

Hazards and Safety Issues

This section of the Background Report covers the topic of Hazards and Safety Issues. The following hazards are discussed in this section:

- Hazardous Materials Sites
- Transport of Hazardous Materials
- Suburban Propane
- Georgia Pacific Resins
- Known and Unknown Hazards
- Airport Hazards
- Railroad At-Grade Crossings

Hazardous Materials Defined

A material is considered hazardous if it appears on a list of hazardous materials prepared by a Federal, State, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22 of the California Code of Regulations (CCR) as:

...A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed (California Code of Regulations, *Title 22, Section 66260.10*).

Chemical and physical properties that cause a substance to be considered hazardous, including the properties of toxicity, ignitability, corrosivity, and reactivity, are defined in the CCR, Title 22, Sections 66261.20 - 66261.24. Factors that influence the health effects of exposure to hazardous material include the dose to which the person is exposed, the frequency of exposure, the exposure pathway, and individual susceptibility.

Hazardous Materials Sites Within the Planning Area

The State of California Hazardous Waste and Substances Site List (also known as the "Cortese List") is a planning document used by state, local agencies, and developers to comply with the California Environmental Quality Act (CEQA) requirements in providing information about the location of hazardous materials sites. Government Code Section 65962.5 requires the California Environmental Protection Agency (EPA) to annually update the Cortese List. The Department of Toxic Substances Control (DTSC) is responsible for preparing a portion of the information that comprises the Cortese List. Other state and local government agencies are required to provide additional hazardous material release information that is part of the complete List. CAL-SITES (ASPIS) Database is compiled by the California Environmental Protection Agency (Cal-EPA) to identify and track potential hazardous waste sites. In addition to the Cortese List and CAL-SITES, the County of Sacramento's Department of Environmental Health also maintains lists of hazardous material sites, releases and accident occurrences. Searches of the above resources and records identified 40 hazardous material sites in the vicinity of the Planning Area known to handle and store hazardous materials and are associated with a hazardous material related release or occurrence. The terms "release" or "occurrence" includes any means by which a substance could harm the environment: by spilling, leaking, discharging, dumping, injecting or escaping. **Table 9-1** displays all of the known hazardous material sites within the Planning Area (see **Figure 9-1**).

It should be noted that none of the sites listed in **Table 9-1** are currently on the "Cortese List." An "active" status does not mean that the site poses an environmental or human safety risk, only that there is a hazardous material occurrence associated with the facility and that the site is presently undergoing remediation or is under further regulatory review.

In addition to the sites listed in **Table 9-1**, the abandoned Sonada Nursery, which was located on the northern and southern sides of Bond Road and east of Bradshaw Road, used underground storage tanks (USTs) for its operations. Anderson Geotechnical Consulting conducted a Preliminary Site Assessment (PSA) for the Sonada property site in October 1989. According to the Assessment, a review of the file at the Sacramento County Health Department revealed that four USTs were installed in 1975. The 1,000-gallon fuel tank was removed in August of 1988 with no sign of contamination being detected by the county inspector after removal of the tank. The Sonada property was not on the Cortese List, on the National Priority List (NPL), or in the CERCLIS database. Additionally, the Sonada site was not included on the Abandoned Site Program Information System, which is used by the DTSC to identify sites that may have been contaminated with hazardous materials.

Transportation of Hazardous Materials

The transportation of hazardous materials within the Planning Area is subject to various federal, state, and local regulations. The only roadway and transportation route approved for the transportation of explosives, poisonous inhalation hazards, and radioactive materials in the City of Elk Grove Planning Area is Interstate 5. According to the Elk Grove Police Department, it would not be possible to identify the roads that could be used for local delivery, since any delivery of swimming pool chlorine would be considered transportation of an inhalant hazard. It is likely that the majority of such deliveries would be to industrial areas concentrated along Grant Line Road and State Route 99. The following provisions are included in the California Vehicle Code and pertain to the transportation of hazardous related materials.

