

CHAPTER 11

HUMAN-CAUSED HAZARD RISK ASSESSMENT

Under 44 CFR Section 201.6(2)(i) of DMA2K, local mitigation plans are required to include a risk assessment with a description of the types of natural hazards that can affect the jurisdiction. While DMA 2K does not require the assessment of human-caused hazards, City of Roseville officials are including human-caused hazards in the City's Multi-Hazard Mitigation Planning effort. This decision was based on several factors:

- The City of Roseville takes a proactive approach to customer service and disaster preparedness, especially in an effort to protect the public safety of our citizens;
- Any preparation for and response to a human-caused disaster will involve many of the same staff training, critical decisions, and commitment of resources as a natural hazard;
- The Multi-Hazard Mitigation Planning effort is an opportunity to better inform the public about all hazards including human-caused hazards;
- The likelihood of a human-caused hazard in Roseville is greater than several of the identified natural hazards in this Plan; and
- The City has a Terrorism Contingency Plan (June 2004) and a Hazardous Materials Contingency Plan (September 2004) already in place with instructions for a response by City of Roseville first responders and staff to the Emergency Operations Center (EOC).

11.1 IDENTIFYING HAZARDS—DESCRIPTION OF HUMAN-CAUSED HAZARD

Human-caused hazards fall into two categories:

- Acts of Terrorism are intentional, criminal, and malicious. According to the Federal Bureau of Investigation (FBI), terrorism is either foreign or domestic, depending on the origin, base, and objectives of the terrorist or organization.
- Technological hazards refer to incidents that arise from human activities such as the manufacture, transportation, storage and use of hazardous materials. These incidents are assumed to be accidental in nature with unintended consequences.

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Technological Hazards are incidents that arise from human activities such as the manufacture, transportation, storage and the use of hazardous materials. These incidents are assumed to be accidental in nature with unintended consequences.

This report does not include the risk assessment, vulnerability analysis, or mitigation for protection of the City of Roseville's Water Treatment Facilities. Roseville has already evaluated water treatment facilities per EPA requirements in a separate report. For vulnerability assessment results as well as suggested mitigation strategies to protect the City's water infrastructure, contact the Roseville City Manager's Office.

11.1.1 Terrorism and Weapons of Mass Destruction

The FBI categorizes terrorism in the United States primarily as one of two types—domestic terrorism or international terrorism. Domestic terrorism involves groups or individuals whose terrorist activities are

directed at elements of our government or population without foreign direction. The bombing of the Alfred P. Murrah federal building in Oklahoma City is an example of domestic terrorism. The Department of Justice FBI is the primary response agency for domestic terrorism. The FBI coordinates domestic preparedness programs and activities of the United States to limit acts posed by terrorists including the use of WMDs.

International terrorism involves groups or individuals whose terrorist activities are foreign-based and/or directed by countries or groups outside the United States or whose activities transcend national boundaries. The 1993 bombing of the World Trade Center, the U.S. Capitol, and Mobil Oil's corporate headquarters and more recently, the events of September 11, 2001 at both World Trade Center buildings and the Pentagon were examples of well-planned terrorist attacks involving the use of commercial aircraft as high profile, flying bombs.

The three key elements to defining a terrorist event are as follows:

- Activities involving the use of illegal force
- Actions are intended to intimidate or coerce
- Actions are committed in support of political or social objectives

As detailed in the City's Terrorism Contingency Plan, at least three important considerations distinguish terrorism hazards from other types of hazards. First, in the case of chemical, biological, and radioactive agents, their presence may not be immediately obvious, making it difficult to determine when and where they may have been released, who has been exposed, and what danger is present for first responders and emergency medical technicians. Second, there is limited scientific understanding of how these agents affect the population at large. Third, terrorism evokes very strong emotional reactions, ranging from anxiety, to fear, to anger, to despair, to depression.

Those involved with terrorism response including Public Health and Public Information staff are trained to deal with the public's emotional reaction swiftly as response to the event occurs. The area of the event must be clearly identified in all emergency alert messages to avoid the those not affected by the incident from overwhelming local emergency rooms and response resources therefore reducing service to those actually affected. The public will be informed clearly and frequently about what government agencies are doing to mitigate the impacts of the event. The public will also be given clear directions on how to protect the health of individuals and families.

Pursuant to FEMA 386-7, terrorism refers to the use of weapons of mass destruction (WMD), including biological, chemical, nuclear and radiological weapons; arson, incendiary, explosive and armed attacks; industrial sabotage and intentional hazardous materials releases; agro-terrorism and cyber-terrorism.

<p>Weapons of Mass Destruction are defined as chemical, biological, radiological, nuclear, and explosive weapons associated with terrorism.</p>
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The following hazards are potential methods used by terrorists that can affect the City of Roseville either as a target directly or collaterally:

- Conventional bomb
- Biological agent
- Chemical agent
- Nuclear bomb
- Radiological agent
- Arson/incendiary attack
- Armed attack
- Cyberterrorism
- Agro-terrorism
- Intentional hazardous material release

Table 11.1 provides a hazard profile summary for terrorism related hazards. For each type of hazard, the following factors are addressed:

- **Application Mode**—Application mode describes the human act(s) or unintended event(s) necessary to cause the hazard to occur.
- **Duration**—Duration is the length of time the hazard is present on the target. For example, the duration of a tornado may be just minutes, but a chemical warfare agent such as mustard gas, if unremediated, can persist for hours or weeks under the right conditions.
- **Dynamic or Static Characteristic**—These characteristics of a hazard describe its tendency, or that of its effects, to either expand, contract, or remain confined in time, magnitude, and space. For example, the physical destruction caused by an earthquake is generally confined to the place in which it occurs, and it does not usually get worse unless aftershocks or other cascading failures occur; in contrast, a cloud of chlorine gas leaking from a storage tank can change location by drifting with the wind and can diminish in danger by dissipating over time.
- **Mitigation and Exacerbating Conditions**—Mitigating conditions are characteristics of the target and its physical environment that can reduce the effects of a hazard. For example, earthen berms can provide protection from bombs; exposure to sunlight can render some biological agents ineffective; and effective perimeter lighting and surveillance can minimize the likelihood of someone approaching a target unseen. In contrast, exacerbating conditions are characteristics that can enhance or magnify the effects of a hazard. For example, depressions or low areas in terrain can trap heavy vapors, and a proliferation of street furniture (trash receptacles, newspaper vending machines, mail boxes, etc.) can provide hiding places for explosive devices.

Most terrorist events in the United States have been bombing attacks, involving detonated and undetonated explosive devices, tear gas, pipe bombs, and firebombs. The effects of terrorism can vary from loss of life and injuries to property damage and disruptions in services such as electricity, water supplies, transportation, or communications. Any of the methods above may have an immediate effect or a delayed effect. Terrorists often choose targets that offer limited danger to themselves and areas with relatively easy public access. Foreign terrorists look for visible targets where they can avoid detection before and after an attack such as international airports, large cities, major special events, and high-profile landmarks.

In dealing with intentional human-caused hazards, the unpredictability of human beings must be considered. People with a desire to perform criminal acts may seek out targets of opportunity that may not fall into established lists of critical areas or facilities. The City of Roseville first responders train not only to respond to organized terrorism events, but also to respond to random acts by individuals who, for a variety of reasons ranging from fear to emotional trauma to mental instability, may choose to harm others and destroy property.

While education, heightened awareness, and early warning of unusual circumstances may deter crime and terrorism, the possibility exists that intentional acts that harm people and property are possible at any time. Public safety entities would then react to the threat, locating, isolating, and neutralizing further damage and investigating potential scenes and suspects to bring criminals to justice.

TABLE 11.1.
EVENT PROFILES FOR TERRORISM

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Conventional Bomb	Detonation of explosive device on or near target; delivery via person, vehicle, or projectile.	Instantaneous; additional "secondary devices, and/or diversionary activities may be used, lengthening the time duration of the hazard until the attack site is determined to be clear.	Extent of damage is determined by type and quantity of explosive. Effects generally static other than cascading consequences, incremental structural failure, etc.	Overpressure at a given standoff is inversely proportional to the cube of the distance from the blast; thus, each additional increment of standoff provides progressively more protection. Terrain, forestation, structures, etc. can provide shielding by absorbing and/or deflecting energy and debris. Exacerbating conditions include ease of access to target; lack of barriers and shielding; poor construction; and ease of concealment of device.
Chemical Agent	Liquid/aerosol contaminants can be dispersed using sprayers or other aerosol generators; liquids vaporizing from puddles/containers; or munitions.	Chemical agents may pose viable threats for hours to weeks depending on the agent and the conditions in which it exists.	Contamination can be carried out of the initial target area by persons, vehicles, water, and wind. Chemicals may be corrosive or otherwise damaging over time if not remediated.	Air temperature can affect evaporation of aerosols. Ground temperature affects evaporation of liquids. Humidity can enlarge aerosol particles, reducing inhalation hazard. Precipitation can dilute and disperse agents but can spread contamination. Wind can disperse vapors but also cause target area to be dynamic. The micro-meteorological effects of buildings and terrain can alter travel and duration of agents. Shielding in the form of sheltering in place can protect people and property from harmful effects.
Arson/ Incendiary Attack	Initiation of fire or explosion on or near target via direct contact or remotely via projectile.	Generally minutes to hours.	Extent of damage is determined by type and quantity of device, accelerant, and materials present at or near target. Effects generally static other than cascading consequences, incremental structural failure, etc.	Mitigation factors include built-in fire detection and protection systems and fire-resistive construction techniques. Inadequate security can allow easy access to target, easy concealment of an incendiary device, and undetected initiation of a fire. Non-compliance with fire and building codes, as well as failure to maintain existing fire protection systems, can substantially increase the effectiveness of a fire weapon.

