools have not been impacted by the Earthquake hazard in the past. As indicated in the HAZUS analysis in Chapter 4, an earthquake would cause no to minimal damages to any Canadian County school facility. Union Public School District considers a minor severity earthquake to an earthquake that registers 4.8 magnitude and below on the Richter Scale, and a major severity earthquake to be an earthquake that registers above 4.8 magnitude on the Richter Scale. Union City Schools are considered to have a Low vulnerability to and Low probability of the Earthquake hazard.

3.13 Hazardous Materials

Although there are five Tier II sites within the Union City School District, only one is within a quarter mile of the Union City School Campus: the Banner Co-op Elevator Association which is about three city blocks from the School Campus. The Co-op contains anhydrous ammonia, one of the most potentially dangerous chemicals used in agriculture. A hazardous materials incident could call for the implementation of evacuation or shelter in place procedures. The school has not been impacted by a hazardous materials incident in the past.

Union Public School District considers a minor severity fixed-site Hazardous Materials incident to be fixed-site incident that does not 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 a fixed-site 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*. Although prevailing winds in the area are southerly, Union City Schools are considered to have a Low-to-Moderate vulnerability to and Low probability of the Fixed-Site Hazardous Materials hazard.

3.14 Dam Failure

There are no dams whose failure would impact Union City School. Union City Schools are considered to have no vulnerability to the Dam Failure hazard.

3.15 Transportation

Two major transportation corridors pass within a quarter mile of Union City Schools. US Highway 81 is a four-lane thoroughfare that has a major interchange with I-40 and continues northerly to connect to El Reno. OK Highway 152 runs west from Mustang and Oklahoma City through Union City, where it joins US Highway 81 to cross the Canadian River. Traffic flows on these highways are around 5,000 vehicles a day on US 81 and 2,000 a day on OK 152.

The Union Pacific railroad also passes within a quarter mile of Union City Schools. Major cargos on the UP system are wheat and food grains, aggregate, paper, coal, petroleum and petroleum products, non metallic minerals and plastics.

Union City Public Schools has been impacted by a transportation incident involving hazardous materials in the past. Several years ago, date unspecified, a train carrying

hazardous materials derailed within a few blocks of the school. The School was forced to evacuate using alternative routes east of the school. School was able to resume the following day.

A worst-case event would be a train collision with a tanker truck carrying volatile liquids at the Union City's Division St. railroad crossing, or a train derailment or collision within or near the urban core of the Town resulting in an explosion, fire or toxic release.

