

E. HAZARDS

This section evaluates potential threats to public safety from seismic and fire hazards that could result from implementation of the new Bentley School Major CUP. This section does not analyze hazardous materials because the Project would legalize existing enrollment and operational characteristics at Bentley School, which would not involve the use of or exposure to potentially toxic materials. The Project site is located in the City of Oakland's Wildfire Prevention and Assessment District, is in a hillside residential area of the East Bay Hills that has historically been susceptible to wildfire risks, and was almost completely burned down during the 1991 Oakland Hills Fire. In addition, the southern buildings on the Project site are located approximately 225 feet north of the active Hayward Fault. As such, this section focuses primarily on the issue of emergency evacuation during seismic and fire emergencies.

While the proposed Major CUP would not result in the construction of new structures, it would legalize an intensity of on-site land uses (i.e., student enrollment) that is greater than permitted under the 1969 Major CUP. This section evaluates potential threats to public safety from hazards that could result from implementation of the new Major CUP. Significance criteria are used to evaluate potential impacts related to earthquakes, wildfires, and potential interference with evacuation plans.

1. Setting

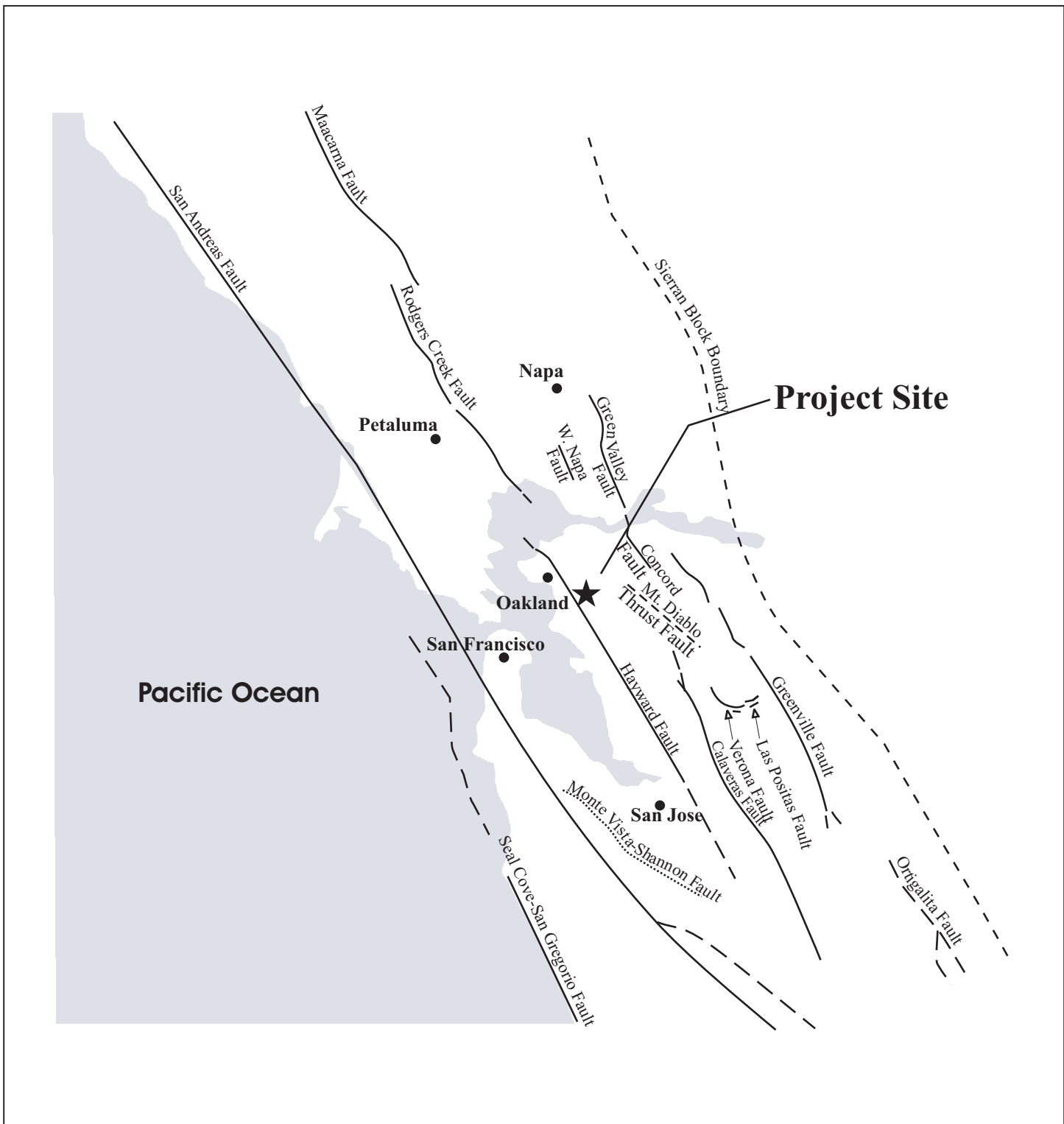
The following section describes existing seismic and fire hazard conditions and relevant regulatory documents, local policies and actions found in the Oakland General Plan Safety Element, and existing emergency evacuation plans applicable to the Project site and surrounding areas. The Fire Hazards and Geological Hazards sections of the Oakland General Plan Safety Element were used as background documents for the following subsections.¹

a. Seismic Conditions. The following section describes seismic conditions in and around the Project site.

