4.7 HAZARDOUS MATERIALS/RISK OF UPSET

This section addresses a number of issues including: the potential presence of and risk of exposure to hazardous materials at the proposed project site and potential risk of upset associated with the site's adjacency to the Union Pacific Railroad (UPRR) right-of-way (ROW), U.S. 101, nearby businesses using hazardous materials and a high pressure natural gas line. The information presented in this section pertaining to hazardous materials at the site is based in part on a Phase I Environmental Site Assessment (ESA) prepared by Rincon Consultants, Inc. (June 2013). This report is provided in Appendix F. The findings of a health risk assessment that evaluates potential long-term impacts related to exposure of site residents to emissions from the adjacent UPRR and U.S. 101 are addressed in Section 4.2, *Air Quality*.

The Draft EIR included separate discussions of the risk of upset associated with various potential sources of upset hazards, including nearby businesses, U.S. 101, the UPRR, and a high pressure natural gas line. For the Final EIR, the discussion of risk of upset has been consolidated into a single impact (Impact HAZ-2, beginning on page 4.7-7) to better reflect the overall level of risk to which the proposed project would be subject. As discussed under Impact HAZ-2, the overall impact related to risk of upset has been identified as Class I, significant and unavoidable.

4.7.1 Setting

a. Overview. The Goleta General Plan/Coastal and Land Use Plan Final EIR, 2006, analyzed potential safety hazards caused by the presence, use, manufacture or transport or hazardous materials within the City. The risk of upset focused on humans and assessed potential impacts from accidents, explosions and other releases. The General Plan/Coastal and Land Use Plan Final EIR identified a Class I impact for development in proximity to transportation of hazardous materials on the UPRR rail line and U.S. 101.

The project site is an 8.8-gross acre property that is bounded on its north by the Union Pacific Railroad (approximately 35 feet north of the project site) and U.S. 101 (approximately 175 feet north of the project site), on its east and west by existing business park development, on its south by Cortona Drive and business park development, and Storke Road to the west with some residential uses across Storke Road.

The site is currently vacant and undeveloped. Prior to the urbanization of the area in the 1960s, the site was in use as a farm (portions of the site were used as an orchard and other portions were likely used for dry farming). Aerial photographs reviewed as part of the Phase I ESA demonstrate that the site has been undeveloped and vacant since at least 1966, following its use as a farm. During the site reconnaissance for the Phase I ESA (performed on May 28, 2013), four storage containers, four construction roll-off bins, two parked heavy equipment vehicles, a trailer, a portable vibrating rock screen machine, and a large rock stockpile were observed on the central portion of the project site. A dirt road is located on the southwestern portion of the site.

The following describes the potential for presence of hazardous materials (at the project site) and the potential risks associated with UPRR, U.S. 101, nearby businesses using hazardous materials and a natural gas line.

Hazardous Materials and Substances. The term "hazardous material" refers to both hazardous substances and hazardous waste. A material is identified as "hazardous" if it appears on a list of hazardous materials prepared by a Federal, State, or local regulatory agency or if it has characteristics defined as hazardous by such an agency. A "hazardous waste" is a "solid waste" that exhibits toxic or hazardous characteristics. The United States Environmental Protection Agency (US EPA) has defined the term "solid waste" to include many types of discarded materials including any gaseous, liquid, semi-liquid, or solid material, which is discarded or has served its intended purpose, unless the material is specifically excluded from regulation. Such materials are considered waste whether they are discarded, reused, recycled, or reclaimed. The EPA classifies a material as hazardous if it has one or more of the following characteristics at specific thresholds: ignitability, corrosivity, reactivity, and/or toxicity.

As part of the Phase I ESA performed by Rincon Consultants, Inc., a site reconnaissance was conducted in order to observe existing site conditions and to obtain information indicating the possible presence of recognized environmental conditions (REC)[1] in connection with the project site. During the site reconnaissance, Rincon did not observe any of the following potential indicators of a REC on-site: above-ground tanks or evidence of underground storage tanks; drums; hazardous substances or petroleum products; unidentified containers; odors; pools of liquid; or transformers or hydraulic equipment. Rincon observed four storage containers, four construction roll-off bins, two parked heavy equipment vehicles, a trailer, a portable vibrating rock screen machine and a rock stockpile in the central portion of the project site. However, there were no observed leaks, stains or odors associated with these items on-site at the time of the site reconnaissance. In addition, during the site reconnaissance, there were four holes covered with plywood, weighted down with sand bags observed on the northwestern portion of the site. Follow-up correspondence with the property owner revealed that the four 18 inch diameter test holes were drilled to a depth of approximately 3 feet below grade and these holes were used to conduct sensor tests on objects buried in the holes. According to the property owner, the Toyon Research Corporation, a neighboring business, used the holes to test detection equipment for improvised explosive devices (IED), which has since been used by the military. The objects were reportedly non-hazardous and consisted of miscellaneous items, including an empty plastic bucket, metal sphere, and steel cylinder. Toyon has indicated that all test objects were removed at the end of each day testing occurred and that the holes should have been backfilled with the native soil removed during drilling, but the soil may have settled over time. The holes were filled with surrounding native soil on June 3, 2013, after the completion of the Rincon site reconnaissance, and during the preparation of the Phase I ESA. A portion of the holes are still visible. However, the test holes observed on-site during the site reconnaissance do not present an environmental concern.

