10 SAFETY

10.1 INTRODUCTION

This chapter describes the possible hazards potentially affecting public safety in Citrus Heights, including seismic and geologic hazards, hazardous materials, aircraft and helicopter hazards, flooding, and the City's emergency operations plans for dealing with potential hazards.

10.2 SEISMIC AND GEOLOGIC HAZARDS

SEISMIC AND GEOLOGIC HAZARD REGULATORY SETTING

FEDERAL

National Earthquake Hazards Reduction Program

The National Earthquake Hazards Reduction Program (NEHRP) seeks to mitigate earthquake losses through both basic and directed research and implementation activities in the fields of earthquake science and engineering.

The NEHRP is the Federal Government's coordinated approach to addressing earthquake risks. Congress established the program in 1977 (Public Law 95-124) as a long-term, nationwide program to reduce the risks to life and property in the United States resulting from earthquakes. The NEHRP is managed as a collaborative effort among FEMA, the National Institute of Standards and Technology, the National Science Foundation, and the United States Geological Survey (FEMA 2009).

The four goals of the NEHRP are to:

- Develop effective practices and policies for earthquake loss-reduction and accelerate their implementation.
- Improve techniques to reduce seismic vulnerability of facilities and systems.
- Improve seismic hazards identification and risk-assessment methods and their use.
- Improve the understanding of earthquakes and their effects.

STATE

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development on or near active fault traces to reduce the hazards associated with fault rupture and to prohibit the location of most structures for human occupancy across these traces. Citrus Heights does not contain a designated Alquist-Priolo Fault Rupture Zone.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was developed to protect the public from the effects of strong groundshaking, liquefaction, landslides, or other ground failure, and from other hazards caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. Before a development permit is granted for a site within a seismic hazard zone, a geotechnical investigation of the site must be conducted and appropriate mitigation measures incorporated into the project design.

California Building Code

The California Building Code regulates all new construction in the City. The building code includes specific measures to ensure new buildings comply. The City's Building Division is responsible for the enforcement of the Building Code.

REGIONAL/LOCAL

Hazard Mitigation Plan

On May 11, 2005, the City adopted the Sacramento County Multi-Hazard Mitigation Plan (MHMP). The County coordinated the effort necessary to develop the countywide MHMP pursuant to the requirements of the Disaster Mitigation Act of 2000 (PL 106-390).

Hazard mitigation planning is the process through which natural hazards that threaten communities are identified, likely effects of those hazards are determined, mitigation goals are set, and appropriate strategies that would lessen the effects are determined, prioritized, and implemented. Hazard mitigation planning is required for state and local governments to maintain their eligibility for certain federal disaster assistance and hazard mitigation funding programs.

With the adoption of the plan, the City committed to:

- Pursuing the implementation of the high priority, low/no-cost Recommended Actions contained in the MHMP,
- Keeping the concept of mitigation in the forefront of community decision-making by identifying recommendations of the MHMP when other community goals, plans and activities overlap, influence, or directly affect increased community vulnerability to disasters, and

- Maintaining a vigilant monitoring of multi-objective cost-share opportunities to assist the participating communities in implementing the Recommended Actions of the MHMP for which current funding or support exists.

EXISTING CONDITIONS

TOPOGRAPHY

The topography of the Citrus Heights area is characterized by flat terrain with small hills in some locations. Cripple Creek and Arcade Creek flow through the project area. The majority of the planning area has been developed with residential and commercial uses. Slopes within the planning area range from zero percent to 15 percent with the majority of the steeper slopes located in the southeastern portion of Citrus Heights. Elevations range from 120 feet above mean sea level near the southwestern edge of Citrus Heights to 200 feet above mean sea level near the southeastern portion of the city.

GEOLOGY

Citrus Heights is located in the northern portion of Sacramento County, south of the Roseville corporate boundary and north of Carmichael and Fair Oaks. In this area, the predominantly granitic and metamorphic rocks at high elevations of the Sierra Nevada Mountains transition into the low foothills, terraces and alluvial filled valleys of the Central Valley geomorphic province. The general geology is composed of Cenozic Era (up to 65 million years old) sedimentary rocks, volcanic mudflow deposits, and young sediments comprising the uppermost 4,000 feet of Central Valley fill.

Citrus Heights is located in the Great Valley geomorphic province, which is bound by the California Coast Ranges on the west and the Sierra Nevada Mountains on the east. Erosion of the Coast Ranges and the Sierra Nevada Mountains has created the sediments deposited into the Great Valley. In addition, the flows of the Sacramento River and the San Joaquin River have drained and further shaped the Valley. The Great Valley is divided into various geomorphic subunits characterized by Holocene deposits, including the low-lying Delta lands that extend along Sacramento County's western boundary. This region was previously covered with tidal marshes and sloughs. Currently, this area has been drained and numerous islands have been created by the construction of the levee system.

Citrus Heights is located within the Delta geomorphic subunit, a Holocene floodplain containing peat deposits (Jennings 1985).

SOILS

The Soil Survey of Sacramento County, prepared by the United States Department of Agriculture (USDA), Natural Resource Conservation Service (formerly Soil Conservation Service) maps soil types in most of

Sacramento County, including Citrus Heights (see Figure 10-1). The planning area is underlain by numerous soil types that have various properties (see Table 10-1); however, the predominant soil types are the Xerarents-Fiddyment, Fiddyment fine sandy loam, and Fiddyment loam series. The majority of soils in the planning area have slight to moderate erosion potential and moderate shrink-swell potential. Shrink-swell refers to the soil's ability to expand when wet and to contract when dry.