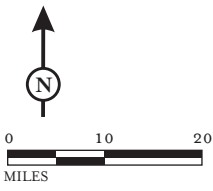
(1) Regional Seismicity. The entire San Francisco Bay Area is located within the San Andreas fault zone (SAFZ), a complex network of active faults forming the boundary between the North American and Pacific lithospheric plates. Movement of the plates, relative to one another, results in the accumulation of strain along the faults, which is released during earthquakes. Numerous moderate to strong historic earthquakes have been generated in northern California by the SAFZ. The level of active seismicity has resulted in classification of the area as seismic risk Zone 4 (the highest risk category) in the California Building Code. The SAFZ includes numerous faults found by the California Geological Survey under the Alquist-Priolo Earthquake Fault Zoning Act (A-PEFZA) to be "active" (i.e., to have evidence of fault rupture in the past 11,000 years). Active regional faults are shown on Figure IV.E-1. The southern buildings on the Project site are located approximately 225 feet north of the Hayward Fault, 22 miles east of the San Andreas Fault, 18 miles west of the Concord Fault, and 20 miles north of the Calaveras fault zone.

The U.S. Geological Survey's Working Group on California Earthquake Probabilities estimated that there is a 62 percent probability that one earthquake with a 6.7 or greater magnitude will occur in the San Francisco Bay Area between 2002 and 2031. The probability of a magnitude 6.7 or greater

¹ Oakland, City of, 2004. *General Plan, Safety Element*. November.



LSA



- LEGEND**
- ACTIVE FAULT -
FAULT HAS EVIDENCE OF SURFACE
DISPLACEMENT WITHIN THE PAST
11,000 YEARS (DASHED WHERE INFERRED)
 - POTENTIALLY ACTIVE FAULT -
FAULT HAS EVIDENCE OF SURFACE DISPLACEMENT
IN THE PAST 1.6 MILLION YEARS, BUT NOT WITHIN
THE PAST 11,000 YEARS
 - - - - SEISMIC SOURCE WITHOUT SURFACE RUPTURE

FIGURE IV.E-1

Bentley School Major Conditional Use Permit EIR
Regional Faults

SOURCE: BASELINE ENVIRONMENTAL CONSULTING, 2007.
I:\BES0702 Bentley School\figures\EIR\Fig_IVE1.cdr (1/22/87)

earthquake occurring along individual faults was estimated to be 27 percent along the Hayward Fault, 21 percent along the San Andreas fault, and 11 percent along the Calaveras fault. In addition, there is a cumulative 14 percent chance of an occurrence of a background event (i.e., an earthquake source, either mapped or undiscovered). When predictions are expanded to 100 years, it is estimated that about three magnitude 6.7 or greater earthquakes could occur during that time. Thus the probability of at least one magnitude 6.7 or greater earthquake rises to the near certainty of about 96 percent when calculated for a 100-year span.²

In addition, previous evaluations by the U.S. Geological Service (USGS) and the State Geologist have indicated that the maximum credible earthquake produced by the Hayward, San Andreas, and Calaveras faults would have magnitudes of 7.5, 8.4, and 7.3 respectively. The presence of these three faults within 20 miles of Oakland creates a high cumulative probability of a future local earthquake. Of these three faults, the Hayward Fault poses the most serious threat to the East Bay Hills, due to the intensity of land uses near the fault zone, and the long interval since the last major earthquake along the fault line.

(2) Site-Specific Seismicity. The Project site is located within an Alquist-Priolo earthquake fault zone, which runs along both sides of the Hayward Fault through the Oakland hills. The Alquist-Priolo Earthquake Fault Zoning Act is described below, in the discussion of the regulatory framework governing hazards and public safety. The Hayward Fault is located just south of Tunnel Road, and is approximately 225 feet south of the Project site. Due to its close proximity to the Project site, there is a potential for fault rupture to affect the site. Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. The location of surface rupture can generally be assumed to be along an active or potentially active major fault trace.

The U.S. Geological Survey and the Association of Bay Area Governments (ABAG) have categorized the area surrounding the Project site as having a shaking severity level of VIII, meaning that ground shaking during an earthquake on the Hayward Fault would be very strong.³ Generally, areas with this shaking severity level are near major active faults and will, on average, experience stronger earthquake shaking more frequently than other sites. This degree of shaking can cause damage to even strong, modern buildings.

The Project site is not located within a California Department of Conservation Seismic Hazard Zone for liquefaction as defined by the Seismic Hazards Mapping Act,⁴ and it is rated as a very low risk liquefaction hazard area by ABAG studies.⁵ Similarly, liquefaction-induced lateral spreading would not be expected to damage development on the site. However, the area surrounding the site has been identified as a Landslide Zone because of the occurrence of previous earthquake-induced landslides, and because local topographic, geological, geotechnical, and subsurface water conditions indicate a potential for permanent ground displacement. Therefore, the Project site is susceptible to slope instability, though landslides are not expected to produce a large-scale disaster in the area.

² Working Group on California Earthquake Probabilities (Working Group), 2003. *Earthquake Probabilities in the San Francisco Bay Region: 2002 to 2031*, USGS Open File Report 03-214.

³ Association of Bay Area Governments (ABAG), 2003. Earthquake Program, *Hazards Maps: Earthquake Shaking Potential*.

⁴ California Department of Conservation, 2002. *East Bay Seismic Hazard Zone Maps*. August 14.

⁵ Association of Bay Area Governments (ABAG), 2001. Earthquake Program, *Liquefaction Hazard Map*.

(3) Regulatory Framework. The following section describes the existing regulatory framework guiding development in areas in California that are expected to experience seismic activity.