In addition to the site reconnaissance, Environmental Data Resources (EDR) was contracted to search public databases of sites that generate, store, treat, or dispose of hazardous materials or sites for which a release or incident has occurred. The EDR search was conducted for the project site and included data from surrounding sites within a one-quarter mile radius of the property. The project site is not listed in any of the databases searched by EDR. Three adjacent properties were listed as non-release sites in the databases searched by EDR; non-release sites were identified as having the potential for release of hazardous materials, although no contamination was documented. However, these listings for adjacent properties are not indicative of a hazardous materials release. These sites included:

[1] *ASTM International defines a recognized environmental condition as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.*

- *Santa Barbara Research Center (6800 Cortona Drive) – This property is located adjacent to the east of the site (currently occupied by Toyon Research Corporation). This adjacent property was listed in the following databases searched by EDR:*
  - *RCRA-Non Generators (RCRA NonGen/ NLR) -- a listing of sites which generate, transport, store, treat, and/or dispose of hazardous waste*
  - *Facility Index System (FINDS) -- a database with information on facilities*
  - *Hazardous Substance Storage Container Database (HIST UST) -- a historical listing of sites with underground storage tanks*
  - *Certified Unified Program Agencies (CUPA Listings) -- a listing of sites included in Santa Barbara County's CUPA*
  - *California Hazardous Material Incident Report System (CHMIRS) -- contains information* on reported hazardous material incidents (accidental releases or spills)
  - Hazardous Waste Information System (HAZNET) -- data extracted from copies of hazardous waste manifests received each year by the Department of Toxic Substances Control,
  - Waste Discharge System (WDS) -- listing of sites which have been issued waste discharge requirements.
- *Tel Air/ GE Sensing (6860 Cortona Drive) – This property is located adjacent to the southwest of the site. This adjacent property was listed as a CUPA Listings site in the EDR. Since this listing is not indicative of a hazardous materials release, this property would not be expected to impact the project site.*
- *Raytheon-RVS2 (26 Castilian Drive) – This property is located adjacent to the east of the site. This adjacent property was listed as a CUPA Listings site in the EDR*.

In addition, as a follow-up to the database search and the site reconnaissance, the Phase I ESA reviewed data available on the State Water Resources Control Board (SWRCB) Geotracker database. Nearby sites located upgradient to the project site were reviewed. According to the documents reviewed, groundwater flows from the northeast to the east-southeast in the vicinity of the project site. The following is a summary of the review of the documents and data available on the Geotracker database for those sites with potential groundwater contamination that could impact the project site.

- *Joslyn Electronic Systems Corp (6868 Cortona Drive) - According to the most recent groundwater monitoring report (Semi-Annual Second Half 2012), the reported groundwater flow direction was to the east. Groundwater data indicates that the solvents released at this nearby property are not migrating onto the project site.*
- *Happy Harry's Produce Mart/ Yankies Shell Service Station/ Jewell Property (7020 Calle Real) - There were no documents available on GeoTracker for this site. Records indicate that this gasoline release to groundwater case was opened in 1987, remediated from 1989 through 1992, and closed in 2000.*
- *Mobil/ ExxonMobil (49 Glen Annie Canyon Road) - According to the most recent groundwater monitoring report (Second Half 2012), the reported groundwater flow direction was to the east. The most recent groundwater data indicates that the gasoline constituents released at this nearby property are not migrating onto the project site.*
- *Chevron (6895 Hollister Avenue) - According to the most recent groundwater monitoring report (First Quarter 2013), the reported groundwater flow direction was*

to the east-southeast. The most recent groundwater data indicates that the gasoline constituents released at this nearby property are not migrating onto the project site.

- *Tosco-76 Station/ Union Oil (6930 Hollister Avenue) - According to the most recent groundwater monitoring report (Semi-Annual, Fourth Quarter 2012 through First Quarter 2013), the reported groundwater flow direction was to the northeast. The most recent groundwater data indicates that the gasoline constituents released at this nearby property are not migrating onto the project site.*

Aerial photographs of the site over time were also analyzed as part of the Phase I ESA. The photos and maps reviewed indicate that the eastern and western portions of the site were in use as an orchard from at least 1929 through 1947. After 1947, the entire site was in use as dry-land farming until at least 1956. According to the California Department of Toxic Substances Control's (DTSC's), Interim Guidance for Sampling Agricultural Properties, organochlorine pesticides (OCPs) were first introduced into California agriculture in 1944 and reached peak usage in the 1960s. DDT was banned from agricultural use in 1974, and the remaining OCPs in California agriculture were subsequently banned. Data gathered by DTSC from sites where agricultural use ended prior to 1950 indicates that OCPs were not identified as chemicals of potential concern. In those cases, where OCPs were identified, the source appears to have been the application to structures on the property, and not the agricultural crops grown prior to 1950. Because the project site has not been used as an orchard in more than 65 years, pesticides or other chemicals used routinely in agricultural production (if any) would have diminished over time. Additionally, the agricultural use that appears to have been dry-land farming would not be expected to impact the site because herbicides, insecticides, and fumigants are not typically used during dry-land farming. Based on the aerial photographs, there has been no agricultural use on the site for at least 65 years. Therefore, even if pesticides or other chemicals were applied during the later years of agricultural use, concentrations in the soil would have diminished over time to insubstantial levels.

Based on the Phase I ESA, there is no evidence of recognized environmental conditions (REC) in connection with the project site.

Proximity to the Union Pacific Railroad. The project site is located immediately adjacent and to the south of the UPRR right-of-way. The railroad carries passenger cars as well as freight trains. Some freight trains carry hazardous materials. Issues associated with the site's proximity to the railroad include the potential for an accident (a derailment in particular) that could result in the release of hazardous material or ignition of a fire. The associated public health risk depends upon the materials released during an accident, the toxicity of the materials, and the wind direction that may carry the emissions from the release toward any occupied uses.

Proximity to U.S. 101. The mainline of U.S. 101 is located north of the project site, separated by the UPRR right-of-way and the on-ramp from Storke Road. Some of the truck traffic on U.S 101 involves transport of hazardous materials. Issues associated with the site's proximity to U.S 101 include the potential for a truck accident that could result in the release of hazardous material or ignition of a fire. The associated public health risk depends upon the materials released during an accident, the toxicity of the materials, and the wind direction that may carry the emissions from the release toward any occupied uses.

