Annex P Twin Rivers School District

P.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Twin Rivers School District (TRSD), a previously participating jurisdiction to the Sacramento County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the Base Plan document. As such, all sections of the Base Plan, including the planning process and other procedural requirements apply to and were met by the Twin Rivers School District. This Annex provides additional information specific to the TRSD, with a focus on providing additional details on the planning process, risk assessment, and mitigation strategy for this District.

P.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the Base Plan. In addition to providing representation on the Sacramento County Hazard Mitigation Planning Committee (HMPC), TRSD formulated its own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table P-1. Additional details on plan participation and TRSD representatives are included in Appendix A.

Table P-1 TRSD Planning Team

Name	Position/Title	How Participated
Greg Rash	Director/Business	Information Gathering/Report drafting. Attended HMPC meetings.
Beth Brose	General Services Consultant	Information Gathering/Mitigation Projects Author. Attended HMPC meetings.
Bill McGuire	Deputy Superintendent	Document Review
Kimberly Barnett	Executive Director General Services	Document Review

Source: TRSD

P.2.1. Coordination with Other District Planning Efforts

Coordination with other District planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the District integrated the previously-approved 2011 Plan into existing planning mechanisms and programs. Specifically, TRSD incorporated into or implemented the 2011 LHMP through other plans and programs shown in Table P-2.

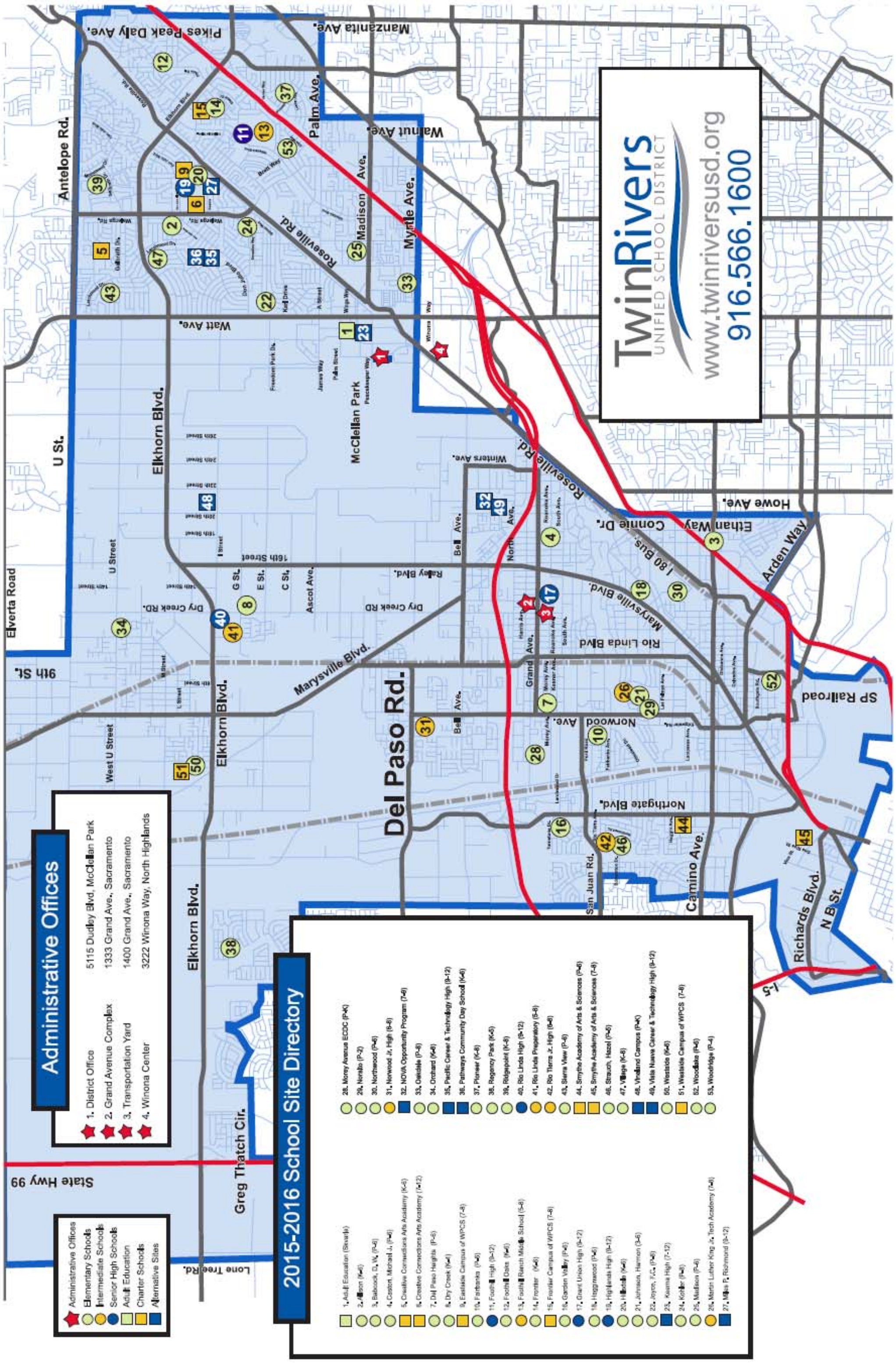
Table P-2 2011 LHMP Incorporation

Planning Mechanism 2011 LHMP Was Incorporated/Implemented In.	Details?
Emergency Operations Plan	Plans/Teams/Responses for most probable contingencies
Master Plan	Consideration for future designs

P.3 District Profile

The community profile for TRSD is detailed in the following sections. Figure P-1 displays a map and the location of TRSD boundaries within Sacramento County.

Figure P-1 Twin Rivers School District Map



P.3.1. District Overview, History and Background

The small community school districts that evolved in the North Sacramento communities were long a topic of discussion and debate. While most of the country's students receive a fully articulated and unified educational experience in preschool through 12th grade systems, students in the North Sacramento area attended a variety of schools and districts depending on their neighborhood and grade level. Many educational leaders saw the need for more consistency, financial stability, and realignment of resources, but others worried that a larger system would take away a family-friendly culture the smaller districts enjoyed. In the late 1990s, a small group of community members and educators embarked upon a vision to unify the north area districts. After more than 60 years and seven attempts, voters finally approved this new vision for unification involving four of the six area school districts: Grant Joint Union High School District, North Sacramento School District, Rio Linda Union School District, and Del Paso Heights School District. On November 7, 2007, the voters overwhelmingly adopted the unification proposal.

The voters chose a new board of trustees to lead this new unified district. They selected one trustee from each of seven geographic regions in the boundary area. The board requested that the community name our new district. After a month-long promotional contest and more than 500 suggestions, Twin Rivers Unified School District became the official name. On July 1, 2008, with much excitement and positive enthusiasm, the Twin Rivers Unified School District officially became the newest unified district in California.

The District is comprised of 760 acres utilizing over 3.4 million square feet of space, located in Sacramento County, in the northern region of the greater Sacramento area. Bordering Natomas district to the south and west, Sacramento City district to the south and San Juan district to the east, the District holds a total of 32,000 students in over 60 different schools. The District also owns a variety of other properties and buildings to house a variety of support facilities that include administrative offices, maintenance buildings, and park lands.

P.4 Hazard Identification

TRSD's planning team identified the hazards that affect the District and summarized their geographic extent, probability of future occurrences, potential magnitude/severity, and significance specific to TRSD (see Table P-3).

Table P-3 TRSD—Hazard Identification

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/ Severity	Significance
Agricultural Hazards	Limited	Occasional	Limited	Low
Bird Strike	Limited	Likely	Limited	Low
Climate Change	Extensive	Likely	Limited	Low
Dam Failure	Significant	Unlikely	Catastrophic	Medium
Drought and Water Shortage	Extensive	Likely	Limited	Low
Earthquake	Limited	Occasional	Critical	Medium
Earthquake: Liquefaction	Limited	Unlikely	Limited	Low
Flood: 100/200/500-year	Limited	Occasional	Limited	High
Flood: Localized Stormwater Flooding	Significant	Occasional	Critical	Medium
Landslides	Limited	Highly Likely	Limited	Low
Levee Failure	Limited	Unlikely	Negligible	High
River/Stream/Creek Bank Erosion	Significant	Occasional	Catastrophic	Medium
Severe Weather: Extreme Temperatures – Cold/Freeze	Extensive	Occasional	Limited	Medium
Severe Weather: Extreme Temperatures – Heat	Limited	Highly Likely	Negligible	Medium
Severe Weather: Fog	Extensive	Occasional	Limited	Medium
Severe Weather: Heavy Rains and Storms (Thunderstorms, Hail, and Lightning)	Extensive	Highly Likely	Limited	Medium
Severe Weather: Wind and Tornadoes	Extensive	Highly Likely	Critical	Medium
Subsidence	Limited	Likely	Limited	Low
Volcano	Significant	Highly Likely	Limited	Low
Wildfire:(Burn Area/Smoke)	Limited	Occasional	Limited	Medium

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

P.5 Hazard Profile and Vulnerability Assessment

The intent of this section is to profile TRSD's hazards and assess the District's vulnerability separate from that of the Planning Area as a whole, which has already been assessed in Sections 4.2 and 4.3 Hazard Profiles and Vulnerability Assessment in the main plan. The hazard profiles in the main plan discuss overall impacts to the Planning Area and describes the hazard problem description, hazard extent, magnitude/severity, previous occurrences of hazard events and the likelihood of future occurrences. Hazard profile information specific to TRSD is included in this Annex. This vulnerability assessment analyzes the property, population, critical facilities, and other assets at risk to hazards ranked of medium or high significance specific to the District. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

P.5.1. Hazard Profiles

Each hazard vulnerability assessment in Section P.5.3, includes a description as to how the hazard affects the TRSD and information on past occurrences. The intent of these section is to provide jurisdictional specific information on hazards and further describe how the hazards and risks differ across the Planning Area.

P.5.2. Vulnerability Assessment

This section identifies TRSD's assets at risk, including values at risk, critical facilities and infrastructure, population at risk, economic assets, natural resources, historic and cultural resources, and growth and development trends.

Assets at Risk and Critical Facilities

This section considers the District's assets at risk, with a focus on key District assets such as critical facilities, infrastructure, and other District assets and their values. With respect to District assets, the majority of these assets are considered critical facilities as defined for this plan:

> *Any facility (a structure, infrastructure, equipment or service), that is adversely affected during a hazardous event may result in interruption of services and operations for the District at any time before, during and after the hazard event. A critical facility is classified by the following categories: (1) Essential Services Facilities, (2) At-risk Populations Facilities, and (3) Hazardous Materials Facilities.*

Table P-4 lists particular critical facilities and other District assets identified by the TRSD's planning team as important to protect in the event of a disaster. TRSD's physical assets, valued at over $715 million, consist of the buildings and infrastructure to support the TRSD operations.