Alquist-Priolo Earthquake Fault Zoning Act. The Alquist-Priolo Earthquake Fault Zoning Act requires the delineation of zones along active fault lines in California. The act requires the State Geologist to establish regulatory zones known as “earthquake fault zones” around the surface traces of potentially or recently active faults and to prepare and distribute maps of these zones. Cities and counties are required to withhold approval of most kinds of development projects in these zones until an investigation is conducted that is able to determine the precise location of active-fault traces and assess the hazard of surface fault rupture in the area. The purpose of the act is to regulate development on or near fault traces to reduce the hazard of fault rupture and to prohibit the location of most structures for human occupancy across these traces. The Project site is located in an earthquake fault zone that runs on both sides of the Hayward Fault through the Oakland hills.

Seismic Hazards Mapping Act. The Seismic Hazards Mapping Act was passed in 1990, and is similar to the Alquist-Priolo Act, except that it addresses more earthquake hazards than just fault rupture. The act was developed to protect the public from the effects of strong ground shaking, including liquefaction, landslides, and from other hazards caused by earthquakes. The act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate development within these zones. Geotechnical investigations must be conducted for sites within a Seismic Hazard Zone prior to any development, and appropriate mitigation measures must be incorporated into the project design. The Project site is located in a Landslide Hazard Zone, and as such is susceptible to slope instability.

California Building Code. Title 24, Part 2 of the California Building Code establishes general standards for the design and construction of buildings, including provisions for seismic design. The building code adopted by the City of Oakland requires extensive geotechnical analysis and engineering for structures located within seismic zones. The Project is located in Zone 4, as is much of western California. Of the four seismic zones, areas in Zone 4 are expected to experience the greatest effects from earthquake ground shaking and therefore have the most stringent requirements for seismic design. The proposed Project does not include any plans for physical changes to the site. For the purposes of this environmental review, it is assumed that the school and the City of Oakland complied with all structural building code requirements when the existing buildings were constructed.

Other State Laws and Regulations. California has passed numerous laws regulating land use development and building construction with regard to seismic and other geologic hazards. The Field Act, enacted in 1933, sets strict earthquake-resistant requirements for new public schools, while amendments to the act require the replacement or retrofitting of pre-existing public schools. The Private Schools Building Safety Act of 1986 establishes earthquake resistant requirements for private schools, and by doing so, seeks to provide a level of earthquake safety to private school students similar to what was granted to public school students under the Field Act.

b. Fire Hazard Conditions. The Project site is located in an area susceptible to fires, due in part to the vegetation on the hills, which ranges from densely wooded forests to open grasslands, creating virtually an entire landscape that is vulnerable to fires. In particular, the area’s steep and rugged terrain and the abundance of non-native, non-fire resistant vegetation, such as Monterey pine and

eucalyptus, contributes to the area's high fire hazard risk. While the area is prone to fires, the severity of Oakland's wildfire hazard comes from the presence of residential neighborhoods amidst large vegetated areas. This condition is referred to as the urban/wildland interface. Contributing to the hazard in the Oakland/Berkeley Hills is the narrowness of local roads and potential for congestion along evacuation and access routes for emergency vehicles. The California Department of Forestry and Fire Protection has rated scattered parts of the Oakland Hills, including the area surrounding the school site, as having fire threats of "high" and "very high." The Oakland Hills Fire of 1991 is described in further detail in the subsequent subsection.

(1) 1991 Oakland Hills Fire. The first stage of what was to become the Oakland Hills Fire started on Saturday, October 19, 1991 near the ridgeline of Wildcat Canyon. The fire initially consumed 5 acres before it was extinguished by the Oakland Fire Department (OFD). On Sunday morning, October 20, firefighters returned to the burn area to "mop up" hot spots. From 10:40 a.m. to 10:57 a.m., the 17 mile per hour (mph) hot Diablo winds increased dramatically, to gusts of 25 mph, which re-ignited hot spots and caused the fire to spread rapidly and to create two distinctive fire fronts. By 11:33 a.m., the Incident Commander reported that the fire was totally out of control and was moving on multiple fronts. The fire was able to spread so quickly due to several factors, including sudden Diablo winds, the hot dry weather, an abundance of natural fuels resulting from a 5-year drought, presence of wood shingle roofs, and the steep terrain of the area. By 12:00 p.m., approximately 40 percent of the total area affected by the fire had been burned, the fire had consumed 790 structures (igniting a home every 11 seconds), and most of the 25 fatalities had occurred.

Many of the deaths resulted from the rapid spread of the fire, which trapped residents in their cars on the narrow winding streets, as they were trying to flee the fire. Eleven of the victims, including an Oakland police officer, died in traffic jams on Charing Cross Road, northeast of Bentley School. Eight other victims died on other narrow streets in the same area. The other six mortalities were residents who were disabled or unable to evacuate due to age factors.⁶ In addition, the traffic jams on the streets in the area also delayed firefighting efforts. As residents evacuated, the neighborhood streets became jammed with cars and, as the fire progressed, many residents abandoned their cars and fled by foot, resulting in blocked roadways. These traffic issues hampered firefighting efforts as engines tried to enter the area on these same streets to reach the fire.

While traffic congestion on the narrow, winding roads was problematic, there were other larger factors that hampered firefighting efforts. One issue involved a lack of communication on the fire front. The OFD requested mutual aid assistance from numerous fire departments, and as a result, 74 type-one strike teams, with five engines each, and aircraft from hundreds of miles away responded. Radio communication between the different fire units was difficult, if not impossible, because the radio system overloaded when too many units attempted to use one channel. At the same time, there were too few mutual aid channels available and the steep, hilly terrain interfered with radio signals.⁷ In addition to communication issues, the firefighting effort ran into difficulties obtaining an adequate water supply. The water supply became limited when supply tanks and reservoirs emptied quickly

⁶ California State University, Long Beach. *1991 Oakland-Berkeley Firestorm*.