Proximity to a High Pressure Natural Gas Line. A 16-inch diameter underground Southern California Gas Company high-pressure natural gas pipeline runs along the north side of Hollister Avenue

and runs within approximately 650 feet of the southern portion of the property. This pipeline transports flammable, non-toxic natural gas. Issues associated with the site's proximity to the pipeline involve the potential for an accident that could result in the release and ignition of flammable gas.

b. Hazardous Material Regulation. The management of hazardous materials and hazardous wastes is regulated at federal, State, and local levels through programs administered by the U.S. Environmental Protection Agency (USEPA), agencies within the California Environmental Protection Agency (CalEPA) such as the Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board (RWQCB), U.S. Department of Transportation (DOT), California Highway Patrol, federal and State Occupational Safety and Health agencies (OSHA), and Office of Emergency Services (OES). An overview of the regulation of hazardous materials is provided below. A more detailed discussion of hazardous material regulation can be found in Appendix F.

Transportation of Hazardous Materials. The transportation of hazardous materials is regulated by the Federal Department of Transportation (DOT) and the California Department of Transportation (Caltrans). These regulations are discussed in the attachment in Appendix F.

Storage and Handling of Hazardous Materials. The storage and handling of hazardous materials is regulated by a number of agencies, including federal OSHA, federal DOT, California OSHA, and Santa Barbara County. Federal OSHA regulates the storage and handling of hazardous materials, including container specifications, safety release devices, inspection requirements, and handling requirements. Federal DOT regulations require that shippers of hazardous materials use appropriate containers and label the contents as required by law. California OSHA, under General Industry Safety Orders, specifies requirements for hazardous materials storage and handling and references both federal OSHA requirements and industry recommendations. The Santa Barbara County Fire Department periodically inspects facilities to ensure that they are storing hazardous materials correctly and have proper safety measures in place.

In California, the USEPA has granted most enforcement authority over federal hazardous materials regulations to the Cal EPA. In California, regional agencies are responsible for programs regulating emissions to the air, surface water, and groundwater. At the project site, the Santa Barbara County Air Pollution Control District has oversight over air emissions, the Central Coast Regional Water Quality Control Board (Central Coast RWQCB) has jurisdiction over the City and regulates discharges and releases to surface and groundwater, and the County of Santa Barbara Hazardous Material Unit oversees programs involving storage and handling of hazardous materials. Oversight for investigation and remediation of sites affected by hazardous materials releases can be performed by state agencies, such as the DTSC or the State Water Resource Control Board. The Resource Conservation and Recovery Act (RCRA) (42 U.S.C. §6901 et seq.) is the United States' primary law governing the handling and disposal of hazardous waste. The RCRA, which passed into law in 1976, set out to ensure that wastes are managed in an environmentally sound manner.

A number of businesses located near the proposed project store and use hazardous materials. These facilities are required by law to prepare a Hazardous Materials Business Plan that lists the hazardous materials stored and their volumes and locations and submit the Plan to the Santa Barbara County Public Health Department. Therefore, a list of the current hazardous materials stored and used at these businesses is available. However, businesses can change or add to the hazardous materials (except for "acutely hazardous" materials in quantities above prescribed thresholds) that they store and use without additional regulatory review or approval as long as they comply with the applicable laws and

regulations. In addition, new businesses could replace existing businesses without the need for any additional regulatory review or approval as long as they comply with the applicable laws and regulations, including the preparation of a Business Plan if they plan to handle hazardous materials. Additional building and fire department permits are required if additional tanks are to be constructed to store hazardous materials.

Based on the "Hazardous Materials Facility and Emergency Contact Information" supplied by Santa Barbara County, no businesses in the vicinity of the project site store acutely hazardous materials above the prescribed thresholds. Nevertheless, it is possible that an existing or new business may want to store such materials. To be allowed to store acutely hazardous materials above the prescribed threshold, a business must prepare and submit a Risk Management Plan (RMP) under the California Accidental Release Prevention (CalARP) Program to Santa Barbara County Hazardous Materials Unit for review and approval before such materials can be delivered to the site.

The County of Santa Barbara administers a number of federal and State laws and regulations at the local level. In addition, the Uniform Fire Code adopted by the County and the Uniform Building Code, which has been adopted into the Goleta Municipal Code (Title 15) include requirements pertaining to hazardous materials and hazardous wastes, which are monitored and enforced at the local level.

Hazardous Materials Unit (HMU) of the Santa Barbara County Public Health Department is certified by CalEPA as the Certified Unified Program Agency (CUPA) for Santa Barbara County. The CUPA regulates businesses that handle hazardous materials, generate or treat hazardous waste or operate aboveground or underground storage tanks. The primary goal of the CUPA Program is to protect public health and the environment by promoting compliance with applicable laws and regulations. All inspectors in the County of Santa Barbara CUPA Program are trained Hazardous Materials Specialists who take part in continuous education program to ensure consistency and uniformity during inspections.

The overall CUPA requirements are found in Health & Safety Code (HSC) Chapter 6.11 and California Code of Regulations (CCR), Title 27, Division 1, Subdivision 4, Chapter1. The County of Santa Barbara CUPA is responsible for the following six consolidated environmental programs:

- *Hazardous Materials Release Response Plans & Inventory ("Business Plan") - Authority: HSC Chapter 6.95, Article 1 & Title 19 CCR Chapter 4;*
- *Underground Storage Tanks (UST) - Authority: HSC Chapter 6.7 & Title 23 CCR, Division 3, Chapters 16 & 17;*
- *Hazardous Waste Generators - Authority: HSC Chapter 6.5 & Title 22 CCR Divison 4.5;*
- *Onsite Hazardous Waste Treatment ("Tiered Permit")- Authority: HSC Chapter 6.5 & Title 22 CCR Division 4.5;*
- *Aboveground Petroleum Storage Act (APSA) Authority: HSC Chapter 6.67;*
- *California Accidental Release Prevention ("CalARP") - Authority: Chapter 6.95, Article 2 & Title 19 CCR Chapter 4.5*

Hazardous Materials Business Plan. The Business Plan Program requires businesses handling hazardous materials in quantities in excess of specified quantities to submit inventories of those materials to the CUPA, and to develop appropriate employee training and emergency procedures. The thresholds are:

- *55 gallons for a liquid*
- *500 pounds for a solid*
- *200 cubic feet (at standard temperature and pressure) for a gas*

The CUPA maintains the inventory and emergency contact information submitted from businesses in a computerized data management system. The CUPA, in turn provides this information to emergency response agencies.

