4.4 GEOLOGY AND SOILS

This section evaluates the direct, indirect, short-term, and long-term effects of the proposed Cypress College Facilities Master Plan (proposed project) on geology, soils, and exposure to geologic hazards. The evaluation is based, in part, on review of various geologic maps and reports from the U.S. Geological Survey, the California Geological Survey (CGS), the U.S. Department of Agriculture, the City of Cypress General Plan, and the Cypress College Science Building Geotechnical Engineering Report (Geotechnical Solutions Inc. 2016). If project impacts are determined to be significant or potentially significant, mitigation measures to avoid or reduce those impacts are identified.

No comments related to geology and soils were received in response to the Notice of Preparation.

4.4.1 Existing Conditions

The project area is located within California's Peninsular Ranges Geomorphic Province, represented by a series of ranges separated by northwest-trending valleys, subparallel to faults branching out from the San Andreas Fault (CGS 2002). The trend of topography is similar to the Coast Ranges, but the geology is similar to the Sierra Nevada, with granitic rock intruding older metamorphic rocks. The Peninsular Ranges extend into lower California and are bound on the east by the Colorado Desert. On the west, the province includes the Los Angeles Basin, its marine shelf, and the Catalina Islands. Major faults in the province are the Cucamonga, San Jacinto, and San Andreas Faults.

Local Geology and Soils

The project site is within the Los Alamitos 7.5-Minute Quadrangle. In the official seismic hazard zone report for the Los Alamitos quadrangle, CGS (formerly the California Division of Mines and Geology [CDMG]) compiled geologic mapping within the quadrangle and reported on the liquefaction and landslide potential of various geologic units within the study area (CDMG 1998).

Cypress is composed of quaternary deposits of alluvium and colluvium. Alluvium results from sediments deposited from running water and colluvium forms as rock fragments and soil material accumulate at the base of steep slopes. The project site is located on Quaternary alluvium. The U.S. Soil Conservation Service identifies a number of soils in Cypress. The soils include the San Emigdio Series, Metz Series, Hueneme Series, and Bolsa Series, all of which are suitable for urban development (City of Cypress 2001a).

According to the U.S. Department of Agriculture (USDA) soil survey, the predominant soil unit mapped on the site—over 70%—is Metz loamy sand (0%–2% slopes); approximately 28% of the site is underlain by the Metz loamy sand moderately fine substratum (0%–2% slopes) (USDA 2016).

The Metz soil series is nearly level. It includes excessively drained sands on alluvial fans and floodplains. It is predominantly located in northeastern Cypress (City of Cypress 2001a). The soils on site, and their characteristics, are shown in Table 4.4-1. The foundations for buildings, parking lots, and other structures on campus are underlain by a combination of engineered fill and non-engineered fill, depending on when and how the structures were constructed.

Table 4.4-1
Soil Types Underlying the Cypress College Campus

Soil Type	Acres within Cypress College	Drainage Class	Shrink/ Swell Potential	Hydrologic Soil Group[1]/ Erosion Factor (Kf)[2]
Metz loamy sand	77.1 (72.5%)	Excessively drained	Low	B/0.20
Metz loamy sand, moderately fine substratum	29.2 (27.5%)	Excessively drained	Low	B/0.20

Source: USDA 2016

1 Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups (A through D) according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms. Soils in Group B have a moderate infiltration rate and a moderate rate of water transmission. Soils in Group C have a slow infiltration and transmission rates and consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. Soils in Group D have high runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted.

2 Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Faults and Seismic Hazards

The faulting and seismicity of Southern California is dominated by the San Andreas Fault system. The San Andreas Fault extends over 600 miles, encompassing virtually the entire length of California. The fault is divided into segments that have distinctive behavior patterns. The southern segment is more than 300 miles long and occasionally delivers large earthquakes. The San Andreas Fault is located approximately 60 miles north of the City of Cypress (City of Cypress 2001a).