Table P-4 TRSD's Critical Facilities, Infrastructure and Other District Assets

Name of Asset	Occupancy	Address	Replacement Value	Hazard Info
Allison, Warren A. Elementary	275	4315 Don Julio Blvd., No. Highlands,	$6,432,540	
Allison, Warren A. Elementary	275	4315 Don Julio Blvd., No. Highlands	N/A	
Babcock Park	0	2400 Cormorant Way, Sacramento	N/A	
Babcock, D W Elementary	400	2400 Cormorant Way, Sacramento	$6,494,106	
Bell Avenue Property	0	1690 Bell Avenue, Sacramento,	N/A	
Castori, Michael J. Elementary	750	1801 South Ave., Sacramento,	$7,657,585	
Creative Conn. Arts Academy Charter (K-8)	540	7201 Arutas Dr., No. Highlands	$5,765,220	
Creative Conn. Arts Academy Charter(9-12)	105	6444 Walerga Rd, No. Highlands	$12,905,740	
Del Paso Heights Elementary	290	590 Morey Ave., Sacramento,	$7,596,650	
Del Paso Heights Elementary	290	590 Morey Ave., Sacramento,	N/A	
District Office	330	5115 Dudley Blvd, McClellan	$67,947,365	
DPH Park	0	590 Morey Ave., Sacramento	$0	
Dry Creek Elementary	115	1230 G St., Rio Linda	$6,852,660	
Dry Creek Elementary	115	1230 G St., Rio Linda	N/A	
Dry Creek Elementary	115	1230 G St., Rio Linda	N/A	
Dry Creek Elementary	115	1230 G St., Rio Linda	N/A	
East Natomas Educational Complex	0	5921 E. Levee Rd	N/A	
East Natomas Educational Complex	0	5922 E. Levee Rd	N/A	
East Natomas Educational Complex	0	5924 E. Levee Rd	N/A	
East Natomas Educational Complex	0	5925 E. Levee Rd	N/A	

Name of Asset	Occupancy	Address	Replacement Value	Hazard Info
East Natomas Educational Complex	0	5926 E. Levee Rd	$67,947,365	
East Natomas Educational Complex (Not Mapped)	0	5923 E. Levee Rd	N/A	
Fairbanks Elementary	435	227 Fairbanks Ave., Sacramento	$6,968,540	
Foothill High	1,270	5000 McCloud Dr., Sacramento	$32,080,190	
Foothill Oaks Elementary	580	5520 Lancelot Dr., Sacramento	$7,980,830	
Foothill Ranch Jr. High	765	5001 Diablo Dr., Sacramento	$14,581,580	
Frito-Lay Land Purchase	0	1710 Ascot Ave., Rio Linda	N/A	
Frontier Elementary	545	6691 Silverthorne Cir., Sacramento	$7,039,520	
Future Charter School (7-12)	565	3701 Stephen Dr., No. Highlands	N/A	
Garden Valley Elementary	410	3601 Larchwood Dr., Sacramento	$3,601,260	
Grant High	1,035	1400 Grand Ave., Sacramento	$45,591,240	
Grant West	1,035	1221 South Ave., Sacramento	$15,369,260	
Hagginwood Elementary	455	1418 Palo Verde Ave., Sacramento	$6,989,112	
Hayer Park (RLPA) Park	0	1101 "G" St., Rio Linda	N/A	
Higher Learning Academy	115	2625 Plover St., Sacramento	$800,000	
Higher Learning Academy	115	2625 Plover St., Sacramento	N/A	
Highlands Academy of Art & Design	925	6601 Guthrie Way, No. Highlands	$30,536,620	
Hillsdale Elementary	460	6469 Guthrie Way, No. Highlands	$7,069,330	
Johnson, Harmon Elementary 2.0	635	577 Las Palmas Ave., Sacramento	$12,644,380	
Johnson, Harmon Elementary, Old (demolished lot)	0	2591 Edgewater Rd., Sacramento	N/A	
Joyce, Frederick C. Elementary	605	6050 Watt Ave., No. Highlands	$7,371,345	
Keema High School	0	1281 North Ave., Sacramento	$5,694,600	

Name of Asset	Occupancy	Address	Replacement Value	Hazard Info
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	0	547 Arcade Blvd, Sacramento	N/A	
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	0	549 Arcade Blvd	N/A	
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	0	555 Arcade Blvd	N/A	
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	0	557 Arcade Blvd	N/A	
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	0	559 Arcade Blvd	N/A	
King, Jr,. Martin Luther Technology Academy	365	3051 Fairfield St., Sacramento	$19,448,020	
King, Jr,. Martin Luther Technology Academy	365	3051 Fairfield St., Sacramento	N/A	
Kohler Elementary	510	4004 Bruce Way, No. Highlands	$6,663,290	
Larchmont Elementary	170	6560 Melrose Dr., No. Highlands	$6,179,100	
Madison Elementary	680	5241 Harrison St., No. Highlands	$7,832,480	
Maint./Food/Transp. - Taft Street	15	2628 Taft St., Sacramento	$2,212,790	
Maint./Oper./Transp. - Rio Linda	75	6619 6th Ave., Rio Linda	$1,563,560	
Meister Site	0	Bridgeford & Chuckwagon	N/A	
Morey Avenue Pre K - K	30	155 Morey Ave., Sacramento	$3,230,960	
Morey Avenue Pre K - K	30	155 Morey Ave., Sacramento	N/A	
Morey Avenue Pre K - K	30	155 Morey Ave., Sacramento	N/A	
Morey Avenue Pre K - K	30	155 Morey Ave., Sacramento	N/A	
Murchison Center	0	5703 Skvarla, Bldg. 1407, McClellan	$4,037,430	
Noralto Elementary	750	477 Las Palmas Ave., Sacramento	$8,155,470	
Northwood Elementary	535	2630 Taft St., Sacramento	$8,629,790	
Norwood Jr. High	405	4601 Norwood Ave., Sacramento	$12,819,160	
Norwood Jr. High	405	4601 Norwood Ave., Sacramento	N/A	

Name of Asset	Occupancy	Address	Replacement Value	Hazard Info
Nutrition - I Street Rio Linda	0	2041 I St, Rio Linda	$585,300	
Oakdale Elementary	555	3708 Myrtle Ave., No. Highlands	$7,243,120	
Office Building – unused	50	5201 Arnold Way, McClellan	N/A	
Orchard Elementary	255	1040 Q St., Rio Linda	$10,369,190	
Orchard Elementary	255	1040 Q St., Rio Linda	$0	
Pacific Career & Technology High	150	3800 Bolivar Ave., No. Highlands	$14,282,860	
Pioneer Elementary	695	5816 Pioneer Way, Sacramento	$6,730,628	
Regency Park Elementary	915	5901 Bridgecross Dr. Way, Sacramento	$9,635,770	
Richmond, Miles P. School	60	4330 Keema Ave., North Highlands	$2,729,260	
Ridgepoint Elementary	745	4680 Monument Dr., Sacramento	$7,132,630	
Rio Linda Elementary	0	631 L St., Rio Linda	$7,586,880	
Rio Linda High	1,930	6309 Dry Creek Rd., Rio Linda	$33,047,090	
Rio Linda High Stadium	0	6411 Dry Creek Rd., Rio Linda	N/A	
Rio Linda Prep Academy	500	1101 "G" St., Rio Linda	$10,315,100	
Rio Tierra Jr. High	625	201 Northstead Dr., Sacramento	$12,245,530	
Robinson, Fred K. Admin. Offices	0	670 Dixieanne Ave., Sacramento	$7,281,330	
Sierra View Elementary	505	3638 Bainbridge Dr., No. Highland	$6,133,590	
Smythe, Alethea B. Charter (7-8)	455	700 Dos Rios St., Sacramento	$5,972,380	
Smythe, Alethea B. Charter (K-6)	665	2781 Northgate Blvd. Sacramento	$6,249,880	
Strauch, Hazel Elementary	600	3141 Northstead Dr., Sacramento	$6,281,010	
Terrace Park	0	Undeveloped/Greg Thatch Circle	N/A	

Name of Asset	Occupancy	Address	Replacement Value	Hazard Info
Terrace Park	0	Undeveloped/Greg Thatch Circle	N/A	
TR Police Admin Offices	55	1333 Grand Ave., Sacramento	$7,604,370	
Transportation - Grand Ave.	60	1400B Grand Ave., Sacramento	$976,300	
United Cerebral Palsey (leased out)	190	5450 Georgia Dr., No. Highlands,	$6,133,070	
Village Elementary	645	6845 Larchmont Dr., No. Highlands	$6,210,970	
Vineland (Pre) / Pathways (Alt.)	55	6450 20th St., Rio Linda	$7,916,235	
Vista Nueva Career & Tech High/NOVA	185	2035 North Ave., Sacramento	$5,584,650	
West 4th Ave / E Street	0	Undeveloped	N/A	
West 4th Ave / Q Street	0	Undeveloped	N/A	
Westside Elementary	585	6537 West 2nd St., Rio Linda	$5,961,960	
Winona Admin Center	105	3222 Winona Way, No. Highlands	$33,840,000	
Woodlake Elementary	480	700 Southgate Rd., Sacramento	$5,606,435	
Woodridge Elementary	515	5761 Brett Dr., Sacramento	$7,486,120	

Source: TRSD

Populations at Risk

Table P-4 above includes information on the occupancy for each identified asset. This represents the potential population that may be within the TRSD buildings during operational hours. Accordingly, nearly 30,000 students and staff are in District facilities on any given day, but generally Monday through Friday during school hours.

Natural Resources

The area is home to a number of endangered species and in fact, is included in the Natomas Habitat Conservation Plan. While these species are not necessarily on the existing school grounds, they do exist in undeveloped areas nearby and within district boundaries.

Historic and Cultural Resources

The Planning Team for the District noted that there are sites that originated in the 1930's and 1940's, but they are not currently on the historical registry.

Growth and Development Trends

During the process of unification, a master plan was prepared outlining future growth potential. The area of growth will be minimal and will be contained within the western section of the District.

While there were no new schools planned for the immediate future, two new properties were purchased, known as Terrace Park and Greenbriar. At some point in the next five years, pending financing, the district intends to begin the planning process for these sites. During that planning, the district will implement the new district standards that will clearly define the new building techniques and guidelines for building in potentially natural hazard zones, such as flooding, earthquake and tornado.

In addition, there are tentative plans to reconfigure sites and to adjust grade levels. During the planning for this work, the district should be able to provide standards to any design professional to implement safer and more substantial buildings.

Development since the 2011 Plan

The Planning Team for the District noted that no new facilities been built since 2011.

P.5.3. Vulnerability to Specific Hazards

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table P-3 as high or medium significance hazards. Impacts of past events and vulnerability of the TRSD to specific hazards are further discussed below (see Section 4.1 Hazard Identification in the Base Plan for more detailed information about these hazards and their impacts on the Sacramento County Planning Area). Methodologies for calculating loss estimates are the similar to those described in Section 4.3 of the Base Plan and are based on data provided by the District as described further below. The most vulnerable district assets to natural hazards would be the sites and properties within the Rio Linda area that are in close proximity to waterways, are situated on flat ground and are prone to flood. Buildings that contain electronic or electrically operated equipment are also vulnerable to flood inundation.

An estimate of the vulnerability of the TRSD to each identified priority hazard, in addition to the estimate of probability of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low—**The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low—**Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium—**Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High—**Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.

- **Extremely High—**Very widespread with catastrophic impact.

Dam Failure

Likelihood of Future Occurrence–Unlikely
Vulnerability–Medium

Hazard Profile and Problem Description

Dam failures can result from a number of natural or man made causes such as earthquakes, erosion of the face or foundation, improper siding, rapidly rising flood waters, structural/design flaws, and deliberate human actions. Folsom Dam is the major dam which affects the District and the student populations in the inundation areas. Of prime concern are the failures of the Folsom Dam, which is owned by the US Bureau of Reclamation. The flood waters from the dam would affect the District.

Other dams could affect the District, but inundation zones for the following dams were not mapped for this plan. The Sacramento Municipal Utility District (SMUD) inundation map indicates that a failure of the Rancho Seco Dam would flow to the Laguna Creek Basin and stop approximately at Stockton Boulevard. Failure of Shasta Dam would affect populations south along the Sacramento River basin to about Knights Landing where the water would lose momentum. An Oroville Dam failure would impact populations southwest along the Feather River basin to about the Yolo Bypass.

Warning ability is generally determined by the frequency of inspections for structural integrity, the flood wave arrival time (the time it takes for the flood wave to reach its maximum distance of inundation), or the ability to notify persons downstream and their ability to evacuate. The existence and frequency of updating and exercising an evacuation plan that is site-specific assists in warning and evacuation functions. A failure of the Folsom Dam would leave little time for evacuation of District properties downstream.

The Folsom Dam is currently being worked on to increase capacity, and lower the risk of dam failure.

Past Occurrences

The Planning Team for the District, noted that there have been no past occurrences of dam failure that have affected the District.

Vulnerability to Dam Failure

A dam failure will cause loss of life, damage to property, and other ensuing hazards, as well as the displacement of persons residing in the inundation path. Damage to electric generating facilities and transmission lines could also impact life support systems in communities outside the immediate hazard areas.

A catastrophic dam failure, depending on size of dam and population downstream, could exceed the response capability of local communities. Damage control and disaster relief support would be required from other local governmental and private organizations, and from the state and federal governments.