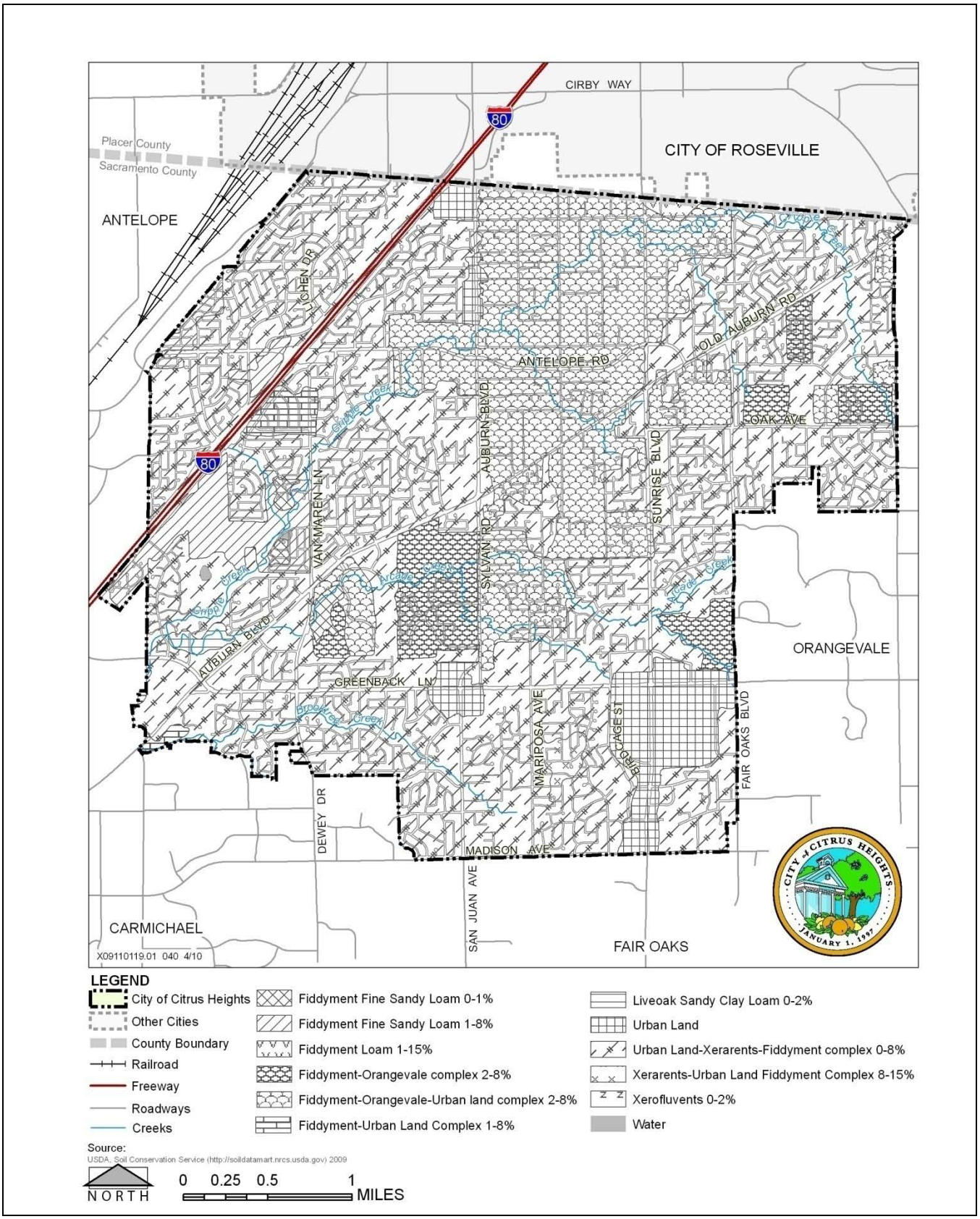
Table 10-1
Soil Types in Citrus Heights

Soil Type	Soil Slope[a]	Erosion Hazard	Shrink/Swell Potential[b]
229 Urban Land-Xerarents-Fiddyment complex	0–8%	slight to moderate	low to high
145 Fiddyment fine sandy loam	1–8%	slight	low to moderate
146 Fiddyment loam	1–15%	slight to moderate	high
227 Urban Land (large areas covered by impervious surfaces)	n/a	n/a	n/a
241 Xerarents-Urban Land-Fiddyment Complex	8–15%	moderate	low to high
242 Xerofluvents	0–2%	slight	low
185 Orangevale-Kaseberg-Urban Land complex.	8–25%	moderate to severe	low to moderate
162 Kaseberg-Fiddyment-Urban land complex	2–15%	slight to moderate	low
149 Fiddyment-Urban Land complex	1–8%	slight to moderate	moderate
148 Fiddyment-Orangevale-Urban land complex	2–8%	moderate	moderate
147 Fiddyment-Orangevale complex	2–8%	slight to moderate	moderate
144 Fiddyment Fine Sandy Loam	0–1%	slight	moderate
172 Liveoak Sandy Clay Loam	0–2%	slight	Low

a Soil types are known to occur within this slope range.
b The shrink-swell potential of soils could be a restrictive factor when it comes to site development. Site restrictions are identified when the type of use and site-specific characteristics are known (usually when a geotechnical study is developed for a project).
Source: USDA, Soil Conservation Service (http://soildatamart.nrcs.usda.gov) 2009

Shrinking and swelling of soil can damage roads, dams, building foundations, and other structures. High rated shrink/swell soil areas are located in the central portion of Citrus Heights, southeast of the Union Pacific Railroad tracks and north of Interstate 80, and in the southeastern portion of the City just north of Madison Avenue.