TABLE 11.1 (continued).
EVENT PROFILES FOR TERRORISM

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Armed Attack	Tactical assault or sniping from remote location, or random attack based on fear, emotion, or mental instability.	Generally minutes to days.	Varies based on the perpetrators' intent and capabilities.	Inadequate security can allow easy access to target, easy concealment of weapons, and undetected initiation of an attack.
Biological Agent	Liquid or solid contaminants can be dispersed using sprayers/aerosol generators or by point or line sources such as munitions, covert deposits, and moving sprayers.	Biological agents may pose viable threats for hours to years depending on the agent and the conditions in which it exists.	Depending on the agent used and the effectiveness with which it is deployed, contamination can be spread via wind and water. Infection can spread via human or animal vectors.	Altitude of release aboveground can affect dispersion; sunlight is destructive to many bacteria and viruses; light to moderate wind will disperse agents but higher winds can break up aerosol clouds; the micro-meteorological effects of buildings and terrain can influence aerosolization and travel of agents.
Cyber-terrorism	Electronic attack using one computer system against another.	Minutes to days.	Generally no direct effects on built environment.	Inadequate security can facilitate access to critical computer systems, allowing them to be used to conduct attacks.
Agro-terrorism	Direct, generally covert contamination of food supplies or introduction of pests and/or disease agents to crops and livestock.	Days to months.	Varies by type of incident. Food contamination events may be limited to specific distribution sites, whereas pests and diseases may spread widely. Generally no effects on built environment.	Inadequate security can facilitate adulteration of food and introduction of pests and disease agents to crops and livestock.
Radiological Agent	Radioactive contaminants can be dispersed using sprayers/aerosol generators, or by point or line sources such as munitions.	Contaminants may remain hazardous for seconds to years depending on material used.	Initial effects will be localized to site of attack; depending on meteorological conditions, subsequent behavior of radioactive contaminants may be dynamic.	Duration of exposure, distance from source of radiation, and the amount of shielding between source and target determine exposure to radiation.

TABLE 11.1 (continued).
EVENT PROFILES FOR TERRORISM

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Nuclear Bomb	Detonation of nuclear device underground, at the surface, in the air, or at high altitude.	Light/heat flash and blast/shock wave last for seconds; nuclear radiation and fallout hazards can persist for years. Electromagnetic pulse from a high-altitude detonation lasts for seconds and affects only unprotected electronic systems.	Initial light, heat, and blast effects of a subsurface, ground, or air burst are static and determined by the device's characteristics and employment; fallout of radioactive contaminants may be dynamic, depending on meteorological conditions.	Harmful effects of radiation can be reduced by minimizing the time of exposure. Light, heat, and blast energy decrease logarithmically as a function of distance from seat of blast. Terrain, forestation, structures, etc. can provide shielding by absorbing and/or deflecting radiation and radioactive contaminants.
Intentional Hazardous Material Release (fixed facility or transportation)	Solid, liquid, and/or gaseous contaminants may be released from fixed or mobile containers	Hours to days.	Chemicals may be corrosive or otherwise damaging over time. Explosion and/or fire may be subsequent. Contamination may be carried out of the incident area by persons, vehicles, water, and wind.	As with chemical weapons, weather conditions directly affect how the hazard develops. The micro-meteorological effects of buildings and terrain can alter travel and duration of agents. Shielding in the form of sheltering in place can protect people and property from harmful effects. Non-compliance with fire and building codes, as well as failure to maintain existing fire protection and containment features, can substantially increase the damage from a hazardous materials release.

Source: FEMA 386-7

11.1.2 Technological Hazards

Technological hazards refer to incidents that arise from human activities such as the manufacture, transportation, storage and the use of hazardous materials. These incidents are assumed to be accidental in nature with unintended consequences. Technological hazards in Roseville can be categorized as follows:

- Hazardous Materials Incidents
- Utility Losses
- Data and Telecommunications Disruptions
- Water/Wastewater Disruption
- Air and Transportation Accidents
- Infrastructure Threats

Hazardous Material—Hazardous material is a substance or combination of substances which because of quantity, concentration, physical, chemical, or infectious characteristics, may cause or contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, or pose a present or potential hazard to human life, property, or the environment. Hazardous waste is included in the City's working definition.

Source: City of Roseville Hazardous Materials Contingency Plan

Hazardous Materials Incidents

Except for severe weather and flooding, hazardous materials incidents are the most likely hazards to affect the City of Roseville.

Title 49 of the CFR lists thousands of hazardous materials including flammable substances such as gasoline, insecticides, household cleaning products, and radioactive materials. State regulated substances that have the greatest probability of adversely impacting the community are listed in the CCR, Title 19.

Hazardous material incidents typically occur in two ways, fixed facility incidents and transportation incidents. The major difference between the two is that it is possible to identify and prepare for a fixed site incident because federal and state laws require those facilities to notify state and local authorities about what is being used or produced at the site. Transportation incidents are more difficult to prepare for because there is little if any notice about what materials could be involved should an accident happen.

Hazardous materials are present in nearly every city and county in the United States in facilities that produce, store, or use them. For example, water treatment plants use chlorine on-site to eliminate bacterial contaminants. Hazardous materials are transported along interstate highways and railways daily. Even the natural gas used in every home and business is a dangerous substance when a leak occurs.

Fixed Facility Hazardous Materials Incident

This is the occurrence of uncontrolled release of materials from a fixed site capable of posing a risk to health, safety and property as determined by the EPA's Resource and Conservation Act (RCRA).

Hazardous Materials Transportation Incident

This is any occurrence resulting in uncontrolled release of materials during transport that can pose a risk to health, safety, and property as defined by Department of Transportation Materials Transport regulations. Hazardous materials are transported via ground along highways and railways. The volume of materials including everything from acutely hazardous materials to ordinary household products is high when considering the use of materials in every home and local government in the country.

According to a February 20, 2005 *Sacramento Bee* article, "Union Pacific carried 9.2 million carloads of freight in 2003...throughout the West and part of the South and Midwest." The article also quotes a Union Pacific spokeswoman as estimating that "Less than 5 percent of cargo that moves through our West Coast operations is hazardous material."

In addition to materials such as chlorine that are shipped throughout the country by rail, thousands of shipments of radiological materials, mostly medical materials and low-level radioactive waste, take place via ground transportation across the United States. Many incidents occur in sparsely populated areas and affect very few people. There are occasions, however, where materials are involved in accidents in areas with much higher population densities such as the January 6, 2005 train accident in Graniteville, South Carolina that released chlorine gas killing nine, injuring 500, and causing the evacuation of 5,400 residents. Fortunately, such events are rare.

Hazardous materials transportation incidents can occur at any place within the country, although the vast majority occur on the interstate highways or major federal or state highways, or on the major rail lines.

Interstate Pipeline Hazardous Materials Incident

There are a significant number of interstate natural gas, heating oil, and petroleum pipelines running through the State of California. These are used to provide natural gas to the utilities in California and to transport these materials from production facilities to end-users.

Utility Losses

The City of Roseville provides electricity, water treatment and distribution, and wastewater collection and treatment services to citizens and businesses within the city limits. The City also provides solid waste collection and disposal at the Regional Landfill located just north of the city limits in unincorporated Placer County. Loss of these services would mean a potential life-threatening situation in the case of electricity for medically dependent residents, and a public health threat if the services are disrupted for some time due to accidental or terrorist acts.

A power failure is any interruption or loss of electrical service due to disruption of power generation or transmission caused by an accident, sabotage, natural hazards, equipment failure, or fuel shortage. These interruptions can last anywhere from a few seconds to several days. Power failures are considered significant only if the local Emergency Management Organization is required to coordinate basic services such as the provision of food, water, and heating as a result. Power failures are common with severe weather and winter storm activity.

The City of Roseville Electric Utility is responsible for operating and maintaining the electrical transmission and distribution system in Roseville. The City supplies electricity to over 41,000 residential customers and 5,200 commercial and industrial customers within the city's 35 square mile area.

The City of Roseville maintains approximately 49 miles of electrical transmission lines, 13 miles of distribution lines, and 13 electrical substations in Roseville. The distribution lines and substations deliver 315 megawatts during peak demand period that occur from June through September.

The City has the highest reliability in the country for municipal utilities of Roseville Electric's size, due in large part to a redundant system with sophisticated interconnection between the facilities and immediate notification should failure occur along the distribution system. Despite the recent California electric crisis and brownouts in some parts of the state in 2000 and 2001, the City of Roseville, through its load management program and load shedding agreements with large, local electric users, avoided any outages as a result of the State's energy woes.

The City is taking a proactive approach to maintaining its reliability standards by building a local generation source—the Roseville Energy Park—scheduled to come on-line in summer 2007. The Roseville Energy Park will be a natural gas-fired, combined-cycle electrical generating facility and will provide 60 percent of the city's electricity needs. The project is proposed for a 12-acre site off of Phillip Road and will be owned by the City of Roseville.

Data and Telecommunications

The loss of data and/or telecommunications is often a secondary hazard to many of the natural and other human-caused hazards experienced by cities throughout the country. Data and telecommunications provide a primary method for service to the community by the government and the private sector. A loss of data and telecommunications could result in loss of emergency dispatch capabilities, emergency planning services, infrastructure monitoring capabilities, access to statistical data, and loss of financial and personnel records.

Water/Wastewater Disruption

Water and/or wastewater disruption would also be a secondary impact from a natural disaster or intentional act. The City of Roseville receives surface water from the Folsom Reservoir, a one million acre-feet multi-purpose facility located due east of the city limits. A breach in the dam or the pipelines that carry water to the City's Water Treatment Plant on Barton Road in Granite Bay would have significant temporary impacts on the city until such time that alternative water sources including water from other regional purveyors and groundwater are pumped and treated. Long-term disruption of the water source from Folsom Lake would have significant impacts on the residences and businesses in Roseville should the demand exceed secondary supplies and water conservation measures do not provide enough relief to reduce demand equal to the secondary supplies.

Disruption of the City's wastewater collection and wastewater treatment plants at Dry Creek and the new \$120 million facility on Pleasant Grove Creek would also have significant citywide and regional impacts should the system be overwhelmed by a significant storm or discharge of materials in such quantities that the treatment plant cannot adequately treat the waste. Natural hazards such as earthquake, flood damage or major power outages, or terrorism directed at the facilities and systems could disrupt the process of treating millions of gallons of waste.