Figure 4.71 in Section 4.3.6 in the Base Plan shows the areas of Sacramento County at risk to a dam failure of the Folsom Dam.

Assets at Risk

Sacramento County provided inundation as a GIS layer for the Folsom Dam system, as part of the following breaks:

- Folsom Right Wing
- Folsom Mormon
- Folsom Dike 4
- Folsom Dike 5
- Folsom Dike 6
- Folsom Dike 7
- Folsom Dike 8
- Folsom Dam

GIS was used to determine the possible impacts of dam failure flooding to District facilities. The methodology described in Section 4.3.6 of the Base Plan was followed in determining structures and values at risk in potential dam inundation areas. Table P-5 shows the property name, address, occupancy, and total values and estimated loss of parcels that fall in an inundation zone in the District.

Table P-5 Twin Rivers School District – Buildings, Values, and Populations in Dam Inundation Zone

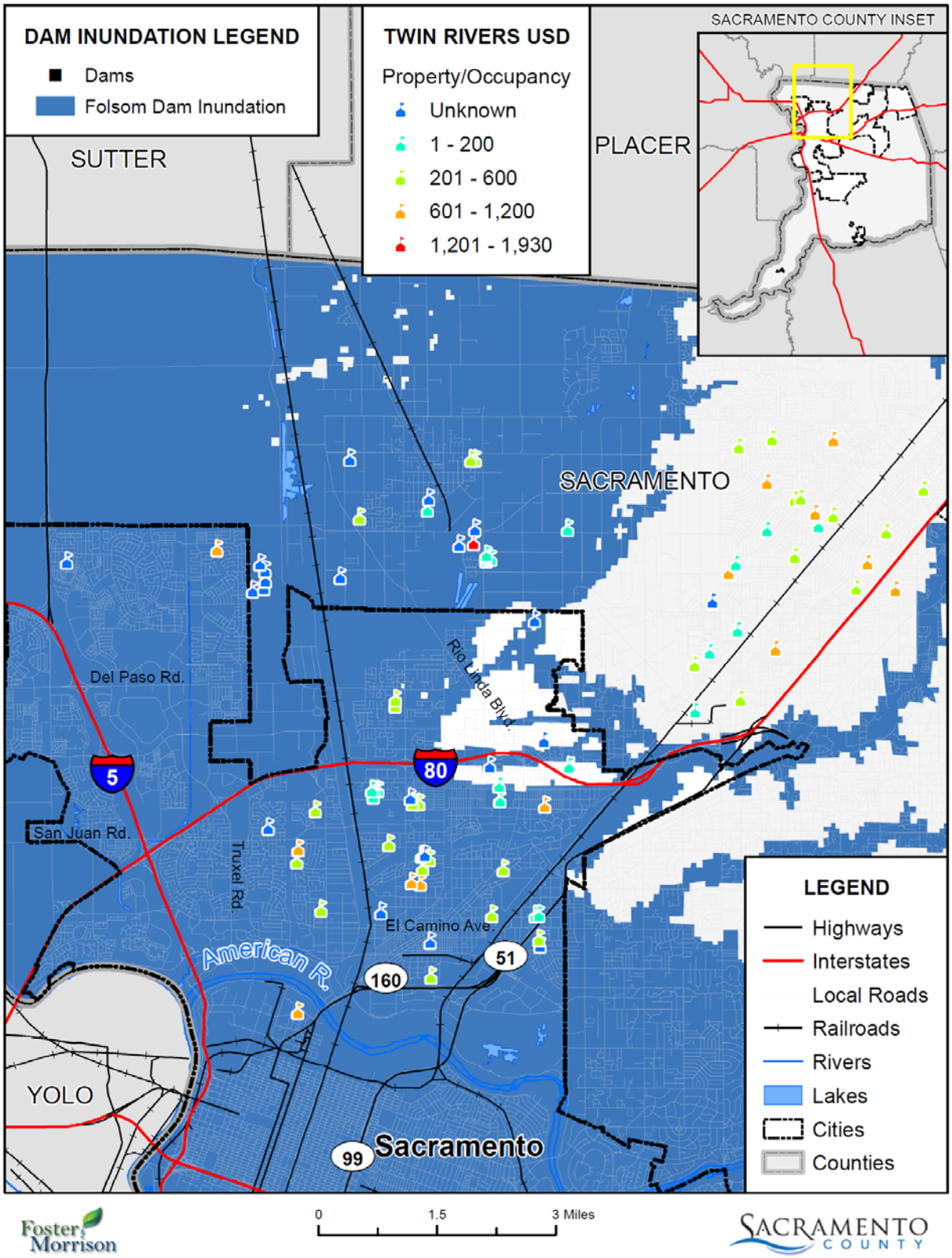
Property Name	Physical Address	Occupancy	Structure Value
Babcock Park	2400 Cormorant Way, Sacramento, 95815	0	N/A
Babcock, D W Elementary	2400 Cormorant Way, Sacramento, 95815	400	$6,494,106
Castori, Michael J. Elementary	1801 South Ave., Sacramento, 95838	750	$7,657,585
Del Paso Heights Elementary	590 Morey Ave., Sacramento, 95838	290	$7,596,650
Del Paso Heights Elementary	590 Morey Ave., Sacramento, 95838	290	N/A
DPH Park	590 Morey Ave., Sacramento, 95838	0	$0
Dry Creek Elementary	1230 G St., Rio Linda, 95673	115	$6,852,660
Dry Creek Elementary	1230 G St., Rio Linda, 95673	115	N/A
Dry Creek Elementary	1230 G St., Rio Linda, 95673	115	N/A
Dry Creek Elementary	1230 G St., Rio Linda, 95673	115	N/A
East Natomas Educational Complex	5926 E. Levee Rd	0	N/A
East Natomas Educational Complex	5925 E. Levee Rd	0	N/A
East Natomas Educational Complex	5922 E. Levee Rd	0	N/A

Property Name	Physical Address	Occupancy	Structure Value
East Natomas Educational Complex	5921 E. Levee Rd	0	N/A
East Natomas Educational Complex	5924 E. Levee Rd	0	$67,947,365
Fairbanks Elementary	227 Fairbanks Ave., Sacramento, 95838	435	$6,968,540
Frito-Lay Land Purchase (Undeveloped)	1710 Ascot Ave., Rio Linda 95673	0	N/A
Garden Valley Elementary	3601 Larchwood Dr., Sacramento, 95834	410	$3,601,260
Grant High	1400 Grand Ave., Sacramento, 95838	55	$7,604,370
Grant West	1221 South Ave., Sacramento, 95838	1,035	$45,591,240
Hagginwood Elementary	1418 Palo Verde Ave., Sacramento, 95815	1,035	$15,369,260
Hayer Park (RLPA) Park	1101 "G" St., Rio Linda, 95673	455	$6,989,112
Higher Learning Academy	2625 Plover St., Sacramento, 95815	0	N/A
Higher Learning Academy	2625 Plover St., Sacramento, 95815	115	$800,000
Johnson, Harmon Elementary	577 Las Palmas Ave., Sacramento, 95815	115	N/A
Keema High School	1281 North Ave., Sacramento, 95838	0	$5,694,600
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	547 Arcade Blvd, Sacramento, 95815	0	N/A
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	549 Arcade Blvd	0	N/A
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	555 Arcade Blvd	0	N/A
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	557 Arcade Blvd	0	N/A
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	559 Arcade Blvd	0	N/A
King, Jr,. Martin Luther Technology Academy	3051 Fairfield St., Sacramento, 95815	365	$19,448,020
King, Jr,. Martin Luther Technology Academy	3051 Fairfield St., Sacramento, 95815	365	N/A
Maintenance - Taft Street	2628 Taft St., Sacramento, 95815	15	$2,212,790
Maintenance Warehouse	2041 I St, Rio Linda, 95673	0	N/a
Meister Site (Undeveloped)	Bridgeford & Chuckwagon	0	N/A
Morey Avenue Pre K - K	155 Morey Ave., Sacramento, 95838	30	$3,230,960
Morey Avenue Pre K - K	155 Morey Ave., Sacramento, 95838	30	N/A
Morey Avenue Pre K - K	155 Morey Ave., Sacramento, 95838	30	N/A

Property Name	Physical Address	Occupancy	Structure Value
Morey Avenue Pre K - K	155 Morey Ave., Sacramento, 95838	30	N/A
Noralto Elementary	477 Las Palmas Ave., Sacramento, 95815	750	$8,155,470
Northwood Elementary	2630 Taft St., Sacramento, 95815	535	$8,629,790
Norwood Jr. High	4601 Norwood Ave., Sacramento, 95838	405	$12,819,160
Norwood Jr. High	4601 Norwood Ave., Sacramento, 95838	405	N/A
Old Harmon Johnson (Demolished -Lot)	2591 Edgewater Rd., Sacramento, 95815	0	N/A
Orchard Elementary	1040 Q St., Rio Linda, 95673	255	$10,369,190
Orchard Elementary	1040 Q St., Rio Linda, 95673	255	$0
Regency Park Elementary	5901 Bridgecross Dr. Way, Sacramento, 95835	915	$9,635,770
Rio Linda High	6309 Dry Creek Rd., Rio Linda, 95673	1,930	$33,047,090
Rio Linda High Stadium	6411 Dry Creek Rd., Rio Linda, 95673	0	N/A
Rio Linda Prep Academy	1101 "G" St., Rio Linda, 95673	500	$10,315,100
Rio Tierra Jr. High	3201 Northstead Dr., Sacramento, 95833	625	$12,245,530
Robinson, Fred K. Admin. Offices (Unused)	670 Dixieanne Ave., Sacramento, 95815	0	$7,281,330
Smythe, Alethea B. Charter (7-8)	700 Dos Rios St., Sacramento, 95811	455	$5,972,380
Smythe, Alethea B. Charter (K-6)	2781 Northgate Blvd. Sacramento, 95833	665	$6,249,880
Strauch, Hazel Elementary	3141 Northstead Dr., Sacramento, 95833	600	$6,281,010
Terrace Park (Undeveloped)	Parcel Number 20110700760000	0	N/A
Transportation - Grand Ave.	1400B Grand Ave., Sacramento, 95838	60	$976,300
Transportation - Rio Linda	6619 6th Ave., Rio Linda, 95673	75	$1,563,560
Vineland (Pre)	6450 20th St., Rio Linda, 95673	55	$7,916,235
West 4th Ave / E Street	Undeveloped	0	N/A
West 4th Ave / Q Street	Undeveloped	0	N/A
Westside Elementary	6537 West 2nd St., Rio Linda, 95673	585	$5,961,960
Woodlake Elementary	700 Southgate Rd., Sacramento, 95815	480	$5,606,435

Source: Sacramento County 2016 Parcel/2015 Assessor's Data

Figure P-2 Twin Rivers School District – Buildings in Dam Inundation Zone



Data Source: Twin Rivers Unified School District, Sacramento County GIS, Cal-Atlas, National Inventory of Dams; Map Date: 05/2016.

Natural Resources

Historic and Cultural Resources

Most of the existing school sites built prior to 1950. While not on a historical registry, the oldest school in the district was built around 1938.All other historic and cultural resources in the District would be at risk to dam inundation.

Future Development

Any future development in the District could be affected by a Folsom Dam failure.

Earthquake

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Hazard Profile and Problem Description

Ground shaking is the primary earthquake hazard. Many factors affect the survivability of structures and systems from earthquake-caused ground motions. These factors include proximity to the fault, direction of rupture, epicenter location and depth, magnitude, local geologic and soils conditions, types and quality of construction, building configurations and heights, and comparable factors that relate to utility, transportation, and other network systems. Ground motions become structurally damaging when average peak accelerations reach 10 to 15 percent of gravity, average peak velocities reach 8 to 12 centimeters per second, and when the Modified Mercalli Intensity Scale is about VII (18-34 percent peak ground acceleration), which is considered to be very strong (general alarm; walls crack; plaster falls).

Past Occurrences

The Planning Team for the District noted no past occurrences that have affected the District.