The Highway Patrol designates the routes in California, which are to be used for the transportation of explosives. (Section 31616)

The CVC applies when the explosives are transported as a delivery service for hire, or in quantities in excess of 1,000 pounds. The transportation of explosives in quantities of 1,000 pounds or less, or other than on a public highway, is subject to the California Health and Safety Code. (Section 31601(a)) It is illegal to transport explosives or inhalation hazards on any public highway not designated for that purpose, unless the use of the highway is required to permit delivery of, or the loading of, such materials. (Section 31602(b) and Section 32104(a))

When transporting explosives through or into a city for which a route has not been designated by the Highway Patrol, drivers must follow routes as may be prescribed or established by local authorities. (Section 31614(a))

Inhalation hazards and poison gases are subject to additional safeguards. These materials are highly toxic, spread rapidly, and require rapid and widespread evacuation if there is loss of containment or a fire. The Highway Patrol designates through routes to be used for the transportation of inhalation hazards. It may also designate separate through routes for the transportation of inhalation hazards composed of any chemical rocket propellant. (Section 32100 and Section 32102(b))

In addition to area roadways, hazardous materials are routinely transported on existing railroad facilities that pass through both the existing City limits and the Planning Area. The Union Pacific Railroad (UPRR) is within the existing City limits and runs diagonally north to south and is located east of SR-99. The Central California Traction Railroad (CCTRR) runs north to south near the eastern portion of the Planning Area and is also located within the existing city limits.

**Table 9-1
Known Hazardous Material Release Sites in the Vicinity of the Planning Area**

Facility Name	Street Number and Name	City	Zip Code	Case Type	Status Active? Yes/No
1) RCCC-Sheriff's Substation	12500 Bruceville Road	Elk Grove	95624	Undefined	No
2) Floyd Pederson Ventures	7927 Elk Grove Blvd	Elk Grove	95624	Soil	No
3) Laguna 99 Cleaners	8451 Elk Grove Blvd	Elk Grove	95624	Undefined	Yes
4) Baker Wells and Pumps	8460 Elk Grove Blvd	Elk Grove	95624	Undefined	No
5) Tosco #30970	8475 Elk Grove Blvd	Elk Grove	95624	Undefined	No
6) Arco #2123	8500 Elk Grove Blvd	Elk Grove	95624	Soil	No
7) Shell Oil Products	8607 Elk Grove Blvd	Elk Grove	95624	Soil	Yes
8) Regal SS (former)	8900 Elk Grove Blvd	Elk Grove	95624	Soil	No
9) Shell SS	8901 Elk Grove Blvd	Elk Grove	95624	Undefined	Yes
10) Circle-K (former)	8949 Elk Grove Blvd	Elk Grove	95624	Soil	No
11) Unocal #4829	8999 Elk Grove Blvd	Elk Grove	95624	Undefined	No
12) Arco	9000 Elk Grove Blvd	Elk Grove	95624	Undefined	No
13) Horning Property	9020 Elk Grove Blvd	Elk Grove	95624	Undefined	Yes
14) Elk Grove Paint and Wallpaper	9097 Elk Grove Blvd	Elk Grove	95624	Groundwater	No
15) Arco #5696	9215 Elk Grove Blvd	Elk Grove	95624	Soil	No
16) Harcrow Property	9251 Elk Grove Blvd	Elk Grove	95624	Soil	No
17) Elk Grove Milling Inc.	8320 Eschinger	Elk Grove	95624	Undefined	No
18) Gil's Garage	10413 Franklin Blvd	Elk Grove	95624	Soil	No
19) Transcon Lines	10401 Grant Line Rd	Elk Grove	95624	Undefined	No
20) Ward's Texaco SS	8995 Grant Line Rd	Elk Grove	95624	Undefined	No
21) Crump Residence	9674 Kent St	Elk Grove	95624	Soil	No
22) Mel Oneto	8490 Lambert Rd	Elk Grove	95624	Soil	No
23) Charles W & Audrey Stanton	5925 Pine Vista	Elk Grove	95758	Undefined	No
24) Fred	9676 Railroad	Elk Grove	95624	Undefined	No