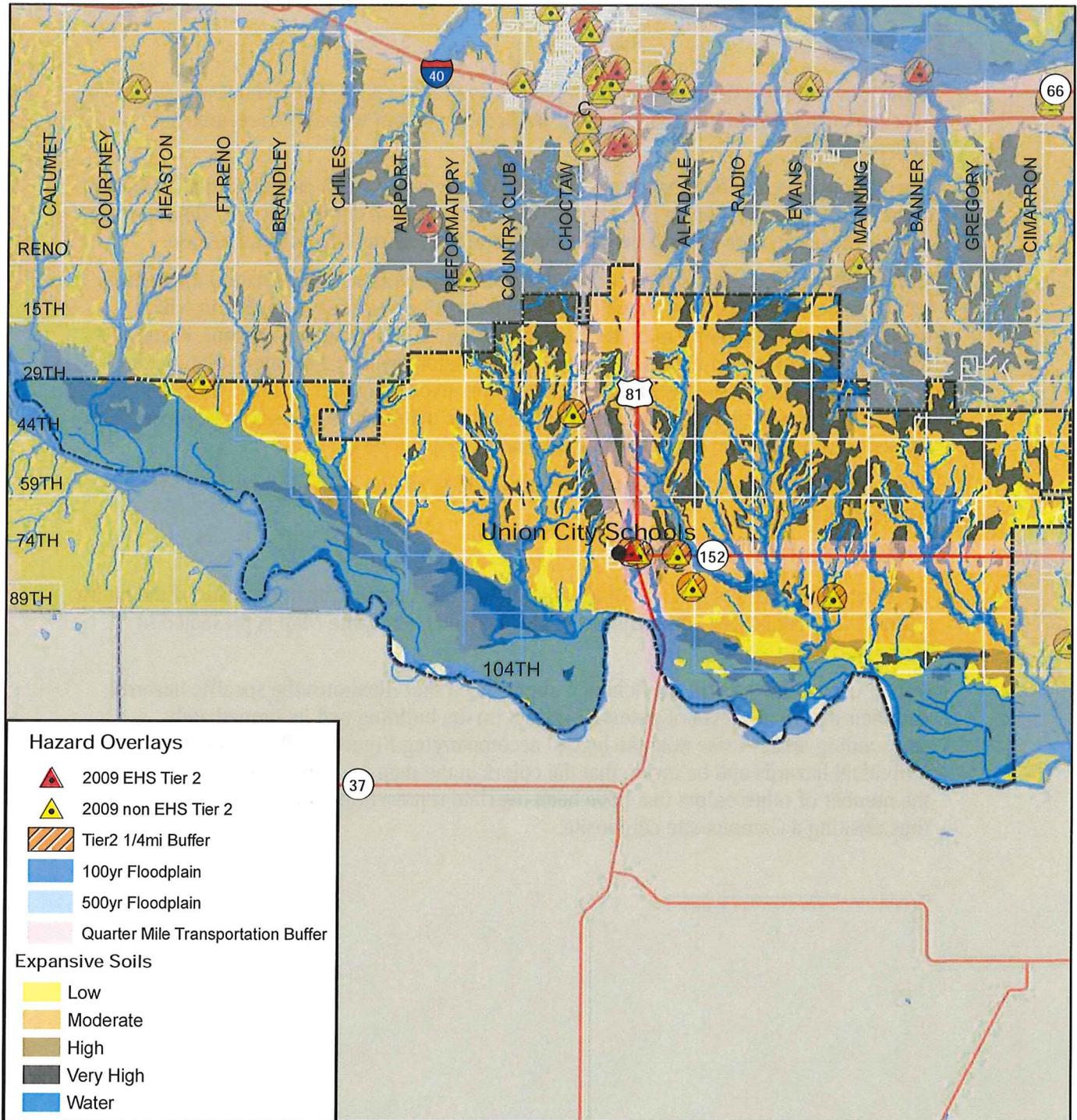
Union City Public School District considers a minor severity Transportation incident to be a Transportation incident in which there are no injuries or deaths and/or in which detours are less than half a mile, traffic is disrupted for less than half an hour, hazardous materials are contained within a quarter mile. A major severity Transportation incident would involve injury or loss of life and/or detours exceeding half an hour, traffic disruption of more than half an hour and hazardous materials releases whose impact area exceeds a quarter mile, and/or loss of life and/or major injury.

Union City Public Schools have a High vulnerability to and a High probability of the Transportation hazard.

3.16 Hazards Summary

To provide a visual perspective of all potential hazards within the boundaries of the entire Union City School District, a District-wide Hazards Composite Map is presented in Figure G.10-3.

Figure G.10-4 focuses on the School Campus itself and illustrates the specific hazards and their individual level of potential impact on the building and its immediately surrounding area. Please note the legend accompanying Figure G.10-4 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 Campus-site composite.