Erosion is a natural geologic process where landforms are worn down or reshaped over time by natural factors such as wind and water. The Citrus Heights area has low to moderate erosion ratings. In general, erosion occurs where there are steep slopes and the soil is continually exposed to wind and rain.



Citrus Heights Soils Map **Figure 10-1**

SEISMICITY AND SEISMIC HAZARDS

Regional Setting

The Central Valley and the Sierra Nevada, like most of California, are seismically active regions, although they have lower earthquake risk than many other areas of the state. The severity of seismic events is typically described using magnitude or intensity.) Magnitude is a measure of the strain energy released at the source of the earthquake, and there are several different magnitude scales that measure the release of seismic energy in different ways. The Moment Magnitude scale is the most commonly-used magnitude scale in the scientific community, although the Richter Magnitude scale is more commonly known among lay persons.

Unlike magnitude, intensity is the qualitative measurement based on effects on natural features, structures, and human life. Intensity is most often described using the Modified Mercalli Intensity (MMI) scale, which measures the perception of an earthquake on a scale ranging from a low of I (not felt) to a high of XII (total destruction).

There are no known faults or Alquist-Priolo Earthquake Fault Zones within the planning area. The primary site hazard associated with seismic activity would involve minor groundshaking from distant faults.

Active Faults

Although no active faults are located in the immediate vicinity of Citrus Heights, several large, active and potentially active faults are located within the surrounding region. These faults include the Dunnigan Hills Fault and other unnamed faults on the west side of the Sacramento Valley, and faults associated with the Foothills Fault System along the western slope of the Sierra Nevada. However, the probability that these faults would significantly affect Citrus Heights is considered to be small (Stickney 1998). Ground shaking felt in Citrus Heights is more likely to be the result of seismic activity along coastal faults (Stickney 1998).

Major faults located within 60 miles of Citrus Heights are listed in Table 10-2. The closest known active fault mapped by the California Division of Mines and Geology is the Foothills Fault Zone which is located approximately 15 miles northeast of Citrus Heights. Other active or potentially active faults that may be a hazard to the area include Green Valley-Concord, Hayward, San Andreas, and Calaveras.

Inactive Faults

Three local faults lie within approximately 20 miles of Citrus Heights, all of which are considered inactive (no activity in the Holocene period of the last 10,000 years). These include the Volcano Hill Fault, just east of Roseville, the Linda Creek Fault (which has uncertain existence and activity status) extending southeasterly along a portion of Linda Creek in the southern portion of Roseville and into Sacramento County, and a third unnamed fault. The unnamed fault is a west-east oriented fault between Rocklin and Folsom Reservoir. Portions of this

Table 10-2
Active & Potentially Active Regional Faults

Fault	Location Relative to Planning Area	Earthquake Year / Location	Historic Activity	MCE[a]
Midland Fault *	32 miles W	Pre-Quaternary (older than 1.6 m.y.)	--	7.0
Dunnigan Hills *	35 miles W	Holocene (200–10,000 y.)	--	6.5
Unnamed Fault (Coast Range-Sierran Block)	45 miles W	1892, Vacaville-Winters	6.5-7.0	7.0
Green Valley-Concord	60 miles SW	Holocene (200–10,000 y.)	"Creep"	7.0
Foothills Fault System **	15 miles NE	1975 Oroville	5.7	6.5
Coast Range-Sierra Block Boundary	35 miles SW	1892 Vacaville-Winters	--	7.0
Hayward	60 miles SW	1836, 1868	6.8	6.5-7.0
Calaveras	50 miles SW	1861	6.1	6.5-7.0
San Andreas	80 miles SW	1906, 1989 Loma Prieta	7.1	8.3

* Evidence of Quaternary (i.e. less than 1.6 million years old) faulting is not definitive for this fault zone.

** Evidence of Late Quaternary (i.e. less than 100,000 years) faulting is not definitive for this entire fault zone.

a MCE is the Maximum Credible Earthquake, defined as the strongest earthquake that is likely to be generated along an active fault zone, based on the geologic character of the fault and the earthquake history

Sources: Placer County, 1997; El Dorado County, 1997

fault are concealed, and may be connected to the Bear Mountain Fault Zone. In 1908, an earthquake estimated to have exceeded 4.0 on the Richter Scale occurred on an unnamed fault in the southwestern portion of Placer County, probably centered between Folsom, Auburn, Placerville and Roseville (BMI 1997). No significant seismic event has been recorded in the vicinity since that time.

Secondary Hazards

Active faults can result in a variety of secondary hazards including groundshaking, liquefaction and settlement. Groundshaking refers to the motion that occurs during the shifting of a fault. There have been no recent fault movements in Sacramento County. However, this region has experienced groundshaking from the movements of faults located east and west of the County.