Facility Name	Street Number and Name	City	Zip Code	Case Type	Status Active? Yes/No
Cullincini Trust					
25) FAA Remote Repeater	Rodgers Rd	Elk Grove	95624	Undefined	No
26) Kalwani Property	8151 Sheldon Rd	Elk Grove	95624	Soil	No
27) Flying "V" SS (former)	10473 Stockton Blvd	Elk Grove	95624	Groundwater	No
28) E & J Market (former SS)	8706 Stockton Blvd	Elk Grove	95624	Soil	No
29) Century Equipment	8821 Stockton Blvd	Elk Grove	95624	Soil	No
30) Citizens	9260 E Stockton Blvd	Elk Grove	95624	Undefined	No
31) Walt Davis Chevy	9501 Stockton Blvd	Elk Grove	95624	Undefined	No
32) Elk Grove Exxon	9603 E Stockton Blvd	Elk Grove	95624	Undefined	Yes
33) Georgia-Pacific	10399 Stockton Blvd	Elk Grove	95624	Soil	Yes
34) Residence	9800 Waterman	Elk Grove	95624	Undefined	Yes
35) Kingsford Production Co	10000 Waterman Rd	Elk Grove	95624	Soil	No
36) Conoco Asphalt Terminal	10090 Waterman Rd	Elk Grove	95624	Soil	No
37) World Asphalt	10144 Waterman Rd	Elk Grove	95624	Soil	No
38) Paul Ward's Texaco (former)	10415 Wilton Rd.	Elk Grove	95624	Soil	No
39) Elk Grove Unified School District	8820/8800 Elk Grove Blvd	Elk Grove	95624	Undefined	No
40) Govan Property	10464 Franklin Blvd	Franklin	95758	Soil	No

Figure 9-1 – hazards

Figure 9-1, cont.

Major Hazardous Material Handling Facilities in the Planning Area

There are two major industrial facilities that potentially pose offsite safety hazards within the Planning Area: the Suburban Propane facility, which is located at 10450 Grant Line Road, and the Georgia Pacific Resins facility, which is located at 10399 East Stockton Boulevard. Both facilities are within the Elk Grove City limits. Existing land uses within a one-half mile radius of these facilities consist of light and heavy industrial, office, commercial, residential and agricultural. Several studies have been conducted to determine the site-specific risks and evaluate the consequences that could be attributed to these facilities, including:

- Review of Suburban Propane Hazards Analysis Studies and Evaluation of Accident Probabilities by Quest Consultants in June 2003.
- A Screening-Level Hazard Analysis prepared by Dames and Moore in March 1992 and a second Screening-Level Hazard for Propane Emergency Release in May 1998.
- A “worst-case” scenario for possible predictable occurrences at the Suburban Propane facility, prepared by John Jacobus, Ph. D., in November 1999.
- A Quantitative Risk Analysis for both the Suburban Propane and Georgia-Pacific Resins facilities, prepared by Quest Consulting in August 2000.
- The Suburban Propane Hazard Assessment, Joint Fire and Law Hazard Assessment Work Group for Suburban Propane facility, prepared by Dunbar and Jukes in November 1999.