4.7.2 Impact Analysis

a. Methodology and Significance Thresholds. The City of Goleta's Environmental Thresholds and Guidelines Manual contains thresholds for assessing the significance of impacts to public safety resulting from the involuntary exposure to hazardous materials. The manual establishes categories for identifying potential significant impacts to public safety including transportation of hazardous materials, as well as potentially significant impacts to non-hazardous land uses proposed in proximity to existing hazardous facilities. The manual specifically identifies a potentially significant impact to all development proposed in proximity to one or more existing hazardous facilities.

CEQA Guidelines Section 15126.2(a) provides guidance regarding consideration and discussion of significant environmental impacts related to hazards:

- *The EIR shall also analyze any significant environmental effects the project might cause by bringing development and people into the affected area.*
- *The EIR should evaluate any potentially significant impacts of locating development in areas susceptible to hazardous conditions as identified in authoritative hazard maps, risk assessments or land use plans addressing such hazards.*

Appendix G of the CEQA Guidelines contains a checklist of environmental factors to be assessed to determine the potential for significant impacts, including the following for hazards and hazardous materials:

- *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*
- *Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; or*
- *Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.*

The Initial Study determined that impacts related to hazardous emissions, airport safety, and emergency evacuation would not be significant; therefore, these issues are not further addressed in this EIR. Wildland fire issues are discussed in Section 4.11, *Public Services*.

b. Project Impacts and Mitigation Measures.

Impact HAZ-1 **Businesses that use and store hazardous materials are located in the vicinity of the project site. Therefore, soil and/or ground water contamination could be present at the site due to past releases of contaminants. However, no hazardous materials are known to be present on the site or to be migrating onto the site. Therefore, impacts associated with past releases would be Class III, *less than significant.***

As discussed in the *Setting*, as part of the Phase I ESA conducted for the project site, a database search of public lists of sites that generate, store, treat, or dispose of hazardous materials or sites for which a release or incident has occurred was conducted for the project site and included data from surrounding sites within a one-quarter mile radius of the property. The project site was not listed in any of the databases searched by EDR. Three adjacent properties were listed as non-release sites in the databases searched by EDR, which indicates that no hazardous materials release has occurred. Further, a review of the documents and data available on the Geotracker database for those sites with potential hazardous material releases that could impact the project site (those properties located upgradient from the project site) determined that no hazardous materials are migrating toward the project site.

Because there is no evidence of hazardous materials currently migrating to the project site, impacts related to project site soil and groundwater contamination would be less than significant.

Mitigation Measures. Mitigation is not required since no significant impact has been identified.

Residual Impact. Impacts would be less than significant without mitigation.

Impact HAZ-2 **Implementation of the proposed project would place residential structures and persons in proximity to existing businesses that use, store, and transport hazardous chemicals, a high-pressure natural gas pipeline, as well as to the UPRR railroad tracks and U.S. 101 where the transport of hazardous materials occurs. Onsite residents would therefore be exposed to a potential risk of upset associated with chemical leaks and fire from nearby businesses, derailed trains, truck accidents, and pipeline accidents involving the release of natural gas. Although the probability of such incidents would be low the consequences to residents could be catastrophic. Therefore, this impact would be Class I, *significant and unavoidable*.**

Proposed residential structures and future residents on the project site would be located in proximity to several types of facilities in which hazardous materials are used, stored, or transported: nearby businesses, the UPRR railroad tracks, the U.S. 101 freeway, and a high-pressure natural gas pipeline. Each type of facility is discussed below.

Nearby Businesses

As discussed in the *Setting*, the Santa Barbara County HMU regulates businesses that handle hazardous materials, generate or treat hazardous waste, or operate storage tanks with hazardous materials. As the County CUPA the HMU promotes compliance with applicable hazardous material laws and regulations.

The HMU's Business Plan Program requires businesses handling hazardous materials in quantities in excess of specified amounts to submit inventories of those materials and to develop appropriate employee training and emergency procedures. For such businesses, the HMU requires preparation and filing of a Business Plan and Emergency Response Plan that ensures that all nearby hazardous materials are handled appropriately to minimize potential health and environmental effects. The HMU also maintains the inventory and emergency contact information submitted from businesses in a computerized data management system and, in turn, provides this information to emergency response agencies.

In June 2014, the HMUprovided an updated inventory of chemicals that are in use at businesses in proximity to the project site. A number of light-industrial and commercial uses in the vicinity of the project site use hazardous chemicals in the course of operation. Uses near Cortona Drive and a summary of the general types of chemicals used at each business based on information provided by the HMU are provided in Table 4.7-1.

Table 4.7-1
Businesses that Use Hazardous Materials
within the Vicinity of the Project Site

Business Name	Address	Typical Chemicals Used*
Cree, Inc.	340 Storke Road	Hydrogen
Santa Barbara Focal Plane	346 Bollay Drive	Freon 22, Sulfuric Acid
Dupont Displays, Inc.	6780 Cortona Drive	Tetrahydrofuran~~Liquid Nitrogen, Liquid Argon, Sulphuric Acid Water, Solvents~~
~~Toyon Research~~	~~6800 Cortona Drive~~	~~Liquid Nitrogen, Propane, Freon, Paint, Solvents~~
Tel Aire/GE Sensing	6860 Cortona Drive~~B~~	~~Nitrogen, Argon,~~ Isobutane, Carbon Monoxide~~, Carbon Dioxide~~
ICRCO Inc.	26 Coromar Drive	Ethanol, Carbon Monoxide~~Gas mixture~~
Raytheon	75 Coromar Drive	Ammonia, Chlorine, Hydrogen, Hydrogen Peroxide, Methane, Phosphine, Silane, ~~Freon, Acetone, Diesel, Sodium Hydroxide, Nitrogen (cryogenic),~~ Sodium Hydroxide, Tetraflouromethane, Toluene, Acetylene~~Hydrosil, Wastewater sludge~~
Raytheon	44 Castilian Drive	Diesel, Hydroflouric Acid, Potassium Cyanide, Flouboric Acid
Transform	115 Castilian Drive	Chlorine, Ammonia, Isopropanol, Disilane, Hydrogen, Silane

**Sources: Santa Barbara County Environmental Health Department, June 2014.*

The businesses listed in Table 4.7-1 have all submitted plans to the County for the management of hazardous materials and no violations of federal, state, or local requirements pertaining to hazardous materials handling, storage, or use have occurred at businesses in the project site vicinity. In addition,

no documented incidents involving the release of hazardous materials from these businesses have occurred (West, May 12, 2014).

