

4.6 PUBLIC SAFETY

This section includes discussion of existing public safety considerations at Squaw Valley ski area (Squaw Valley) and Alpine Meadows ski area (Alpine Meadows) as it pertains to avalanche risk and avalanche mitigation protocols, as well as potential changes that could occur as a result of the project. The existing and proposed public safety measures are discussed in detail as they pertain to use of this area by the public and management of the area and facilities by ski area personnel.

CEQA criteria related to hazards and hazardous materials are not addressed in this section (see further explanation below in Section 4.6.2.3, “Issues Not Discussed Further”) because project impacts were determined to be less than significant in the Initial Study (Appendix A).

4.6.1 Affected Environment

4.6.1.1 ENVIRONMENTAL SETTING

Existing Avalanche Risk

Avalanche risk is an inherent component of the recreation experience at both Squaw Valley and Alpine Meadows (as well as many other ski areas worldwide). While mountain operations and snow safety personnel actively work to mitigate avalanche risk and improve snow safety conditions for skiers and snowboarders, some degree of avalanche risk is always present. Mountain operations personnel open terrain for public use only when avalanche risk is anticipated to be at an acceptable level.

Existing Avalanche Mitigation Protocol

Mountain operations personnel at both Squaw Valley and Alpine Meadows use various avalanche mitigation techniques and procedures to reduce avalanche risk and improve snow safety conditions for the recreating public. While avalanche mitigation protocol at the two resorts is very similar, differences between protocols at Squaw Valley and Alpine Meadows will be distinguished where appropriate in this discussion.

Both Squaw Valley and Alpine Meadows already have extensive avalanche mitigation plans in place, which identify appropriate avalanche mitigation protocols for the terrain at each ski resort and are executed throughout the winter season as snow and weather conditions mandate. These plans involve the continuing evaluation of snow/snowpack conditions, the release of tension within the snowpack, and purposeful triggering of managed avalanche releases before the subject terrain is opened for use by the public. At Squaw Valley, mountain operations personnel principally use hand-charges, Avalaunchers, and Gazex facilities for avalanche mitigation; at Alpine Meadows, mountain operations personnel use hand-charges, Avalaunchers, Gazex facilities, and 105-millimeter (mm) howitzer artillery. Each of these avalanche risk reduction methods is described below.

Hand-Charges

Hand-charges are small explosives that are thrown/placed manually by ski patrollers into avalanche starting zones; they contain approximately 2 pounds of explosive materials and are detonated via blasting cap by fuse and pull-wire igniter. Hand-charges are used by mountain operations personnel at both Squaw Valley and Alpine Meadows. Ski patrollers ensure that they are well out of the avalanche zones and that the zone is clear of public before the explosive charge is armed and placed.

Compared to other remote avalanche mitigation techniques, there are considerable safety issues associated with the use/placement of hand-charges. To reach hand-routes, ski patrollers must frequently access avalanche-prone terrain carrying packs of explosives. In addition to the hazards that are inherent with transportation of explosives, ski patrollers are required to work in the vicinity of avalanche starting zones to manually throw hand-charges onto avalanche-prone terrain.

Avalauncher

The Avalauncher is a compressed-nitrogen cannon that fires a projectile delivering an explosive round into avalanche-prone terrain to trigger avalanches; the trajectory of the explosive projectile is changed by altering the firing angle and pressure of the nitrogen within the cannon. The Avalauncher is used by mountain operations personnel at both Squaw Valley and Alpine Meadows.

Compared to hand-charges, the Avalauncher is advantageous for snow safety personnel because it is fired remotely; ski patrollers do not need to be in close proximity to avalanche starting zone when performing avalanche mitigation. However, the Avalauncher has a relatively limited range and is susceptible to imprecise shot placement during periods of heavy winds.

105-mm Howitzer

The 105-mm howitzer is a military-grade artillery piece that fires an explosive round into avalanche-prone terrain to release snowpack tension and/or purposefully trigger avalanches. Alpine Meadows must coordinate with the United States military, working in conjunction with the Forest Service, to purchase this ammunition for avalanche mitigation. Because of the velocity of the projectile, inaccuracy due to heavy winds is less likely with the 105-mm howitzer than the Avalauncher. Alpine Meadows currently has 31 planned shot placements throughout the ski resort which are targeted for avalanche mitigation with the 105-mm howitzer.