Although no active or potentially active faults are located within the City of Cypress, the entire Southern California region is considered to be seismically active. Five faults are situated within proximity to Cypress: Newport-Inglewood, Norwalk, El Modena, Whittier-Elsinore, and Elysian Park Faults. The San Andreas and San Jacinto Faults are located approximately 43 and 33 miles, respectively, from Cypress than these five faults, but have the potential to deliver larger-magnitude earthquakes (City of Cypress 2001a).

The Newport–Inglewood Fault zone is a series of echelon northwest-trending and vertically dipping faults extending from the southern edge of the Santa Monica Mountains southeastward to the offshore area near Newport Beach. The Newport–Inglewood Fault, at its closest point to Cypress College, is located 6.9 miles southwest of the college in the City of Long Beach.

However, neither the Newport–Inglewood Fault or any other known fault lines cross the proposed project site, which means that fault rupture (i.e., along the trace of a fault line) would not occur on the site (City of Cypress 2001a). An earthquake on any of these faults could cause both ground-shaking effects and possibly liquefaction at the proposed project site.

According to earthquake probability mapping conducted by the U.S. Geological Survey (USGS), there is a 30% to 100% probability of an earthquake occurring with a magnitude greater than 6.7 in the next 50 years within 31 miles of Cypress College. The probability decreases to 30% to 50% for an earthquake greater than magnitude 7.0 (USGS 2015b). These probabilistic ground-motion values are in the high to very high range for Southern California and are the result of proximity to major fault systems with high earthquake recurrence rates. Levels of shaking can be expected to cause damage, particularly to older and poorly constructed buildings; in addition, may cause damage to utility infrastructure.

Liquefaction and slope failure are destructive secondary effects of strong seismic shaking. Because the site is nearly flat-lying, slope failure is not considered a potential hazard at the proposed project site (CDMG 1998). Liquefaction is a subsidiary hazard associated with intense ground shaking. When the earth accelerates, the soil can destabilize, and if sufficient water is present in the soil, the soil and water can mix. Liquefaction is generally associated with shallow groundwater conditions and the presence of loose and sandy soils or alluvial deposits. According to the Cypress Disaster Plan and the Orange County Safety Element, Cypress, like most of Orange County, has granular sandy soil with a high water content. Areas with these conditions may experience liquefaction during extreme ground shaking (City of Cypress 2001a). According to the City of Cypress General Plan, the proposed project is located in an area that has the potential to experience liquefaction due to shallow groundwater levels at the site (City of Cypress 2001b).

Soil Conditions

A Geotechnical Engineering Report was prepared for the proposed new Science, Engineering, and Mathematics (SEM) building to evaluate subsurface soil conditions at the site with respect to the proposed new construction (Geotechnical Solutions Inc. 2016). The soil conditions described below are based on the findings and observations made at various test holes locations occurring within the vicinity of the proposed new SEM building. Soil conditions vary throughout the site, and the discussion below may not describe the conditions of locations considered for other projects contemplated in the Facilities Master Plan. However, based on the similar nature of land cover, topography, and soils across campus, the soil/ground conditions are expected to be similar throughout the campus. The North Orange County Community College District (District) will require geotechnical and soils reports for projects contemplated in the Facilities Master Plan.

Liquefaction-Induced Settlement of Saturated Soils

The proposed new SEM building may be subject to several hazards including liquefaction-induced settlement. The amount of soil settlement during a strong seismic event depends on the thickness of the liquefiable layers and the density and/or consistency of the soils (Geotechnical Solutions Inc. 2016). Design and construction recommendations are provided in Section 4.4.4, Impacts Analysis.

Dynamic Compaction of Dry Soils

Relatively dry soils (e.g., soils above the groundwater table) with low density or softer consistency tend to undergo a certain degree of compaction during a seismic event. Earthquake shaking often induces significant cyclic shear strain in a soil mass, which responds to the vibration by undergoing volumetric changes. Volumetric changes in dry soils take place primarily through changes in the void ratio (usually contraction in loose or normally consolidated, soft soils, and dilation in dense or over-consolidated, stiff soils) and secondarily through particle reorientation. Such volumetric changes are generally non-recoverable (Geotechnical Solutions Inc. 2016). Design and construction recommendations are provided in Section 4.4.4, Impacts Analysis.