The requirement that businesses prepare and submit Business Plans to Santa Barbara County means that the Fire Department is fully aware of all the hazardous materials that are stored at these businesses, where they are stored, and in what quantities. Fire Department personnel periodically visit the facilities to become more familiar with the facilities. All businesses submitting Business Plans are also required to prepare and submit emergency/contingency response plans. Hence, all businesses are required to be prepared to take immediate action in the event of an incident. Fire Department personnel is required to also be prepared to take action because of the Business Plan. Businesses are required to update their Business Plans whenever major changes occur such as the addition of another hazardous material. In addition, a business would be required to apply for permits if a storage tank is to be added. Such an application would be reviewed by the building and fire departments before a permit would be issued. This would ensure that all codes are met and that additional mitigation measures are implemented as deemed necessary.

The laws and regulations in place mitigate the potential of a release of hazardous materials to the maximum extent feasible. In addition, in the event of a release, the requirement for pre-planning and emergency response plans reduces the potential consequences of the release. Nevertheless, it is not possible to completely eliminate the potential for releases and there remains a low probability for a future hazardous material release at any of the nearby facilities that store and use hazardous materials. Such a release could potentially affect the project site and site residents due to exposure to toxic fumes, explosions, or fire.

UPPR

Freight trains occasionally travel along the UPRR adjacent to the project site. These trains may carry hazardous materials, which could be released during an accident. The public health risk posed by an accidental release would depend upon the materials involved, their toxicity, and the wind direction that could carry emissions from the release. The prevailing weather pattern at the time of release would affect the rate of dilution and the direction of transport of any gaseous or volatilized materials.

Upset may also result from the explosion of highly volatile materials. Because the project site and carports are as close as 50 feet to the rail line and the apartment buildings would be located as close as 110 feet, explosion and fire could pose a serious risk of injury in addition to that which could result from inhalation of volatile chemicals and fumes.

The potential impact can be evaluated only in terms of probabilities. The possibility of impact is determined by a combination of the probability of an accident, the probability that the released cargo is hazardous, and the probability that winds are blowing from the spill toward occupied receptor sites. An analysis of the potential for a rail accident resulting in the release of hazardous material was recently completed on a project located adjacent to the UPRR and approximately 600 feet west of the project site (Villages at Los Carneros, Envicom, 2011). This same methodology has been used here to estimate the potential risk of rail accidents to the proposed project.

Dangerous cargo represents approximately six percent of total freight movement in the United States (Reuters, December 15, 2006). The predominant wind direction is from the south and hence, the wind blows from the tracks toward the project site less than half the time. Release of content was assumed to require derailment of cars carrying hazardous cargo (Environ Corporation, 2011). The derailment history

of freight trains in the United States for the ten-year period 2001 through 2010 was 0.005 derailments per one-million ton miles of cargo (Federal Railroad Administration Office of Safety Analysis; see safetydata.fra.dot.gov). At 10 to 12 freight trains per day (URS, 2003), each averaging 2,500 tons per train, the tracks adjacent to the project site carry approximately 1,000,000 tons per year. The segment directly adjacent to the project site (approximately 0.2 miles) carries approximately 200,000 ton-miles. The risk of derailment adjacent to the project site is calculated as follows:

- *200,000 ton miles x 0.005 derailments per ton-mile per year = 0.001 derailments/year = once every 1,000 years.*

Accordingly, a derailment may occur adjacent to the project site once every 1,000 years. The risk of adverse impacts from such a derailment is calculated as follows:

- *Once every 1,000 years x 0.06 (6 percent) probability of hazardous cargo x 0.5 (50 percent) probability of adverse wind equals one derailment every 30,000 years that could impact life at the project site.*

Furthermore, ~~the probability of~~ injuries or fatalities may be somewhat less than the calculated probability. People located inside their apartments would be shielded from the impacts of a fire. Buildings and walls would also provide protection from the radiant heat from a fire (First Carbon Solutions 2013).

Based on this analysis, the risk of derailment with or without hazardous material release is statistically extremely low – approximately the risk level of meteor strike (Environ Corporation 2011). However, according to the Goleta General Plan FEIR (3.7-2 Transport), this potential impact cannot be mitigated to a less than significant level and remains significant with respect to rail traffic along the UPRR ROW, where the project site is located. The FEIR states that the potential impact "remains significant" and no feasible mitigation measures are proposed to reduce the level of significance. The City Council adopted a statement of overriding considerations with respect to this impact as part of its action in certifying the FEIR for the General Plan.

U.S. 101 Freeway

The annual average daily truck traffic (AADT) on U.S 101 at Storke Road in 2011 was 3,175. This represented 9.8 percent of the total AADT. The majority of these (59 percent) were trucks with 5 or more axles (Traffic and Vehicle Data Systems, 2012). In 2007, trucks transported the largest volume of hazardous materials through the nation's transportation system, moving 1.2 out of 2.2 billion tons of hazardous materials. These shipments accounted for 104 billion highway ton-miles, out of the total 323 billion ton-miles moved by all modes. The total ton-miles of all materials transported by truck in 2007 were 1.3×10^{12}. Approximately 13.7 percent of materials transported by truck were classified as hazardous while 7.7 percent of the ton-miles transported involved hazardous materials (Bureau of Transportation Statistics, 2011). Since this level of detail on trucking of hazardous material in California could not be located, the nationwide data has been used to estimate the potential risk to the project site. Table 4.7-2 shows the breakdown of hazardous materials shipped in trucks by hazard class.