Wastewater treatment plants may also have emergencies internal to the plant such as chlorine gas leaks or oxygen deficiencies that render them incapable of treating waste. The disruption of service may also have significant environmental impacts to the waterways adjacent to the treatment plants.

Air and Transportation Accidents

Air and transportation accidents are incidents involving air or rail passengers resulting in death or serious injury. As the population in Roseville, the region and the state increase, the likelihood of transportation accidents increases with higher volumes and additional roadway miles being constructed.

Infrastructure Threats

Infrastructure threats include threats to telecommunications, utility transportation, economic, information and other systems that allow society to function as it is accustomed to. This threat will increase in the future, and such an event directed at any one of these systems could affect the ability of the city's population to go about life in a normal manner.

11.1.3 Civil Disorder

Civil disorder includes incidents intended to disrupt a community to the degree that law enforcement intervention is required to maintain public safety, these incidents are generally associated with controversial political, judicial, or economic issues and/or events and may occur at any time of the year, although statistics indicate they are more frequent during the summer months. While the City of Roseville does not have a history of civil disorder or rioting, large public gatherings, often associated with concerts or sports events, have overburdened local law enforcement and fire protection resources in the past.

The effects of civil disorders and riots are varied and on the type of event, its severity, scope, and duration. Essential services (e.g., electricity, water, public transportation, communications, etc.), may be disrupted, or property damage, injuries, and loss of life may occur.

Certain facilities may be at risk more than others during civil disorders, including the following:

- Federal, state and local government buildings

- Schools and colleges
- Utilities
- Correctional facilities

11.2 HUMAN-CAUSED HAZARD PROFILE

11.2.1 Location and Extent

State of California

The State of California and Office of Homeland Security have identified numerous high profile targets for potential terrorists in California. Large population centers, high visibility tourist attractions, and critical infrastructure accessible to the public present security challenges of an ongoing nature in California.

The network of highways, railways, ports and airports used to transport significant amounts of hazardous materials for commercial and industrial uses in the United States and foreign countries poses a significant technological hazards threat.

Region

Hazardous materials incidents may occur at any time, in populated or remote areas of Placer County, Multiple incidents may happen simultaneously and all typically require a multi-agency, multi-jurisdictional response.

Local

The Roseville Hazardous Materials Contingency Plan lists those local areas with the greatest likelihood of hazardous materials incidents.

Transportation Routes

Highways, railways, and commercial or military aviation routes constitute a major threat due to the number of chemicals and hazardous substances, including radioactive materials, transported in vehicles, trains, and aircraft.

The City of Roseville includes several transportation facilities, all with the potential for human-caused hazards to occur. Interstate 80 and State Route 65 bisect the City of Roseville.

The City of Roseville is the location of the largest train yard west of the Mississippi. The J.R. Davis Yard in Roseville is a major Union Pacific (UP) switching center built in 1907. The 850-acre yard includes 136 miles of track. The site includes a former railcar rebuilding

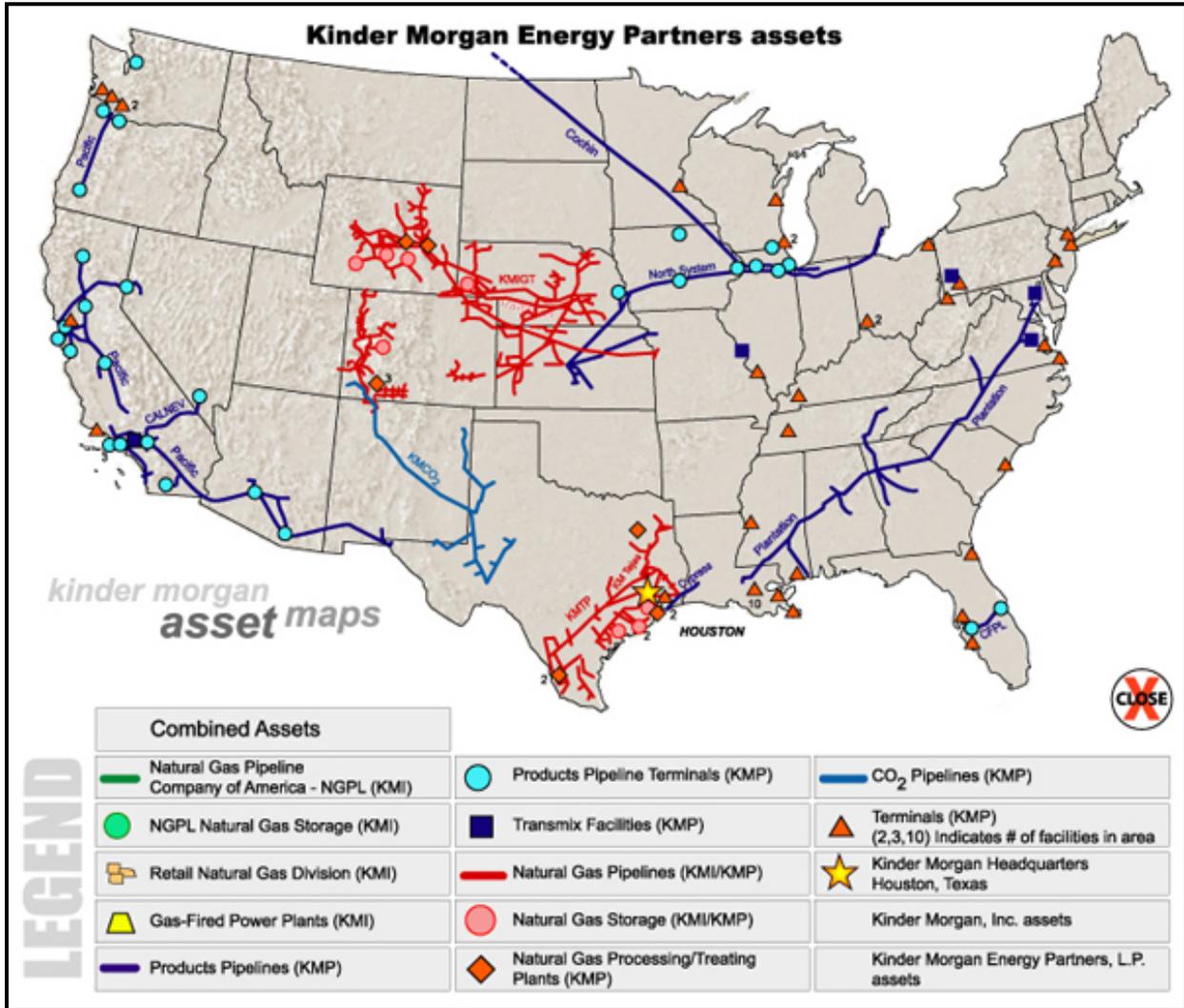


facility, the Antelope Yard, fueling areas, and diesel servicing facilities. The site has been designated as contaminated by the federal government with substances including volatile organics, chlorinated solvents, polynuclear aromatic hydrocarbons, and heavy metals present due to the nearly 90 years of continuous use as a railroad repair and switching facility. Remediation is ongoing at the site.

The city is more than 20 miles from Sacramento International Airport and is not in the direct flight path for the airport, although planes do cross Roseville continuously at high altitudes. Beale Air Force Base is 34 miles to the north and is the closest active military installation.

Pipelines

Pipelines transport an assortment of liquid fuels under pressure. The Kinder Morgan company owns three miles of pipeline facilities generally parallel to the Union Pacific railroad tracks in Roseville that transport high volumes of natural gas through the city. Other natural gas pipelines run along Interstate 80 with connections between Roseville and Chico. The route to Chico travels from the tank farm in Rocklin, through residential areas to Chico. The trans-Sierra route from the tank farm in Rocklin to Reno roughly follows the same track as Interstate-80. Pacific Gas and Electric maintains natural gas pipelines in and through Roseville as well.



Business and Industrial Areas

Retail, manufacturing and light industrial firms near State Route 65 (northeastern Roseville and the Sunset Industrial Area of Rocklin) are areas of concern. These facilities have the highest concentration of hazardous materials at fixed facilities in Roseville due to their manufacturing operations. Each business is required to file a detailed, confidential plan with the Roseville Fire Department regarding materials on-site and safety measures taken to protect the public.

Agricultural

Accidental releases of pesticides, fertilizers, and other agricultural chemicals may be harmful to both humans and the environment. Agricultural pesticides are transported daily in and around the City of Roseville en route to their destination in the more rural areas of Placer County.

Illegal Drug Operations

Illegal operations such as methamphetamine or drug laboratories pose a significant threat. Laboratory residues are often dumped along roadways or left in rented hotel rooms, creating a serious health threat both to unsuspecting individuals and to the environment.

Illegal Dumping Sites

Hazardous wastes such as used motor oil, solvents, or paint are occasionally dumped in remote areas of Placer County and Roseville or along roadways, creating a potential health threat both to unsuspecting individuals and to the environment.

Radioactive Materials

Licensed carriers transport radioactive materials along several transportation routes (Interstate 80 and the railroads) through the City of Roseville. The City is notified in advance of these shipments and commits resources as a standby measure should an accident occur.

11.2.2 Human-Caused Hazard Event History

State of California

Terrorism Events

According to the Governor's Office of Emergency Services Terrorism Response Plan, the State of California has had a long history of defending the public against terrorist groups, including domestic and foreign terrorists. Domestic terrorist groups in California have been focused on political or social issues, while the limited internationally based incidents have targeted the state's immigrant communities due to foreign disputes. Advanced technologies and communication have allowed these groups to become more sophisticated and better organized with remote members linked electronically.

Technological Hazard Incidents

No comprehensive source was found either through the State of California websites or through personal contact with the Sacramento Regional Office of Homeland Security for Technological Hazard Incidents

in the State of California. Given the complex system of transportation networks, the large population, and the number of businesses in California, incidents occur on a regular basis throughout the State as reported by the news media.