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

LEGEND

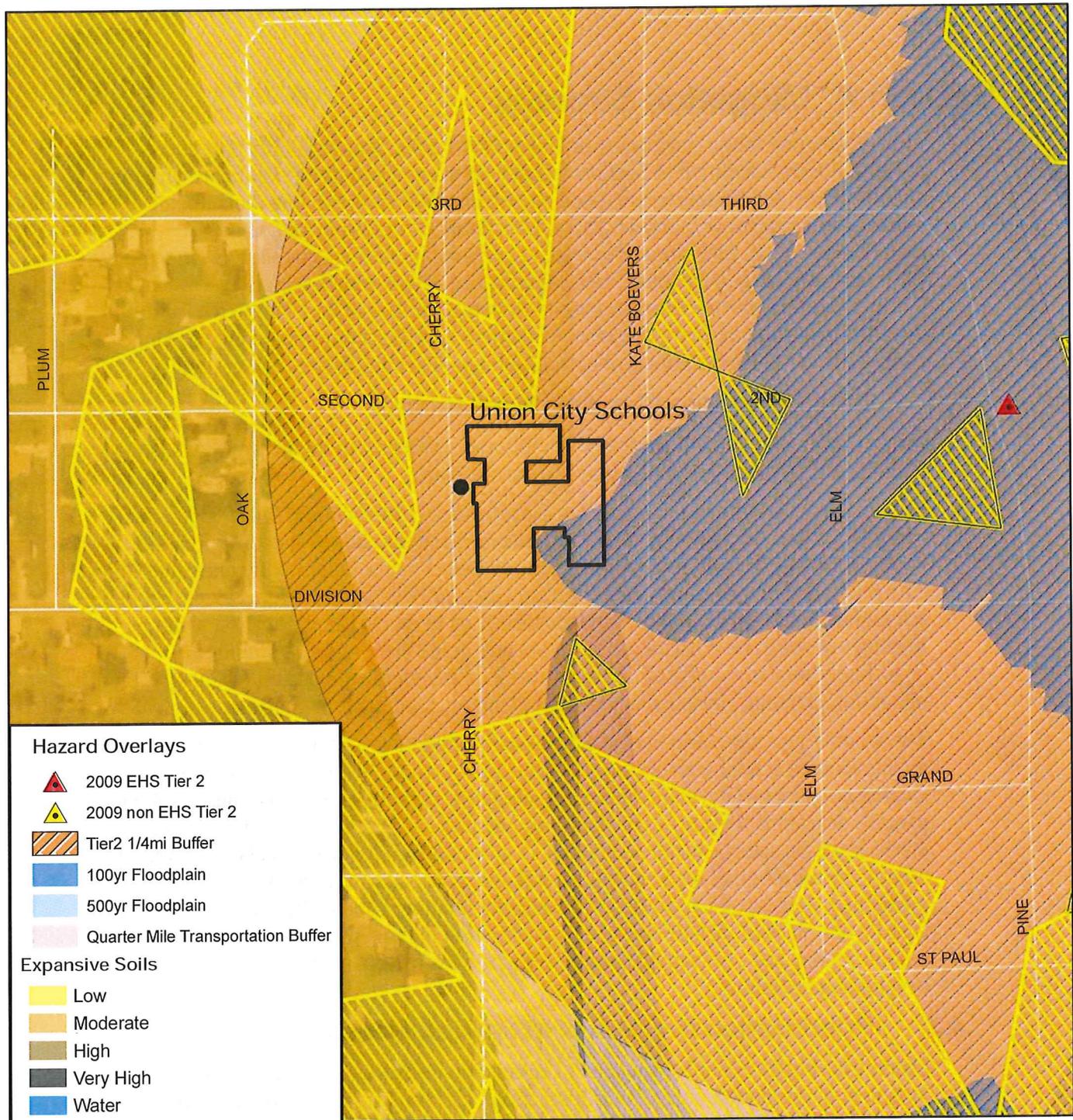
- School Facility
- Highways
- Hydrology



Figure G.10-3

Union City Public Schools

Composite Map



LEGEND

- School Facility
- Highways
- Hydrology

Wildfire Level of Concern

- None
- ▨ Low
- ▨ Moderate
- ▨ High

0 0.025 0.05 Miles



Figure G.10-4
 Union City Public Schools
 Composite Map
 Detail

Section 4 Mitigation Strategy

This section provides a description of Union City 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 Union City Public Schools 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 Union City 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

Union City 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 Union City Public Schools emergency operations plans and procedures. Opportunity exists for Union City Public Schools to supplement the *Fire and Bad Weather* procedures identified in the school handbook with recommendations identified in this hazard mitigation plan. 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 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. As previously mentioned, pending the availability of adequate funding, Union City Public School District has plans to include safe room construction in the remodel of the elementary school. This is just one example of how mitigation is incorporated into district development planning.

4.2 Prioritization Process of Mitigation Measures

Union City 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.