The accident rate for trucks transporting hazardous materials is estimated to be 3.2×10^{-7} per mile (Battelle, 2001). The vast majority of incidents involving truck releases will not impact resources located more than a few thousand feet from the place of the accident (see discussion below on the potential hazards from the various types of hazardous materials. To be conservative, the analysis has assumed

that accidents that occur within a half mile of the project site (one mile segment) have the potential to impact the site. Thus, the probability of an accident involving a truck on U.S 101 within a one-mile segment adjacent to the proposed project is calculated as follows:

3,175 (truck AADT) x 365 (days per year) x 0.077 (percent trucks with hazardous materials) x 3.2 x 10^{-7} (accident rate per mile assumed for U.S 101*) = 0.029 or one accident every 35 years*

Table 4.7-2
Hazardous Materials Truck Shipment Characteristics by Hazard Class in 2007

Hazard Class and Description	Tons (thousands)	% Total Tons	Ton-miles (millions)	Average miles per shipment	Probability of Release
Total	2,231,133	100.00%	323,457	96	5.80E-04 (once every 1,724 yrs)
Class 1, Explosives	3,047	0.14%	911	738	8.12E-07 (once every 1,232,000 yrs)
Class 2, Gases	250,506	11.23%	55,260	51	6.51E-05 (once every 15,360 yrs)
Class 3, Flammable liquids	1,752,814	78.56%	181,615	91	4.56E-04 (once every 2,190 yrs)
Class 4, Flammable solids	20,408	0.91%	5,547	309	5.28E-06 (once every 189,400.0 yrs)
Class 5, Oxidizers and organic peroxides	14,959	0.67%	7,024	361	3.89E-06 (once every 257,100 yrs)
Class 6, Toxic (poison)	11,270	0.51%	5,667	467	2.96E-06 (once every 337,800 yrs)
Class 7, Radioactive materials	515	0.02%	37	S	1.16E-07 (once every 8,621,000 yrs)
Class 8, Corrosive materials	114,441	5.13%	44,395	208	2.98E-05 (once every 33,560 yrs)
Class 9, Miscellaneous dangerous goods	63,173	2.83%	23,002	484	1.64E-05 (once every 61,000 yrs)

The probability of release for each class of hazardous materials is calculated by multiplying the total probability of release (5.8E-04) (.00058) by the % total tons for each class. For example, the probability of release for Class 1 is calculated by multiplying 0.00058 (5.8E-04) times .0014 (14%) which equals 0.000000812 (8.12E-7).

An accident involving a truck carrying hazardous material does not always result in the release of the material. The Federal Emergency Management Agency's (FEMA) *Handbook of Chemical Hazard Analysis Procedures* (1989) estimates that approximately half of accidents result in a release, including very minor valve and fitting leaks. Omitting these, a spill may result from an accident about 15 percent to 20 percent of the time (FEMA, 1989). After applying the more conservative assumption of 20 percent, the probability of a truck accident releasing hazardous material on U.S 101 within one half mile of the project is 0.029 x 0.2 = 5.8 x 10^{-4}, or once every 1,700 years.

The project site is approximately 160 feet and 270 feet south of the southbound lane of the freeway at the eastern and western sides of the project site, respectively. The potential impact from a truck accident with release would be dependent of the type and amount of material released. Table 4.7-2 presents the probability of release by cargo type. The consequence of each type is discussed below.

Class 1, Explosives. An event involving explosives could cause property damage on the project site as well as injury and or death. The probability of a release of explosive material is 8.1×10^{-7} or once every 1.2 million years (see Table 4.7-2).

Class 2, Gases. The probability of a release of a gas is 6.5×10^{-5}, or once every 15,300 years (see Table 4.7-2). For a gas release to impact the proposed project, the wind would have to be blowing from the north. In addition, the gas would either have to be flammable or toxic and enough material would have to be released to generate a hazardous cloud that could reach the site. If a flammable cloud were to be ignited immediately at the source of the release, then there would be no impact to the project site. FEMA (1989) estimates that 63 percent of the gases transported are flammable. Assuming a probability of the wind blowing from the north at 50 percent, the probability of a release possibly reaching the project site is 3.2×10^{-5} or once in 30,800 years. Even if a gas cloud were to reach the property, a person would not necessarily be impacted. A non-toxic flammable gas would not pose a hazard unless it becomes ignited. The impact from a toxic gas cloud would depend on the type of material, concentration, and sensitivity of the person to that material. One effective way of responding to a release of a toxic gas is to shelter in place Buildings provide shelter against contaminants by three methods: condensation of vapors on exterior walls, passive filtering by the building material and structure, and by providing a physical barrier to vapor/gas intrusion. In addition to providing a physical barrier and causing vapors to condense, building exteriors will provide a "filter" for contaminants as surfaces, cracks and pores absorb the contaminants before they enter the building. Once those vapors/gases enter the building they will be diluted by the uncontaminated air already in the building. In addition, since a structure will slow the rate of vapor/gas infiltration the effects of fluctuations in concentration will be reduced. This will greatly reduce the indoor concentration relative to the outdoor concentration (Governor's Office of Emergency Services, 2014).