Settlement refers to the compaction of soils due to seismic activity. Settlement of soil can range from a few inches to several feet. As an example, landfills frequently undergo settlement as a result of the decomposition of material.

Citrus Heights is located in a low severity zone assuming maximum earthquake intensity. In addition, all structures are designed for Seismic Zone 3, in accordance with provisions of the California Building Code.

Land Subsidence

Land subsidence is the loss of surface elevation due to removal of subsurface support. No known occurrences of subsidence have occurred in Citrus Heights.

Liquefaction

Liquefaction is the loss of soil strength due to seismic activity in association with water saturated soils. Liquefaction leads to a "quick sand" type condition for structures built in areas of poorly consolidated water saturated sediments or artificial fill.

Landslides

No landslides or landslide deposits have been mapped within the planning area. No evidence of slope instability such as landslide scars or mudflow features are observed in the planning area. Overall potential for slope instability in the planning area is considered low.

Dam Failure and Inundation Hazards

Dam failure inundation is defined as the flooding that occurs as the result of structural failure of a dam. Dam failure may be caused by seismic activity itself or seismic activity may result in inundation caused by a seismically- induced wave which overtops the dam without also causing dam failure known as a seiche. Dams may also be at risk due to potential acts of terrorism.

The planning area may potentially be affected in the unlikely event of a dam or dike failure at Folsom Lake. The Folsom Dam and Reservoir is located on the American River, about 20 miles upstream of the City of Sacramento, four miles east of Citrus Heights. Completed in 1956 by the Corps of Engineers, Folsom Dam is owned and operated by the U.S. Bureau of Reclamation (USBR). The reservoir has a storage capacity of 1 million acre-ft at gross pool. The reservoir includes about 4.5 miles of man-made dike with a crest elevation of 480.5 ft above sea level. Folsom Lake Dam infrastructure includes Folsom Dam, Folsom Right Wing, Dikes 4-8, and Mormon Island (USBR 1999).

In 1997, the USBR analyzed the potential effects of the Folsom Dam/Other Dam Infrastructure failure on the Sacramento region. Based on the results of the analysis, the City may be at risk if portions of the Dam/Infrastructure were to fail. The analysis indicates that if Folsom Dam itself were to fail, no portion of Citrus Heights would be inundated by the resulting flood. However, if Dike 5 were to fail, the northeastern corner of the city as well as the portion of the city parallel to Interstate 80, southwest to the city limits may become inundated up to 8.2-feet within approximately five-hours of breaching. Furthermore if the Folsom Right Wing were to fail, a portion of the floodwaters would follow the Cripple Creek channel resulting in inundation depths of up to 6.5-feet.

10.3 HAZARDOUS MATERIALS

HAZARDOUS MATERIALS REGULATORY SETTING

FEDERAL

Solid Waste Disposal Act/Resource Conservation and Recovery Act

The Solid Waste Disposal Act prohibits the disposal of nonhazardous liquids in hazardous waste landfills and prohibits bulk or non-containerized hazardous liquid wastes from disposal in any landfill. New technological standards were established by these laws for new landfills and surface impoundments.

House Resolution 2194

House Resolution (HR) 2194 requires federal facilities to comply with the (federal) Solid Waste Disposal Act. This act allows states to issue civil and administrative orders and/or collect fines and penalties if a federal agency violates hazardous waste laws. In addition, the law authorizes states to take criminal enforcement action against an employee, officer, or agent of a federal facility for violating hazardous waste laws.

Underground Storage Tanks

In 1984, Congress amended the Resource Conservation and Recovery Act to require registration of most underground tanks and ban the installation of unprotected tanks. These amendments set federal technical standards for all tanks, coordinate federal and state regulatory efforts, and provide for federal inspection and enforcement. The law also established financial responsibility requirements for tank owners and operators to cover costs of taking corrective action and to compensate third parties for injury and property damage caused by leaking tanks.

Comprehensive Environmental Response, Compensation and Liability Act (Superfund)

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 authorizes the federal government to respond to spills and other releases (or threatened releases) of hazardous substances, as well as to leaking hazardous waste dumps. A primary focus of the law is to identify and rehabilitate abandoned hazardous waste sites. The law authorized the Environmental Protection Agency (EPA) to identify responsible parties for the contamination of hazardous sites and allows the EPA to compel the parties to clean up the site.

Superfund Amendments and Reauthorization Act

The Superfund Amendments and Reauthorization Act (SARA) of 1986 amended CERCLA to accelerate the cleanup, and to resolve questions of jurisdiction that arose through the CERCLA process.

Emergency Planning and Community Right-To-Know Act

Title II of SARA requires local emergency planning to cope with chemical emergencies and ensures that responsible officials are provided with relevant information from local businesses about their activities involving hazardous chemicals. The Emergency Planning and Community Right-to-Know Act requires companies to provide information to local regulatory agencies, and provides for the protection of trade secrets.

Under Section 301, each state creates a State Emergency Response Commission (SERC), designates emergency planning districts, and establishes local emergency planning committees (LEPCs). Committees are required to work with facilities handling extremely hazardous substances to develop response procedures, evacuation plans, and training programs.