Vulnerability to Earthquake

Assets at Risk

Earthquake losses will vary across the District depending on the source and magnitude of the event and the nature and type of building construction. A map showing peak ground accelerations in Sacramento County and the District is shown in Figures4-32 and 4-33 of the Base Plan. The earthquake scenario run for the 2011 LHMP for Sacramento County provides a good estimate of loss to the Planning Area based on a realistic earthquake scenario. The results of this scenario are described in Section 4.3.8 of the Base Plan. Specific damages to facilities owned by the District were not available in this analysis.

Natural Resources

Earthquake could affect water sources by damaging underground natural springs and wells, trees and landscape.

Historic and Cultural Resources

Most of the existing school sites were built prior to 1950. While not on a historical registry, the oldest school in the district was built around 1938 and has not been retrofit to updated seismic requirements.

Future Development

While there are no immediate plans for new schools or structures; any future development, albeit seismically considered, has the potential of damage during an earthquake.

Flood: 100/200/500-year

Likelihood of Future Occurrence–Occasional
Vulnerability–High

Hazard Profile and Problem Description

The District is traversed by several stream systems and is at risk to both riverine flooding and localized stormwater flooding. Flooding is of primary concern in the low, flat areas that exist in the TRUSD boundaries. As shown in the plan, there are 50-100 year flood zones, creeks, waterways and tributaries that have the potential to create a hazardous and possibly catastrophic situation. The name of the district, "Twin Rivers" is suggestive to this issue. Located near the apex of two major rivers; the Sacramento and American Rivers, flooding is always a concern.

Past Occurrences

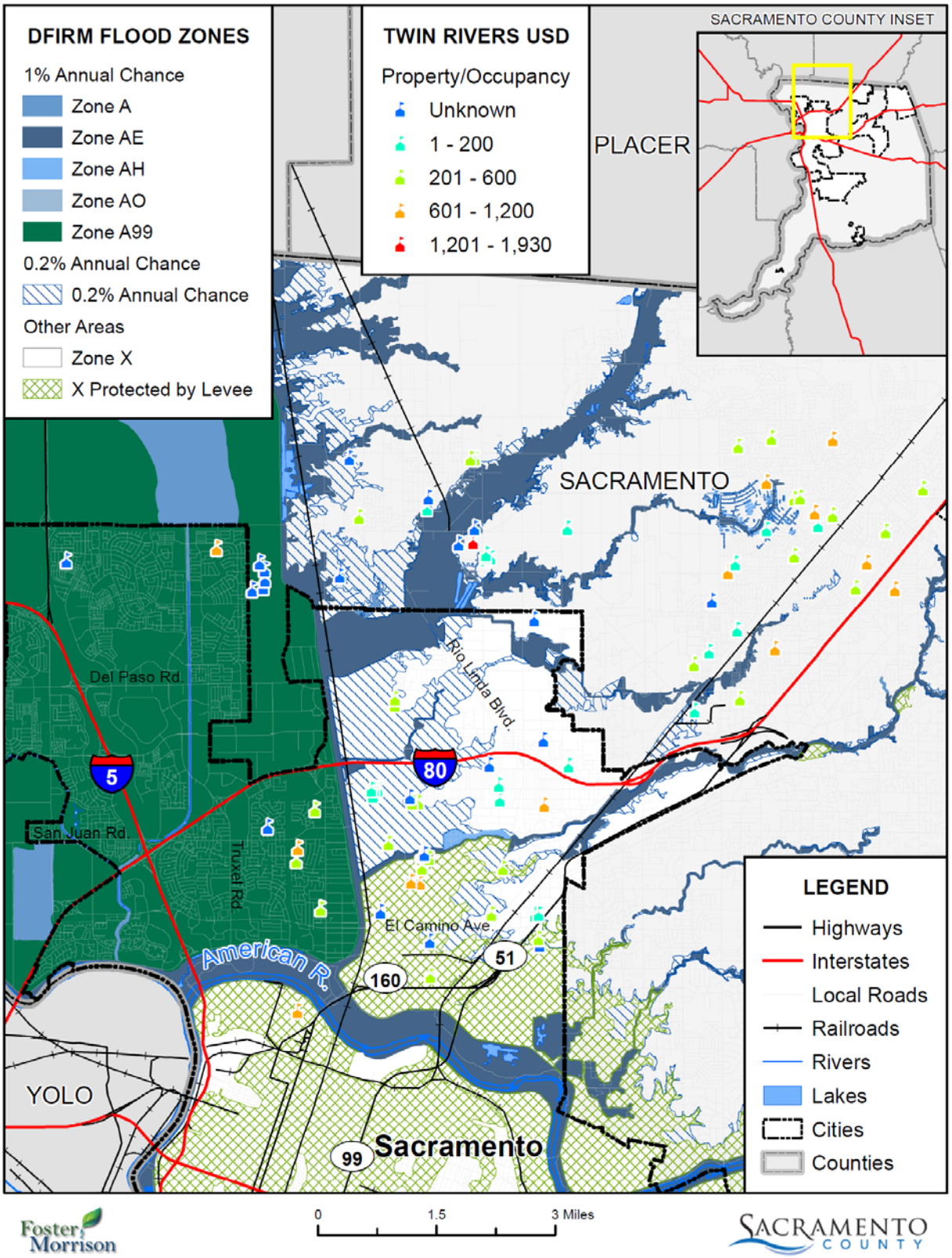
Flood waters in 1986 and 1998 caused damage to roads, structures and district properties. The many creeks and tributaries are still a risk for downstream flooding, in spite of corrections to local levees and upriver dams. While some damage occurred at this time, the records indicating repairs and corrections are not available. Twin Rivers USD is the culmination of four school districts, which unified in 2008. Records prior to this time are not available.

Vulnerability to Flood

Assets at Risk

The District's school locations were used as the basis for this analysis. The District provided occupancy and building values for each school. GIS was used to create a centroid, or a point representing the center of the School's parcel polygon. DFIRM flood data was then overlaid on the school centroids. For the purposes of this analysis, the flood zone that intersected a school centroid was assigned the flood zone for the entire school. District properties by DFIRM zones are shown on Figure P-3 and in Table P-6.

Figure P-3 Twin Rivers School District – Properties in DFIRM Flood Zones



Data Source: Twin Rivers Unified School District, Sacramento County GIS, Cal-Atlas, FEMA NFHL 04/16/2016; Map Date: 05/2016.

Table P-6 Twin Rivers School District – Properties in DFIRM Flood Zones

School Property	Physical Address	Occupancy	Structure Value
Zone A99			
East Natomas Educational Complex	5926 E. Levee Rd	0	$67,947,365
East Natomas Educational Complex	5925 E. Levee Rd	0	N/A
East Natomas Educational Complex	5922 E. Levee Rd	0	N/A
East Natomas Educational Complex	5921 E. Levee Rd	0	N/A
East Natomas Educational Complex	5924 E. Levee Rd	0	N/A
Garden Valley Elementary	3601 Larchwood Dr., Sacramento, 95834	410	$3,601,260
Meister Site (Undeveloped)	Bridgeford & Chuckwagon	0	N/A
Regency Park Elementary	5901 Bridgecross Dr. Way, Sacramento, 95835	915	$9,635,770
Rio Tierra Jr. High	3201 Northstead Dr., Sacramento, 95833	625	$12,245,530
Smythe, Alethea B. Charter (7-8)	700 Dos Rios St., Sacramento, 95811	455	$5,972,380
Strauch, Hazel Elementary	3141 Northstead Dr., Sacramento, 95833	600	$6,281,010
Terrace Park (Undeveloped)	Parcel Number 20110700760000	0	N/A
Zone AE			
Rio Linda High Stadium	6411 Dry Creek Rd., Rio Linda, 95673	1,930	$33,047,090
0.2% Annual Chance			
Babcock, D W Elementary	2400 Cormorant Way, Sacramento, 95815	400	$6,494,106
DPH Park	590 Morey Ave., Sacramento, 95838	0	N/A
Fairbanks Elementary	227 Fairbanks Ave., Sacramento, 95838	435	$6,968,540
Hagginwood Elementary	1418 Palo Verde Ave., Sacramento, 95815	455	$6,989,112
Keema High School	1281 North Ave., Sacramento, 95838	0	$5,694,600
Morey Avenue Pre K - K	155 Morey Ave., Sacramento, 95838	30	$3,230,960
Morey Avenue Pre K - K	155 Morey Ave., Sacramento, 95838	30	N/A
Morey Avenue Pre K - K	155 Morey Ave., Sacramento, 95838	30	N/A
Morey Avenue Pre K - K	155 Morey Ave., Sacramento, 95838	30	N/A
Norwood Jr. High	4601 Norwood Ave., Sacramento, 95838	405	$12,819,160
Norwood Jr. High	4601 Norwood Ave., Sacramento, 95838	405	N/A
Transportation - Rio Linda	6619 6th Ave., Rio Linda, 95673	75	$1,563,560
West 4th Ave / E Street	Undeveloped	0	N/A
West 4th Ave / Q Street	Undeveloped	0	N/A
Zone X			
Allison, Warren A. Elementary	4315 Don Julio Blvd., No. Highlands, 95660	275	$6,432,540
Allison, Warren A. Elementary	4315 Don Julio Blvd., No. Highlands, 95660	275	N/A
Bell Avenue Property (Undeveloped)	1690 Bell Avenue, Sacramento, 95838	0	N/A
Castori, Michael J. Elementary	1801 South Ave., Sacramento, 95838	750	$7,657,585

School Property	Physical Address	Occupancy	Structure Value
Creative Conn. Arts Academy Charter (K-8)	7201 Arutas Dr., No. Highlands, 95660	540	$5,765,220
Creative Conn. Arts Academy Charter(9-12)	6444 Walerga Rd, No. Highlands, 95660	105	$12,905,740
Del Paso Heights Elementary	590 Morey Ave., Sacramento, 95838	290	$7,596,650
Del Paso Heights Elementary	590 Morey Ave., Sacramento, 95838	290	N/A
District Office	5115, 5107, 5049, 5039 Dudley Blvd, McClellan, 95652	330	$67,947,365
Dry Creek Elementary	1230 G St., Rio Linda, 95673	115	$6,852,660
Dry Creek Elementary	1230 G St., Rio Linda, 95673	115	N/A
Dry Creek Elementary	1230 G St., Rio Linda, 95673	115	N/A
Dry Creek Elementary	1230 G St., Rio Linda, 95673	115	N/A
Foothill High	5000 McCloud Dr., Sacramento, 95842	1,270	$32,080,190
Foothill Oaks Elementary	5520 Lancelot Dr., Sacramento, 95842	580	$7,980,830
Foothill Ranch Jr. High	5001 Diablo Dr., Sacramento, 95842	765	$14,581,580
Frito-Lay Land Purchase (Undeveloped)	1710 Ascot Ave., Rio Linda 95673	0	
Frontier Elementary	6691 Silverthorne Cir., Sacramento, 95842	545	$7,039,520
Future Charter School (7-12)	3701 Stephen Dr., No. Highlands, 95660	565	N/A
Grant High	1400 Grand Ave., Sacramento, 95838	1,035	$45,591,240
Grant West	1221 South Ave., Sacramento, 95838	1,035	$15,369,260
Hayer Park (RLPA) Park	1101 "G" St., Rio Linda, 95673	0	N/A
Higher Learning Academy	2625 Plover St., Sacramento, 95815	115	$800,000
Higher Learning Academy	2625 Plover St., Sacramento, 95815	115	N/A
Highlands Academy of Art & Design	6601 Guthrie Way, No. Highlands, 95660	925	$30,536,620
Hillsdale Elementary	6469 Guthrie Way, No. Highlands, 95660	460	$7,069,330
Joyce, Frederick C. Elementary	6050 Watt Ave., No. Highlands, 95660	605	N/A
Kohler Elementary	4004 Bruce Way, No. Highlands, 95660	510	$6,663,290
Larchmont Elementary	6560 Melrose Dr., No. Highlands, 95660	170	$6,179,100
Madison Elementary	5241 Harrison St., No. Highlands, 95660	680	$7,832,480
Maintenance - Taft Street	2628 Taft St., Sacramento, 95815	15	$2,212,790
Maintenance Warehouse	2041 I St, Rio Linda, 95673	75	$1,563,560
Murchison Center (Adult Ed)	5703 Skvarla, Bldg. 1407, McClellan, 95652	0	$4,037,430
"Northwood Elementary "	2630 Taft St., Sacramento, 95815	535	$8,629,790
Oakdale Elementary	3708 Myrtle Ave., No. Highlands, 95660	0	$585,300
Office Building (Unused)	5201 Arnold Way, McClellan, 95652	555	$7,243,120
Orchard Elementary	1040 Q St., Rio Linda, 95673	255	$10,369,190
Orchard Elementary	1040 Q St., Rio Linda, 95673	255	$0