Lateral Spreading

Lateral spreading of the ground surface during an earthquake usually takes place along weak shear zones that have formed within a liquefiable soil layer. Lateral spreading has generally been observed to take place in the direction of a free-face (e.g., retaining wall, slope, channel), but has also been observed to a lesser extent on sites with very gentle slopes. Other factors such as earthquake magnitude, distance from the earthquake epicenter, thickness of the liquefiable layers, and the fines content and particle sizes of the liquefiable layers also affect the amount of lateral ground displacement. Considering the relatively flat topography in the area and scattered, non-continuous liquefaction zones, the site does not appear to be susceptible to seismically induced lateral spreading (Geotechnical Solutions Inc. 2016).

Corrosion

Chemical tests were performed on near-surface soils as summarized in the Geotechnical Engineering Report that was prepared for the proposed new SEM building. Soils were determined to be moderately corrosive to concrete elements, severely corrosive to ferrous metals, and strongly alkaline. Additionally, there has been a history of sulfate problems in the region (Geotechnical Solutions Inc. 2016). Design and construction recommendations are provided in Section 4.4.4, Impacts Analysis.

4.4.2 Relevant Plans, Policies, and Ordinances

Federal

Occupational Safety and Health Administration Regulations

Excavation and trenching are among the most hazardous construction activities. The Occupational Safety and Health Administration's (OSHA) Excavation and Trenching standard, Title 29 of the Code of Federal Regulations, Part 1926.650, covers requirements for excavation and trenching operations. OSHA requires that all excavations in which employees could potentially be exposed to cave-ins be protected by sloping or benching on the sides of the excavation, supporting the sides of the excavation, or placing a shield between the sides of the excavation and the work area.

State

California Building Code

The California Building Code (CBC) has been codified in the California Code of Regulations as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 to be enforceable. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use, occupancy, location, and maintenance of all building and structures within its jurisdiction. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California. The CBC describes requirements for engineering geologic reports, supplemental ground-response reports, and geotechnical reports (California Building Standards Commission 2013). In the case of structures proposed by the District, it is the California Department of General Services (DGS), Division of State Architect (DSA), that enforces building standards and geologic hazard requirements, as further discussed below.

Alquist-Priolo Earthquake Fault Zoning Act

Surface rupture is the most easily avoided seismic hazard. The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with this act, the state geologist established regulatory zones, called "earthquake fault zones," around the surface traces of active faults and published maps showing these zones. Within these zones, buildings for human occupancy cannot be constructed across the surface trace of active faults. Each earthquake fault zone extends approximately 200 to 500 feet on either side of the mapped fault trace since many active faults are complex and consist of more than one branch, the potential for ground-surface rupture along any of the branches increases. The proposed new SEM building is not subject to this act because it is not within an earthquake fault zone.

Seismic Hazards Mapping Act

CGS provides guidance with regard to seismic hazards. Under the CGS Seismic Hazards Mapping Act, seismic hazard zones are to be identified and mapped to assist local governments with planning and development. The intent of the act is to protect the public from the effects of strong ground shaking, liquefaction, landslides, and other types of ground failure, as well as other hazards caused by earthquakes. CGS Special Publication 117A, *Guidelines for Evaluating and Mitigating Seismic Hazards in California*, provides guidance for evaluating and mitigating earthquake-related hazards for projects within designated zones that require investigations (CGS 2008). Because proposed structures would be located within a liquefaction hazard zone, the act would apply to the proposed project.