However, there are certain disadvantages associated with use of the 105-mm howitzer. Because of the strength/velocity of this artillery, charges can penetrate the snowpack, hitting rock, which can fragment rock and create the risk of shrapnel for people and built structures in the vicinity. Because of this shrapnel component, people and built structures must be at least 600 meters away from the shot placement before the 105-mm howitzer can be fired. In addition, the ammunition for the howitzer is costly and growing increasingly difficult to obtain in comparison to hand-charges and Avalauncher rounds.

Gazex

Gazex facilities consist of three components: exploders, shelters, and a high-density polyethylene (HDPE) pipe. Exploders utilize cached propane and oxygen gas to ignite a controlled volume explosion within the Gazex tube, which creates a concussive blast above the snow surface within avalanche-prone terrain. Shelters remotely house the propane and oxygen tanks necessary for these explosions, and the HDPE pipe connects the shelters with the exploders.

Gazex facilities are becoming more popular at ski resorts around the world because they allow for remote firing of concussive blasts; explosions are triggered by radio, GSM (cellular phone technology), or cable. Remote detonation eliminates ski patrollers' exposure to the inherently dangerous situations that can be encountered when they perform avalanche mitigation with hand-charges. In addition, Gazex facilities can be remotely detonated during the night and during inclement weather cycles; this is because targeted terrain does not need to be visible as with Avalaunchers and the 105-mm howitzer, and because wind and precipitation have less effect on the efficacy of Gazex blasts.

Recent Upgrades

As of the 2017/2018 ski season, an Astar 350 B3 helicopter is on standby in the Squaw Valley parking lot for a portion of the season, to be used for avalanche mitigation at both Squaw Valley and Alpine Meadows after major snow cycles.

4.6.1.2 REGULATORY SETTING

Federal

Ski area safety is generally administered and monitored by the Forest Service via the ski area's Special Use Permit (SUP), and its annually prepared/submitted Winter Operations Plan, Avalanche Mitigation Plan, and Lift Operations/Evacuation Plan. Construction and operation of lifts and avalanche mitigation protocol are

directed by the American National Standard for Passenger Ropeways (ANSI B.77.1 – 2017) and the Avalanche Artillery Users of North America Committee Standards (AAUNAC), respectively.

ANSI B.77.1 – 2017

The American National Standards Institute, Inc. (ANSI) created the ANSI B.77.1 – 2017 to provide safety standards for the construction and operation of aerial tramways, aerial lifts, surface lifts, tows and conveyors. Consensus on the standards contained within the ANSI B.77.1 – 2017 is established when, in the judgement of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Some of the detailed standards contained within the ANSI B.77.1 – 2017 are directly applicable to the project, specifically those contained with Sections 3.1 – Design and Installation, 3.2 – Electrical Design and Installation, and 3.3 – Operation and Maintenance. The Forest Service has adopted the standards contained within the ANSI B.77.1 – 2017.

Avalanche Artillery Users of North America Committee Standards

The purchase, storage and use of explosive materials is strictly monitored by several federal agencies including the Forest Service and the Bureau of Alcohol, Tobacco and Firearms. The military weapons program at Alpine Meadows is specifically overseen by the Forest Service and the US Military in conjunction with the AAUNAC standards. Similar to with the ANSI B.77.1 – 2017, the Forest Service has adopted these standards established by the AAUNAC and ski resorts must abide by them in order to legally carry out avalanche mitigation with artillery like the 105-mm Howitzer.

State

CAL/OSHA Title 8 Sections 3150-3191

The Division of Occupational Safety and Health, also known as Cal/OSHA, sets and enforces standards to protect and improve the health and safety of passengers on tramways. Within Subchapter 6.1, Passenger Tramway Safety Orders, there are several regulations that are relevant to the analysis of the project. Many of these require compliance with various regulations from ANSI B77.1, discussed under the “Federal” heading above. Section 3156 establishes regulations for tramway evacuation procedures:

- (b) The plan for the evacuation of passengers from each aerial passenger tramway shall be documented (written) and also include:
 - (1) Proposed time of the first evacuation drill of each operating season;
 - (2) Estimate of time necessary for total evacuation during dark and moderately severe conditions (snowing and windy);
 - (3) Procedures for evacuation under unusual or unique conditions which may exist or may be expected to develop;
 - (4) An estimate of the elapsed time of when the evacuation will start following a shut down;
 - (5) The method to be used to communicate with the trapped passengers, the frequency of such communication, and how soon after a shut down such communication will start;
 - (6) Procedures for controlling evacuated persons until they are released.