These studies analyzed the hazard types, incidence scenarios, worst-case effects and the extent of those effects, specific conditions associated with worst-case effects, and approximate probabilities associated with each scenario. Offsite hazards to human health and property associated with incident at Suburban

Propane and Georgia-Pacific facility identified in these reports include the following:

- **Vapor cloud explosion** from a release at Suburban Propane that generates an overpressure. A 1.0 pounds per square inch gauge (psig) overpressure is not high enough to cause a fatality directly. However, it is high enough to cause a person to be knocked to the ground and be injured. In addition, a 1.0 psig can damage structures.
- **Radiant heat** of 200 kilojoules per square meter (kJ/m²) can result in second-degree skin burns. This dose can be achieved by exposing a person to 5 kilowatts per square meter (kW/m²) for 40 seconds or 10 kW/m² for 20 seconds.
- **Flash fire**, the lower flammable limit (LFL) defines the boundary of the flammable cloud. Persons outside the cloud are not harmed by the flash fire that heads back to the source if the cloud ignites. Persons inside the cloud can be burned or killed.
- **Shrapnel**, the danger to a person or property from shrapnel is one of being hit. The probabilities are extremely low in all cases since only a small number of shrapnel pieces are generated per failure.

Formaldehyde exposure, the most serious hazard associated with the exposure to formaldehyde vapor evolving from a spill of formalin is prolonged exposure (up to 60 minutes) to concentration levels at or above 25 parts per million (ppm). This results in a toxic dose of 1,500 ppm-min. (25 ppm x 60 minutes). This dose will allow a person to be exposed without experiencing or developing life-threatening health effects.

A summary of hazards identified in these reports is provided in **Table 9.2**. With the exception of the Quest reports (2000 and 2003), none of the previously mentioned

**Table 9-2
Summary of Hazardous Scenarios**

Report	Scenario ID	Description of Scenario	Hazards of Interest				
			Vapor Cloud Explosion	Fire	Shrapnel	Blast Wave from Tank Failure	Toxic Cloud
Jacobus	J-1	Major failure of two refrigerated propane tanks at the same time	X	Pool			
Jacobus	J-2	Major failure of one refrigerated propane tank	X	Pool			
Jacobus	J-3	Simultaneous catastrophic failure of all four pressurized propane storage tanks	X	Fireball			
Jacobus	J-4	Catastrophic failure of one pressurized propane storage tank	X	Fireball			
Jacobus	J-5	Catastrophic failure of one 33,000-gallon pressurized propane railcar	X	Fireball			
Jacobus	J-6	Catastrophic failure of one 10,000-gallon pressurized propane tank truck	X	Fireball			
Dames & Moore	DM-1	Catastrophic failure of one pressurized propane storage tank		Fireball		X	
Dames & Moore	DM-3	Full-bore rupture of a 3-inch diameter pipe containing refrigerated propane	X	Flash			
Dames & Moore (second report)	DM-4	Full-bore rupture of a 6-inch diameter pipe containing refrigerated propane	X	Flash			
Jukes and Dunbar	JD-1	Catastrophic failure of one 33,000-gallon pressurized propane railcar	X	Flash Fireball	X	X	
Jukes and Dunbar	JD-2	Major failure of one refrigerated propane tank	X	Flash			
Jukes and Dunbar	JD-3	Major failure of two refrigerated propane tanks at the same time	X	Flash			

Report	Scenario ID	Description of Scenario	Hazards of Interest				
			Vapor Cloud Explosion	Fire	Shrapnel	Blast Wave from Tank Failure	Toxic Cloud
Jukes and Dunbar	JD-4	Major failure of the formalin tank at Georgia-Pacific					X
Koopman	K-1	Major failure of two refrigerated propane tanks at the same time	X	Flash			
Koopman	K-2	Major failure of one refrigerated propane tank	X	Flash			
Koopman	K-3	Simultaneous catastrophic failure of all four pressurized propane storage tanks	X	Fireball	X		
Koopman	K-4	Catastrophic failure of one pressurized propane storage tank	X	Fireball			
Koopman	K-5	Major failure of the formalin tank at Georgia-Pacific					X
Quest	Q-1	Major failure of two refrigerated propane tanks at the same time	X	Pool Flash			
Quest	Q-2	Major failure of one refrigerated propane tank	X	Pool Flash			
Quest	Q-3	Catastrophic failure of one pressurized propane storage tank	X	Fireball Flash	X	X	
Quest	Q-4	Catastrophic failure of one 60,000-gallon pressurized propane railcar	X	Fireball Flash	X	X	
Quest	Q-5	Catastrophic failure of one 10,000-gallon pressurized propane tank truck	X	Fireball Flash	X	X	
Quest	Q-6	Full-bore rupture of a 3-inch diameter pipe containing refrigerated propane	X	Pool Torch Flash			
Quest	Q-7	Full-bore rupture of a 6-inch diameter pipe containing refrigerated propane	X	Pool Torch Flash			
Quest	Q-8	Major failure of the formalin tank at Georgia-Pacific					X