Region

Terrorism Events

Eco-terrorism. Development projects in Placer County were the subject of arson activity by an individual who claimed to be an eco-terrorist from the Earth Liberation Front or ELF. ELF is a splinter group of Earth First!, a radical environmental activist movement. ELF is a somewhat active domestic terrorism group that uses eco-sabotage to protect the Earth and seek revenge on “those who are destroying the Earth and its inhabitants.”

Domestic Terrorism. On December 3, 1999, the FBI arrested two anti-government militia members who planned a bomb attack at the Suburban Propane facility in Elk Grove, CA. The alleged plot involved a plan to blow up the Suburban Propane site which stores about 24 million gallons of liquefied propane and is located one mile from residential homes. According to the Sacramento Bee, the plot resulted in heightened on-site security and a year-long investigation resulting in the two arrests.

Technological Hazard Incidents

Placer County and the incorporated cities within the City have been the location of many accidental hazardous materials incidents in the past. With the presence of high pressure gas lines in the County, accidents have occurred that have caused injury and property damage.

An underground Kinder Morgan pipeline failed in 2002 (Source: Roseville Fire Department, pers. Com with Battalion Chief Jeff Carman) causing a significant spill of diesel fuel within a Rocklin neighborhood adjacent to where the breach occurred.

Air and Transportation Accidents

The Sacramento region was once the location of three large military installations including the Sacramento Army Depot, Mather Air Force Base and McClellan Air Force Base. All three have been decommissioned and transferred to civilian uses. The only active military installation is Beale Air Force Base located to the north near Yuba City, California.

The risk of airline accidents in the area has diminished with the closure of McClellan Air Force Base, the closest military base to the City of Roseville. A review of the McClellan Fire Department history (in Table 11.2, shows that several responses were made to aircraft accidents near Roseville, but never within the city limits.

On February 16, 2000, an aircraft crashed after take-off from the Sacramento Mather Airport in Rancho Cordova, California. The cargo flight was bound for Dayton, Ohio and all three crewmembers were killed. The cause of the accident was a mechanical failure. The aircraft crashed into an automobile salvage yard. This is the most recent airplane accident in the Sacramento Region as reported on the National Transportation Safety Board (NTSB) website.

TABLE 11.2.
ACCIDENTS RESPONDED TO BY MCCLELLAN FIRE DEPARTMENT 1950-1980s

Timeframe	Incident
Early 1950s	Apparatus responded to Code 3 alarm at Travis Air Force Base for B29 crash that involved a nuclear weapon
October 29, 1951	B29 making an emergency landing crashed and caught fire on Runway 16 injuring 11 crewmen. One firefighter died.
Mid-1950s	EC-121 crashed near Watt Avenue and U Street in Sacramento
Mid-1960s	F-104 crashed next to Haggin Oaks Golf Course.
April 28, 1973	McClellan Fire Department responded to mutual aid at Roseville Railyard fire
1982	Multiple alarm structure fire including a chemical warehouse. Toxic smoke column closed Interstate 80 for several hours
Early 1980s	HH-53 helicopter crashed near PFE Road during an air show at McClellan Air Force Base. The helicopter was attempting a refueling operation with a C-130 refueler when the hose became entangled in the rotor.
Early 1980s	F-111 crashed near Woodland
Source: McClellan Fire Department History	

Local

Terrorism

Terrorism incidents in Roseville have been limited to individuals seeking to cause damage in domestic disputes or at Roseville schools. Pipe bombs have been left at a school facility in one past occurrence. No WMDs have been used in a terrorist attack in Roseville.

Technological Hazards

The City of Roseville has had a number of accidental incidents at the Roseville Railyard, private businesses and City facilities. The Fire Department has been called to both the Oakmont High School pool and the Roseville Aquatics Center for chlorine leaks. Sewage spills have occurred on occasion and overflowed into the city’s creeks. Roseville railyard accidents have included derailments and leaks of toxic chemicals from transporting hazardous materials in the wrong type of railcars.

Hazardous Materials Transportation Incidents

The worst disaster in Roseville’s history occurred on April 28, 1973 when a train loaded with munitions bound for Vietnam caught fire in the Roseville Yard (see box on next page). No lives were lost, but significant damage to property in Roseville and jurisdictions in Sacramento County occurred during the 18 hours of explosions.

In 1997, a number of unexploded bombs were discovered at the yard during construction of a modernization project (see box on page 11-16).

1973 ROSEVILLE RAILYARD DISASTER

Roseville's history parallels that of the transcontinental railroad. The federal government passed the act to build the transcontinental railroad in 1862 and shortly thereafter the Central Pacific Railroad was started in Sacramento in 1863. A northern route for the first transcontinental rail line was selected when the South seceded from the Union during the Civil War, and Trustees Charles Crocker, Mark Hopkins, Collis P. Huntington and Leland Stanford started construction on this northern line. The line extended from Sacramento to Rocklin by May 1864 and then construction across the Sierra Nevada Mountains began.

The first structure in Roseville was built in 1864 to serve as a freight and passenger depot for the fledgling railroad. In December 1905, a decision by the Central Pacific Railroad to move the division headquarters from Rocklin to Roseville meant a development boom for Roseville. The junction of the Central Pacific Railroad and the California Central, a north-south line became Roseville, where the largest artificial ice plant in the world operated to keep California's fruit and vegetables fresh as they were transported by rail car to the East. The Pacific Fruit Exchange Ice Plant operated from 1908 to 1974 when all of Southern Pacific's 21,000 rail cars were self-refrigerating.

During wartime, Roseville was a hub of activity as troops and war materials moved through the Roseville rail yards. Thousands of munitions shipments moved through Roseville during World Wars I and II, the Korean and Vietnam conflicts, and Desert Storm.

The largest human-caused disaster in the local area occurred on April 28, 1973 when a wooden floor in a munitions boxcar caught fire from brake shoe sparks. A train engine pulling 103 cars, including 21 Department of Defense freight cars with 7,056 Mark 81 bombs, was loaded at the Navy's ammunition depot in Hawthorne, Nevada on their way to western ports and the Vietnam War.

As the train pulled in to the Roseville yard just west of the Roseville city limits, one of the cars caught fire and the flames spread, igniting other freight cars on the tracks, which were 21 rails wide. Nearly every car was loaded with cargo including paint, lumber, and fertilizer. The most dramatic explosions occurred when cars carrying liquid propane caught fire resulting in explosions that blew out windows five miles away and could be heard 100 miles away. Metal and wood was thrown 3,000 feet into the air.

The result was a series of explosions that caused damages of more than \$5.6 million in Roseville and the neighboring communities of Citrus Heights, Antelope, and North Highlands. No lives were lost, but over 100 people were treated for assorted cuts and bruises caused by broken glass and flying debris.

After 18 hours of explosions, Army munitions teams recovered 1,200 unexploded bombs scattered around the area and collected another 300 from rail cars. Aerial photographs from that time show a railroad smoldering and piled with twisted track, shattered cars, and scraps of metal from bomb casings. Much of the debris was buried in the 10-foot-deep craters left by the blast.



Milestones & Memories: the Story of Roseville, California, 1850-2000 by Leonard "Duke" Davis

1997 BOMB DISCOVERY

In 1997, Union Pacific Railroad began work on a \$130 million project to modernize the Roseville train yard, including significant automation improvements and the replacement of 86 miles of track with 136 miles of new track.

During project grading, backhoe operators uncovered a Mark 81 bomb intact. Bomb disposal experts from Moffett Field in Mountain View, California were flown in by the Sacramento Sheriff's Department to dispose of the bomb, which they do by digging a pit and exploding the ordnance. When another eight bombs were discovered at the western end of the yard in Antelope, California unexploded ordnance experts from Moffett Field were called back and made the decision to place the bombs in pits and build berms around them. The Sacramento County Sheriff evacuated 300 to 400 homes near the rail yard, and at 2 a.m. blew up the bombs. The explosions shattered windows, cracked walls, and rained shrapnel through the roofs of nearby homes

In all, recovered materials included 16 unexploded MK 81 bombs; 11 partial fragments containing explosive residue; 8,625 pounds (4.31 tons) of bomb fragments; and 131,560 pounds (65.78 tons) of ferrous material. Experts found the bombs were not fused (armed), making them less likely to accidentally detonate. The bombs not destroyed on-site were packaged and transported to a facility in Colfax, Louisiana for detonation.



Air and Transportation Accidents

An aviation accident has never occurred in the City of Roseville. Regional airports include Sacramento International Airport located in northwestern Sacramento County and the Lincoln and Auburn Airports in Placer County. Sacramento International Airport operates continuously with two major runways and thousands of passengers traveling via commercial and private airlines. Several major airlines operate out of Sacramento International Airport with most flying light to medium weight passenger jets. General approaches to Sacramento International Airport are from the north and south. Approach and takeoff

patterns are usually over rural farmland, however, occasionally patterns are adjusted over more populated locations including Roseville.

Additional airports within a 20-mile radius of Roseville include the Auburn Municipal Airport, Beale Air Force Base, McClellan Airfield, and the Yuba County airport. Most of the flights only cross Roseville at high altitudes as they travel to and from these smaller airport facilities.

Sutter Roseville Medical Center maintains a helistop adjacent to the emergency room at the medical facility. The Level II trauma center treats critically injured patients from the region who are flown by helicopter to the hospital. At one time, the facility was limited to accepting just one helicopter. If another patient was being transported to the medical center, the Roseville Fire Department had to respond to the helipad and emergency medical personnel were on standby should anything occur with more than one helicopter using the helipad. The landing area has been expanded and now the helistop has the capacity to accept more than one helicopter at any one time.

Emergency and public safety helicopter traffic as well as media aircraft and small commercial aircraft frequently fly over the interstates to respond to emergencies and provide public information via local news media.

With growth in the region and in trips through the region to tourist destinations such as the ski resorts at Lake Tahoe, the number of traffic accidents has been steadily increasing. Annual traffic accidents since 1995 are shown in Table 11.3. Truck with trailer accidents account for a very small percentage of the city’s reported traffic accidents and are highlighted here as these represent the highest potential for hazardous materials incidents on roadways in the City of Roseville.