Toxic Substances Control Act

The Toxic Substances Control Act authorizes EPA to screen existing and new chemicals used in manufacturing and commerce to identify potentially dangerous products or uses that should be subject to federal control.

Asbestos Hazard Emergency Response Act

The Asbestos Hazard Emergency Response Act requires EPA to set standards for responding to the presence of asbestos in schools. Standards are set at levels adequate to protect public health and the environment, and appropriate response actions are identified that depend on the physical condition of asbestos. School District representatives are required to inspect for asbestos-containing material and to develop and implement a plan to manage any such material.

STATE

Safe Drinking Water and Toxic Enforcement Act

Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986, was enacted as a ballot initiative in November 1986. The Proposition was intended by its authors to protect California citizens and the State's drinking water sources from chemicals known to cause cancer, birth defects or other reproductive harm, and to inform residents about exposures to such chemicals. Proposition 65 requires the Governor to publish, at least annually, a list of chemicals known to the state to cause cancer or reproductive toxicity.

Toxic Release Contingency Plan

The Toxic Release Contingency Plan (California Government Code Section 8574.16) requires that regional and local planning agencies incorporate within their planning the State's effort to respond to emergency toxic releases, and ensure the effective and efficient use of regional and local resources in the areas of traffic and crowd control,

firefighting, hazardous materials response and cleanup, radio and communications control, and provision of emergency medical services.

Hazardous Materials Release Response and Inventory Program

The Hazardous Materials Release Response and Inventory Program (California Health and Safety Code Sections 25500-25520) establishes business and area plans for the handling and release of hazardous materials. Basic information on the location, type, quantity, and the health risks of hazardous materials handled, used, stored, or disposed of in the state, which could be accidentally released into the environment, is tracked by the local Certified Unified Program Agency (CUPA) within each region for the use and awareness of hazardous materials responders, firefighters, emergency care providers, regulatory agencies and other interested persons.

California Occupational Safety and Health Administration Hazardous Substances Emergency Response Training

California Occupational Safety and Health Administration (CalOSHA) Hazardous Substances Emergency Response Training is required for all workers involved with the handling, disposal or emergency response to hazardous materials (Title 8, Sec 5192). Various training levels are required depending on organizational level and responsibility level.

REGIONAL/LOCAL

Certified Unified Program Agency

The Environmental Compliance Division of the Sacramento County Environmental Management Department (EMD) has been designated by the California EPA as the Certified Unified Program Agency (CUPA) for the City of Citrus Heights. As CUPA, the Environmental Compliance Division is responsible for:

- Underground Storage of hazardous substances
- Hazardous Materials Business Plan requirements
- Hazardous Waste Generator requirements
- California Accidental Release Prevention program
- Uniform Fire Code hazardous materials management plan
- Above Ground Storage Tanks (Spill prevention control and countermeasures plans)

EXISTING CONDITIONS

HAZARDOUS MATERIALS SITES

Hazardous materials are any chemical or material that may cause a threat to health ranging from automobile oil to nuclear waste. All levels of government have increased the regulation of hazardous materials and toxic waste to

prevent effects on the environment and public health. The City of Citrus Heights primarily relies on federal, State, and County regulations to mitigate potential effects from hazardous materials.

No Superfund Site has been identified within the City of Citrus Heights. The state Department of Toxic Substance Control (DTSC) lists three sites in Citrus Heights that have historical uses that may include hazardous materials (See Table 10-3).

The EMD is responsible for the inventory, monitoring, and regulation of hazardous sites in the City of Citrus Heights. Based on the June 2009 EMD inventory, approximately 22 parcels have some level of toxic materials onsite (See Table 10-3). The majority of these sites are affected by petroleum (i.e., gas, oil, or diesel) spills and/or leaks. Some sites have been remediated, some are monitored, and others require remediation.

Table10-3
Citrus Heights Hazardous Materials Sites

Property Address	Business Name	Substance[1]	Case Type[2]	Date Reported
Sacramento County Environmental Management - Toxic Site List				
6180 Auburn Blvd	7-Eleven Store #24815	O	U	Unknown
6657 Auburn Blvd	Parks Enterprises	G	A	01/30/90
6701 Auburn Blvd	7-11 Store #22979	O	U	Unknown
7500 Auburn Blvd	5 Star Arco	G	A	11/09/90
7700 Auburn Blvd	Chevron #9-2174	G	OG	09/19/86
7741 Auburn Blvd	Shell	G	S	07/02/98
77770 Auburn Blvd	Rusch Park Texaco	G	OG	01/02/90
7801 Auburn Blvd	Sunrise (Rusch) Park	O	U	Unknown
8223 Auburn Blvd	Food & Liquor	G	OG	11/04/87
6140 Greenback Lane	Arco #6159	G	OG	04/20/89
7601 Greenback Lane	Conoco/Econo Gas	G	A	03/20/85
7899 Greenback Lane	Shell	G	OG	02/17/89
7999 Greenback Lane	Former Chevron #9-1703	G	OG	12/23/87
7401 Madison Ave	Former Chevron Station #9-0832	G	S	07/11/94
7656 Old Auburn Road	Roseville Telephone	G	OG	12/17/86
7909 Old Auburn Road	Former Chevron S/S #9-7411	G	OG	12/17/86
5927 San Juan Avenue	Bauer's San Juan Car Wash	G	U	12/30/99
6199 Sunrise Blvd	Former Auto Express	O	U	Unknown
7000 Sunrise Blvd	Copperwood Mall	O	OG	Unknown
7551 Sunrise Blvd	Chevron Service Station	G	U	01/02/98
7570 Sunrise Blvd	Texaco	G	OG	05/21/86
7796 Sunrise Blvd	Tosco-AM/PM	G	OG	10/12/93
California Department of Toxic Substances Control Sites (Envirostor)				
7347 Greenback Lane	Greenback Cleaners			
7360 Auburn Blvd	J&W Auto Wreckers			
8033 Greenback Lane	Sunrise Cleaners			