School Property	Physical Address	Occupancy	Structure Value
Pacific Career & Technology High/Pathways	3800 Bolivar Ave., No. Highlands, 95660	150	$14,282,860
Pioneer Elementary	5816 Pioneer Way, Sacramento, 95841	695	$6,730,628
Richmond, Miles P. School	4330 Keema Ave., North Highlands, 95660	60	$2,729,260
Ridgepoint Elementary	4680 Monument Dr., Sacramento, 95842	745	$7,132,630
Rio Linda High	6309 Dry Creek Rd., Rio Linda, 95673	0	$7,586,880
Rio Linda Prep Academy	1101 "G" St., Rio Linda, 95673	0	N/A
Rio Linda PreSchool (Head Start)	631 L St., Rio Linda, 95673	500	$10,315,100
Sierra View Elementary	3638 Bainbridge Dr., No. Highlands, 95660	505	$6,133,590
TR Police Admin. Offices	1333 Grand Ave., Sacramento, 95838	55	$7,604,370
Transportation - Grand Ave.	1400B Grand Ave., Sacramento, 95838	60	$976,300
United Cerebral Palsey (Leased Out)	5450 Georgia Dr., No. Highlands, 95660	190	$6,133,070
Village Elementary	6845 Larchmont Dr., No. Highlands, 95660	645	$6,210,970
Vineland (Pre)	6450 20th St., Rio Linda, 95673	55	$7,916,235
Vista Nueva Career & Tech High/NOVA	2035 North Ave., Sacramento, 95838	185	$5,584,650
Westside Elementary	6537 West 2nd St., Rio Linda, 95673	585	$976,300
Winona Admin Center	3222 Winona Way, No. Highlands, 95660	105	$6,210,970
Woodridge Elementary	5761 Brett Dr., Sacramento, 95842	515	$5,584,650
X Protected by Levee			
Babcock Park	2400 Cormorant Way, Sacramento, 95815	0	N/A
Johnson, Harmon Elementary	577 Las Palmas Ave., Sacramento, 95815	635	$12,644,380
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	547 Arcade Blvd, Sacramento, 95815	0	N/A
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	549 Arcade Blvd	0	N/A
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	555 Arcade Blvd	0	N/A
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	557 Arcade Blvd	0	N/A
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	559 Arcade Blvd	0	N/A
King, Jr,. Martin Luther Technology Academy	3051 Fairfield St., Sacramento, 95815	365	$19,448,020
King, Jr,. Martin Luther Technology Academy	3051 Fairfield St., Sacramento, 95815	365	N/A
Noralto Elementary	477 Las Palmas Ave., Sacramento, 95815	750	$8,155,470
Old Harmon Johnson (Demolished - Lot)	2591 Edgewater Rd., Sacramento, 95815	0	N/A

School Property	Physical Address	Occupancy	Structure Value
Robinson, Fred K. Admin. Offices (Unused)	670 Dixieanne Ave., Sacramento, 95815	0	$7,281,330
Smythe, Alethea B. Charter (K-6)	2781 Northgate Blvd. Sacramento, 95833	665	$6,249,880
Woodlake Elementary	700 Southgate Rd., Sacramento, 95815	480	$7,916,235

Source: TRUSD, FEMA 4/16/2016 DFIRM

National Flood Insurance Program and Repetitive Loss Properties

TRUSD is not an eligible community for purposes of the National Flood Insurance Program and thus does not participate in the program. The NFIP defines a community for purposes of the NFIP as, "any State or area or political subdivision thereof, or any Indian Tribe or authorized tribal organization, or Alaska Native Village or authorized native organization, which has the authority to adopt and enforce floodplain management regulations for the areas within its jurisdiction." The TRUSD does not have authority to establish floodplain regulations within District boundaries, but instead follows the regulations of the City or unincorporated area in which District property is located.

The District did not identify any District-owned repetitive loss or severe repetitive loss properties.

Natural Resources

All natural resources including grounds, wells, trees, landscaping are at risk to flooding.

Historic and Cultural Resources

Flood risks the historical integrity of some of the original schools in this district. Some built in the 1930's and 1940's would not withstand major flooding.

Future Development

While there are no immediate plans for new schools, and this issue has been considered in the new Master Plan, any future development has the potential for damage during flood.

Flood: Localized Stormwater

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Hazard Profile and Problem Description

Historically, the District has been at risk to flooding primarily during the spring months when river systems in the County swell with heavy rainfall.

Past Occurrences

Flood waters in 1986 and 1998 caused considerable damage to roads, structures and district properties. The many creeks and tributaries are still a risk for downstream flooding, in spite of corrections to local levees and upriver dams.

Vulnerability to Localized Flood

Localized flooding also occurs throughout the Planning Area at various times throughout the year with several areas of primary concern unique to the District.

Assets at Risk

Mapping of these areas is an ongoing effort by the County and countywide maps that include the area covered by the District should be available by the next plan update. However, known affected localized flood areas and associated values identified by the County are included in Section 4 of the Base Plan. The District floods easily and each year during storm season, sand bags are pulled out. These instances are only recorded by work orders carried out by the maintenance department. The District could not provide any specific data on areas of localized flooding that directly affect District properties.

Natural Resources

All natural resources including grounds, wells, trees, landscaping are at risk to flooding

Historic and Cultural Resources

Stormwater/localized flooding risks the historical integrity of some of the original schools in this district. Some built in the 1930's and 1940's would not withstand major flooding.

Future Development

The risk of stormwater/localized flooding to future development can be minimized by accurate recordkeeping of repetitive localized storm activity. Mitigating the root causes of the localized stormwater will reduce future risks of losses due to stormwater/localized flooding.

Levee Failure

Likelihood of Future Occurrence–Unlikely
Vulnerability–High

Hazard Profile and Problem Description

Generally, levees fail due to overtopping or collapse. A catastrophic levee failure resulting from collapse probably will occur very quickly with relatively little warning. Such a failure would occur where the levee is saturated and the high hydrostatic water pressure on the river side, coupled with erosion of the levee from high water flows or an inherent defect in the levee that causes an almost instant collapse of a portion of the levee. Under such circumstances, structures located relatively near the break will suffer immediate and

extensive damage. Several hundred yards away from the break the energy of the flood waters will be dispersed sufficiently to reduce, but not eliminate, flooding damage to structures in its path. The flood water will flow in a relatively shallow path toward any low point in the affected area. Flood water will collect in these low areas and the levels will rise as the flow continues. When the rivers are high, it is not possible to close or repair a levee break until the water surface in the river and the flooded area equalize.

Past Occurrences

Other than the levee failure in 1986 and the floods of 1998, there are no other past occurrences.

Vulnerability to Levee Failure

Floods can threaten the District from several sources. Usually, the possibility of flooding can be anticipated from eight to twenty hours before the "Emergency Period" is reached. However, as demonstrated in Linda, California, in February 1986, it is possible for a levee to collapse with little or no warning when there are still four or more feet of freeboard available. Sections 4.2.17 and 4.3.12 of the Base Plan provides additional information on levees within the Sacramento County Planning Area. Although Folsom Dam and surrounding levees have been improved, there is still the risk of failure.

Unincorporated Sacramento County and its incorporated jurisdictions have mapped flood hazard areas. This includes areas protected by levees. GIS was used to determine the possible impacts of flooding in areas protected by levee within the County, and how the risk varies across the Planning Area. The following methodology was followed in determining improved parcel counts and values at risk to levee failure. However, this analysis was performed based on the most current 2015 DFIRMs which still reflect some levees as providing 100-year level of protection. According to the County, all levees have since been decertified as not providing a 100-year level of protection, so this analysis is based solely on the information presented in the DFIRMs. Further it is important to note that many levee improvement projects are ongoing throughout the Planning Area, some of which will be providing certification of area levees to both a 100-year and 200-year levels depending on applicable requirements. Thus, this analysis reflects a moment in time and while it does provide information on areas developed behind levees, the X Protected by Levee flood zone will continue to change as these projects are completed and new certifications obtained.

Assets at Risk

The District's school locations were used as the basis for this analysis. The District provided occupancy and building values for each school. GIS was used to create a centroid, or a point representing the center of the School's parcel polygon. DFIRM flood data was then overlaid on the school centroids to determine if the centroid lies in and X Protected by Levee Zone. For the purposes of this analysis, the flood zone that intersected a school centroid was assigned the flood zone for the entire school. District properties in DFIRM X Protected by Levee zones are shown on Figure P-3 and in Table P-7.

Table P-7 Twin Rivers School District – Properties in DFIRM Levee Protected Flood Zones

School Property	Physical Address	Occupancy	Structure Value
Babcock Park	2400 Cormorant Way, Sacramento, 95815	0	N/A

School Property	Physical Address	Occupancy	Structure Value
Johnson, Harmon Elementary	577 Las Palmas Ave., Sacramento, 95815	635	$12,644,380
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	547 Arcade Blvd, Sacramento, 95815	0	N/A
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	549 Arcade Blvd	0	N/A
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	555 Arcade Blvd	0	N/A
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	557 Arcade Blvd	0	N/A
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	559 Arcade Blvd	0	N/A
King, Jr,. Martin Luther Technology Academy	3051 Fairfield St., Sacramento, 95815	365	$19,448,020
King, Jr,. Martin Luther Technology Academy	3051 Fairfield St., Sacramento, 95815	365	N/A
Noralto Elementary	477 Las Palmas Ave., Sacramento, 95815	750	$8,155,470
Old Harmon Johnson (Demolished -Lot)	2591 Edgewater Rd., Sacramento, 95815	0	N/A
Robinson, Fred K. Admin. Offices (Unused)	670 Dixieanne Ave., Sacramento, 95815	0	$7,281,330
Smythe, Alethea B. Charter (K-6)	2781 Northgate Blvd. Sacramento, 95833	665	$6,249,880
Woodlake Elementary	700 Southgate Rd., Sacramento, 95815	480	$7,916,235

Source: TRUSD, FEMA 4/16/2016 DFIRM

Natural Resources

All natural resources including grounds, wells, trees, landscaping are at risk to flooding.

Historic and Cultural Resources

Flood risks the historical integrity of some of the original schools in this district. Some built in the 1930's and 1940's would not withstand major flooding.

Future Development

Future development would be in the northern section of the District, where small streams and tributaries abound, as well as levees. Although recently improved, there is still a risk of failure.

River/Stream/Creek Bank Erosion

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Hazard Profile and Problem Description

The District is situated on a thermal belt in a relatively flat area, as is much of the central California area, resulting in flooding and erosion in the spring. The District Planning Team noted that there are many creeks and tributaries of the Sacramento and American rivers that traverse the District.

Past Occurrences

There are no records showing damage from erosion. Most improvements were done during the course of "maintenance" work.

Vulnerability to Erosion

Since the Districts is located in a relatively flat area, the District has experienced a number of problems, including flooding due to eroded stream banks. The Rio Linda area, specifically Rio Linda High, Dry Creek ES, Rio Linda Prep are bordered by creeks (Dry Creek & Linda Creek) that are subject to overflow and bank erosion. The District intends, as a matter of policy, to address these issues in the hazard mitigation plan and as a matter of course for district procedure.

Section 4.2.18 of the Base Plan provides additional information on the erosion hazard within the Sacramento County Planning Area.

Assets at Risk

The District Planning Team noted that buildings in the Rio Linda area have some risk to erosion. Specific details on this were unavailable.