TABLE 11.3. TRAFFIC ACCIDENT COUNTS—1999 TO 2004						
	1999	2000	2001	2002	2003	2004
Accidents	1,262	1,527	1,771	1,908	1,835	2,014
Fatalities	3	1	6	5	7	7
Accidents-Commercial Trucks	24	23	35	29	36	32

Source: City of Roseville Police Department

The Fire Department responds to The Roseville Fire Department responds to an average of 480 hazardous conditions incidents annually with nearly a third being cleanup after a vehicle accident where the fuel and other vehicle fluids on the ground are considered a hazardous material. Table 11.4 summarizes annual hazardous incidents since 2000.

In addition to the hazardous condition incidents described above that do not involve a fire, the Roseville Fire Department responds to each year to several hundred fires within the city. The percentage of the fires at facilities with the highest potential for a technological hazard—along the railroad or as road freight are listed in Table 11.5.

A majority of the mobile vehicle fires are for passenger vehicles with on average just one rail car fire each year. Approximately one percent of the total incidents requiring a response from the Roseville Fire Department are fires involving mobile vehicles.

TABLE 11.4.
HAZARDOUS CONDITIONS INCIDENT (NO FIRE) COUNTS—2001 TO 2004

Incident	2000	2001	2002	2003	2004
Hazardous condition (other)	13	—	18	14	—
Flammable gas or liquid condition (includes spill or leak of gas, oil, or other flammable liquid)	83	80	90	109	52
Toxic condition (includes chemical hazard no spill/leak and spill/leak and carbon monoxide incident)	42	30	37	24	22
Electrical incident (includes wiring, short circuit problems, power line down, arcing)	42	54	53	51	35
Accident or potential accident involving hazardous materials	73	84	69	64	60
Aircraft standby (helipad at Sutter Roseville Medical Center when more than one Life Flights are inbound)	21	31	19	2	3
Vehicle accident, general cleanup (fuels on ground are considered hazardous materials)	138	205	205	236	343
Total—Hazardous Conditions Incidents	412	484	491	500	515
Total Incidents	6,899	7,521	7,799	8,008	8,511
% Hazardous Conditions of Total Incidents	5.97%	6.44%	6.30%	6.24%	6.05%

Source: City of Roseville Fire Department Incident Type Count Reports 2000-2004

TABLE 11.5.
FIRES INVOLVING MOBILE VEHICLES—2000 TO 2004

Incident Type	2000	2001	2002	2003	2004
Fire in motor home, camper, recreational vehicle, or water vehicle	4	3	2	—	1
Mobile property (vehicle fire), other	6	4	3	3	3
Passenger vehicle fire	59	73	72	83	73
Road freight or transport vehicle fire	2	1	5	2	6
Rail vehicle fire	3	1	—	2	3
Total—Mobile Vehicle Fires	74	82	82	90	86
Total Incidents	6,899	7,521	7,799	8,008	8,511
% Mobile Vehicle Fires of Total Incidents	1.07%	1.09%	1.05%	1.12%	1.01%

11.2.3 Probability of Future Occurrences

Terrorism

The threat of terrorism is real in Placer County and Roseville. In September 2003, with input from the City of Roseville, the county conducted a State Homeland Security Assessment Survey, funded by the Department of Homeland Security. The survey reviewed the current vulnerabilities in Roseville and

Placer County, the personnel available to respond, and the equipment needed. The resulting information is classified and available only to first responder at the time of an emergency (per state and federal laws).

Placer County's proximity to the capitol of the seventh largest economy in the world presents unique conditions and possibilities. The transportation, energy, and communications systems that cross the county have impacts on the local, regional, and even national economy.

In general the risks of a terrorist event involving a WMD are described below:

- **Chemical**—The risk of a chemical event is present in the City of Roseville. The agricultural community in Placer County uses and stores significant amounts of chemicals for peaceful and productive means. Unfortunately, similar to how airplanes were used as flying bombs to attack the World Trade Center in New York and the Pentagon in Washington, DC, these agricultural products could be used in destructive ways.
- **Biological**—The City of Roseville is at risk for a biological event. The white powders spills and anthrax hoaxes that occurred in October 2001 demonstrate the potential for spreading terror. The introduction of Newcastle disease in the United States demonstrates how an agent can be introduced to livestock, causing harm to public health and the economy.
- **Radiological/Nuclear**—The major transportation arteries for vehicles or rail that cross through or nearby the City of Roseville contributed to the risk of such an event. Such products can unknowingly pass through any one of the county's transportation corridors.
- **Explosives**—Placer County has a long history as a gold mining county when explosives were used in a productive manner. Pipe bomb and suspicious package events have occurred in Placer County and Roseville in the past. While none of the events has been specifically identified as a WMD, the elements necessary to construct a WMD are readily available. Additionally, the agricultural communities maintain sufficient products and quantities for use in explosive events, such as the Oklahoma City bombing.
- **Combined Hazards**—The previously identified WMD agents can be combined to have a greater total effect. When combined, the impacts of the event can be immediate and longer-term. Casualties will likely suffer from both immediate and long-term burns and contamination. Given the risks associated with chemical agents in Placer County and the City of Roseville, the possibility exists for such a combined event to occur.

Technological

Hazardous material incidents may occur at any time in the City of Roseville given the presence of transportation routes bisecting the city, the location of businesses and industry that use hazardous materials, the presence of scattered illegitimate businesses such as clandestine drug laboratories at any given time, and the improper disposal of hazardous waste.

11.2.4 Other Potential Factors for Human-Caused Hazards; Multi-Casualty Incidents

The term multi-casualty incident (MCI) is often applied to transportation accidents involving air and rail travel, as well as multi-vehicle highway accidents. However, MCIs may also result from hazardous

materials incidents or acts of violence, such as shootings or hostage situations. Effects may include serious injuries, loss of life, and associated property damage.

Because large numbers of patients may be involved, significant MCIs may tax local emergency medical and hospital resources, and therefore require a regional response. MCIs may occur throughout the City, day or night, at any time of the year: Interstate 80, State Route 65, and State Route 49 offer the potential for MCIs because of the heavy volume of traffic, although no highway or surface street in the county is exempt from this hazard.

The railroad tracks traversing Placer County, carrying Amtrak passengers as well as freight, also face the risk of an MCI, as do the air corridors above the county. Adverse weather may also play a role in roadway, air, or rail accidents. MCIs may also result from acts of violence or terrorism, which could include a chemical, biological or radiological incident, contaminating persons and requiring mass decontamination processes.

In the Placer Operational Area (Placer County), a multi-casualty incident is defined as any incident with three or more fatalities or critically injured. The first responders including Roseville Fire, Roseville Police, and emergency room staffs at the local hospitals follow the same protocol for an MCI whether the number of dead and injured is three, thirty or three hundred persons. Mutual aid is requested should the City of Roseville officials be unable to respond appropriately with available personnel and equipment.

11.3 VULNERABILITY ASSESSMENT

DMA2K requires risk assessments to include a description of the vulnerability to specific hazards and the impact on the community. A vulnerability assessment is an evaluation of the community's susceptibility to a specific hazard. It estimates the impact and describes the effect of the hazard on the community. The following sub-sections present the results of the human-caused hazards assessment.

11.3.1 Overview of Risk Assessment Methodology

The Human-Caused Hazard Risk Assessment is based on a system that measures a facility's criticality and physical vulnerability. Criticality is a measure of the potential consequence of an accidental or terrorist event as well as the attractiveness of the facility to a potential adversary or threat. The criticality for each critical facility is based on the following:

- Visibility—How aware is the public of the existence of the facility, site, system, or location?
- Hazardous Materials—Are flammable, explosive, biological, chemical and/or radiological materials present on site?
- Collateral Damage Potential—What are the potential consequences for the surrounding area if the asset is attacked or damaged?
- Site Population—The potential for mass casualties, based on the maximum or capacity of the facility.
- Public or Emergency Functions—Does the facility perform a function during an emergency? Is this facility or function capable of being replicated elsewhere?

Table 11.6 provides assessments for the above criteria.

TABLE 11.6. CRITICALITY FACTORS			
Criterion	Low	Medium	High
Awareness	Not known/Neighborhood	City/Region/County	State/National
Hazardous Materials	None / limited & secure	Moderate—Large Secure	Large/Minimum or no Security
Collateral Damage Potential	None or low	Moderate/Immediate Area or within 1 mile radius	High/Immediate Area or within 1 mile radius
Site Population	0 - 300	301-1,000	1,001 or greater
Public/ Emergency Function	No emergency function, or could be used in the future for emergency function	Support Emergency Function—Redundant Site	Emergency Function—Critical Service with or without redundancy

The vulnerability factor is a measure of the physical opportunity for an accident or an adversarial attack. This assessment takes into consideration physical design, existing countermeasures, and site layout. The vulnerability for each critical asset is based on the following:

- Accessibility—How accessible is the facility or site to the public?
- Automobile Proximity—How close can an automobile get to the facility? How vulnerable is the facility to a car bomb attack?
- Asset Mobility—Is the facility or asset’s location fixed or mobile? If mobile, how often is it moved, relocated, or repositioned?
- Proximity to other critical facilities—If the facility is close to other critical facilities than there could be an increased probability of the facility receiving collateral damage.
- Secure design—General evaluation of areas of obstruction, air intake locations, parking lot and road design and locations and other site design aspects.

Table 11.7 provides the assessment for the above vulnerability criteria.

TABLE 11.7. VULNERABILITY CRITERIA			
Criterion	Low	Medium	High
Accessibility	Fenced remote locations, secure perimeter, armed guards, tightly controlled access	Controlled access, protected or unprotected entry	Open access, unrestricted, patrolling security, sign restrictions
Automobile Proximity	Not within 75—100’	Not within 25 - 50’	Adjacent or not within 10’
Asset Mobility	Moves or is relocated frequently-	Mover or is relocated occasionally	Permanent/Fixed
Proximity to other Critical Facilities	Greater than 1.5 - 2 miles	Greater than ¾ - 1 mile	Within ½ - ¾ of a mile
Secure Design	No areas for concealment of packages, air intakes are on roof, access ways are not under the structure.	Area of concealment present, greater than 25’ from the structure—Air intakes located at least 10’ above ground, may have under structure access drives.	Areas of concealment within 25’, air intakes at ground level, under structure access drives.