Section 3157 classifies the different types of passenger tramways. Based on the classifications provided within Section 3157, the Base-to-Base Gondola would be a detachable grip lift, which is classified as part of the aerial lift category:

- (2) Aerial Lift – A tramway on which passengers are transported in gondolas or on chairs that circulate around terminals without reversing the travel path.

- (A) Detachable Grip Lift – A detachable grip lift is an aerial lift on which carriers alternately attach to and detach from a moving haul rope. The tramway system may be monocable or bicable.

Sections 3162 – 3164, Design and Installation, Electrical Design and Installation, and Operation and Maintenance, reference various regulations contained within the ANSI B77.1 – 2017 to provide specific direction for the construction and operation of detachable grip aerial lifts. Specifically, sections 3.1, 3.2 and 3.3 of the ANSI B77.1 – 2017 are referenced in Sections 3162 – 3164 of CAL/OSHA to provide detailed standards for each of these categories; to review the detailed text contained within these sections of the ANSI B77.1 – 2017, please refer to the project file.

Local

Placer County Code

Within Placer County Code, Article 9.28 – Skier Responsibility, is Subsection 9.28.030 – Assumption of risk, which states (Placer County 2017):

Any individual or group of individuals who engage in the sport of skiing of any type, including but not limited to alpine and Nordic, or any similar activity within the boundaries of a ski area including entry for the purpose of observing any skiing or similar activity, shall assume and accept the inherent risks of such activities insofar as the risks are reasonably obvious, foreseeable or necessary to the activities. Skiers who ski in any area not designated for skiing within the ski area control boundary, or who ski outside of a posted area boundary, assume the risks thereof. [Prior code Section 12.132]

Skiers and snowboarders within the boundaries of Squaw Valley and Alpine Meadows assume the inherent risks, as described above in Section 4.6.1.1, along with any other reasonably obvious, foreseeable or necessary risks associated with being within the boundaries of these ski resorts.

Placer County General Plan

The *Placer County General Plan* (Placer County 2013) provides an overall framework for the development of Placer County (County) and protection of its natural and cultural resources. A total of 23 community plans have been adopted under the *Placer County General Plan* to provide a more detailed focus on specific geographic areas within the unincorporated County, of which the *Squaw Valley General Plan and Land Use Ordinance* (SVGPLUO) and *Alpine Meadows General Plan* are two (discussed below). The goals and policies included within the community plans supplement, but do not supersede the goals and policies contained within the General Plan.

Section 8 of the *Placer County General Plan* is centered around health and safety within Placer County. Sections 8.A and 8.H of the Health and Safety section focus on seismic and geological hazards and on avalanche hazards, respectively. Two policies from Sections 8.A and 8.H are specifically relevant to the project (Placer County 2013):

- ▲ **Policy 8.A.1.** The County shall require the preparation of a soils engineering and geologic-seismic analysis prior to permitting development in areas prone to geological or seismic hazards (i.e. groundshaking, landslides, liquefaction, critically expansive soils, avalanche).
- ▲ **Policy 8.H.2.** The County shall require new development in areas of avalanche hazard to be sited, designed, and constructed to minimize avalanche hazards.

Section 8.C of the Health and Safety section focuses on fire hazards. Section 8.C is pertinent to the project, as it establishes policies intended to minimize risk of fires. Risk of fire resulting from the storage of propane and oxygen for the Gazex system was a public concern expressed during the scoping period. Policy 8.C.3 requires that new development meets all relevant standards for fire protection (Placer County 2013):

- ▲ **Policy 8.C.3.** The County shall require that new development meets state, county, and local fire district standards for fire protection.

Placer County Avalanche Management Ordinance

Article 12.40 of the Placer County Code addresses Avalanche Management Areas and establishes the Placer County Avalanche Management Ordinance. The article describes Placer County's Potential Avalanche Hazard Area (PAHA) as those areas where, after investigation and study, the county finds that an avalanche potential exists because of steepness of slope, exposure, snow pack composition, wind, temperature, rate of snowfall, and other interacting factors. PAHA zones are established to identify those areas with avalanche potential and include areas where the annual probability of avalanche occurrence is greater than one in 100 based on the results of approved studies, or where avalanche damage is documented.

Placer County limits construction in PAHAs and will not issue a building permit for construction in a PAHA without certifying that the structure will be safe under the anticipated snow loads and conditions of an avalanche or if the property owner posts a notice in a prominent location that the property is located within a PAHA zone. A deed restriction must be recorded on the property that ensures the posting of the notice.