Natural Resources

The District Planning Team noted that a loss of vegetation and erosion in parkways in District areas may occur.

Historic and Cultural Resources

The Planning Team for the District noted no risk to historic and cultural resources from erosion.

Future Development

The District Planning Team noted that only buildings to be constructed in northern section would be at risk; but will be designed with this risk considered.

Severe Weather: Extreme Temperatures – Cold and Freeze

Likelihood of Future Occurrence–Occasional
Vulnerability–High

Hazard Profile and Problem Description

Extreme cold often accompanies a winter storm or is left in its wake. It is most likely to occur in the winter months of December, January, and February. Prolonged exposure to the cold can cause frostbite or hypothermia and can become life-threatening. Infants and the elderly are most susceptible. Pipes may freeze and burst in buildings that are poorly insulated or without heat. Extreme cold can disrupt or impair communications facilities.

Past Occurrences

The District Planning Team noted that there is no list showing damage from freeze, although there have been broken water pipes, damaged equipment and lost vegetation. Repairs were done during the course of "maintenance" work.

Vulnerability to Cold and Freeze

Vulnerability to winter storms and extreme cold is difficult to quantify, as these are not mapped or geographically specific hazards. Most losses in the District associated with this hazard come in the form of power outages or and bursting pipes. Severe ice is often associated with winter storms. An icy roadway on a bridge or in a busy intersection threatens the safety of students on buses. Delays in emergency response services and a halt of public utilities' services are of concern.

In the event of a severe winter storm or extreme cold, populations with special needs such as elementary school students are of particular concern; as they are most vulnerable to adverse conditions and temperatures. Approximately 16,570 students in elementary or pre-kindergarten these would be at risk to severe weather.

Section 4.2.2 of the Base Plan provides additional information on freeze within the Sacramento County Planning Area.

Assets at Risk

The District Planning Team noted that specific assets at risk to cold and freeze are the agriculture classrooms and livestock associated with them. In addition, tanks, well components, and various building components on older buildings would be at risk.

Natural Resources

The District Planning Team noted that vegetation and agricultural areas in the District are at risk from cold and freeze.

Historic and Cultural Resources

The District Planning Team noted no risk to historic and cultural resources in the District from cold and freeze.

Future Development

The District Planning Team noted that there is a negligible risk to future properties – future development will consider this risk.

Severe Weather: Extreme Temperatures – Heat

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Hazard Profile and Problem Description

The District is situated on a thermal belt in a relatively flat area, as is much of the central California area, resulting in excessive heat during late spring and early fall seasons. Due the age of most schools, the HVAC equipment has long since passed it's intended usage. The district continues to install new equipment, when able. This has been a very real problem in the district for years, due to the extreme temperatures, over 100 degrees in the beginning and end of the school year.

Past Occurrences

The district has had to provide fans, temporary AC units and other devices to cool classrooms during extreme heat.

Vulnerability to Heat

As a result of the flat central California area and resulting heat, the District has experienced a number of problems, including a death from heat exhaustion. In the event of extreme heat, populations with special needs such as elementary school students are of particular concern; as they are most vulnerable to extreme temperatures. Approximately 16,570 students in elementary or pre-kindergarten these would be at risk to extreme heat. The District intends, as a matter of policy, to address these issues in the hazard mitigation plan and as a matter of course for district procedure.

Section 4.2.3 of the Base Plan provides additional information on the extreme heat within the Sacramento County Planning Area.

Assets at Risk

The District Planning Team noted that all facilities are at risk to extreme temperatures. While the structures themselves do not have risk from heat, the students who use them do.

Natural Resources

The extreme heat has killed many trees and planted areas. Along with the drought, the extreme heat has exacerbated these issues over the past few years

Historic and Cultural Resources

There are historic (not registered) buildings that currently have no AC systems, that become damaged in the extreme heat. The district allows various groups and communities, such as Hmong, to participate in neighborhood garden programs. The extreme heat and drought have impacted this.

Future Development

Future development will have little risk as this will be considered in new designs however; extreme temperatures have a tendency to prematurely age roofs/equipment/buildings.

Severe Weather: Fog

Likelihood of Future Occurrence–Occasional
Vulnerability–High

Hazard Profile and Problem Description

The District is situated on a thermal belt in a relatively flat area, as is much of the central California area, resulting in fog in the winter.

Past Occurrences

The District Planning Team noted that no past occurrences of fog have affected the District since 2011.

Vulnerability to Fog

The District has experienced a number of problems, including fog-related accidents. In the event of fog, transporting children to and from elementary school students is of particular concern. Approximately 16,570 students in elementary or pre-kindergarten these would be at risk to transportation incidents resulting from fog. The District intends, as a matter of policy, to address these issues in the hazard mitigation plan and as a matter of course for district procedure.

Section 4.2.4 of the Base Plan provides additional information on the fog within the Sacramento County Planning Area.

Assets at Risk

The District Planning Team noted that fog is a safety issue for those who drive their children to school, as well as for bus drivers and passengers traveling to and from District schools.

Natural Resources

The District Planning Team noted no issues related to fog and natural resources.

Historic and Cultural Resources

The District Planning Team noted no issues related to fog and historic and cultural resources.

Future Development

The District Planning Team noted no issues related to fog and future development.

Severe Weather: Heavy Rain and Storms

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Hazard Profile and Problem Description

According to historical hazard data, severe weather is an annual occurrence in the District and Sacramento County as a whole. Damage and disaster declarations related to severe weather have occurred and will continue to occur in the future.

Past Occurrences

Heavy rains have created drainage and flooding problems and damaged structures.

Vulnerability to Heavy Rains

Heavy rain and thunderstorms are the most frequent type of severe weather occurrences in the District. Wind and lightning often accompany these storms and have caused damage in the past. However, actual damage associated with the primary effects of severe weather has been limited. It is the secondary hazards caused by weather, such as floods and fires that have had the greatest impact on the District.

Sections 4.2.5 and 4.3.15 of the Base Plan provides additional information on heavy rains and storms within the Sacramento County Planning Area.

Assets at Risk

The District Planning Team note that all District assets are at risk to heavy rains leading to probable flooding.

Natural Resources

As shown in the plan, there are 50- and 100-year flood zones, creeks, waterways and tributaries that have the potential to create a hazardous and possibly catastrophic situation in heavy rain conditions.

Historic and Cultural Resources

The District allows various groups and communities, such as Hmong, to participate in neighborhood garden programs. As with extreme heat and drought, heavy rains have impacted these types of ventures.

Future Development

Future development will be designed to withstand heavy rains better than older buildings, however, there is still the risk of flood and damage due to this weather condition.

Severe Weather: Wind and Tornadoes

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Hazard Profile and Problem Description

All District properties are at risk to wind and tornadoes. When the randomness of tornado location and the random location of schools within the District are considered, the planning team does not consider any one area at a greater risk to tornadoes than any other. Thus, the risk of tornadoes is the same across the District. The risk does not vary from school to school. This is because tornadoes are just as likely to hit one location as another within the District.

Past Occurrences

The District Planning Team noted no past occurrences of tornado or high winds causing damage in the District.

Vulnerability to Tornadoes

The exposure to tornadoes does vary from school to school, as indicated by the building values and occupancy differences in each school. The area that tornadoes strike is random, depending upon the location of the weather system spawning them.

Tornadoes need to be given serious consideration in this assessment, because if and when they do strike a school, the impact can be devastating. Tornadoes can impact the District by destroying buildings and infrastructure within seconds. Tornadoes can cause numerous human injuries or fatalities. They can create tremendous debris removal problems, overwhelm building departments, and psychologically scar students, faculty, and staff.

There are limited things that can be done to reduce the damages caused by tornadoes – though recently, significant strides have been made to improve life safety during these events – most notably through improved warning systems and the building of designated shelters.

Section 4.2.6 of the Base Plan provides additional information on tornadoes within the Sacramento County Planning Area.

Assets at Risk

The District Planning Team noted that any District building, particularly the many portable buildings within this District have risk from wind and tornadoes.

Natural Resources

The District Planning Team noted that there are old growth trees, natural landscaping and wells that could be affected.

Historic and Cultural Resources

There are many historical buildings in the District which are culturally sensitive.

Future Development

Although the damage lessens with newer construction, any new buildings, signage, structures with height are at risk to tornadoes.

Wildfire

Likelihood of Future Occurrence–Occasional
Vulnerability–High

Hazard Profile and Problem Description

Major fires are generally categorized as either a conflagration or wildland/forestland. A conflagration may involve residential or commercial areas and spreads across both natural and constructed barriers. Wildland is associated with open range grasslands and into the foothills of a particular area. Because of development in rural areas adjacent to and within the District, a third classification is emerging, the Wildland Urban Interface (WUI) wildfire. The WUI wildfire is one that burns along the urban/rural interface and can result in major losses of property and structures. The WUI wildfire hazard is what is addressed in this LHMP.

A number of factors affect the behavior of wildland and interface fires, including terrain, weather, wind, fuels and seasons. It is well known that fire travels faster uphill than down and is more difficult to fight on steep slopes than on level ground. When weather is hot and the humidity is low, wildland fires can explode with intensity of rapid combustion. Even in the absence of strong winds, a fast-moving fire can generate its own updrafts, particularly in canyons, causing burning brands to be carried high in the air and drop a long distance ahead. This results in spot fires over a wide radius as the wind changes its direction.

Past Occurrences

The District Planning Team noted that there are no records of wildfire impacts that have occurred in the District.

Vulnerability to Wildfire

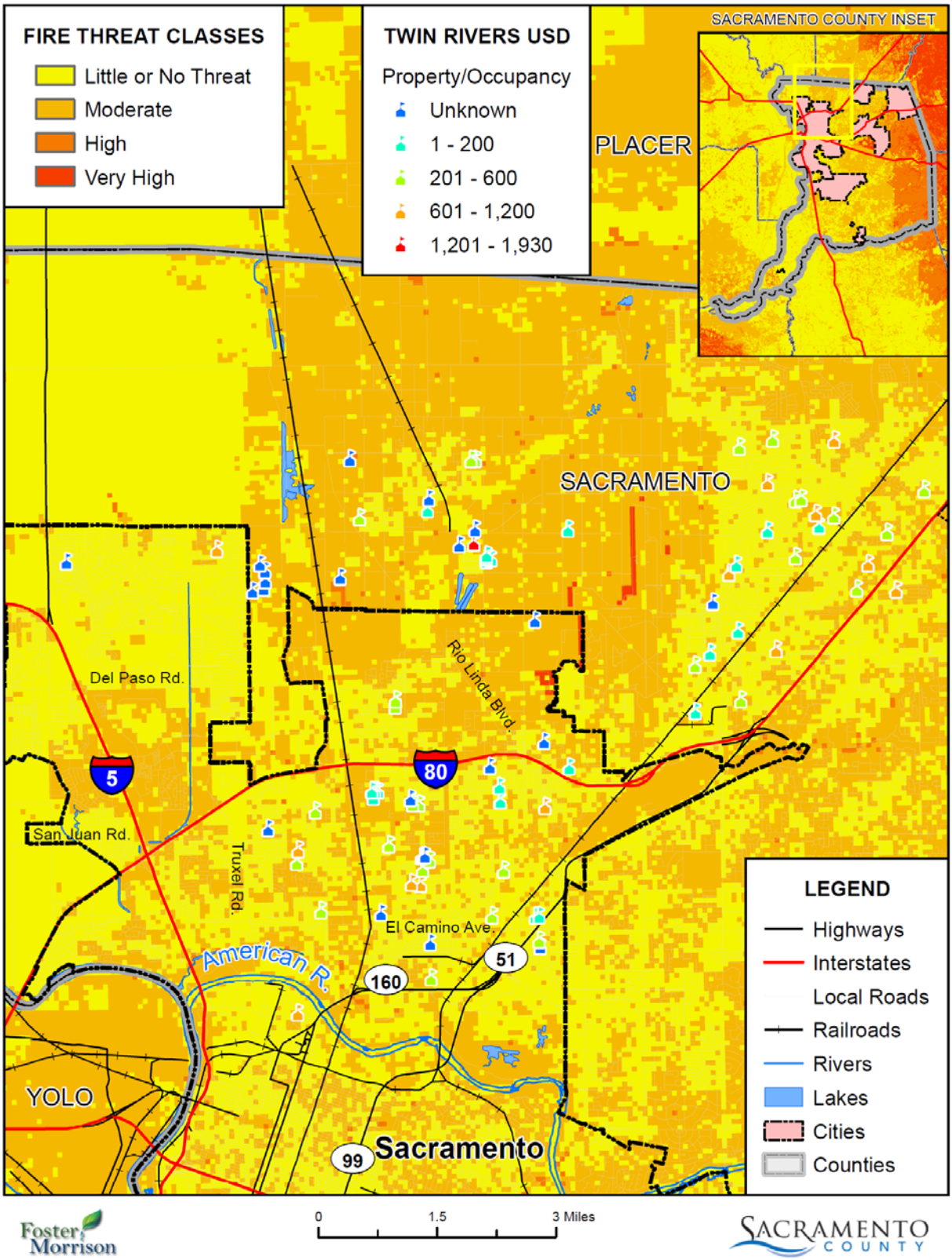
The District is not immune to numerous types of grass and brush fires and any one of them may accelerate into a large urban interface wildfire. Such a situation could lead to evacuation of large portions of the population and the potential for significant loss of personal property, structures and rangeland. The natural fuels available near District properties vary greatly in the rate and intensity of burning. Fires in heavy brush and stands of trees burn with great intensity but more slowly than in dry grass and leaves. Dense fuels will propagate fire better than sparse fuels. The local fire season generally extends from June through late September or early October.