11.3.2 Building Inventory

Roseville has a total of 43,099 housing units as of January 1, 2005. Single family detached residential units account for 79 percent of the total developed residential units in Roseville. The total number of units by type of dwelling unit is shown in Table 11.8.

TABLE 11.8. RESIDENTIAL DWELLING UNITS IN THE CITY OF ROSEVILLE AS OF JANUARY 1, 2005	
Type of Unit	Existing Citywide Units
Single Family	31,299
Half-Plex	417
Other Attached Single Family	266
Duplex	552
Mobile Home	443
Multi-Family (>=3 units attached)	9,199
Total	43,099

Source: City of Roseville Planning Department Quarterly Development Activity Report, January 2005

Roseville has over 27 million square feet of developed non-residential land uses on 3,000 acres city-wide. A majority of this development has occurred since the mid-1980s when the specific plan process was established and large tracts of land were entitled for development.

TABLE 11.9. NON-RESIDENTIAL DEVELOPMENT IN THE CITY OF ROSEVILLE AS OF JANUARY 1, 2005		
Type of Land Use	Developed Square Feet	Developed Acres
Commercial/Retail	10,818,409	1,279.75
Business/Professional Office	6,000,197	528.73
Daycare	7,500	1.33
Industrial/Warehouse	8,404,151	832.48
Public and Quasi-Public Uses; Churches; Parks and Recreation	2,017,530	372.72
Total	27,247,787	3,051.01

Roseville and Placer County are among the fastest growing communities in the State of California making them a higher profile target for terrorism events. New development has been the target of arson fires and eco-terrorism in new developments in the County.

11.3.3 Impact on Life, Safety and Health

A human-caused hazard could range from a simple, isolated attack or accident to a complex, sophisticated, highly coordinated act of destruction, using multiple agents aimed at one or multiple targets. According to the Roseville Terrorism Contingency Plan, only five percent of all terrorism

incidents are preceded by a warning, and in the case of a technological hazard, accidents occur without predictability under circumstances that give responders very little time to prepare.

Large-scale incidents have the potential to kill or injure many citizens in the immediate vicinity of the attack or accident, and depending on a host of variables, may also affect people a relative distance from the initial event. Variables for both a WMD attack and a hazardous material accident include the type of product, the physical and chemical properties of the substance(s), the physical state of the product (solid, liquid, or gas), the ambient temperature, wind speed, wind direction, barometric pressure, and humidity. Therefore, this report does not consider a set distance to determine those more or less at risk, as this will depend on the specific chemical incident at that time.

Computer models are used by Roseville's Hazardous Materials teams to provide general data to first responders to advise evacuations or shelter in place. With so many variables to determine "toxic endpoints" as defined by the California Environmental Protection Agency, distances are difficult to forecast. In general, those in close proximity to the city's transportation corridors or businesses with acutely hazardous materials are more at risk for some sort of effect, but again, each chemical incident will be different and the scenarios are too numerous to describe in this plan.

Hazardous materials pose a significant risk to emergency response personnel. All potential first responders and follow-on emergency personnel in the City of Roseville currently are and will be properly trained to the level of emergency response actions required for of their individual position at the response scene. Hazardous materials also pose a serious long-term threat to public health and safety, property and the environment.

11.3.4 Impact on Critical Facilities

Definition of Critical Facilities

The City of Roseville for purposes of this planning effort has defined a critical facility as a

"facility that is vital for the City's ability to provide essential services and protect life and property and/or the loss of which would have a severe economic or catastrophic impact."

The definition was expanded to include the word "catastrophic" specifically to address impacts that may occur in the event of a human-caused disaster. In other words, the City is looking at critical facilities both in terms of the need for the facility in the event of a disaster and the impact on the community should a building be damaged or destroyed in the event of a human-caused disaster.

Critical Facilities at Risk to a Human-Caused Hazard

Roseville has no high profile federal or state buildings within the city limits. Critical facilities are limited to City facilities, Placer County facilities, and other government facilities such as the U.S. Post Office, private utility infrastructure and administrative offices, and medical facilities.

Based on the criticality factors and vulnerability criteria described in this vulnerability assessment section, all facilities are at risk, largely because of the accessibility, proximity to automobile accessibility, and the lack of a secure or hardened design.

Roseville's civic facilities are designed to welcome the public, with convenient parking and customer service areas. Except for the Roseville Police Facility, there are limited secure areas that are restricted to the public.

Several of Roseville's critical emergency response facilities are located adjacent to the Roseville Rail yard and pressurized underground pipelines including the Roseville Civic Center, a primary location for City staff and services and the Roseville Fire Department, which houses the Fire Department administration functions in Fire Station No. 1, and the City's EOC. Significant regional critical facilities such as the Placer County Courts and the main office for the U.S. Post Office are also within close proximity to the rail yard.

Large Gathering Places

To assess the risk of "catastrophic" consequences of a human-caused disaster, the Roseville Hazard Mitigation Plan Steering Committee and City staff assessed the number of large gathering places in the City of Roseville. These sites are defined as follows:

- Any facility listed as a Type A-2.1 in the city per the California UBC. These facilities have an assembly room with an occupant load of 300 or more without a stage (34 locations)
- All buildings listed as E-1 in Roseville used for educational purposes through the 12th grade by 50 or more persons for more than 12 hours per week or four hours in any one day (29 facilities)
- Any facility likely to have an occupancy greater than 300 such as a large employment center, retail center, cultural center, or place of worship

The large gathering places are vulnerable to a human-caused hazard due to several factors. First, all are accessible to the general public, again in deference to aesthetically pleasing urban design and customer service. Design features, including types of building materials, and screened enclosures for mechanical equipment and solid waste, limit visibility and may actually contribute to the damage incurred should an intentional or accidental event occur.

Automobile access is also a feature required in the design of most buildings in Roseville with disabled access parking and easily accessible parking a valued feature. Restricted access to large employment center sites with acutely hazardous materials is built into the design at these facilities. Most high population centers do not feature any limitations to access by the public or vehicles.

11.3.5 Impact on Structures

All structures in Roseville are physically vulnerable to a human-caused hazard. Again, the emphasis on accessibility, design, the opportunity for roof access, driveways underneath some structures, unmonitored areas, and the proximity of many structures to the city's transportation corridors, underground pipelines, and the potential for a terrorist to strike any structure randomly has an impact on the vulnerability of structures in Roseville.

Specific vulnerabilities are on file with the Roseville Fire Department as part of the 2003 State Homeland Security Assessment Survey and surveys conducted to complete this Multi-Hazard Mitigation Plan.

11.3.6 Economic Impacts

Economic impacts from human-caused hazards could be significant. The cost of a terrorist act would be felt in terms of loss of life and property, disruption of business activity and long-term emotional impacts. Recovery would take significant resources and expense at the local level.

Utility losses could cause a reduction in employment, wholesale and retail sales, utility repairs, and increased medical risks. The City may lose sales tax and property taxes and the finances of private utility companies and the businesses that rely on them would be disrupted.

The economic impact of data and telecommunications losses can be staggering as computer security breaches, crime conducted via the world wide web such as identify theft, and many more forms of human-caused economic losses occur daily. Millions of dollars are lost each year as criminals and cyber-terrorist steal sensitive information and funds from individuals and organizations.

The economic impacts should a transportation facility be rendered impassable would be significant. The loss of a roadway or railway would have serious affects on the city's economy and ability to provide services. Loss of travel routes on Interstate 80 or State Route 65 would result in loss of commerce, and may impact the City's ability to provide emergency services to its citizens by delaying response times or limiting routes for equipment such as fire apparatus, police vehicles, and ambulances. The ability to receive fuel deliveries would also be impacted.

The effects of re-routed traffic could also have a serious impact on local roadways. For example, the closure of the roadway at Folsom Dam has resulted in severe local traffic and the closure of businesses in downtown Folsom due to lack of traffic along the Dam Road route. Heavy traffic on routes through central Roseville already occur at peak commute times when Interstate 80 is congested. Traffic control may burden the City's Public Works Department. Mass transit services would also be impacted as routes may be delayed or forced to be detoured causing economic impacts to Roseville transit and to those who ride the bus in Roseville.

11.3.7 Impact of Human-caused Hazards on Future Trends and Development

Roseville is expected to grow by nearly 40,000 residents in the next 10 years. Total population with the recently annexed West Roseville Specific Plan will exceed 138,000 people with another 8,000 housing units planned for this area alone. Significant non-residential development will occur as well with development of a high-rise hotel and office buildings likely in the near future. The potential for human-caused hazards in Roseville is not likely to lessen or prohibit development in Roseville.

The threat of human-caused hazards and the availability of Homeland Security Funds will influence future development of the city's critical facilities. For example, as the City's fire facilities are planned, a redundant or backup EOC is a critical need for the City of Roseville. The design of multi-purpose use facilities, such as the Mahany Library (which also includes a Community Center and the Public Access Studio) can be used as both an emergency response command center on the west side of Roseville and an information center to inform the public through the internet and broadcast facilities that will be on site.

11.4 REVIEW OF EXISTING ORDINANCES, PROGRAMS, AND POLICIES

In the subsequent sections summaries of ordinances, programs, and policies that provide specific standards and practices for protecting the health and safety of the community during a human-caused risk assessment are presented.

11.4.1 City of Roseville Emergency Response Plan

Adopted on July 21, 2004, the current Roseville Emergency Operations Plan addresses the planned response to extraordinary emergency situations associated with natural disasters, technological (human-caused) emergencies, and war emergency operations in or affecting the City of Roseville. The plan is both

an operational plan as well as a reference document for pre-emergency planning and emergency operations. The plan establishes the following:

- An Emergency Management Organization is required to mitigate any significant emergency or disaster affecting the city of Roseville
- The policies, responsibilities and procedures that are required to protect the health and safety of citizens, public and private property, and the environment from the affects of natural and human-caused emergencies and disasters.
- The operational concepts and procedures that are associated with field response to emergencies, EOC activities, and the recovery process.
- The organizational framework for implementation of the Standardized Emergency Management System (SEMS) within the City of Roseville.