reports provide any quantification of the probability of an accidental or intentional incident at either facility resulting in human injury, death, or property damage.

Suburban Propane

The Suburban Propane Elk Grove Facility is considered one of the largest above ground propane storage facilities in the United States. This facility receives pressurized ambient temperature liquid propane from tank trucks and railcars, and stores both ambient temperature and refrigerated liquid propane, and loads ambient temperature propane for offsite transport.

The major components at the Suburban Propane facility include four 60,000-gallon pressurized, ambient temperature propane storage tanks (herein referred to as "bullet tanks"), two 12,000,000-gallon refrigerated, low pressure storage tanks, tank truck and railcar loading/unloading stations, a propane refrigeration system, a flare, and safety systems such as the water spray system in place in the railcar and truck loading area. The propane storage bullet tanks are approximately 12 feet in diameter and 91 feet long, placed horizontally on concrete supports about 5 feet above the ground. The large refrigerated propane storage tanks are approximately 146 feet in diameter and 122 feet tall.

Propane is received at the facility as pressurized, ambient temperature liquid carried in tank trucks or railcars. The tank trucks have a typical capacity of 10,000 gallons and the railcars a typical capacity of 33,000 gallons. Propane is transferred from tank trucks to the storage bullet tanks using pumps mounted on the trucks. Propane is moved from the railcars to the storage bullet tanks by increasing the pressure in the railcars using a compressor. The compressor takes vapor from the four pressurized, ambient temperature storage vessels, increases the pressure of the vapor, and uses the higher pressure vapor to force liquid from the railcars into the storage bullet

tanks. The propane bullet tanks' liquid lines are manifolded together, with the liquid inlet valves normally open on all four tanks. This provides for maximum surge capacity for the pressurized propane storage system.

Propane stored in the pressurized, ambient temperature bullet tanks is used to fill tank trucks or railcars for off-site delivery. The filling operation involves using centrifugal pumps to move the ambient temperature liquid propane from the bullet tanks to the tank truck/railcar. The vapor displaced by the liquid filling is returned to the bullet tanks. Propane from the bullet tanks is also transferred to the refrigerated tanks using the pressure difference between the pressurized bullet tanks and the near atmospheric pressure in the refrigerated storage tanks. The pressurized liquid from the bullet tanks is mixed with cold propane liquid and fed to the bottom of each refrigerated tank, where the pressurized liquid depressurizes and mixes with the cold liquid in the tank. The vapor produced by the depressurization is removed by way of a vapor line at the top of each tank, heated in a compressor preheater, compressed, cooled, and liquefied. The warm pressurized liquid is then flashed to produce cold propane liquid and flash vapor. The cold flash vapor is recycled through the preheater, compressor, and heat exchanger to produce more cold liquid. The propane refrigeration system is designed to handle vapor volumes from both normal heat leak into the refrigerated tanks and the larger volume of vapor produced by a full-rate transfer of ambient temperature pressurized liquid in the hot summertime.

The large refrigerated storage tanks serve as storage reservoirs that can absorb the seasonal swings in propane demand. Liquid propane can be moved from the refrigerated storage tanks to the pressurized bullet tanks using centrifugal pumps. The cold liquid is first pumped to a pressure higher than found in the bullet tanks. The pressurized cold liquid is heated, using a remotely-fired glycol heater, to near ambient temperature, and flows to the

pressurized bullet tanks. Each refrigerated tank can supply propane to the bullet tanks at a rate of 250 gallons per minute (gpm).