Division of State Architect

For public schools and State Essential Services Buildings, the DGS, Division of State Architect (DSA), has jurisdiction over all aspects of construction (including access compliance) to ensure that plans, specifications, and construction activities comply with the CBC. DSA reviews and approves public school plans before issuing building permits and ensures project compliance with the CBC, the Field Act (see below), and other applicable geologic hazard regulations.

The Field Act (California Education Code, Sections 17280–17317 and 80030–81149) was established following a 6.3-magnitude Long Beach earthquake on March 10, 1933, in which more than 230 school buildings were destroyed, suffered major damage, or were judged unsafe to occupy. The Field Act established seismic design standards, plan review processes, construction inspections, and special tests for public schools in California. Typically, local building departments enforce the CBC in addition to other local and state provisions. The generally good performance during earthquakes of most buildings constructed since 1933 shows that local building departments are enforcing the CBC, which is aimed at mitigating seismic hazards in general. The provisions of the Field Act, however, go beyond the requirements of the CBC, requiring stricter seismic design standards.

DSA publishes an Interpretation of Regulations (IR) documents that explains acceptable methods for achieving compliance with building codes and regulations. For example, IR A-4 details geologic hazard studies for schools, IR A-9 describes school site improvements for school building projects, IR 16-3 details earth retaining systems, and IR 18-1 describes use of controlled low-strength material as controlled fill. The District will send all required engineering geology and geotechnical reports to CGS to review for compliance with state geologic hazard regulations (i.e., Alquist-Priolo Earthquake Fault Zoning Act and the Seismic Hazards Mapping Act, described above). Final DSA approval of a proposed project will not occur unless DSA receives the final acceptance letter from CGS.

Local

City of Cypress General Plan

The City of Cypress General Plan has relevant geology and soils policies that promote protection from seismic events. Those policies are as follows (City of Cypress 2001b):

Safety Element

- **SAF-2:** Protect life and property in Cypress from seismic events and resulting hazards.
    - **SAF-2.1:** Identify and evaluate existing structures for structural safety. Encourage building owners to undertake seismic retrofit improvements.
    - **SAF-2.2:** Implement the Uniform Building Code's seismic standards for construction of new buildings and maintain seismic safety of existing structures.
    - **SAF-2.3:** Require the review of soils and geologic conditions, and if necessary on-site borings, to determine liquefaction susceptibility of a proposed project site.
    - **SAF-2.4:** Study the potential for liquefaction within the City and adopt policies that minimize the potential damage of structures and injury of citizens.

4.4.3 Thresholds of Significance

The significance criteria used to evaluate project impacts related to geology and soils are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to geology and soils would occur if the project would:

1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    a. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of as known fault. Refer to Division of Mines and Geology Special Publication 42 (CGS 2007).
    b. Strong seismic ground shaking.

   c. Seismic-related ground failure, including liquefaction.
   d. Landslides.
2. Result in substantial soil erosion or the loss of topsoil.
3. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
4. Be located on expansive soil per Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.
5. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

The Initial Study for the project eliminated Threshold 1(d) and Threshold 5 from further analysis. The potential for a landslide event is very low because the project site and surrounding area are flat. For Threshold 5, there are no septic tanks or alternative waste water disposal systems in use on campus since the campus is connected to the public sewer system.

4.4.4 Impacts Analysis

Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of as known fault. (Refer to Division of Mines and Geology Special Publication 42); strong seismic ground shaking; seismic-related ground failure, including liquefaction; or landslides?

The campus 60% likelihood to experience shaking from at least one major earthquake (i.e., >M 6.7) within the greater Los Angeles region within the next 30 years (USGS 2015a). The intensity of such an event would depend on the causative fault and the distance to the epicenter, the movement magnitude, and the duration of shaking. As discussed in Section 4.4.1, the absence of on-site fault traces and the flat-lying nature of the proposed project site (the campus) means that earthquake-induced fault-rupture would not occur. However, the character of the underlying soils means that liquefaction could occur. Because the SEM building is the only new instructional building proposed, the following discussion focuses on it. As discussed in Section 4.4.1, a Geotechnical Engineering Report was prepared for the proposed new SEM building to evaluate subsurface soil conditions at the site with respect to the proposed construction. Due to the liquefaction potential, the proposed new SEM building would be required to be supported by cast-in-situ concrete caissons with either 24- or 36-inch-diameter with-grade beams. If secondary structures are included as part of the new SEM building construction, these structures could be supported by conventional continuous footings or spread footings (Geotechnical Solutions Inc. 2016).