[1] G= Gasoline, W=Waste Oil, O=Other
[2] A=Aquifer Groundwater, S=Soil Only, OG=Other Groundwater, U=Unknown

10.4 AIRCRAFT AND HELICOPTER HAZARDS

AIRCRAFT AND HELICOPTER HAZARD REGULATORY SETTING

FEDERAL

Federal Aviation Administration

The Federal Aviation Administration (FAA) is responsible for the operations of airplanes and airports. The FAA enforces the Federal Aviation Regulations (FAR) which are intended to ensure the safety of passengers as well as people on the ground. Since there are no airports located within the planning area, the City has no communication with the FAA.

STATE

State Aeronautics Act

The State of California regulates airports under the State Aeronautics Act and Airport Land Use Commission Law. These laws are implemented by Airport Land Use Commissions (ALUCs) which are required by each county with a public use airport.

REGIONAL/LOCAL

Sacramento and Placer County Airport Land Use Commissions

In Sacramento County, the Sacramento Area Council of Governments (SACOG) serves as the ALUC and the Placer County Transportation Planning Agency (PCTPA) serves as the ALUC in Placer County. Each of these agencies is responsible for their respective airports and implementation of their respective Airport Land Use Compatibility Plans.

EXISTING CONDITIONS

AVIATION FACILITIES

Although there are no airports within Citrus Heights, there are eight airports within the general proximity of the planning area (See Table 10-4 below).

Since the eight airports within the region are located outside the city limits, the City has little control over the operations of the airports. Flight paths from these airports often cross over the City, however, most flight operations are at high elevations posing minimal safety hazards.

Table 10-4 Airports Located Near Citrus Heights		
Airport	Distance (Miles)	Direction
McClellan Airport	7	SW
Rio Linda Airport	9	SW
Mather Airport	10	S
Lincoln Airport (Placer Co)	14	N
Sacramento International Airport	17	W
Sacramento Executive Airport	18	SW
Sunset Sky Ranch	22	S
Franklin Airport	29	SW
Source: City of Citrus Heights 2009		

10.5 FLOODING

FLOODING REGULATORY SETTING

FEDERAL

Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations that limit development in floodplains. FEMA also issues Flood Insurance Rate Maps (FIRMs) that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection covered by the FIRMs is established by FEMA, with the minimum level of flood protection for new development determined to be the 1-in-100 annual exceedance probability (AEP) (i.e., the 100-year flood event). As developments are proposed and constructed FEMA is also responsible for issuing revisions to FIRMs, such as Conditional Letters of Map Revision (CLOMR) and Letters of Map Revision (LOMR) through the local agencies that work with the NFIP.

Executive Order 11988

Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding a project in a floodplain to do the following:

- avoid incompatible floodplain development,
- be consistent with the standards and criteria of the NFIP, and

- restore and preserve natural and beneficial floodplain values.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) is responsible for issuing permits for the placement of fill or discharge of material into waters of the United States. These permits are required under Sections 401 and 404 of the Clean Water Act. Water supply projects that involve in-stream construction, such as dams or other types of diversion structures, trigger the need for these permits and related environmental reviews by USACE. USACE also is responsible for flood control planning and assisting State and local agencies with the design and funding of local flood control projects.

STATE

California Department of Water Resources

The California Department of Water Resources (DWR) is responsible for preparation of the California Water Plan, management of the State Water Project (SWP), regulation of dams, provision of flood protection, and other functions related to surface water and groundwater resources. These other functions include helping water agencies prepare their Urban Water Management Plans (UWMPs).

Central Valley Flood Protection Plan

The Central Valley Flood Protection Plan (CVFPP) is a part of the Central Valley Flood Management Planning (CVFMP) Program that is intended to be a sustainable, integrated flood management plan for the Central Valley. The CVFPP will describe existing flood risks in the Central Valley and recommend actions to remove the risks of future flooding, lessen the consequences in the event that a flooding event occurs, and provide recommendations for improvements to the State and federal flood protection systems. DWR is in the process of preparing the CVFPP, and is required to adopt it by January 1, 2012, with regular updates to the plan occurring every five years.

Assembly Bill 162

Assembly Bill (AB) 162 was signed into law by Governor Schwarzenegger in October 2007 and requires each city and county located within the Sacramento-San Joaquin Drainage District to submit draft safety elements of their general plans and amendments to their safety elements to the Central Valley Flood Protection Board (CVFPB) for review and comment. This requirement went into effect on January 1, 2009.