Class 3, Flammable liquids. The vast majority of materials transported are classified as flammable liquids. This class includes materials that are either flammable or combustible. The probability of a release of a Class 3 liquid is estimated to be 4.6×10^{-4} or once every 2,200 years (see Table 4.7-2). There are two potential hazards from a release of a flammable liquid: a fire at the release point creating radiant heat that can produce burns and, if not ignited, a flammable gas cloud that can move with the wind and become ignited someplace else. A pool fire at the point of the accident will produce radiant heat that can cause burns. The intensity of the heat is dependent on the material on fire and the size of the area on fire. The intensity of the radiant heat decreases as a function of distance. The California Department of Education (CDE, 2007) estimates that the hazard zone that could begin causing second degree burns on exposed skin after 30 seconds exposure from a gasoline fire with a diameter of 100 feet (7,800 square feet) would extend to 200 ft. People located indoors or behind structures would be afforded some protection from the heat. People outdoors would feel the heat and naturally move away from it. CDE (2007) also estimates that for a flammable gas cloud from a gasoline release to reach the proposed project site, the diameter of the release would have to be greater than 460 feet (166,200 square feet). A combustible material does not produce a flammable gas cloud because it does not produce enough flammable vapors at ambient temperature to become ignited (e.g., its flash point is high).

Class 4, Flammable Solids. The probability of a release of a flammable solid is 6.3×10^{-6} or once every 189,000 years (see Table 4.7-2). Flammable solids are normally more difficult to ignite than flammable liquids. In addition, because they don't spread like a liquid when released, if they become ignited the surface area on fire is relatively contained and therefore, the radiant heat produced is normally lower than that of a flammable liquid and the area potentially impacted is lower.

Class 5, Oxidizers and Organic Peroxides. An oxidizer is a liquid or solid material that may, generally by yielding oxygen, cause or enhance the combustion of other materials. An organic peroxide is any organic compound containing oxygen (O) in the bivalent -O-O- structure. If such materials are explosive, flammable, or gases they are classified in those classes. Thus, while a release of such material can exacerbate the consequences of an accident involving other hazardous materials, a release by itself would not pose a hazard to the proposed project site. The probability of a release of a Class 5 material is 3.9×10^{-6} or once every 257,000 years (see Table 4.7-2).

Class 6, Toxic (poison). These are poisonous materials other than gases. The probability of a release of a Class 6 material is 3.0×10^{-6} or once every 338,000 years (see Table 4.7-2). Since these materials are not gases, they would only be a hazard if someone comes in contact with them or is very near them. A release of a Class 6 material should not impact the proposed project site.

Class 7, Radioactive Materials. Very little radioactive material is transported by truck (see Table 4.7-2). The probability of a release of a Class 7 material is 1.2×10^{-7} or once every 8.6 million years. Therefore, the probability of an event involving radioactive materials would be extremely low (less than one in a million).

Class 8, Corrosive Materials. These materials are considered to be hazardous because they corrode other materials that they may come in contact with. Because the freeway is located approximately 175 feet north of the project site, on the far side of the railroad ROW, it is extremely unlikely that the project site would come into contact with corrosive materials in the event of a truck accident, and such materials do present a hazard to the project site.

Class 9, Miscellaneous Dangerous Materials. These are hazardous substances that do not fall into the other categories and include materials such as asbestos, air-bag inflators, self-inflating life rafts, and dry ice. The probability of a release of a Class 9 material is 1.6×10^{-5} or once every 61,000 years (see Table 4.7-2). As can be seen by the type of materials in this class, a release is unlikely to impact the proposed project site.

Based on this analysis, the risk of exposure to upset conditions from U.S. 101 is statistically extremely low – approximately the risk level of meteor strike (Environ Corporation, 2011). Nevertheless, an accident involving hazardous materials on U.S. 101 could impact the surrounding population. According to the General Plan FEIR (3.7-2 Transport), this potential impact cannot be mitigated to a less than significant level by any of the General Plan policies and remains significant with respect to trucking, particularly along the U.S. 101 corridor, where the project site is located. The FEIR states that the potential impact "remains significant" and no feasible mitigation measures are proposed to reduce the level of significance. Therefore, the potential hazard represented by trucking on the adjacent U.S. 101 corridor is significant and unavoidable for future residents on-site. The City Council adopted a statement of overriding consideration with respect to this impact as part of its action in certifying the FEIR for the General Plan.

Gas Pipeline

An underground 16-inch diameter high-pressure natural gas transmission pipeline runs along the northern side of Hollister Avenue and runs within approximately 650 feet of the southern tip of the project site and would be over 700 feet from the nearest proposed building. The pipeline has a maximum operating pressure (MAOP) of 970 pounds per square inch (psi) (Ron Silver, Southern

California Gas Company, personal communication, June 17, 2013). The pipeline is marked with placards and its location is readily identifiable. The pipeline should not be impacted by construction activities.

The greater the density of people within proximity to a natural gas pipeline, the greater the potential consequences should a rupture of a pipeline occur. The natural gas pipeline is classified as a Class 3 facility because of its proximity to other dwellings and facilities. Based on the type of proposed development and location of structures relative to the natural gas pipeline (minimum of 700 feet away), the project location is just outside the distance for being considered a "Class 3" consequence area pursuant to CFR Title 49 § 192.5. The Class 3 consequence area refers to: (i) Any location within 220 yards (660 feet) of the pipeline that has 46 or more dwellings; or (ii) An area where the pipeline lies within 100 yards of either a building or a small, well defined outside area (such as a playground, recreation area, outdoor theatre, or place of public assembly) that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12-month period (CFR Title 49 § 192.5). (The days and weeks need not be consecutive). In the case of the proposed project, each separate apartment would be considered a dwelling.

A pipeline located in a Class 3 area is subject to more stringent design and operational requirements than those located in lower class areas. In particular, Class 3 pipelines are subject to more stringent design factors for MAOP and are required to have a greater wall thickness.

The California Department of Education (CDE) has developed a protocol for assessing the potential risk to new school sites located within 1,500 feet of a high pressure pipeline (CDE, 2007). This methodology presents a protocol for determining the Individual Risk (IR) at the proposed residential site from the proposed pipeline. A calculated IR of less than one in a million is considered to be acceptable. Applying this methodology to the proposed project and pipeline results in an IR of 2.7×10^{-8}, which is far less than one in one million.