The ambient temperature propane storage bullet tanks are protected from overpressure by multiple pressure relief valves located on the top of each tank. A water spray system protects each bullet tank from excessive heating due to fire exposure. The refrigerated storage tanks are equipped with pressure and liquid level gauges, liquid overflow vents, pressure relief valves, vacuum breakers, and a vent line to the facility flare. The vent line to the flare is passed through a water seal with a 20-inch head of water. When the tank pressure exceeds 20 inches of water (about 0.7 pounds per square inch [psi]), vapor flows from the refrigerated storage tank through the water seal and into the flare stack. If pressure in the refrigerated tanks continues to increase, pressure relief valves located at the top of the tank open, venting vapor to the atmosphere. Further, increases in pressure (above 1 psig [pounds per square inch gauge]) result in the venting of vapor from a large weighted relief valve on the tank roof.

The tank truck and railcar loading/unloading facilities are both equipped with water deluge systems. In the event of a fire in either of these areas, the deluge systems should help prevent tank trucks and railcars from failing catastrophically due to excessive heat and internal pressure.

Georgia-Pacific Resins Facility

The largest quantity of formalin at the Georgia-Pacific facility is contained in Tank 105. This is an above-ground tank of welded steel construction. It has a nominal capacity of 40,000 gallons and is insulated. Formalin (a mixture of formaldehyde and water) within the tank is heated in order to maintain its temperature at about 140 degrees Fahrenheit. Tank 105 is surrounded by a concrete containment structure that is large enough to hold the entire contents of

the tank. The "pool area" of the concrete containment is approximately 11,120 square feet. Based on the physical characteristics of the materials stored on the Georgia-Pacific facility, formaldehyde would pose the largest problem following a large accidental release.

Formaldehyde is a colorless gas that can be toxic at certain levels by inhalation, ingestion, or physical contact. The odor of formaldehyde has a pungent, hay like smell at concentrations well below 1.0 ppm, which would provide ample warning to people and emergency response personnel in the vicinity of a release and allow them to move away from the source of toxic vapor.

Known and Unknown Hazardous Materials in the Planning Area

Asbestos Containing Building Materials

Structures constructed or remodeled between 1930 and 1981 have the potential to contain asbestos containing building materials (ACBM). These materials may include, but are not limited to floor coverings, drywall joint compounds, acoustic-ceiling tiles, piping insulation, electrical insulation and fireproofing materials. Asbestos is a general name for a group of naturally occurring minerals composed of small fibers. It is common in many building materials. Various diseases have been associated with exposure to asbestos fibers, and the extensive use of asbestos in building materials has raised some concern about exposure in non-industrial settings. Health hazards associated with ACBMs include increased risks of cancer and respiratory related illnesses and diseases. The presence of asbestos in a building does not mean that the health of building occupants is endangered. As long as asbestos-containing materials remain in good condition and are not disturbed or damaged, exposure is unlikely. On the other hand, damaged, deteriorated, or disturbed asbestos-containing materials can lead to fiber release (exposure), and unauthorized

removal or disturbance of asbestos materials could result in adverse health effects. There are numerous buildings and structures within the Planning Area that were constructed between 1930 and 1981. The potential safety hazards resulting from ACBMs are greatest during demolition activities.