The Emergency Operations Plan also outlines the natural and human-caused hazards most likely to occur in the City of Roseville. Significant detail for each responding section—Management, Operations, Planning, Logistics, and Finance that are assigned to City staff and mutual aid agencies prior to an emergency. Roseville’s Emergency Preparedness Manager conducts periodic tabletop and simulated exercises in conjunction with the Placer County Office of Emergency Services and affiliate agencies such as Sutter Roseville Medical Center and Kaiser Permanente Medical Center to ensure that staff is prepared and adequate resources are in place prior to any incident.

11.4.2 City of Roseville Terrorism Contingency Plan

The Terrorism Contingency Plan was prepared in 2004 with grant funds provided by the State Office of Emergency Services through the Department of Homeland Security. The Plan was prepared in collaboration with the Placer County Office of Emergency Services, Placer County staff and representatives of the six incorporated cities within the Placer County Operational Area.

The City of Roseville Terrorism Plan provides an overview of how the City of Roseville Emergency Operations Plan will be activated, resources will be organized, and how staff will respond with state and federal resources to such an event. Specifically, the Plan has the following provisions:

- Identifies how local, state, and federal response resources are integrated;
- Establishes a common response protocol to terrorist threats and events;
- Implements existing mutual aid programs, and;
- Outlines a unified strategic plan for all responders.

The City of Roseville Terrorism Plan is on file with the City of Roseville Fire Department. The City’s Emergency Response Manager conducts training for all those assigned responsibilities as part of the plan in addition to coordinating with the Placer County Office of Emergency Services and other agencies charged with protecting the public in the event of a terrorist attack.

11.4.3 City of Roseville Hazardous Materials Contingency Plan

The Hazardous Materials Contingency Plan, completed in September 2004, identifies non-terrorist related hazard materials responsibilities in order for the City to prepare, respond and recover from an event. The objectives of the Hazardous Materials Plan are as follows:

- Establish policies and responsibilities for protecting the health and safety of the general population and visitors in the City of Roseville, the surrounding communities, the

environment, and both public and private property from the effects of accidental hazardous materials incidents.

- Identify the emergency response organizations that are responsible for management hazardous materials incidents in or near the City of Roseville.
- Establish operational concepts for staffing, training, operating and supporting the City of Roseville Hazard Materials team. The Plan is coordinated with the Placer Operational Interagency Response Team Hazard Plan.
- Directs all individuals, agencies, and departments referenced in the Plan to develop Standard Operating Procedures and emergency response checklists that are consistent with the Plan and the City's Emergency Operations Plan.

11.4.4 State of California Certified Unified Program Agency

The City of Roseville is a State of California Certified Unified Program Agency (CUPA). This designation identifies the City of Roseville as a licensing agency for six hazardous materials related programs. The CUPA designation enables the City of Roseville to implement its own hazardous materials emergency response program. Mutual aid agreements are also in place for incident response. Each business that responds yes to any of the following questions must submit a Unified Program Consolidated Form with facility information to the Roseville Fire Department.

- Hazardous Materials—Do you have on site hazardous materials at or above 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for compressed gases, or the applicable federal threshold for an extremely hazardous substance specified in federal law or handles radiological materials in quantities for which an emergency plan is required pursuant to applicable law?
- Underground Storage Tank (UST)—Do you have on site USTs?
- Aboveground Storage Tank (AST)—Do you have on site ASTs for storage of petroleum?
- Hazardous Waste—Do you operate a facility that generates, recycles, or treats hazardous waste, among other activities?

11.4.5 Roseville Police Department

Roseville public safety entities are prepared to meet the challenge of intentional criminal acts and/or acts of terrorism, as well as technological, accidental, or natural hazards in the following ways:

- Use multi-disciplinary resources, including but not limited to, local municipal and county law enforcement, FBI, the California Anti-terrorism Information Center, military personnel, and private resource agencies.
- Deploy SWAT, hostage negotiators, rapid containment, tactical communication and Explosive Ordnance personnel
- Use the Crime Scene Investigations Unit for post-incident investigation
- Investigate each incident and regard each incident in a serious manner. The response to such incidents will be based on incident command system (ICS) principles indicating that any incident involving six (6) or more victims and/or patients will be considered a MCI. Response and recovery functions will be based on a modular concept and can be built according to the size and scope of the incident.

11.4.6 Roseville Public Safety Communications

Communications personnel are prepared to take the following actions:

- Appropriately recognize and document citizens' reports of suspicious activity
- Deploy appropriate resources to prevent, investigate, mitigate, and provide recovery services following incidents of human caused hazards, as well as natural and technological disasters
- Coordinate resource management of personnel, equipment, and facilities during established crisis incidents
- Work within the framework of the State Emergency Management System to provide emergency communications to field units and emergency operations personnel during emergency events
- Deploy mutual aid assistance in support of local, state, and national entities during crisis incidents
- Provide life-saving pre-arrival instructions on emergency medical incidents, both large in scale and of an individual nature

11.4.7 Roseville Fire Department

Training

Roseville Fire Department personnel are highly trained to handle all aspects of emergency service. All first response personnel are trained in advanced firefighting skills, basic life support, essential rescue skills, and basic hazardous materials response.

To support these first responders, specialized teams of personnel are trained in tower rescue, above/below grade rescue, confined space rescue, trench rescue, technical rescue, swift water rescue, dive rescue, specialized hazardous materials response, hazardous materials railcar and tank truck response, terrorism response, multi-casualty management, and advanced life support.

Response Time and Mutual Aid

The Roseville Fire Department is a fully functional agency that primarily provides fire suppression and emergency medical services for the urban environment of the city.

The Roseville Fire Department operates six stations with the seventh currently under construction in north central Roseville. The Department operates six paramedic engine companies, with a minimum staffing of three, one Emergency Medical Technician (with defibrillator) (EMT-D) truck company with a minimum staffing of four, and one Battalion Chief. The Department also operates a Hazardous Materials Response Unit (cross-staffed by the truck company); four Grass/Wildland units, and one Technical Rescue unit (all cross-staffed by Engine Companies). The Department currently maintains three reserve engines and one reserve truck.

The Fire Department has established a Standards of Response Coverage Plan that includes a travel time standard of four minutes from the time the apparatus leaves the station to the arrival of the first engine on scene. Due to significant growth in the city, additional fire stations are needed to achieve this response time. A temporary facility near the intersection of Blue Oaks Road west of Foothills Boulevard will serve

as Fire Station No. 7 until the permanent station is constructed and opened in late 2006. Fire stations Nos. 8 and 9 are currently being planned to serve the new development anticipated in Roseville.

The City of Roseville has mutual aid agreements with local fire departments and districts in surrounding Placer County and Sacramento County. These personnel cooperate in the same training program as do the City firefighters to ensure a high level of competency even with borrowed resources. If this level of aid does not meet the incident needs, the department participates in the statewide mutual aid system to bring additional resources from anywhere in California, and if needed, the nation.

Hazardous Materials Response

Hazardous Materials Listing

All hazardous materials handlers that store in excess of 55 gallons, 500 pounds, or 200 cubic feet of gas are required to submit Hazardous Materials Management Business Plans (HMBP). From these plans, emergency responders are provided emergency contact information, site-specific chemical inventories, and vicinity as well as facility maps. Facilities storing materials that are “acutely” hazardous and in excess of the quantities in CCR, Title 19, Tables 1, II or III must submit a more comprehensive Risk Management Plan, which includes off-site consequences analysis, maintenance, and training programs, and an executive summary. Owners/operators of aboveground tanks containing in excess of 660 gallons of petroleum hydrocarbons (or an aggregate quantity of 1,320 gallons) must comply with the state Aboveground Petroleum Storage Act, which requires the preparation of a Spill Prevention, Control, and Countermeasure (SPCC) Plan.

Fire Department staff requires the submittal of lists of hazardous materials used in existing and proposed industrial and commercial businesses by those businesses. The list is maintained by the Fire Department Life Safety/Hazardous Materials Officer and updated periodically.

Development Review Process

The Fire Department reviews any development proposal that may be impacted by or cause an impact related to the storage, handling, or disposal of hazardous materials. A Hazardous Materials Management Plan and if necessary, a Risk Management Prevention Plan is required as part of the development process per state law. The use of toxic or hazardous materials requiring the filing of a business plan for emergency response pursuant to Section 25503.5 of the California Health and Safety Code or materials identified in Section 5194, Title 8 of the CCR is critically analyzed by the City when considering any use. All users shall submit a list of hazardous and toxic materials with a qualified discussion of potential chronic and acute long-term health effects, including those on children, from acute short-term or chronic long-term exposure.

In addition, a plan shall be submitted specifying procedures for mitigating the emissions of toxic substances and groundwater monitoring and for identifying methods of hazardous waste disposal. All projects shall be reviewed for compliance with the Placer County Hazardous Waste Management Plan.

Intergovernmental Coordination

The Roseville Fire Department works cooperatively with other local and state agencies in a coordinated effort to inform and educate the public regarding the storage, handling, and disposal of household hazardous materials. This includes continued coordination with the Placer County Hazardous Materials Response Teams.

Hazardous Waste Drop-off

The City of Roseville partners with both public and private entities to remove household hazardous waste from Roseville's waste stream. The disposals include the following:

- Household Hazardous Waste Collection—The Western Placer Waste Management Authority provides a collection for household hazardous waste every Wednesday, Saturday and Sunday from 8 am to 4 pm at the Materials Recovery Facility north of Roseville. Acceptable materials include paints, cleaners, solvents, oil and poisons that should not be disposed of at the landfill. Materials prohibited by California State law include explosives, radioactive materials, and business or contractor waste. According to state law, the amount of waste per visit must not exceed five gallons or 50 pounds. More information is available at <http://www.wpwma.com/hhw.htm>.
- Used Electronic Equipment—Disposal of television sets and computer monitors must be handled in a special way to avoid polluting the environment. The Materials Recovery Facility accepts old televisions and computer monitors. Fees for television disposal are \$15 for a TV less than 21 inches and \$21 if larger than 21 inches. Computer monitors can be disposed of for \$12.
- Used Motor Oil Recycling—There are six locations in Roseville designated for used motor oil recycling drop-off.
- Sharps (or Needles)—Roseville residents who use medical needles for in-home care are encouraged to purchase sharps containers, which hold 100 needles at a nominal cost from several drug stores within the city. Residents are asked to dispose of all medical needles and containers properly so they do not enter the waste stream.