Website: www.csulb.edu/~djeffrey/hazards/ Accessed January 16, 2008

⁷ Parker, Donald, 1992. Museum of San Francisco, *The Oakland Hills Fire: An Overview*.

Website: www.sfmuseum.org/oakfire/overview.html Accessed January 16, 2008

due to fire suppression efforts and water flowing freely in destroyed homes. At the same time, tanks and reservoirs were unable to be refilled due to electrical failure caused by the fire. To make matters worse, mutual aid fire companies were unable to connect to Oakland's fire hydrants because, at the time, Oakland fire units utilized a different sized coupling than all of the other fire units.⁸

After three days of uncontrolled burning, the Oakland Hills Fire resulted in a total of 25 deaths, 150 injuries, the destruction of over 2,000 single family homes and 433 apartment units, and the burning of over 1,500 acres of land in the Oakland and Berkeley Hills. The estimated monetary fire loss totaled over \$1.5 billion. Bentley School was burned during the fire, and only the administration building (the original Hiller residence) survived the fire. Because the fire occurred on a weekend, no students were on the campus when the fire occurred. After the fire, the City of Oakland Wildfire Prevention Assessment District and the Oakland Standard Emergency Management System were both instituted by the City to deal with some of the major issues that led to the fire and inhibited adequate emergency response, both of which are discussed in greater detail below.

(2) Regulatory Framework. The following section describes the existing regulatory framework related to fire hazards in the greater Oakland area, highlighting those regulations that are applicable to the Project site.

California Public Resources Code. State of California regulations pertaining to wildfire prevention are found in sections 4251-4290, 4291-4299, and 4421-4446 of the California Public Resources Code. Sections 4251-4290 regulate activities in areas deemed by the State to be "hazardous fire areas."⁹ Generally, a hazardous fire area is any land covered by grass, grain, brush, or forest that is so inaccessible that a fire there would be unusually difficult to suppress. The Board of Forestry and Fire Protection is responsible for designating hazardous fire areas. Due to the readily accessible paved roads leading to the site, the area is not considered a hazardous fire area and is not subject to any of those regulations. Sections 4291-4299 extend defensible space clearance from 30 feet to 100 feet around homes and other structures located in State Responsibility Areas (SRA).¹⁰ Since the site is not located in a SRA, the school is only required to create and maintain defensible space of 30 feet around structures. Sections 4421-4446 prohibit certain activities, such as setting fire to any flammable material and allowing a fire to become uncontrolled. Legalizing the existing student enrollment and hours of operation would not affect the ability of the school to comply with applicable Public Resource Code wildfire regulations.

California Fire Code (CFC). The CFC includes building standards related to fire safety. The CFC is based on the Uniform Fire Code (UCF), which is a model code adopted at the national level. However, unlike the UCF, the CFC carries the weight of law. Topics addressed in the code include regulations involving sprinkler systems, fire alarm systems, access by fire equipment, fire hydrants, and many other general and specialized fire safety requirements for new and existing buildings and premises. These State-wide fire safety standards also require public assembly buildings, such as schools, to have built-in protections, including automatic smoke detection and fire-extinguishing systems, fire-resistant materials, and internal communication systems. The Major CUP would legalize the existing uses on an operational school site that was required to comply with CFC regulations at

⁸ Ibid.

⁹ California Public Resource Code Section 4251-4290.

¹⁰ California Public Resource Code Section 4291.

the time of construction. The proposed Project would not be subject to these fire safety requirements because the Project would not result in new construction.

California Department of Forestry and Fire Protection (CDF). The primary responsibility of the CDF is to prevent and suppress fires in SRAs, which comprise more than 31 million acres of non-federal wildlands in California. In addition, the CDF provides emergency services to local governments in Local Responsibility Areas (LRAs). In total, the CDF has a force of nearly 4,000 full-time fire professionals, operates 806 fire stations, and 1,095 fire engines.¹¹ While a large part of eastern Alameda County, along with portions of the Oakland Hills, is located in an SRA, the area surrounding Bentley School is currently classified as unincorporated and would not be automatically served by the CDF. However, even though the site is not located in a SRA or LRA, the CDF is still required by law to respond to and abate uncontrolled fires that threaten to destroy life, property, or natural resources outside of SRAs.

One division of CDF is the Office of the State Fire Marshall (OSFM). The OSFM provides State-wide guidance on fire prevention in wildland areas, reviews plans and inspects construction activities for all State-owned and State-occupied facilities, and regulates intrastate hazardous liquid pipelines. CDF, in conjunction with the OSFM, enforces most of California's fire-related laws, including the regulations found in the California Public Resources Code.

Oakland Municipal Code. The City of Oakland Municipal Code's fire protection standards for construction are based on Title 24 of the California Code of Regulations, and specifically on the California Building Code and the California Fire Code. Oakland amended these standards to reflect local conditions. One amendment relevant to the Bentley School site is a chapter that puts in place special construction requirements on structures located in the following areas: fire hazard zones; the area damaged by the 1991 Oakland Hills Fire; and areas covered by the North Oakland Hill Area Specific Plan. The Project site is located in a fire hazard zone and in the area damaged by the 1991 Oakland Hills Fire. The code requires any future construction on the site to include fire-resistant walls and roofs, separation of buildings to minimize potential fire spread, and automatic fire-extinguishing systems. As previously discussed, the proposed Project would not result in any new construction and as such, would not be subject to these requirements of the Municipal Code.