Lead Based Materials

Exposure to lead from older vintage paint is possible when the paint is in poor condition or during paint removal. In construction settings, workers can be exposed to airborne lead during renovation, maintenance or removal work. Lead-based paints were phased out of production in the early 1970s. Lead is a highly toxic metal that was used for many years in products found in and around homes. Lead may cause a range of health effects, from behavioral problems and learning disabilities, to seizures and death. Children 6 years old and under are most at risk. Research suggests that the primary sources of lead exposure for most children are: deteriorating lead-based paint, lead contaminated dust, and lead contaminated residential soil. Many of the buildings and structures within the Planning Area were constructed prior to the ban on lead-based paints and, therefore, it is likely that these materials are present throughout the Planning Area. Proper handling and disposal of lead based materials significantly reduces potential environmental related impacts. In addition to lead associated with household uses, it is likely that aerially deposited lead is present along some of the roadways in the Planning Area. This is of primarily a concern along SR 99 and Interstate 5, where there are substantial amounts of traffic volumes. Aerially deposited lead is lead deposited within unpaved areas or formerly unpaved areas, primarily due to vehicle emissions. Aerially deposited lead is typically found within the top 0.6-m of material in unpaved areas within heavily traveled roadway rights-of way.

PCB Transformers

In 1976, the United States Congress enacted the Toxic Substances Control Act (TSCA), which gave the Environmental Protection Agency (EPA) the ability to track all industrial chemicals imported into and used in the U.S. The EPA repeatedly screens these chemicals and can require reporting or testing of those that may pose an environmental or human health hazard. The EPA can ban the manufacture and import of those chemicals that pose an unreasonable risk. The TSCA directed the EPA to ban the manufacture of PCBs and regulated their use and disposal. The EPA accomplished this by the issuance of regulation in 1978. Generally, sources of PCBs include fluorescent light ballast and electric transformers. Both of these potential PCB containing sources are located within existing City limits and the unincorporated portions of the Planning Area. The Sacramento Municipal Utility District (SMUD) provides electric service to the entire Planning Area and is responsible for the operation, maintenance and repair of transformers and electrical facilities. The Environmental Protection Agency (EPA) maintains the PCB Activity Database (PADS) that identifies generators, transporters, commercial storers, and brokers and disposers of PCBs. SMUD is subject to EPA regulations regarding PCB transformers and is required to notify EPA of any PCB related activities or incidences. Therefore, it is SMUD's practice to routinely identify and replace all leaking and PCB containing transformers within its service area boundaries.

Residual Agricultural Chemicals

The Planning Area is associated with a variety of agricultural uses. Currently, the main agricultural uses in the Planning Area include row crops, field crops, orchards, vineyards, dairy operations, and cattle grazing lands. Wine grapes, walnuts and pears are the most widely produced crops in the Planning Area. Most of the Planning Area's agricultural land is outside the

existing city limits. The Planning Area includes approximately 59,000-acres of agricultural land, with nearly 8,650-acres within the existing City limits. The majority of the agricultural land within the City limits is fallow (vacant or underutilized), except for small strawberry fields and other small agricultural operations.

Residual chemicals associated with current and past agricultural activities and dairy operations may be present at differing levels in the Planning Area. Irrigated pasture, dry-farmed crops and natural grasses typically require little to no applications of environmentally persistent pesticides. Although, cultivated irrigated row crops may have been subject to applications of restricted agricultural chemicals, restricted compounds are not necessarily persistent compounds. An example of a restricted but not persistent group of agricultural chemicals would be the triazine herbicides, which are often applied to corn crops. Over-the-counter insecticides and herbicides may have been used in the Planning Area; however, these chemicals generally do not persist in soils for greater than one year from application. Orchards and orchard-cultivated soils in the Planning Area may have been contaminated through the repeated application of agricultural chemicals to fruit or nut trees. Specifically, organochlorine pesticides, a "family" of compounds which includes DDT and its degradation compounds DDD and DDE, as well as lead-arsenates may have been applied to the orchards or used in dairy operations.

Airport Operations Hazards

There are no air related facilities in the existing City limits; however, there are four airports in the general vicinity of the Planning Area. Portions of the comprehensive land use planning boundaries of the Borges/Clarksburg Airport, Mather Airport, Franklin Field, and the Elk Grove Airport/Sunset Sky Ranch falls within the Planning Area. The Borges/Clarksburg Airport is located at 54258 South River Road in the town of Clarksburg. Mather Airport is

located at 3745 Whitehead Street, in Rancho Cordova. Franklin Field is located at 12480 Bruceville Road, and the Elk Grove Airport/Sunset Sky Ranch is located at 9925 Grant Line Road. Airport-related hazards are generally associated with aircraft accidents, particularly during takeoffs and landings. Airport operation hazards include incompatible land uses, power transmission lines, wildlife hazards (e.g., bird strikes), and tall structures that penetrate the imaginary surfaces surrounding an airport.