Hazardous Materials Database

The City of Roseville Fire Department maintains a database that includes chemical inventory disclosure, emergency contacts, and facility maps for all business plans of 400 businesses including five businesses with acutely hazardous materials. The businesses are subject to the California Accidental Release Prevention Program.

Interagency Cooperation for Emergency Response

Respond in accordance with the City of Roseville Hazardous Materials Emergency Response Plan to hazardous materials emergencies. Both the California Highway Patrol and the City of Roseville have developed a Hazardous Materials Emergency Plan that discusses the participant's responsibilities, organization and operation to be complied with in the event of a hazardous materials emergency including clean-up and decontamination procedures.

Hazardous Materials Truck Route

The City of Roseville does not have specific truck routes for hazardous materials. The City of Roseville does have established truck routes in the city limits, and in the event hazardous materials are to be transported within the city limits, a permit is required from the Roseville Police Department. Typically trucks with bulk deliveries of hazardous materials use State Route 65 to Blue Oaks Boulevard and then access any of the north-south corridors including Washington Boulevard, Industrial Avenue, and Foothills Boulevard where local businesses use hazardous materials in their business activities.

Routes for hazardous materials are coordinated with the California Department of Transportation (Caltrans), the California Highway Patrol, and the Roseville Police, Fire, and Public Works Departments.

Hazardous Materials Fee Program

The Roseville Fire Department has adopted a fee schedule for hazardous material permitting, storage, use, handling, and generation. The Roseville Fire Department also charges for fire and life safety inspections, plan review, and miscellaneous activities such as a Hazardous Materials Business Plan Review.

11.5 REVIEW OF MITIGATION ALTERNATIVES

Chapter 18 of the Roseville Multi-Hazard Mitigation Plan identifies strategies for all hazards including human-caused hazards that will be planned for and implemented by Roseville City staff and elected officials. The human-caused hazard mitigation alternatives reflect an emphasis on regional prevention and preparedness efforts and Roseville's ongoing training and preparedness programs.

11.5.1 Preventive Activities

Preventive activities are largely associated with activities to anticipate and prevent terrorism or accidental occurrences in Roseville and the Sacramento region. Roseville City staff will participate in **local efforts** including to prevent human-cause hazards including the following initiatives:

- Participate in regional, state and federal efforts to gather terrorism information at all levels and keep public safety officials briefed at all times regarding any local threats. Staff will then further develop response capabilities based on emerging threats.
- Continue all facets of emergency preparedness training for Police, Fire, Public Works, and City Manager/Public Information staff in order to respond quickly in the event of a human-caused disaster.
- Enhance awareness training for all city employees to recognize threats or suspicious activity in order to prevent an incident from occurring.
- Continue all facets of the City's hazardous materials team training and response through commitment of resources from the Fire Department budget and the addition of funding through the Sacramento Regional Homeland Security budget
- Continue to improve response times for public safety throughout the City so as to reduce exposure to human-caused incidents. The City will also maintain appropriate staffing levels of public safety personnel to address vulnerabilities identified in this Chapter.
- Train First Responders and all appropriate City staff to implement the protocol contained in the City of Roseville Terrorism Response Plan
- Continue to implement the City of Roseville Hazardous Materials Contingency Plan with enhancements as warranted by the type of uses in the City and new technologies in preventing hazardous materials incidents.
- Continue to work proactively with Union Pacific Railroad regarding placards and labeling of containers, emergency plans and coordination, standardized response procedures, notification of the types of materials being transported through Roseville on at least an annual basis; random inspections of transporters as allowed by Union Pacific; installation of mitigating techniques along the rail yard at critical locations; routine hazard communication initiatives; enhancing security along the rail corridor

should the alert system go higher than Orange; and continuously looking to the use of safer alternative products to conduct the rail transport operations.

- Continue regular testing of the alarm system along the Union Pacific railroad tracks in Central Roseville.

The City's participation in **regional efforts** to prevent human-caused hazards include the following:

- Commit support to the Sacramento Urban Area Security Initiative by dedicating fire and police personnel to the Sacramento office as funded with Homeland Security grants
- Participate in the Governor's Office of Emergency Services Disaster Resistant California annual conference and other training sessions sponsored by regional, state and federal agencies.

11.5.2 Property Protection Activities

Property protection activities for human-caused hazards in the City of Roseville will be focused on Crime Prevention Through Environmental Design (CPTED) in future planning efforts as well as enhancing existing infrastructure and buildings to prevent or mitigate human-cause incidents. CPTED is an urban planning design process that integrates crime prevention with neighborhood design and community development. CPTED is based on the theory that the proper design and effective use of the built environment can reduce crime and the fear of crime, and improve the quality of life. CPTED creates an environment where the physical characteristics, building layout, and site planning allow inhabitants to become key agents in ensuring their own security.

CPTED utilizes three primary strategies: natural surveillance, natural access control, and territorial reinforcement.

- *Natural surveillance* is a design concept directed primarily at facilitating continual observation, thus preventing the opportunity of crime (e.g., proper placement of windows overlooking sidewalks and parking lots, using transparent vestibules at building entrances to divert persons to reception areas, etc.). A key element of natural surveillance is the careful placement of physical features, activities, and people in ways that maximize the ability to see what is going on around them. Landscaping and lighting are also important elements that must be taken into consideration during the design of development projects.
- *Natural access control* focuses on limiting and providing guided access. Properly located entrances, exits, fencing, landscaping, sidewalks and roadways, signage, and lighting, all can assist in directing both pedestrian and vehicle traffic in ways that discourage crime.
- *Territorial reinforcement* promotes a sense of expressed ownership and social control. People living, visiting or working in or around an area that is physically designed to protect designated space are more likely to challenge intruders or report suspicious activity. Such an environment also causes strangers or intruders to stand out and makes them more easily identified. The use of fencing, seating areas, pavement treatments, art, signs, landscape and good maintenance of facilities and grounds promotes a perception that these defined areas are controlled.

While the City has not required the use of CPTED strategies in development review through ordinance or other policy directive, the Planning & Redevelopment Department frequently incorporates many of the CPTED strategies noted above in consultation with the Police Department. Though not specifically identified as CPTED strategies, the City's Community Design Guidelines (CDG) incorporate measures that attempt to increase site and building security for commercial, industrial, and multi-family residential projects. While these guidelines have proved effective in projects developed throughout the City, opportunities do exist for improvement of the CDG document's effectiveness in preventing human-caused hazards.

Mitigation alternatives for property protection include:

- Incorporate formal CPTED strategies and apply those strategies to future development projects by adopting the in the Community Design Guidelines for the City of Roseville.
- Enhance a camera surveillance program to improved security at electrical substations, receiving stations, and the future Roseville Energy Park
- Address vulnerabilities identified in the Vulnerability Assessment of the City of Roseville water facilities completed by the Environmental Utilities Department in response to requirements by the U.S. Environmental Protection Agency (EPA)

11.5.3 Resource Protection Activities

No resource protection mitigation alternatives were identified for human-caused hazards.

11.5.4 Emergency Service Activities

Emergency service activities include warning methods and response to events. Program enhancements may include the following projects and programs.

- Participate in regional training exercises per the requirements of Homeland Security Presidential Directive #8 in support of national preparedness. These training exercises, sponsored by the Sacramento Regional Office of Homeland Security will test and evaluate the ability to coordinate the activities of City, County and State Government first responders, volunteer organizations and the private sector in responding to terrorism and technological hazards. The trainings will enhance interagency coordination, provide training to staff, test response and recovery capabilities, activate the National Incident Management System (NIMS), and the mutual aid system.
- Work with the private sector to enhance and create Business Continuity Plans in the event of an emergency.
- Review existing automatic/mutual aid agreements with other public safety agencies to identify opportunities for enhancement.
- Relocate or construct a redundant Emergency Operations Center farther from the Roseville Railyard and floodplain.
- Maintain an emergency services information line (774-5812) that the public can contact 24 hours a day during an emergency incident to ask questions of emergency staff.
- Coordinate with all Roseville school districts to ensure that their emergency preparedness plans include preparation for human-caused incidents.
- Evacuation plans

- Encourage local businesses to adopt Information Technology and telecommunications recovery plans.

11.5.5 Structural Activities

Structural solutions have been identified that largely affect private and public property damage and have significant mitigation results in also protecting life and limb.

- Incorporate Crime Prevention through Environmental Design strategies into future enhancements and revisions to community design guidelines.
- Prepare site specific vulnerability assessment of City-owned critical facilities that use the best available science and technology with regards to human-caused hazards. Once the assessment is completed, apply for and secure funding to make the necessary structural improvements to protect the critical facilities in the event of a human-caused incident.

11.5.6 Public Information Activities

Public information activities include activities that provide information to the public that will aid them in all stages of a disaster. Roseville's current program for human-caused hazards includes emergency notifications from the time of detection in the Public Safety Dispatch system to warning systems at the rail yard, the City's Teleminder (reverse 9-1-1), emergency broadcast capabilities at Channel 14/73, the Roseville government access system, and Roseville's AM radio station 530.

Public information mitigation alternatives include:

- Promotion of 72-hour self-sufficiency through the Emergency Preparedness Manager's efforts, the Roseville website, Roseville Coalition of Neighborhood Associations (RCONA), and various other media.
- Continue to share the human-caused hazard risk and preparedness presentation given at the public meetings and City Council workshop as part of this preparedness effort.
- Maintain the on-line Citizens Advisory Panel of 2400 households and periodically e-mail emergency preparedness information including human-caused hazard preparedness instructions and reminders.