The protocol exams the following six potential hazards from pipeline accidents:

- *Jet fire from a leak*
- *Jet fire from a rupture*
- *Flash fire from a leak*
- *Flash fire from a rupture*
- *Explosion from a leak*
- *Explosion from a rupture*

The protocol determined the distance to the 1 percent mortality rate for each of the potential hazards. Of the six accidents presented above, the only one which could impact the project site is a flash fire from a rupture. A pipeline rupture could create a flammable gas cloud hazard zone (flash fire) that could potentially cause fatalities to 1 percent of exposed individuals that would extend 1,850 feet from the location of the release. The IR is calculated as follows:

- *IR = (Probability pipeline release per pipeline mile) (Probability rupture) x (probability flash fire) x (Pipeline length in miles where rupture flash fire could have impact)*
  - *Probability pipeline release = 4.6×10^{-5}*
  - *Probability of rupture = 0.2*

- *Probability of flash fire given rupture = 4.5 x 10^{-3} (This value is made up of the probability of ignition given a rupture times probability of fire from the ignition times the probability of flash fire from an ignition)*
- *Pipeline length where rupture could have impact = 3,464 ft/5280 ft per mile = 0.656 mi*

- *IR = (4.6 x 10^{-5}) x 0.2 x =(4.5 x 10^{-3}) x 0.656 = 2.7 x 10^{-8}*

Based on this analysis, the potential for a pipeline accident to adversely affect the proposed project is substantially less than one in one million. Furthermore, according to the General Plan FEIR (3.7-10 Exposure of Populated Areas to Oil and Gas Pipelines), the underground placement of the natural gas pipeline would help insulate the public from accidents and releases. The General Plan FEIR also finds that, in part because of regulatory oversight, oil and gas pipelines within the City that transport hazardous materials and gases are not subject to frequent leaks. Valves are typically installed within secondary containment structures so as to minimize the release of the hazardous materials resulting from leaks or repairs of pipeline valves.

Nevertheless, a pipeline accident could impact the surrounding population and no feasible measures are available to eliminate this risk.

Risk of Upset Impact Summary

Based on the above discussion, the potential for a hazardous material release from area businesses, U.S. 101, the UPRR, and gas pipelines is low. However, the potential consequences of such a release could be catastrophic, resulting in injury or death to project site residents. Based on the potentially catastrophic consequences of a release and consistent with the findings of the City's General Plan FEIR, potential impacts related to the exposure of site residents to a hazardous material release ~~are considered~~would be significant and unavoidable.

Mitigation Measures. As stated in the General Plan FEIR, mitigation is not available to address the risk of upset associated with train derailment on the UPRR ROW and truck accidents on U.S. 101. The project site is also potentially subject to hazardous material releases from nearby businesses and an underground gas pipeline. -Beyond existing regulations and enforcement, mitigation also is not available to mitigate the risk of upset from these sources.

Residual Impact. Risk of upset impacts would remain significant and unavoidable due to the risks of a hazardous material release. To proceed with the project, the City Council would need to adopt a statement of overriding considerations, as was done by the former City Council for these issues when certifying the GP/CLUP FEIR.

Although mitigation is not available, the following conditions of approval are recommended regarding risk of upset:

- *The permitee must develop a mitigation plan for evacuation procedures in the event of accident/release of hazardous materials. This plan must be approved by the Director of Planning and Environmental Review before ~~to~~ issuance of a building permit.*

- *The permitee must develop and provide leases for apartment units that provide notification of hazards associated with the project's location, including UPRR, US~~U~~ 101, nearby*

businesses and the Hollister gas pipeline. Lease text shall be approved by the Director of Planning and Environmental Review before issuance of a building permit.

- *The permittee must develop a notice to property owners regarding the potential risks of upset to be reviewed and approved by the Director of Planning and Environmental Review and the City Attorney, and then recorded before issuance of a building permit.*

c. Cumulative Impacts. The General Plan Final EIR identifies a significant and unavoidable cumulative hazards and hazardous materials risk of upset/exposure impact resulting from the inherent risk associated with the transport of hazardous materials along major transportation routes (including U.S. 101, and the Union Pacific railroad tracks). Significant hazards include the risk of a trucking or rail accident and subsequent release of hazardous materials.

Other hazards, including potential hazardous material releases from businesses in the project site vicinity and potential accidents associated with oil and natural gas pipelines, represent a significant and unavoidable impact on residents and have been identified in this EIR. The overall risk associated with the handling, storage, and transport of hazardous materials would be expected to increase following build-out of the General Plan as additional development is introduced in close proximity to major transportation routes and hazardous material users. The potential for exposure to hazards and hazardous materials as a result of an accidental release would be statistically low or very low. Nevertheless, the cumulative risk of such exposure associated with the introduction of additional population in close proximity to U.S. 101, the UPRR railroad tracks, businesses that store and use hazardous materials, and pipelines is considered significant and unavoidable and the project's contribution would be considered cumulatively considerable (Class I). The City Council adopted a statement of overriding consideration with respect to this impact as part of its action in certifying the FEIR for the General Plan.

The proposed project, in conjunction with other cumulative projects proposed in and around Goleta also would have the potential to expose future area residents, employees, and visitors to hazards by developing and redeveloping areas that may have previously been contaminated. The magnitude of hazards for individual projects would depend upon the location, type, and size of development and the specific hazards associated with individual sites. If lead-based paint and/or asbestos containing materials are found to be present in buildings planned for demolition or renovation, or in the case that soil and groundwater contamination are found to be present on sites of planned and future development, these conditions would be required to comply with existing applicable local, state and federal regulations. Hazard evaluations would be completed on a case-by-case basis for future development. Compliance with applicable regulations and implementation of appropriate mitigation measures, including remedial action on contaminated sites, would address impacts related to these hazards and hazardous materials associated with future development in the City. Cumulative impacts related to soil and/or groundwater contamination would be less than significant and the project's contribution would not be considerable. Given the scope of planned and pending projects as listed on Table 3-1 in Section 3.0, *Related Projects*, the majority of which are residential properties that do not utilize hazardous materials or are not located within contaminated sites, significant cumulative public health or safety hazards are not anticipated in regard to contaminated sites.

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