REGIONAL/LOCAL

Sacramento Area Flood Control Agency

The Sacramento Area Flood Control Agency (SAFCA) is a Joint Powers Agency formed in 1989 by the City of Sacramento, County of Sacramento, Sutter County, the American River Flood Control District, and Reclamation

District 1000. SAFCA is tasked with addressing deficiencies in flood control in the Sacramento area. SAFCA leads flood control improvement projects to provide a minimum of 100-year level flood protection immediately with the intention of eventually achieving 200-year level protection.

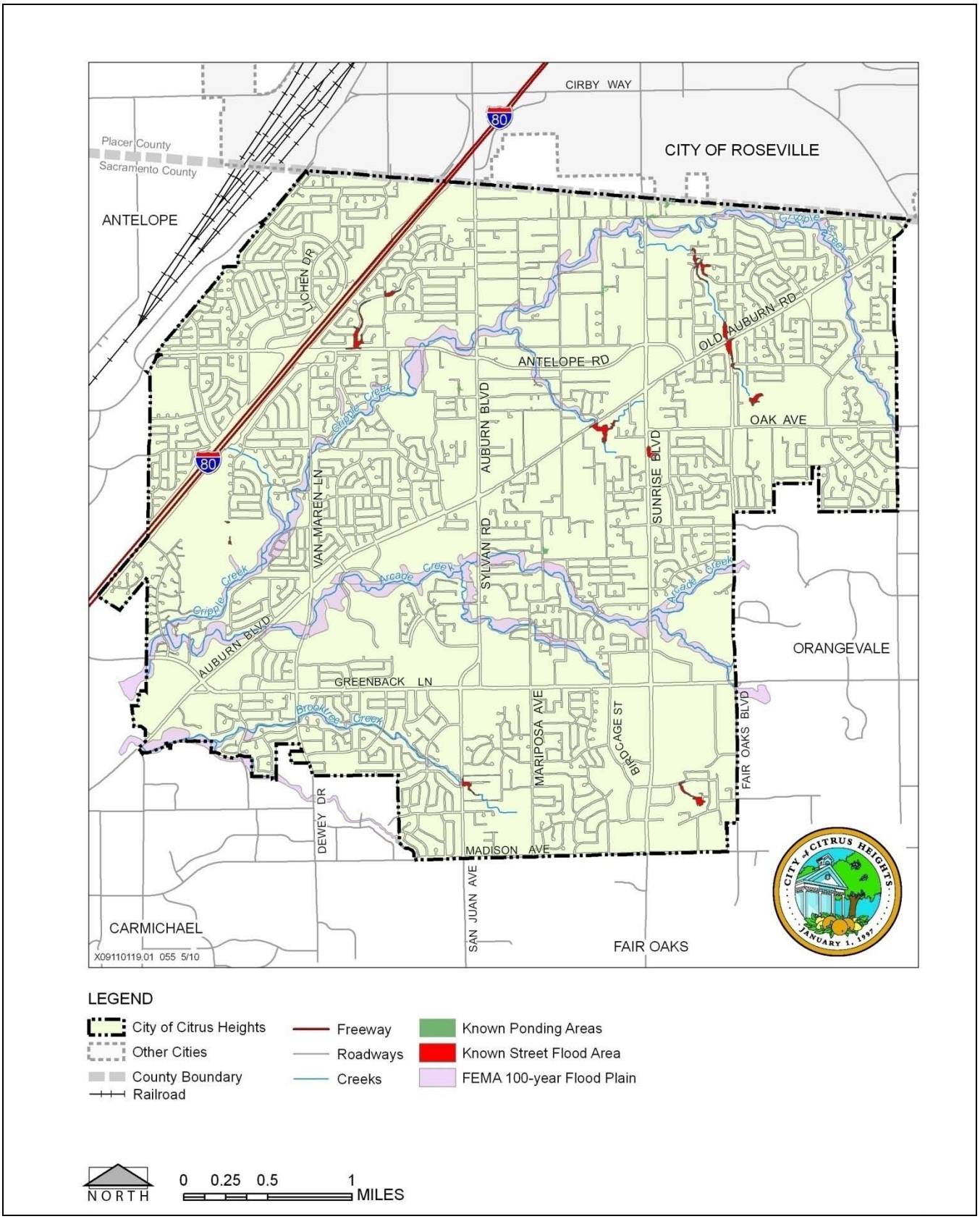
EXISTING CONDITIONS

Flooding is defined as an overflowing of normally dry land, often after heavy rain. When the capacities of streams and storm drainage facilities are exceeded, flooding often occurs. Arcade and Cripple Creeks have relatively small hydrologic capacity and can be quickly overwhelmed during severe storm runoff events resulting in the overflowing of stream channel banks and the temporary inundation of floodplains and connected low lying areas.

The Federal Emergency Management Agency (FEMA) maintains flood maps (flood insurance rate maps [FIRMs]) on which the 100-year floodplain of significant drainages are identified. The 100-year floodplain is used to identify unacceptable safety hazards and indicates the geographic area having a one percent chance of being flooded in any given year. Citrus Heights (Sacramento County) FIRM panels 80, 85, 90, 95, and 105 (Community # 060262) identify the 100-year floodplains for the streams in the planning area (FEMA 1998). Approximate boundaries of flood hazard areas (100-year floodplains) for the Citrus Heights area are shown on Figure 10-2.