During extremely windy conditions, both small and large-scale fires will generate enough smoke to necessitate the closing of key transportation routes. It may be necessary to close streets and/or re-route traffic to maintain traffic lanes and access for firefighting apparatus. Large parking areas may be cordoned off for the staging of various types of resources needed during large-scale emergencies. All of these may affect busing and transportation of students, faculty, and staff to and from District schools.

Assets at Risk

The District's school locations were used as the basis for this analysis. The District provided occupancy and building values for each school. GIS was used to create a centroid, or a point representing the center of the School's parcel polygon. Cal Fire's Fire Threat layer was then overlaid on the school centroids. For the purposes of this analysis, the fire threat zone that intersected a school centroid was assigned the fire threat zone for the entire school. District properties by Fire Threat Zones s are shown on Figure P-4 and in Table P-8.

Figure P-4 Twin Rivers School District – Properties by Fire Threat Zones



Data Source: Twin Rivers Unified School District, Sacramento County GIS, Cal-Atlas, Cal-Fire 2004 Fire Threat Data; Map Date: 05/2016.

Table P-8 Twin Rivers School District – Properties by Fire Threat Zones

School Property	Physical Address	Occupancy	Structure Value
Little or No Threat			
Allison, Warren A. Elementary	4315 Don Julio Blvd., No. Highlands, 95660	275	
Babcock, D W Elementary	2400 Cormorant Way, Sacramento, 95815	400	$6,494,106
Castori, Michael J. Elementary	1801 South Ave., Sacramento, 95838	750	$7,657,585
Creative Conn. Arts Academy Charter (K-8)	7201 Arutas Dr., No. Highlands, 95660	540	$5,765,220
Del Paso Heights Elementary	590 Morey Ave., Sacramento, 95838	290	$7,596,650
District Office	5115, 5107, 5049, 5039 Dudley Blvd, McClellan, 95652	330	$67,947,365
Dry Creek Elementary	1230 G St., Rio Linda, 95673	115	
Dry Creek Elementary	1230 G St., Rio Linda, 95673	115	
Dry Creek Elementary	1230 G St., Rio Linda, 95673	115	
Frontier Elementary	6691 Silverthorne Cir., Sacramento, 95842	545	$7,039,520
Higher Learning Academy	2625 Plover St., Sacramento, 95815	115	$800,000
Higher Learning Academy	2625 Plover St., Sacramento, 95815	115	
Hillsdale Elementary	6469 Guthrie Way, No. Highlands, 95660	460	$7,069,330
Johnson, Harmon Elementary	577 Las Palmas Ave., Sacramento, 95815	635	$12,644,380
Keema High School	1281 North Ave., Sacramento, 95838	0	$5,694,600
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	547 Arcade Blvd, Sacramento, 95815	0	
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	549 Arcade Blvd	0	
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	555 Arcade Blvd	0	
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	557 Arcade Blvd	0	
King, Jr,. Martin Luther JHS Off-Site (Old Maintenance Site)	559 Arcade Blvd	0	
King, Jr,. Martin Luther Technology Academy	3051 Fairfield St., Sacramento, 95815	365	$19,448,020
King, Jr,. Martin Luther Technology Academy	3051 Fairfield St., Sacramento, 95815	365	
Larchmont Elementary	6560 Melrose Dr., No. Highlands, 95660	170	$6,179,100
Madison Elementary	5241 Harrison St., No. Highlands, 95660	680	$7,832,480
Morey Avenue Pre K - K	155 Morey Ave., Sacramento, 95838	30	$3,230,960
Murchison Center (Adult Ed)	5703 Skvarla, Bldg. 1407, McClellan, 95652	0	$4,037,430
Norwood Jr. High	4601 Norwood Ave., Sacramento, 95838	405	$12,819,160

School Property	Physical Address	Occupancy	Structure Value
OfficeBuilding (Unused)	5201 Arnold Way, McClellan, 95652	555	$7,243,120
Orchard Elementary	1040 Q St., Rio Linda, 95673	255	$0
Pioneer Elementary	5816 Pioneer Way, Sacramento, 95841	695	$6,730,628
Regency Park Elementary	5901 Bridgecross Dr. Way, Sacramento, 95835	915	$9,635,770
Richmond, Miles P. School	4330 Keema Ave., North Highlands, 95660	60	$2,729,260
Ridgepoint Elementary	4680 Monument Dr., Sacramento, 95842	745	$7,132,630
Rio Linda PreSchool (Head Start)	631 L St., Rio Linda, 95673	500	$10,315,100
Robinson, Fred K. Admin. Offices (Unused)	670 Dixieanne Ave., Sacramento, 95815	0	$7,281,330
Sierra View Elementary	3638 Bainbridge Dr., No. Highlands, 95660	505	$6,133,590
Smythe, Alethea B. Charter (7-8)	700 Dos Rios St., Sacramento, 95811	455	$5,972,380
Terrace Park (Undeveloped)	Parcel Number 20110700760000	0	
Transportation - Rio Linda	6619 6th Ave., Rio Linda, 95673	75	$1,563,560
United Cerebral Palsey (Leased Out)	5450 Georgia Dr., No. Highlands, 95660	190	$6,133,070
Village Elementary	6845 Larchmont Dr., No. Highlands, 95660	645	$6,210,970
Winona Admin Center	3222 Winona Way, No. Highlands, 95660	105	$6,210,970
Moderate			
Allison, Warren A. Elementary	4315 Don Julio Blvd., No. Highlands, 95660	275	$6,432,540
Babcock Park	2400 Cormorant Way, Sacramento, 95815	0	
Bell Avenue Property (Undeveloped)	1690 Bell Avenue, Sacramento, 95838	0	
Creative Conn. Arts Academy Charter(9-12)	6444 Walerga Rd, No. Highlands, 95660	105	$12,905,740
Del Paso Heights Elementary	590 Morey Ave., Sacramento, 95838	290	
DPH Park	590 Morey Ave., Sacramento, 95838	0	
Dry Creek Elementary	1230 G St., Rio Linda, 95673	115	$6,852,660
East Natomas Educational Complex	5926 E. Levee Rd	0	$67,947,365
East Natomas Educational Complex	5925 E. Levee Rd	0	
East Natomas Educational Complex	5922 E. Levee Rd	0	
East Natomas Educational Complex	5921 E. Levee Rd	0	
East Natomas Educational Complex	5924 E. Levee Rd	0	
Fairbanks Elementary	227 Fairbanks Ave., Sacramento, 95838	435	$6,968,540
Foothill High	5000 McCloud Dr., Sacramento, 95842	1,270	$32,080,190
Foothill Oaks Elementary	5520 Lancelot Dr., Sacramento, 95842	580	$7,980,830
Foothill Ranch Jr. High	5001 Diablo Dr., Sacramento, 95842	765	$14,581,580

School Property	Physical Address	Occupancy	Structure Value
Frito-Lay Land Purchase (Undeveloped)	1710 Ascot Ave., Rio Linda 95673	0	
Future Charter School (7-12)	3701 Stephen Dr., No. Highlands, 95660	565	
Garden Valley Elementary	3601 Larchwood Dr., Sacramento, 95834	410	$3,601,260
Grant High	1400 Grand Ave., Sacramento, 95838	1,035	$45,591,240
Grant West	1221 South Ave., Sacramento, 95838	1,035	$15,369,260
Hagginwood Elementary	1418 Palo Verde Ave., Sacramento, 95815	455	$6,989,112
Hayer Park (RLPA) Park	1101 "G" St., Rio Linda, 95673	0	
Highlands Academy of Art & Design	6601 Guthrie Way, No. Highlands, 95660	925	$30,536,620
Joyce, Frederick C. Elementary	6050 Watt Ave., No. Highlands, 95660	605	
Kohler Elementary	4004 Bruce Way, No. Highlands, 95660	510	$6,663,290
Maintenance - Taft Street	2628 Taft St., Sacramento, 95815	15	$2,212,790
Maintenance Warehouse	2041 I St, Rio Linda, 95673	75	$1,563,560
Meister Site (Undeveloped)	Bridgeford & Chuckwagon	0	N/A
Morey Avenue Pre K - K	155 Morey Ave., Sacramento, 95838	30	N/A
Morey Avenue Pre K - K	155 Morey Ave., Sacramento, 95838	30	N/A
Morey Avenue Pre K - K	155 Morey Ave., Sacramento, 95838	30	N/A
Noralto Elementary	477 Las Palmas Ave., Sacramento, 95815	750	$8,155,470
"Northwood Elementary "	2630 Taft St., Sacramento, 95815	535	$8,629,790
Norwood Jr. High	4601 Norwood Ave., Sacramento, 95838	405	N/A
Oakdale Elementary	3708 Myrtle Ave., No. Highlands, 95660	0	$585,300
Old Harmon Johnson (Demolished - Lot)	2591 Edgewater Rd., Sacramento, 95815	0	
Orchard Elementary	1040 Q St., Rio Linda, 95673	255	$10,369,190
Pacific Career & Technology High/Pathways	3800 Bolivar Ave., No. Highlands, 95660	150	$14,282,860
Rio Linda High	6309 Dry Creek Rd., Rio Linda, 95673	0	$7,586,880
Rio Linda High Stadium	6411 Dry Creek Rd., Rio Linda, 95673	1,930	$33,047,090
Rio Linda Prep Academy	1101 "G" St., Rio Linda, 95673	0	
Rio Tierra Jr. High	3201 Northstead Dr., Sacramento, 95833	625	$12,245,530
Smythe, Alethea B. Charter (K-6)	2781 Northgate Blvd. Sacramento, 95833	665	$6,249,880
Strauch, Hazel Elementary	3141 Northstead Dr., Sacramento, 95833	600	$6,281,010
TR Police Admin. Offices	1333 Grand Ave., Sacramento, 95838	55	$7,604,370
Transportation - Grand Ave.	1400B Grand Ave., Sacramento, 95838	60	$976,300
Vineland (Pre)	6450 20th St., Rio Linda, 95673	55	$7,916,235
Vista Nueva Career & Tech High/NOVA	2035 North Ave., Sacramento, 95838	185	$5,584,650
West 4th Ave / E Street	Undeveloped	0	

School Property	Physical Address	Occupancy	Structure Value
West 4th Ave / Q Street	Undeveloped	0	
Westside Elementary	6537 West 2nd St., Rio Linda, 95673	585	$976,300
Woodlake Elementary	700 Southgate Rd., Sacramento, 95815	480	$7,916,235
Woodridge Elementary	5761 Brett Dr., Sacramento, 95842	515	$5,584,650

Source: TRUSD, CAL FIRE

Natural Resources

The District Planning Team noted that the District covers a large area, with many old growth trees, natural park areas that would be affected by wildfire.