Squaw Valley General Plan and Land Use Ordinance

The SVGPLUO is a Community Plan document that establishes policies specific to Squaw Valley that build on the general policies found in the *Placer County General Plan* and Placer County Zoning Ordinance. The Placer County Board of Supervisors approved the SVGPLUO on August 30, 1983.

The SVGPLUO does not establish any specific policies that are directly related to the promotion of public safety at Squaw Valley; however, the SVGPLUO does declare that the promotion of health and safety is among the plan's basic goals (Placer County 2006):

The Land Use Ordinance and the policies contained herein are intended to preserve and promote the health, safety, and general welfare of the community.

In addition, the SVGPLUO lists "avalanche hazard" as one of the primary factors that must be addressed as these hazards pertain to various types of development in the area.

Alpine Meadows General Plan

The *Alpine Meadows General Plan* is a community plan document that establishes policies specific to Alpine Meadows that build on the general policies found in the *Placer County General Plan* and Placer County Zoning Ordinance, similar to the SVGPLUO. The Placer County Board of Supervisors approved the *Alpine Meadows General Plan* on May 1, 1968.

Similar to the SVGPLUO, the *Alpine Meadows General Plan* does not establish any specific policies that are directly related to the promotion of public safety, but it does declare the promotion of health and safety is among the plan's basic goals (Placer County 1968):

The planning goals for the Alpine Meadows area have been developed within the sphere of long association with, and knowledge of, the area's problems and potentialities, and are based upon the recognition that the general, long-term objectives of this area must be the greatest attainable convenience, prosperity, beauty, health, safety, and decency for the present and future inhabitants of this area, and the areas directly related to it.

The Alpine Meadows General Plan also lists "areas of avalanche potential" as one of the principal physical factors of concern in the area.

4.6.2 Analysis Methods

4.6.2.1 METHODS AND ASSUMPTIONS

The analysis that follows assumes that avalanche risk is an inherent component of the recreation experience at most ski resorts. Snow safety personnel deploy a variety of methods and tools to release tension and instabilities within the snowpack, so that they can deem the terrain to be at an acceptable risk level for recreational use by guests. Implementation of the Gazex infrastructure proposed under all action alternatives would provide snow safety personnel with an added tool to use for the Alpine Meadows snow safety program.

The analysis that follows in Section 4.6.3 is divided into two categories: Impact 4.6-1, Health and Safety, and Impact 4.6-2, Operations Efficiency. Impact 4.6-1 includes discussion of potential changes to avalanche risk and potential health and safety hazards associated with construction, operation, and maintenance of project components. Impact 4.6-2 includes discussion of potential changes to avalanche mitigation protocol for mountain operations personnel at Alpine Meadows and proposed gondola evacuation protocol.

As described in Section 2.2.6, “Resource Protection Measures,” the project incorporates a number of Resource Protection Measures (RPMs) designed to avoid and minimize environmental effects. These RPMs are considered part of the project by the Forest Service and will be conditions of approval of the Placer County Conditional Use Permit (CUP). The text of all RPMs is provided in Appendix B. The potential effects of implementing the action alternatives are analyzed as follows: The effect of the action alternatives was determined, relevant RPMs were applied, and the effectiveness of reducing adverse effects was determined. If additional measures were needed to further reduce effects, they were identified.

As it relates to CEQA, the significance of effects prior to implementation of RPMs has been determined. The analysis then determines whether the RPMs would reduce significant impacts to a less-than-significant level. If significant impacts would remain after implementation of relevant RPMs, mitigation measures are applied as practicable to further reduce the significant impact. All RPMs, as well as additional mitigation measures, would be included in the Placer County mitigation monitoring and reporting program (MMRP), and their implementation would be ensured by the Conditional Use Permit’s conditions of approval. All RPMs are considered roughly proportional and represent an essential nexus to the effects that they reduce.

4.6.2.2 EFFECTS ANALYSIS SIGNIFICANCE CRITERIA

NEPA Indicators

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the action alternatives. Under NEPA, impacts should be addressed in proportion to their significance (40 CFR 1502.2[b]), meaning that severe impacts should be described in more detail than less consequential impacts. This is intended to help decision makers and the public focus on the project’s key effects. The evaluation of effect considers the magnitude, duration, and significance of the changes. Changes that would improve the existing condition if they occur are noted and considered beneficial, and detrimental impacts characterized as adverse. Where there would be no change, a “no effect” conclusion is used. The Forest Service has determined that the action alternatives could potentially affect public safety by changing avalanche mitigation protocols in the study area and introducing hazardous materials. The following analytical indicators will be used to inform the Forest Service’s determination of impacts:

- ▲ Description of the existing level of avalanche risk and avalanche mitigation protocols in the study area based on existing data (**Impacts 4.6-1 and 4.6-2**)
- ▲ Description of changes to the level of avalanche risk and avalanche mitigation protocols (including development of an Avalanche Mitigation Plan) under the proposed project (**Impacts 4.6-1 and 4.6-2**)

- ▲ Discussion of potential changes to avalanche risk resulting from climate change (**Impact 4.6-1**)
- ▲ Description of hazards associated with construction, operation, and maintenance of project infrastructure, including Gazex exploder operation, storage and use of flammable materials in Gazex shelters, and introduction of hazardous materials and fuels during construction and operation of the gondola. Discuss particularly risks to skiers and hikers in the project area and risks related to fire, vandalism, and avalanche/slope failures on infrastructure (**Impact 4.6-1**)
- ▲ Disclosure of proposed gondola evacuation protocol and potential changes in demand on emergency service providers (**Impact 4.6-1**)

CEQA Criteria

Based on the Placer County CEQA checklist, Appendix G of the State CEQA Guidelines, implementing any of the alternatives would result in a significant impact related to visual resources if it would:

- ▲ create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or acutely hazardous materials (**Impact 4.6-1 and Section 4.6.2.3, "Issues Not Discussed Further"**);
- ▲ 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 (**Impact 4.6-1 and Section 4.6.2.3, "Issues Not Discussed Further"**);
- ▲ emit hazardous emissions, substances, or waste within one-quarter mile of an existing or proposed school (**Section 4.6.2.3, "Issues Not Discussed Further"**);
- ▲ 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, create a significant hazard to the public or the environment (**Section 4.6.2.3, "Issues Not Discussed Further"**);
- ▲ result in a safety hazard for people residing or working in the project area, where the project is located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport (**Section 4.6.2.3, "Issues Not Discussed Further"**);
- ▲ result in a safety hazard for people residing or working in the project area, where the project is located within the vicinity of a private airstrip (**Section 4.6.2.3, "Issues Not Discussed Further"**);
- ▲ impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan (**Section 4.6.2.3, "Issues Not Discussed Further"**);
- ▲ expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands (**Impact 4.6-1 and Section 4.6.2.3, "Issues Not Discussed Further"**);
- ▲ create any health hazard or potential health hazard (**Impact 4.6-1 and Section 4.6.2.3, "Issues Not Discussed Further"**); and
- ▲ expose people to existing sources of potential health hazards (**Impact 4.6-1 and Section 4.6.2.3, "Issues Not Discussed Further"**).

4.6.2.3 ISSUES NOT DISCUSSED FURTHER

Hazardous materials (e.g., paints, solvents, glues, and cements) would be stored, used, and transported in varying amounts during construction and long-term operation of the project. Petroleum hydrocarbon

products such as gasoline, diesel, and lubricants would be used in heavy equipment and construction vehicles. Transportation of hazardous materials on area roadways is regulated by the California Highway Patrol and the California Department of Transportation. The project applicant, contractors, and others would be required to use, store, and transport hazardous materials in accordance with local, state, and federal regulations, including the California Occupational Health and Safety Administration and the California Department of Toxic Substances Control requirements and manufacturer's instructions, during project construction and operation. Facilities that would use hazardous materials on-site would be required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases. Because the project would be required to implement and comply with existing hazardous material regulations, impacts related to the creation of significant hazards to the public or environment through the routine transport, use, and disposal of hazardous materials would be unlikely, and the risk of hazard to the public from reasonably foreseeable or accidental releases of hazardous materials would be minimal. Therefore, the Initial Study prepared for the project (Appendix A) determined that these impacts would be less than significant, and these issues are not evaluated further in this EIS/EIR. Impact 4.6-1, below, evaluates the long-term storage, use, and transport of oxygen and propane for avalanche control.

There are no existing or proposed schools located within 0.25 mile of the project. The nearest schools to the project area are Creekside Charter School (1916 Chamonix Place) and Squaw Valley Preparatory (1901 Chamonix Place). Both are slightly over 0.25 mile from the nearest project feature, the Squaw Valley base terminal. Squaw Valley Academy (235 Squaw Valley Road) is located approximately 1.8 miles to the east of the proposed Squaw Valley base terminal. No handling of hazardous materials would occur within 0.25 mile of an existing or proposed school. Therefore, no impact would occur, and this issue is not evaluated further in this EIS/EIR.