Development (structures, bridges, fill) within the 100-year floodplain is evaluated to ensure consistency with the restrictions of the Zoning Code. Development within a floodplain could increase the flood hazard to adjacent properties by raising upstream floodplain elevations and/or increasing downstream flow and water velocities. A raised upstream floodplain can occur with downstream displacement of flood storage, which occurs when a floodplain is filled. Such floodplain disturbance can result in a constriction in the natural flow of water which increases the speed of water traveling downstream. The Citrus Heights Zoning Code prohibits new construction within the 100-year floodplain except for fences. The Zoning Code also includes minimum creek setbacks for development adjacent to creeks. For existing properties that are entirely in the floodplain and comply with the City's Drainage and Development Policy, development may occur, provided that each structure is designed to have the habitable finished floor elevation a minimum of two feet above the 100-year floodplain.

The City Engineering Division maintains a citywide list of past chronic flooding within the City. This list includes flood complaints registered with the Engineering Department using data from the past several years. Figure 10-1depicts the FEMA 100 year floodplain as well as known ponding and street flooding locations in the City.



100-Year Flood Plain and Flood Issues Map **Figure 10-2**

FLOOD CONTROL/MANAGEMENT

The City of Citrus Heights is provided flood control and management services from the Sacramento County Water Agency (SCWA). The SCWA, through its efforts at managing the flood control system under its jurisdiction, has created three Zones, which the City is covered under. These Zones include Zone 11, Zone 12, and Zone 13.

Zone 11 is a drainage fee zone formed to provide funding for the construction of drainage facilities in Sacramento County. Fees are collected through Zone 11 from new development. Zone 12, now a separate utility, provides storm drain maintenance and improvements for Sacramento County, such as channel clearing and servicing pumping plants. Zone 13, an assessment district, provides funding for flood control and water supply planning, groundwater studies, and FEMA programs. Zone 13 collects fees from benefiting parties.

In 2010 the City will no longer contract with Sacramento County for the operations and maintenance of drainage facilities. The City will contract with private contractors to provide these services.

10.6 EMERGENCY OPERATIONS

The Sacramento County Emergency Operations Plan addresses the County's planned response to extraordinary emergency situations associated with natural disasters, technological incidents and national security emergencies in or affecting Sacramento County, including acts of terrorism. This plan does not apply to normal day-to-day emergencies or the established departmental procedures used to cope with such emergencies. Rather, this plan focuses on operational concepts relative to large-scale disasters which can pose major threats to life, property and the environment requiring unusual emergency responses.

Emergencies that Sacramento County and Citrus Heights may face include:

NATURAL HAZARDS

- Severe Weather
- Flood
- Earthquake
- Wildland fire
- Drought
- Freeze
- Disease Outbreak
- Landslide/Subsidence
- Volcanic Ash from Volcanic Eruption

TECHNOLOGICAL HAZARDS

- Hazardous materials accident
- Transportation accidents
- Dam failure
- Loss of utilities (phone, power, potable water)
- Airplane crash

HUMAN-BASED HAZARDS

- Civil Disturbance
- Terrorism

CITY EMERGENCY OPERATIONS CENTER

The City recently completed construction of a new 29,173 square foot Community Center. A major component of this new state of the art facility is the ability to provide the Citrus Heights community with an emergency operations/evacuation center (EOC) in case of an actual emergency event. The actual evacuation center is over 11,000 square feet and the emergency operations center is over 1,000 square feet. These two areas, along with some additional components within the building, will be able to function as a fully equipped emergency operations command center as well as a shelter in case of emergency, natural disaster or other event of unprecedented status.

The building is outfitted with an emergency power backup generator to provide the necessary electricity to maintain two-thirds of the building. The 900-gallon diesel tank will run for 72 hours without interruption before requiring refueling. The main hall, the EOC Command rooms, the kitchen, and restrooms are all set up for emergency power. The building feeds directly into the Citrus Heights Police Department which also has an emergency backup power supply and is linked into the 911 Dispatch center for the City. The EOC is wireless and equipped to handle additional emergency phone lines as well as multiple computers and equipment at a moment's notice.

CITY EMERGENCY OPERATIONS PLAN

The City is currently in the process of finalizing the Citrus Heights Emergency Operations Plan. This plan will guide the City in the event of an emergency within the City Limits. The City envisions adopting the plan in the fall of 2010.

10.7 REFERENCES

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Exhibits

Tables

Acronyms

National Earthquake Hazards Reduction Program (NEHRP
Multi-Hazard Mitigation Plan (MHMP
United States Department of Agriculture (USDA
magnitude (M
Modified Mercalli Intensity scale (MMI
U.S. Bureau of Reclamation (USBR
House Resolution (HR
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA
Environmental Protection Agency (EPA
Superfund Amendments and Reauthorization Act (SARA
State Emergency Response Commission (SERC
local emergency planning committees (LEPCs
Certified Unified Program Agency (CUPA
California Occupational Safety and Health Administration (CalOSHA
Environmental Management Department (EMD
Department of Toxic Substance Control (DTSC
Federal Aviation Administration (FAA
Federal Aviation Regulations (FAR
Airport Land Use Commissions (ALUCs
Sacramento Area Council of Governments (SACOG
Placer County Transportation Planning Agency (PCTPA
Federal Emergency Management Agency (FEMA
flood insurance rate maps [FIRMs
Sacramento County Water Agency (SCWA

Citations

Sections/Chapter

Appendices

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Miscellaneous