Railroad-at-grade Crossings

There are several at-grade crossings in the Planning Area including six within the existing city limits. By their nature, at-grade railroad crossings often contribute to traffic problems, delays and accidents. The at-grade crossings in the City have led to increased traffic delays and in some incidences resulted in accidents between motor vehicle and trains. The existing at-grade crossings are located at Calvine Road, Sheldon Road, Elk-Grove Florin Road, Bond Road, Elk Grove Boulevard, and Grant Line Road.

The rail corridors in the City limits are generally used for the movement of freight; however, there are a limited number of passenger trains (Amtrak) that use this corridor on a daily basis. There are an average of 22 trains per day traveling in both the northbound and southbound directions. The trains traveling on this corridor average speeds between 65 to 70 miles per hour (mph). To promote safety, most at-grade crossings in the Planning Area have a combination of warning devices, such as warning signs, flashing lights, and crossing arms. The City initiated a study, conducted by Carter Burgess to investigate grade separation alternatives, which was completed in May 2002. The study identified enhancements for safety, cost estimates, and the potential impacts to adjacent properties, the roadway system and traffic flow. The study included features, traffic data and accident information, and improvement

recommendations for each facility, which are summarized below.

The rail crossing at Elk Grove Boulevard consists of two sets of tracks, one through track and one rail siding. The siding is currently being updated and expanded to accommodate longer trains. The current 24-hour delay at this crossing is approximately 1 hour and 9 minutes per day. The average delay time is slightly over three minutes per train. In February of 2001, there was an accident between a train and a vehicle that resulted in a fatality. The California Public Utilities Commission (CPUC) has approved funding for upgrades to this crossing, which will include new signals, arms and a raised median to prevent vehicular traffic from going around the crossing arms. The crossing at Elk Grove-Florin Road consists of a single-track that crosses the roadway at a 74-degree skew. Whitehouse Creek and a large drainage ditch cross under the tracks in the vicinity of this crossing. The average 24-hour delay time is approximately 36 minutes, or less than two minutes per train. There have been no accidents associated with this crossing since 1995. The City has applied for approval to install an automated warning horn system at the crossing, which is currently under review with the CPUC.

The Bond Road railroad crossing consists of a single-track, which crosses the roadway and a 16-degree skew. The current delay at this crossing is approximately 33 minutes over a 24-hour period or 1.5 minutes per train. There are no reported accidents at this facility since 1995. The City has a designated project to widen Bond Road from the Elk Grove-Florin Road intersection eastward across the railroad tracks. Additionally, the City of Elk Grove has applied for approval to install an automated warning horn system at this crossing. The application is currently under review by the CPUC. The features at the Grant Line Road crossing consist of a Standard No. 9 signal, which includes single crossing arms with lights for each direction of travel and "railroad signal ahead"

pavement markings. Train traffic at this crossing currently results in a daily average of 1 hour 23 minutes (over a 24-hour period). The average delay is approximately 4 minutes (based on 22 trains per-day). There has been one documented accident since April of 1996 at this crossing, which did not result in an injury or fatality. A future interchange is planned for Grant Line Road due to several proposed projects northwest of the intersection of SR 99 and Grant Line Road. Additionally, the SACOG 2025 Transportation Plan calls for a Highway 50/SR 99 connector that will connect the facilities in the vicinity of Grant Line Road. Depending on the layout, improvements to this railroad crossing could incorporate future improvements necessary for the connector. The at-grade crossings at Calvine Road and Sheldon Road were not included in the study, as they lie outside the current City limits.