Section 16.28.040 of the Oakland Municipal Code includes provisions addressing street width, grading requirements, and street design in hillside subdivisions. In these areas, dedicated widths of all streets, excluding arterial and collector streets, must be at least 40 feet, with paved roadway widths of at least 30 feet (if there is lot frontage on both sides of the street).¹² Various sections of the code also require the use of fire-resistant construction and smoke detectors along with adequate fire-extinguishing systems or equipment. The Building Services Division of the City's Community and Economic Development Agency (CEDA) is responsible for enforcing the City codes when reviewing construction projects submitted for official approval. Since the Project analyzed in this EIR does not include any plans for future construction, these regulations and requirements would not apply to the proposed Project.

¹¹ California Department of Forestry and Fire Protection. *CDF Fire and Emergency Response Fact Sheet*. Website: www.fire.ca.gov/about_content/downloads/FireandEmergencyResponse2006.pdf

¹² Oakland, City of, 2004. *General Plan, Safety Element*. November.

City of Oakland Wildfire Prevention Assessment District (WPAD). The WPAD was first enacted by the Oakland City Council following the 1991 Oakland Hills Fire, but was terminated in 1997 due to a lack of funding. However, in 2003, the voters reinstated the District because of continued wildfire threats in the area. The WPAD's primary goal is to systematically reduce and manage vegetative fuel loads to significantly diminish the risk of future major fires, so as to create defensible space around development and fire-resistant communities.¹³ The WPAD boundaries run from the Berkeley border on the north to the San Leandro border to the south, and from the Contra Costa border on the east to slightly beyond Highways 13 and 580 to the west. In total, the WPAD encompasses 18.5 square miles (11,840 acres), and contains 54,000 residents, 22,000 homes, 30 schools, 20 churches, 200 businesses, and 57 parks within its jurisdiction.¹⁴

The WPAD attempts to reduce wildfire hazards by meeting code requirements set forth in the California Fire Code, the Public Resources Code, and the Oakland Municipal Code, while at the same time maintaining a balance between public safety and ecosystem health. All developed lots in the WPAD must meet the following compliance standards year round: a 30-foot minimum defensible space around all buildings; a 10-foot minimum clearance next to the roadside; removal of all portions of trees within 10 feet of chimneys; removal of all plant debris from roofs and gutters; removal of all tree limbs within 6 feet of the ground (so as not to create fuel "ladders"); removal of all dead and dying vegetation from property; and the proper maintenance and irrigation of all landscaping.¹⁵ Between 2004 and 2005, all developed and vacant properties were inspected for compliance, and 94 percent compliance was achieved by the end of the fire season. During the same time period, 50 linear miles of roadway were treated for fuel reduction and goats cleared hazardous fuels on over 400 acres of grassland.¹⁶ The Project site is located in the WPAD and is required to meet the terms of the compliance standards previously listed. However, legalizing current enrollment and hours of operation would not interfere with compliance with WPAD standards.

c. Emergency Response and Evacuation Plans. The exposure of residential populations to fire hazards is one of the chief issues in the Project area. The following section summarizes existing emergency response and evacuation plans in the vicinity of the school.

(1) City of Oakland. During the 1991 Oakland Hills Fire, limited accessibility complicated emergency response and evacuation. Many of the streets in the hills are narrow and winding, and during the evacuation, many roads in the immediate and surrounding areas became clogged with residents trying to leave as emergency personnel attempted to enter the area to reach the fire. After the fire, the City of Oakland and City of Berkeley developed a list of strategies for fire preparedness, including two primary recommendations regarding emergency access and evacuation procedures. The two main recommendations were "to set and enforce minimum unobstructed street widths" (to be implemented by street widening and parking restrictions) and "to designate and sign evacuation and emergency-response routes."¹⁷ While the cities have designated evacuation routes, they have not fully

¹³ Oakland, City of, 2006. Oakland Fire Department, Fire Prevention Bureau, *Annual Vegetation Management Plan for the Wildfire Prevention Assessment District*. April 6.

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Oakland, City of, 2004. *General Plan, Safety Element*. November. pp 66.

implemented the minimum and unobstructed street widths standard or the emergency evacuation and response routes signage standard. Evacuation routes for the City of Oakland are presented in the General Plan Safety Element as part of the overall emergency plan for the City of Oakland.¹⁸ The closest designated evacuation route to the Project site is Highway 13. In addition, there is an emergency siren located near the intersection of Highway 13, Caldecott Road, and Hiller Drive.¹⁹

Another recommendation that emerged following the 1991 fire was to provide additional pathways in the hills. The City found that off-street walkways can provide an important alternative to roadway evacuation routes, particularly in hilly areas where street access is limited and indirect. According to the city's Pedestrian Master Plan, there are approximately 200 walkways and 200 undeveloped rights-of-way that are potential sites for additional walkways. The recommendation to provide additional pathways has remained largely unimplemented.²⁰

The City of Oakland Fire Department (OFD) is the agency with the primary responsibility for preventing and suppressing fires in Oakland. In addition to fighting accidental and intentional fires, the OFD is responsible for conducting fire-safety inspections of buildings and businesses, issuing public warnings during times of high fire danger, conducting vegetation management inspections, and teaching basic fire safety and fire prevention practices to school children. The OFD has no formal evacuation plans for the area surrounding the Project site.