Squaw Valley and Alpine Meadows are identified by the U.S. Environmental Protection Agency as small generators of hazardous waste. Past operations in the project area could have resulted in elevated concentrations of hazardous constituents, such as petroleum hydrocarbons, in the project vicinity. The Phase I Environmental Site Assessment prepared for the project found that Alpine Meadows was included in several databases listing hazardous waste and substance sites for having underground and aboveground storage tanks and one reported incident of a leaking underground storage tank in 1995. This site underwent remediation and verification monitoring and was closed by the Regional Water Quality Control Board Lahontan Region in 2010 (Holdrege & Kull 2015). During construction activities, construction workers could come in contact with and be exposed to hazardous materials present in on-site soils and groundwater. However, all past sources of contamination have been remediated and no longer pose a threat to people or the environment. The Initial Study prepared for the project (Appendix A) determined that this impact would be less than significant, and this issue is not evaluated further in this EIS/EIR.

The nearest public airports include Homewood Seaplane Base (located 8 miles southeast of the project area), the Truckee-Tahoe Airport (located 9.5 miles northeast of the project area), and the Lake Tahoe Airport (located 24.5 miles southeast of the project area). The project area is not located within an airport land use plan or within the vicinity of a private airstrip. Therefore, the project would not create safety hazards for people living or working in the project area as a result of being in close proximity to an airport or airstrip. No impact would occur, and this issue is not evaluated further in this EIS/EIR.

There are adopted emergency evacuation plans for the project vicinity. The project would generate some traffic during construction, but it would be temporary, is expected to be minimal, and would not involve road or lane closures. Therefore, construction activity would not impede emergency response in the project area or implementation of evacuation plans. The project may generate an increase in skier visitation at Squaw Valley and Alpine Meadows; however, on a day-to-day basis, any increases would not be sufficient to substantially interfere with implementation of an emergency response or evacuation plan. Emergency response and evacuation plans are designed to address peak occupancy conditions, and peak occupancy is limited by parking availability, mountain capacity, and other factors. The project would not alter maximum occupancy/use in the project area. When the proposed gondola is operational during the winter months, it could provide an additional mechanism to move people out of Squaw Valley or Alpine Meadows if only one

ski area needed to be evacuated. During the summer months, the proposed gondola would not be in operation and would not affect potential emergency response or evacuation. The Gazex system would be located on the mountain slopes away from structures and high concentrations of human activity and would not affect emergency response or evacuation; in addition, the Gazex system could limit the need for emergency response and evacuation by limiting avalanche risk. Therefore, the Initial Study (Appendix A) determined that the project would not interfere with an adopted emergency response plan or evacuation plan. As a result, this impact would be less than significant, and this issue is not evaluated further in this EIS/EIR.

Although much of the project area is designated as a very high fire hazard severity zone, the project would not result in the placement of housing and other structures that would contain substantial numbers of people in a wildland area. Therefore, impacts associated with wildfire risk would be less than significant and this issue is not evaluated further in this EIS/EIR. Impact 4.6-1, below, evaluates the fire risk associated with the Gazex avalanche control system.

The following analysis discusses effects to snow safety and mountain operations efficiency associated with the installation of Gazex facilities. The construction phase and potential emergency evacuations from the gondola have certain public safety implications and are here as well; however, general operation of the gondola does not have any specific public safety implications and, therefore, will not be discussed further.

4.6.3 Direct and Indirect Environmental Consequences

4.6.3.1 ALTERNATIVE 1 – NO ACTION ALTERNATIVE

Impact 4.6-1 (Alt. 1): Health and Safety

Alternative 1 – No Action Alternative would result in a continuation of existing conditions. There would be no new construction and no change in the existing state of health and safety within the project area. There would be **no effect** under both NEPA and CEQA.

Under Alternative 1 – No Action Alternative, the TNF and Placer County would not provide necessary authorizations to allow construction of a gondola or Gazex facilities. The outcome would be a continuation of existing conditions, with no new construction and no installation and operation of new facilities. Therefore, there would be no change in the existing state of health and safety within the project area.

NEPA Effects Conclusion

With no change in the existing state of health and safety within the project area, there would be **no effect** related to this issue.

CEQA Determination of Effects

With no change in the existing state of health and safety within the project area, there would be **no effect** related to this issue.

Mitigation Measures

No mitigation measures are required.