Historic and Cultural Resources

The District Planning Team noted that there are many old, historical buildings that would be considered an historic loss in event of fire.

Future Development

The District Planning Team noted that there is minimal risk, as new building will be constructed to avoid this issue.

P.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation education, outreach, and partnerships, and other mitigation efforts.

P.6.1. Regulatory Mitigation Capabilities

Table P-9 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the TRSD.

Table P-9 TRSD's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	Y 2009	District Organization and Implementation Planning Process
Capital Improvements Plan	Y	Facilities master plan
Economic Development Plan	N	

Local Emergency Operations Plan	Y	Emergency Management Plan
Continuity of Operations Plan	N	
Transportation Plan	N	
Stormwater Management Plan/Program	Y	TRUSD SWWP-continuously updated
Engineering Studies for Streams	N	
Community Wildfire Protection Plan	Y	Natomas Habitat Conservation Plan
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	Y	Safety Plan
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	N	Dept. of State Architect / Title 24
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score: unknown
Fire department ISO rating:	N	Rating: unknown
Site plan review requirements	Y	By CDE as required and to verify preventative measures established. By DSA for final plan check.
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Y Is the ordinance adequately administered and enforced? Y**
Zoning ordinance	N	
Subdivision ordinance	N	
Floodplain ordinance	N	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N	
Flood insurance rate maps	N	
Elevation Certificates	N	
Acquisition of land for open space and public recreation uses	N	
Erosion or sediment control program	N	
Other	Y	District Policy Manual
How can these capabilities be expanded and improved to reduce risk?		

Source: TRSD

P.6.2. Administrative/Technical Mitigation Capabilities

Table P-10 identifies the department(s) responsible for activities related to mitigation and loss prevention for TRSD.

Table P-10 TRSD's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	N	
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	N	
Mutual aid agreements	N	
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	N	
Floodplain Administrator	N	
Emergency Manager	Y FT	Risk Manager
Community Planner	N	
Civil Engineer	Y FT	Facilities/Planning – Director of Facilities & Construction
GIS Coordinator	Y	Facilities/Planning
Other		
Technical		
Warning systems/services (Reverse 911, outdoor warning signals)	Y	IT Department
Hazard data and information	N	
Grant writing	N	
Hazard analysis	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

Source: TRSD

P.6.3. Fiscal Mitigation Capabilities

Table P-11 identifies financial tools or resources that the TRSD could potentially use to help fund mitigation activities.

Table P-11 TRSD's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	Used for all types of improvement projects
Authority to levy taxes for specific purposes	Y	School Impact Fees
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	Y	Developer Fees used on various projects
Storm water utility fee		
Incur debt through general obligation bonds and/or special tax bonds	Y	Bonds-for specific site improvements
Incur debt through private activities	Y	Private Loans
Community Development Block Grant	N	
Other federal funding programs	Y	Grants
State funding programs	Y	Modernization Funding
Other		
How can these capabilities be expanded and improved to reduce risk?		

Source: TRSD

In addition, there are a number of Federal sources of funding for hazard mitigation projects, including;

- Federal Emergency Management Agency (FEMA)
- Housing and Urban Development (HUD)
- US Army Corps of Engineers (USACE)
- Small Business Administration (SBA)
- US Department of Agriculture (USDA)
- Natural Resource Conservation Service (NRCS)
- National Oceanic and Atmospheric Administration (NOAA)
- Federal Homeland Security Grants
- Bureau of Land Management (BLM)
- CA Dept. of Water Resources Flood Safe Program

P.6.4. Mitigation Education, Outreach, and Partnerships

Table P-12 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information.

Table P-12 TRSD's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	N	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	Safe Schools, Energy Management; solar and water retention programs.
Natural disaster or safety related school programs	Y	In Emergency Plan
StormReady certification	N	
Firewise Communities certification	N	
Public-private partnership initiatives addressing disaster-related issues	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

P.6.5. Other Mitigation Efforts

The district is in the process of partnering with appropriate agencies, such as the California Department of Natural Resources, County of Sacramento, Rio Linda/Elverta Water Department, Sacramento Regional Flood Control Agency, Arcade Creek Parks and Recreation and neighborhood efforts to minimize loss of property and casualties of potential catastrophic event.

The district works closely with the local efforts to monitor ongoing efforts to provide safe levee systems. The district also works closely with neighboring water districts to minimize flooding and provide adequate drainage at sites within flood zones. The district plans to prepare and activate a community protection/assistance initiative for the area most critical.

The County of Sacramento, Rio Linda/Elverta Water Department, SAFCO, Arcade Creek Parks and Recreation and Sacramento County Libraries will become partners in mitigation efforts.

The District is in the process of implementing an assessment and protection plan based on National Clearinghouse of Educational Facilities (NCEF) guidelines. In addition to this, the District has made efforts to compile emergency supplies such as emergency communications, power, fuel and water as a part of the Emergency Preparedness Plan.

The District is creating District Standard Construction Specifications, outlining in detail the mandatory building procedures and techniques that will be implemented in all future building. These "standards" will include raised foundations, drainage systems and detention ponds, earthen berms and other natural resource

protection, structural systems designed for high winds or tornados and "safe areas" in a particular building where staff and students will collect during catastrophic events, natural or by man.

In 2007, during the construction of a new school compound known as ENEC, various mitigation efforts were implemented in the design. Detention ponds were constructed on a larger than needed scale to be included as infrastructure for surrounding areas and adjacent development.

Drainage from the building and site flowed directly into the detention ponds with overflow going directly into the County flood channels. This project was designed and constructed in partnership with SAFCA (Sacramento Area Flood Control Agency), the County of Sacramento and local developers.

P.7 Mitigation Strategy

P.7.1. Mitigation Goals and Objectives

TRSD adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

P.7.2. Mitigation Actions

The planning team for TRSD identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline are also included.

Action 1. New drainage plans to sites within the flood areas including, site drainage, storm drain upgrades and re-grading fields to shed water (on-site) away from buildings

Hazards Addressed: Flooding/Drainage

Goals Addressed: 1, 2, 3, 4

Issue/Background: Many of the Northern area schools within the Rio Linda community and Eastern schools within the Natomas community have been designated as potential catastrophic flood zones and do not have adequate drainage. The District is in the planning phases of identifying those specific areas, assessing the existing drainage systems and prioritizing the potential risk. The District intends to begin work with civil engineers to begin design and planning to engage in this work in the 2017/18 school year. The current District is a culmination of five smaller districts that incorporated in 2008, therefore, paper records are difficult to trace, but there is evidence of damage in the surrounding communities that prove difficulties during heavy storms and rains. Once this action is completed and depending upon adequate funding, the District will begin the design process for upgrading and increasing drainage systems.

Other Alternatives: During the assessment process, the District will identify drainage systems that require interim maintenance such as removing debris, clearing perimeter drains and verifying that the existing drains are working as well as possible.

Existing Planning Mechanisms through which Action will be Implemented: The District Facilities Services and Maintenance departments will work in tandem to create a workable plan.

Responsible Office: Facility Services

Priority (H, M, L): High

Cost Estimate: $2,250,000

Benefits (Losses Avoided): Reduction of District property and life safety

Potential Funding: FEMA Funding, TRUSD facility funding/CDE, any other grant or funding programs available.

Schedule: The District is currently planning the improvements and will begin this portion of work as soon as possible.

Action 2. ***Work with City/County/Water departments to create defensible spaces at sites where nearby creeks are prone to flooding. Build-up earthen berms (off-site) to shed water away from critically located schools.***

Hazards Addressed: Flooding

Goals Addressed: 1, 2, 3, 4

Issue/Background: Many of the district sites are located in the County of Sacramento and are within the perimeter of various water districts and city and county agencies, particularly Sacramento Regional Flood Control Agency, County of Sacramento and Rio Linda/Elverta Water District. TRUSD intends to participate in any improvement discussions led by the various agencies, to provide perimeter protection including levee rebuilding. This will be a partnering effort to create a program of corrective and preventative measures for reducing flood damage.

Other Alternatives: The District will build earthen berms and provide grading to shed overflow water away from sites to adjacent storm drainage.

Existing Planning Mechanisms through which Action will be implemented: The Facilities Services Department is in the assessment phases of determining which sites will be best suited for this type of work

Responsible Office: Facility Services

Priority (H, M, L): High

Cost Estimate: $2,800,000

Benefits (Losses Avoided): Loss of property and personal safety.

Potential Funding: FEMA funding, local agency participation, other district sources, if available.

Schedule: ASAP

Action 3. Working with the Department of the State Architect (DSA) on Earthquake Retrofit Plan on all sites.

Hazards Addressed: Earthquakes

Goals Addressed: 1, 2, 3, 4

Issue/Background: There are a number of buildings within the TRUSD District boundaries that were construction prior to 1970. Those building require earthquake retrofitting or structural enhancement to make buildings safe during earthquake. It is the District's intention to assure that all buildings are safe for students, staff and visitors and to eliminate potentially disastrous property loss should an earthquake occur. The Facility Services Department will work closely with the Department of the State Architect to provide facility assessment and determine best cause of action.

Other Alternatives: The Facility Services Department will undergo a facility assessment with the use of a Structural Engineer to determine potentially dangerous buildings and areas, costs to correct and schedule action. The Risk Management Department will verify adequate earthquake insurance and verify that emergency plans and subsequent materials are in place should earthquake occur.

Existing Planning Mechanisms through which Action will be implemented: The Facility Services Department has been in touch with DSA to begin the process of Earthquake Retrofit.

Responsible Office: Facility Services and Risk Management.

Priority (H, M, L): Medium

Cost Estimate: Unknown to $10,000,000.00

Benefits (Losses Avoided): Property and life.

Potential Funding: FEMA, Department of the State Architect, California Department of Education, California Earthquake Authority, District Funds (if available) any available grant programs.

Schedule: The District intends to contact DSA for this in the 2016/17 school year, after current projects start. It is anticipated that funding may become available to proceed with improvements.

Action 4. Revise and update district-wide Storm Water Prevention Plan

Hazards Addressed: Drainage/Erosion/Flooding

Goals Addressed: 1, 2, 3, 4

Issue/Background: The District practices storm water prevention during construction projects as mandated by the state and federal agencies. The District would like to implement these same procedures

in the Hazard Mitigation Plan and as a matter of policy to deter debris from drainage systems, circumvent flooding to protect land and property.

Other Alternatives: N/A

Existing Planning Mechanisms through which Action will be implemented: The Facility Services Department including Maintenance and Operations is determining the best way to create a procedural manual and implement this policy.

Responsible Office: Facilities Services with Maintenance & Operations.

Priority (H, M, L): Medium

Cost Estimate: $150,000

Benefits (Losses Avoided): Property, environment and life safety.

Potential Funding: FEMA, any state or other agency with grant funds.

Schedule: In process now.

Action 5. Create defensible perimeter space – for fire areas. Trees trimmed and vegetation removed to minimize impact during fire season.

Hazards Addressed: Wildfire

Goals Addressed: 1, 2, 3, 4

Issue/Background: Various schools in the District are in less densely populated areas where the threat of fire risk due to excessive vegetation is high. While the District attempts to minimize this risk, it has been not been accomplished as a priority. It is the intention of the District to create and implement new policy and procedures and to purchase the tools and equipment necessary to minimize these concerns.

Other Alternatives: Prepare a recurring work order that stipulates drain proper tree trimming and vegetation removal as part of a program and on an annual basis.

Existing Planning Mechanisms through which Action will be Implemented: The Grounds section of the Facility Services Department is preparing a work plan and equipment list to accomplish this goal.

Responsible Office: Facility Services and Grounds.

Priority (H, M, L): M

Cost Estimate: $75,000

Benefits (Losses Avoided): Protection of life and property

Potential Funding: FEMA, TRUSD Deferred Maintenance funds for yearly

Schedule: The M&O department has initiated this work as part of the Preventative Maintenance Plan and has begun the work for the 2016 season. As funding allows, the District will continue this as part of the bi-yearly preventative plan.