The Oakland Office of Emergency Services (OES) is a division of the Oakland Fire Department. Among many other functions, Oakland OES serves as the certified unified program agency (CUPA) for the City, enforcing federal, State, and local legislation related to hazardous materials. In addition, the OES operates the City's Emergency Operations Center (EOC). The EOC provides centralized emergency management, coordinates operations with other government agencies, prepares situation and operational reports, receives and disseminates warning information, and provides emergency instructions to the public.²¹

Another responsibility of the EOC is to routinely update the Oakland Standard Emergency Management System (SEMS) emergency plan. In 1994, the California State Legislature enacted Standard Emergency Management System legislation (Government Code 8607), which came as a response to the issues encountered during the Oakland Hills Fire. SEMS is a framework for standardizing emergency response procedures in California to facilitate the flow of information and resources among agencies in response to multi-jurisdictional emergencies. In addition, SEMS establishes standard operating procedures, terminology, chains of command, communication protocols, and equipment so that various agencies and jurisdictions, at different levels of government, can act as a single emergency response entity. The City of Oakland adopted SEMS and Oakland OES prepared a SEMS emergency plan describing how City agencies would respond to declared emergencies. The plan covers five essential functional areas: management; operations, planning and intelligence; funding and administration; and logistics.

¹⁸ Oakland, City of, 2004. *General Plan, Safety Element (Section 2, Public Safety Figure 2.1)*. November.

¹⁹ Ibid.

²⁰ Oakland, City of, 2004. *General Plan, Safety Element (Section 2, Public Safety)*. November.

²¹ Ibid.

(2) **Bentley School Emergency Management Plan.** Bentley School has developed its own emergency preparedness plan, which includes guidelines for emergency situations, evacuation routes and procedures, and designated responsibilities.²² Bentley School has prepared for an emergency by ensuring that all faculty and staff are familiar with emergency procedures, trained in First Aid and CPR, trained in safety procedures, and aware of the location of emergency backpacks, fire extinguishers, and fire alarms. In addition, the school has ensured that every classroom has been made as earthquake safe as possible, and has a backpack containing supplies that would be taken with the class during an emergency evacuation. The school also maintains a store of emergency food, water, and medical supplies that would sustain 400 people at least three days.

The school also frequently carries out emergency drills to prepare the students for a fire or earthquake emergency.²³ During these drills, all classrooms are evacuated and students are led to designated gathering areas in the main parking lot (students line up by class). In the event of an actual emergency, search and rescue teams would sweep through the campus to ensure that no students are left behind.

One key component of the emergency management plan is the use of the AlertNow system, which, in the event of an emergency, automatically sends a message created by the school to every contact phone number and email address provided by the families of enrolled students. If there are six unsuccessful attempts to reach a particular phone number or email address, AlertNow staff will contact the school immediately. In those circumstances, the school would revert to a traditional phone tree system to communicate messages to guardians. The AlertNow system is operated outside of California to allow for continued function during a State-wide emergency, and is tested once a year by Bentley School.

In the event of a major earthquake, all students would be kept on campus and under strict supervision. The AlertNow system would be used to inform guardians when their children can be picked up. The system would be used to stagger pick-up times so that the campus is not overwhelmed with vehicles during an emergency, blocking ingress and egress routes. If the campus were to become unsafe due to a fire or other emergency, students would be evacuated on foot through the back side of campus along Tunnel Road, to avoid congestion on Hiller Drive. The school has agreements with the Claremont Hotel, for grades K-4, and with St. Clements's Episcopal Church, for grades 5-8, to act as evacuation sites. The AlertNow system would instruct guardians to pick up students at the alternative pick-up locations and would emphasize that parents are not to go to the school.

d. City of Oakland Policies. Relevant policies and conditions of approval from the City General Plan and Standard Conditions of Approval are described below.

(1) **City of Oakland General Plan.** The City of Oakland General Plan Safety Element was updated in 2003 and contains sections dedicated to fire and geologic hazards in Oakland. The Geologic Hazards section of the Safety Element notes that earthquakes are the most pervasive safety hazard in Oakland because, unlike other hazards such as fires or floods, earthquakes are impossible to predict or contain. The Safety Element attempts to utilize certain tools, such as geotechnical studies, land use decisions, and adequate building codes, to reduce risks. Improved building design is

²² Bentley School, 2005. *Traffic and Parking Handbook for Hiller Campus*. September.

²³ Bentley School, 2006. *Hiller Campus Emergency Management Plan*.

emphasized over the restriction of new construction in certain areas. The Safety Element recommends many policies and actions that are not directly applicable to the proposed Project, and will not be discussed in further detail in this EIR.

The Fire Hazards section examines three types of fires: wildfires; structural fires; and industrial fires. Wildfire dangers are the most relevant to the Project site because of the location of the school in a wildfire-prone zone. One reason the site is susceptible to wildland fires is because it is located in an area characterized by an urban/wildland interface. According to the Fire Hazards section of the Safety Element, these areas are especially hazardous because there is combination of residential population with large areas of combustible materials (including structures).²⁴ Adding to the fire risk are the area's steep and rugged terrain and the abundance of non-native (and flammable) vegetation, such as eucalyptus. The Fire Hazards section of the Safety Element includes the following policies and actions that are applicable to the Project site:

- Policy PS-1: Maintain and enhance the City's capacity to prepare for, mitigate, respond to and recover from disasters and emergencies.
- Policy FI-1: Maintain and enhance the city's capacity for emergency response, fire prevention and fire fighting.
- Policy FI-2.5: Continue to conduct periodic fire-safety inspections of commercial, multi-family and institutional buildings.
- Policy FI-3: Prioritize the reduction of wildfire hazards, with an emphasis on prevention.
- Action FI-3.1: Carry out the programs funded by the Oakland Hills wildfire prevention assessment district, including fire-safety inspections of private properties, vegetation management practices, and education efforts.
- Action FI-3.2: Consistent with the city's pedestrian master plan, develop unused pedestrian rights-of-way in the Oakland Hills as walkways to serve as additional evacuation routes, and provide and maintain lighting facilities for new and existing walkways.