Impact 4.6-2 (Alt. 1): Operations Efficiency

Alternative 1 – No Action Alternative would result in a continuation of existing conditions. There would be no new construction and no change in operations efficiency within the project area. There would be **no effect** under NEPA. This impact analysis is specific to a NEPA analytical indicator and is not responsive to a CEQA criterion. No CEQA determination of effect is provided.

Under Alternative 1 – No Action Alternative, the Tahoe National Forest (TNF) and Placer County would not provide necessary authorizations to allow construction of a gondola or Gazex facilities. The outcome would be a continuation of existing conditions, with no new construction and no installation and operation of new facilities. Therefore, there would be no change to existing avalanche mitigation operations or operations efficiency within the project area.

NEPA Effects Conclusion

With no change in operations efficiency, there would be **no effect** related to this issue.

CEQA Determination of Effects

This impact analysis is specific to a NEPA analytical indicator and is not responsive to a CEQA criterion. No CEQA determination of effect is provided.

Mitigation Measures

No mitigation measures are required.

4.6.3.2 ALTERNATIVE 2

Impact 4.6-1 (Alt. 2): Health and Safety

Alternative 2 would result in an improvement to health and safety within the project area, as fewer explosive hand-charges would be required for avalanche mitigation in the areas where Gazex facilities would be installed. There would not be a measurable improvement or change in health and safety for the public. Avalanche mitigation activities would continue within slide-prone terrain until an acceptable level of risk is achieved. These procedures presently occur within *the Buttruss* area and would continue with implementation of Alternative 2. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, there would be **minorly beneficial** direct and indirect effects related to health and safety because there would be a reduction in risk to snow safety personnel associated with the reduced use of hand-charges. Under CEQA, and using the CEQA criteria, this impact would be **less than significant** because Alternative 2 would not create or expose people to an existing health or safety hazard. In addition, RPMs HAZ-2 through HAZ-4, HAZ-6, HAZ-8 through HAZ-10, WQ-1, and NOI-4 would require detailed construction plans, enforce regulations related to the storage of hazardous wastes and CAL FIRE regulations, and regulate the qualifications of personnel conducting blasting. With implementation of these RPMs, this impact would be reduced, although these RPMs are not necessary to reduce a significant impact to a less-than-significant level.

Avalanche Risk

Gazex facilities are proposed in conjunction with the gondola under Alternative 2 because of the proximity that would result between installed gondola infrastructure and existing 105-mm howitzer shot placements - specifically in *the Buttruss* area. As described above in Section 4.6.1.1, discharges from the 105-mm howitzer can result in shrapnel and the creation of a considerable health and safety hazard. To address this health and safety hazard, 105-mm howitzer shot placements are not allowed anywhere within a 600-meter radius of installed infrastructure or people. Under Alternative 2, presence of the Alpine Meadows mid-station just above *the Buttruss* would constitute installed infrastructure within the 600-meter radius of the nearby 105-mm howitzer shot placements and would therefore preclude the use of the 105-mm howitzer for avalanche mitigation in this area. Proposed Gazex facilities would address this issue by allowing for avalanche mitigation within *the Buttruss* area without the risk of damage to gondola facilities caused by the 105-mm howitzer.

The presence of Gazex facilities in *the Buttruss* area would improve safety conditions for ski patrollers, as ski patrollers would otherwise have to use hand-charges for avalanche mitigation in this area (which occurs as well as use of the 105-mm howitzer when conditions are appropriate for use of each of these tools). As described above in Section 4.6.1.1, the handling and use of hand-charges for avalanche mitigation carries

with it inherent risks. While hand-charges would still be required in other locations around Alpine Meadows, use of hand-charges would be reduced within *the Buttress* area; any reduction in use of hand-charges would represent an improvement in safety for ski patroller personnel.

It is anticipated that climate change would result in a general increase in weather variability, and warmer average temperatures year-round. Layers of rain on top of light layers of snow destabilize snowpack and increase incidence of avalanches; as a result, warmer temperatures may increase avalanche risk as rain-on-snow events become more common during the winter season. However, increase in weather variability and temperature as a result of climate change are unpredictable and, therefore, cannot be used as a basis of analysis to determine a measurable effect on avalanche risk within the project area. However, if climate change were to result in an increase in avalanche risk, the Gazex infrastructure proposed under Alternative 2 would provide snow safety personnel with an added tool to use for the Alpine Meadows snow safety program.