No element of the proposed project could affect the timing, probability, or duration of an earthquake, or increase the severity of ground shaking or ground-shaking effects that would occur. Thus, the potential impact of the project would be limited to a potential for an increase in public exposure (through construction of classrooms and additional student housing) to high levels of ground shaking during an earthquake.

However, this potential impact would be minimal because numerous laws, policies, and building standards are in place that impose stringent seismic safety requirements on the design and construction of new structures, especially construction undertaken by public school districts. All buildings in California are subject to the standards in the CBC, which requires engineers to develop seismic design criteria that reflect the nature and magnitude of maximum ground motions that can be reasonably expected. These seismic design criteria allow engineers to apply appropriate building codes and design structures to reduce the risk of ground failure during an earthquake to a level that does not cause the collapse of buildings for human occupancy[1]. It is not feasible to design all structures to completely avoid damage in worst-case earthquake scenarios. Accordingly, regulatory agencies have generally defined an "acceptable level" of risk as that which provides reasonable protection of the public safety; although it does not necessarily ensure continued structural integrity and functionality of a project following an exceptionally strong earthquake [California Code of Regulations (CCR) Title 14, Section 3721(a)]. Seismic building standards for public school districts are stricter than those contained in the CBC (see Field Act in Section 4.4.2), and would govern construction of all buildings for the proposed project. The California DGS, DSA, has jurisdiction over all aspects of construction (including access compliance), to ensure that plans, specifications, and construction activities comply with the CBC and the Field Act.

CGS serves as an advisor under contract with DSA to review engineering geology and seismology reports for compliance with state geologic hazard regulations. The District will be required to send all engineering, geotechnical, and soils reports required to comply with the CBC to CGS to ensure that such reports also comply with applicable geologic hazard regulations (i.e., the Field Act and the Seismic Hazards Mapping Act, described in Section 4.5.2). CGS has outlined the required scope of geology, seismology, and geologic hazards evaluations under Title 24 of the California Code of Regulations (California Building Standards Commission 2013). Among other things, the reports must be prepared by appropriately licensed professionals (i.e., certified engineering geologist and/or Geotechnical Engineer) and must include adequate site

1 Title 14 of the California Code of Regulations (CCR), Section 3601(e), defines a structure for human occupancy as any structure used or intended for supporting or sheltering any use or occupancy, which is expected to have a human occupancy rate of more than 2,000 person-hours per year.

characterization, estimates of earthquake ground motions, assessment of liquefaction/settlement potential, analysis of slope stability, identification of adverse soil conditions (e.g., expansive or corrosive soils), and mitigation recommendations for all identified issues. When DSA receives the final acceptance letter from CGS, final approval of the proposed project will occur.

The projects proposed in the Facilities Master Plan would not be approved or built without adequately demonstrating to DSA and CGS their compliance with the CBC and applicable geologic hazards regulations. For this reason, the proposed project would be designed and built in a manner that would reduce public exposure to geologic risks to acceptable levels, and the potential impacts of the proposed project would be less than significant.

Would the project result in substantial soil erosion or the loss of topsoil?

Because the campus is already developed and not located in sloped areas, the potential for substantial soil erosion or significant loss of topsoil is generally low. Section 4.7, Hydrology and Water Quality, which addresses soil erosion and sedimentation in greater detail from a water quality perspective, found potential impacts to be less than significant. Because the analysis and conclusions located therein would be equally applicable to this criterion, the projects proposed in the Facilities Master Plan would have less-than-significant impacts with respect to substantial soil erosion and significant loss of topsoil.

Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? AND

Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

As discussed in Section 4.4.1, soils within the project site could be prone to a variety of instabilities. If unstable soils and/or other geologic hazards are not taken into consideration in construction site preparation activities (e.g., grading) and in the design of proposed structures, unstable soils could have potentially significant impacts on the structural components of the project. Improperly designed structures could be subject, in the long term, to damage or distress as a result of adverse soil conditions, resulting in the need for frequent and potentially costly repairs, and, in severe cases, could represent a public safety issue. Soil settlement and/or corrosion causes deterioration to plumbing, pipelines, and foundations in a slow, incremental manner, but unexpected or sudden utility line breaks or other structural failures are more likely to occur in the event of an earthquake.

Shrink/swelling of soil, differential settlement potential, and high corrosion risks are common geotechnical issues in California, particularly within clay-rich residual soils, hydric soils, and wetland/estuarine peat/mud deposits. Standard engineering practices have been developed to effectively address such concerns. Commonly employed solutions include over-excavation and replacement with engineered fills, lime treatment, moisture conditioning, compaction of base and sub-base soils, use of appropriate constructions materials, and appropriate selection and design of foundations, among others.

The Geotechnical Engineering Report prepared for the proposed new SEM building (Geotechnical Solutions Inc. 2016) recommends that the structure be supported by cast-in-place concrete caissons with either 24- or 36-inch-diameter with-grade beams. If secondary structures are included as part of the new SEM building construction, these structures can be supported by conventional continuous footings or spread footings (Geotechnical Solutions Inc. 2016). Design of the structure would be based on the assumption of severe sulfate and corrosion conditions due to high groundwater levels and historic evidence in the area. All ferrous metals and pipes would be properly coated and wrapped. A minimum of 3-inch-thick concrete cover over rebar would be maintained for all reinforced concrete in contact with soil, including cast-in-place concrete caissons. To protect concrete against potential sulfate attack, Type V Portland cement would be used for all concrete elements in contact with soil, with a maximum water-cement ratio of 0.45, and a minimum compressive strength of 4,500 pounds per square inch, in accordance with the CBC (California Building Standards Commission 2013). This would include all piles, pile caps, slabs, and elevator pit walls (Geotechnical Solutions Inc. 2016).

As discussed previously, projects proposed in the Facilities Master Plan would not be approved or built without adequately demonstrating to DSA and CGS their compliance with the CBC and applicable geologic hazards regulations. Geotechnical recommendation, likely similar to the common solutions previously described (as appropriate), would be included as part of project designs and construction plans to protect facilities from unstable or expansive soils.

For these reasons, the impact of the proposed project with respect to expansive or otherwise unstable soils would be less than significant.

4.4.5 Mitigation Measures

None required.

4.4.6 Level of Significance After Mitigation

Not applicable.

4.4.7 Cumulative Impacts

The geographic extent considered for potential cumulative impacts to people and structures related to geologic and seismic hazards is more localized or site-specific than other impacts. As analyzed above, the project would experience less-than-significant impacts related to all issue areas. Impacts related to earthquakes and adverse soil conditions would be less than significant as a result of the required compliance with applicable building codes and geologic hazard regulations. Geologic/soil issues relate to local, site-specific soil conditions, ground response to earthquakes, and the potential for adverse soil conditions to damage the proposed project's structural components would be less than significant. Although impacts identified as less than significant can compound to generate a significant cumulative impact, the geology and soils impacts of the proposed project would not be cumulative because of their localized nature. The only projects in the cumulative scenario that would contribute to or compound the identified impacts would be those that are overlapping or adjacent to the proposed project. Such projects would likewise be subject to the CBC and geologic hazard regulations, and would, thus, be designed and constructed to avoid substantial adverse impacts with respect to geology, soils, and seismic hazards. For this reason, cumulative impacts with respect to geologic and seismic hazards would be less than significant.

4.4.8 References

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