Other relevant General Plan policies are discussed in Chapter V, Planning Policy.

(2) **Standard Conditions of Approval.** The City's Standard Conditions of Approval relevant to this impact topic are listed below for reference. The conditions of approval will be adopted as requirements of the proposed Project (if the Project is approved by the City) to help ensure that no significant impacts (for the applicable topic) occur. As a result, they are not listed as mitigation measures.

COA 63: Vegetation Management Plan. *Prior to issuance of a demolition, grading, and/or construction permit and ongoing.*

- a) The project applicant shall submit a vegetation management plan to the Planning and Zoning Division and Fire Services Division that includes, if deemed appropriate, but not limited to, the following measures:
 - i. Removal of dead vegetation overhanging roof and chimney areas;
 - ii. Removal of leaves and needles from roofs;

²⁴ Oakland, City of, 2004. *General Plan, Safety Element, Chapter 2, Fire Hazards*. November.

- iii. Planting and placement of fire-resistant plants around the house and phasing out flammable vegetation;
 - iv. Trimming back vegetation around windows;
 - v. Removal of flammable vegetation on hillside slopes greater than 20%;
 - vi. Pruning the lower branches of tall trees;
 - vii. Clearing out ground-level brush and debris;
 - viii. Stacking woodpiles away from structures.
- b) The project applicant shall enter into a maintenance agreement with the City that ensures that landscaping will be maintained and adhere to measures listed above.

2. Impacts

This section analyzes the potential impacts related to public health and safety that could result from implementation the new Major CUP. This section begins with the criteria of significance, which establish thresholds for determining whether a project impact is significant. Potential public health and safety impacts from the proposed Project are then discussed.

a. Thresholds of Significance. The proposed Project would have a significant impact if it would:

- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan,
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

b. Less-than-Significant Hazards Impacts. Implementation of the proposed Project would result in the following less-than-significant impacts:

(1) Interfere with an Adopted Emergency Response Plan. The Project site is subject to emergency plans adopted by the City of Oakland, including the Oakland SEMS emergency plan. The plan primarily pertains to inter-jurisdictional coordination of emergency services. The legalization of existing land uses on the Project site would not interfere with the plan, including the ability of agencies to coordinate on providing an emergency response. As such, current enrollment and hours and days of operation have a less-than-significant impact on the Oakland SEMS emergency plan. The same finding would apply to a maximum enrollment of up to 360 students.

The emergency response plan that is most applicable to the Project site is the Bentley School Emergency Management Plan. The plan is updated annually in order to address the most current conditions at the school. As such, the current plan has been designed for a student population of 360 students. In the event of an earthquake or other emergency that would require students to stay on campus, the school has enough supplies to accommodate 400 individuals for 72 hours. In the event of a fire emergency, the school has designed its evacuation plan so that all 360 students would be led down the hill on foot through the back parking lot located along Tunnel Road. From there, the Lower School students would be taken to the Claremont Hotel and the Middle School students would go to St. Clement's Church. The intent of this evacuation strategy is to lead the students to a safe location, while not contributing to anticipated vehicle congestion along the City's emergency evacuation routes, through the redirection of the students on foot to two different locations. Since the established

emergency plan accounts for an enrollment of 360 students, the Project would not interfere with the Bentley School Emergency Management Plan.

While the proposed Project would not interfere with any formally adopted emergency plans, the Oakland Fire Department has identified access to the Project site as a primary concern and has stated that the current enrollment could potentially cause problems associated with emergency vehicle access and evacuation of the area.²⁵ One major issue is the close proximity of Bentley School to Kaiser School, which has a student population of 250. Problems associated with the existing enrollment and hours of operation at Bentley School are dependent on the time of day and of the year. The issue is most problematic during the late summer and in September and October, when fire dangers are the greatest.

Under the new Major CUP, Bentley School would be permitted to operate after school child care until 6:00 p.m. The current operating hours at Bentley School could potentially be problematic when the operating hours of Kaiser School are taken into account. Kaiser operates school-related activities, including after school classes and day care, until 6:00 p.m. every weeknight. Two schools, in close proximity, operating past standard school hours could potentially prove to be problematic in the event of an emergency that occurs later in the day. The extended hours of operation would extend the time frame in which the evacuation of a student population has the potential to negatively affect an area that historically has had problems with emergency evacuations and emergency vehicle access.

One neighborhood concern is that if the existing conditions are legalized, too many non-emergency vehicles would come into the area to pick up students from the Project site, which would adversely affect residents, students from Kaiser School, and vehicles attempting to leave the area during an emergency. However, implementation of the Bentley School Emergency Management Plan would minimize the number of non-emergency vehicles that would access the site during an emergency. The plan would require school staff to evacuate students from the site through the back of campus onto Tunnel Road. This course of action has been planned for the express purpose of reducing vehicle congestion on Hiller Drive. As such, this evacuation strategy ensures that students and staff would evacuate the site on foot, and would not increase vehicle traffic to or from the site. In addition, the plan and the school's transportation handbook clearly identify evacuation sites, and prohibit guardians from driving to the campus to pick up students during an emergency. Additionally, the school has instituted the AlertNow system in order to provide up-to-date emergency information to guardians. The school would use the system to provide guardians with evacuation and pick-up information, in order to more effectively stagger pick up times and reduce congestion. While the existing hours of operation and permitted enrollment marginally affect emergency egress and ingress in the vicinity of the Project site, this impact would be less than significant with the implementation of Bentley School's emergency plan.

In visits to the Project site, and discussions with City staff and service providers, parts of the school's Emergency Management Plan have been identified that could be enhanced through clarified language or by actions on the part of the school. These recommendations for improvement, which are not required for the plan to be effective, nor to reduce impacts to less-than-significant levels, are listed below. These recommended measures are presented for consideration by decisionmakers. In addition,

²⁵ Edwards, James, 2007. Deputy Chief Fire Prevention and Communications, Oakland Police Department. Written communication with LSA Associates, Inc. December.

Recommended Measures TRANS-1 through TRANS-14, discussed in Section IV.B, are intended to reduce traffic congestion during peak periods, but would also indirectly address emergency access and evacuation.

Recommended Measure HAZ-1: The school should consider the following measures:

- In evacuation situations where students are required to walk along Tunnel Road towards the City of Berkeley, it is important to maintain a clear and safe route for pedestrian access. It has been reported that there is debris on the side of Tunnel Road (SR 13) adjacent to the school that could restrict pedestrian access. The school should coordinate with Caltrans to provide regular maintenance to ensure that a safe route is provided for pedestrians.
- Language should be incorporated into the Emergency Management Plan advising guardians not to enter the school campus during a neighborhood evacuation so that traffic conflicts with drivers attempting to leave the area are avoided.
- Language should be incorporated into the Emergency Management Plan notifying guardians that, in the event that an emergency requires a fire truck/ambulance to enter Hiller Drive, motorists accessing the school should comply with the California Vehicle Code and pull over to the right to yield a clear path for emergency vehicles.

(2) Expose People or Structures to Fires. The proposed project would legalize existing student enrollment and allow for a maximum enrollment of 360 students, resulting in more students attending a school located in an area susceptible to wildfires, compared to the enrollment permitted under the 1969 Major CUP. At the same time, legalizing the current hours of operation at the school (and evening/weekend events) would extend the time in which students are exposed to fire hazards. However, the school complies with the WPAD vegetation management plans, which, in the event of a major wildfire, would reduce the chance the school would burn or that students and school staff would suffer harm as a result of fire hazards. In addition, the school has an established emergency evacuation plan and procedures that would lead the students on foot through the back entrance of the site to two pre-established evacuation sites. As such, the proposed Project would not increase the exposure of people or structures to significant risk of loss, injury, or death due to wildland fires.

Bentley School was inspected by the Oakland Fire Department Fire Prevention Bureau on Wednesday, January 9, 2008 in response to a citizen complaint. The inspection identified numerous violations at the school, ranging from expired fire extinguishers, inadequate earthquake bracing for a water heater, exposed electrical wiring, and doors unable to open fully. These violations are due to negligence and/or poor maintenance on behalf of the school and not due to the number of students enrolled at the school. Therefore, the effects of fire code violations at the school are not a result of the Project and are not considered a CEQA issue.

In addition, the inspection identified four classrooms that were overcrowded. The four classrooms were overcrowded by three to five students each. An enrollment of 360 students may have contributed to the overcrowding of these four classrooms, but is not the primary cause of the violation. Based on the fire inspection report, the school could accommodate a maximum enrollment of 500 students on any given day. Thus the school's violation in regard to overcrowding primarily derives from inadequate organization of students in existing campus buildings, as opposed to a lack of sufficient space to ensure that overcrowding does not occur. Even if there is an inadequate number of

classrooms to accommodate existing students, existing school buildings that are underutilized could be retrofitted to provide additional classroom space (without resulting in significant environmental impacts). Therefore, the violations cited in the January 9, 2008 fire inspection report are not primarily a result of the student enrollment numbers at Bentley School and would not be considered significant environmental effects of the proposed Project. According to C. Avila, Fire Code Inspector, as of October 2008, the School has complied with all items listed in the Inspection Report. However, the Fire Department has not re-inspected the School to verify that an interior wall was removed to address classroom overcrowding.

c. Significant Hazards Impacts. Implementation of the proposed Project would not result in significant hazards impacts.

d. Cumulative Hazards Impacts. Implementation of the proposed Project and cumulative projects would incrementally increase the exposure of people and structures to earthquake and wildfire hazards. Planned and foreseeable projects in the vicinity of the Project site would be required to meet the requirements of Title 24, Part 2 of the California Building Code, sections 4251-4290, 4291-4299, and 4421-4446 of the California Public Resources Code, the City of Oakland Municipal Code's fire protection standards for construction, and any other applicable requirements, which would reduce the impact of earthquake and wildfire hazards. Evacuations from the Project site would be conducted in accordance with an evacuation plan, which was designed to accommodate 360 students, and would not be expected to create substantial amounts of congestion that would impede neighborhood evacuation. The school's evacuation protocol involves transferring students by foot to pre-arranged evacuation sites or retaining students on-campus until the threat has subsided. In addition, parents are prohibited from retrieving their children during an emergency until notified to do so by Bentley School. This protocol would minimize Project-related traffic on local roads during an emergency and would not substantially increase the neighborhood's exposure to hazards. Implementation of the proposed Project would not contribute considerably to any cumulative hazards impacts. Therefore, cumulative hazards impacts are less than significant.