Avalanches and/or slope failures are not expected to substantially affect gondola infrastructure because towers and mid-stations have been strategically located to avoid avalanche runout zones. Much of the gondola alignment associated with Alternative 2 in particular would be located along the ridgeline separating the National Forest System-GCW and the Caldwell property, and as a result would be well-removed from any avalanches expected to run down Catch Valley (Catch Valley is on the western side of the Caldwell property).

Overall, Alternative 2 would not measurably alter the level of avalanche risk for the public or mountain operations personnel at Alpine Meadows and Squaw Valley. While Gazex facilities would improve safety conditions for ski patrollers through a reduction in use of hand-charges, avalanche risk is invariably present at ski resorts and this factor would remain, even with implementation of Alternative 2. Mountain operations personnel operate with this understanding and do not open susceptible terrain until avalanche risk is deemed to be an acceptable level for public use.

Hazards Associated with Construction, Operation, and Maintenance

This analysis is centered around construction of the Gazex facilities and the gondola, operation of the Gazex facilities, and the gondola evacuation protocol.

During the construction phase, potential hazards would be associated with the presence of fuels for construction machinery and the use of explosives for blasting (where installation of gondola towers may necessitate). Fuels for construction machinery would be safely managed in accordance with applicable RPMs; for example, RPMs HAZ-2, HAZ-3, and WQ-1 would require the development of plans related to fire prevention, storage of flammable gasses, and release of potentially hazardous materials to area waterways. RPM HAZ-8 would require that potentially hazardous materials are stored in compliance with applicable regulations, and RPM HAZ-6 would require that work stop in areas where potentially hazardous materials are encountered in the construction process. RPMs HAZ-4, HAZ-9, and HAZ-10 would reduce fire hazards. In accordance with RPM NOI-4, explosives that may be required for blasting would only be operated by State licensed contractors. These RPMs would address any hazards associated with presence of fuels for construction machinery and/or the use of explosives for blasting.

During the operation phase, the primary hazard that has been identified is the presence of propane and oxygen tanks (for the Gazex facilities) within the project area; this potential hazard was identified in scoping, as members of the public were concerned that the propane and oxygen storage would represent an additional on-mountain fuel-source in the event of wildfires. Most ski resorts that operate Gazex facilities exhaust their stores of propane and oxygen during the winter season and leave empty storage shelters on-site. Empty fuel tanks are not viewed as a considerable risk in the event of wildfire. Alpine Meadows would take an extra precaution and remove propane and oxygen tanks from the project area during the summer season to avoid any possibility of these fuels adding to the strength/spread of wildfires. Risk of loss, injury, or death involving wildland fires would not be altered as a result of Alternative 2. To avoid vandalism during the winter season, the storage facility for the propane and oxygen tanks would be securely locked. In addition, RPM HAZ-3 requires that a Flammable Gasses Safety Plan be prepared and implemented to

address the storage, transport, and disposal of propane, oxygen, and any other flammable gases associated with operation of the proposed Gazex facilities.

The specifics of the gondola emergency evacuation protocol would be identified/documentated with the creation of a lift evacuation plan specific to the proposed gondola. Gondola evacuation protocol would entail two groups of rescue personnel; one group connected to the gondola wire-rope, moving from cabin-to-cabin to safely lower gondola-users to the ground, and the other group working to transport gondola-users from the ground safely to the nearest base area. An emergency requiring the evacuation of gondola-users would involve many variables that would be specifically addressed in the gondola evacuation plan. For example, some gondola-users, like those travelling from one base area to the other to dine or shop and with no intention of skiing or snowboarding, may lack appropriate winter clothing and would need to be kept warm in transit to the nearest base areas. Of all the action alternatives, Alternative 2 would likely present the most complicated evacuation protocol, as the gondola alignment associated with Alternative 2 would be located high on the ridgeline separating the National Forest System-GCW and the Caldwell property; the topography of this area would make evacuation more difficult under Alternative 2 than under Alternative 3 or 4. Alternative 2 would not specifically change demand on emergency service providers.

NEPA Effects Conclusion

Installation of Gazex facilities at Alpine Meadows would provide mountain operations personnel with a safer/improved form of avalanche mitigation. As a result, the level of occupational risk for ski patrollers would decrease. The introduction of Gazex technology would not specifically alter or reduce the level of avalanche risk at Alpine Meadows. Snow safety personnel presently conduct avalanche mitigation procedures using the methods and tools available to them, until the terrain is considered to be at an acceptable level of stability and risk; terrain remains closed to skiing until such time that the avalanche risk subsides to an acceptable level. Climate change may increase variability in climate, but this is not currently a measurable change and is not anticipated to have an appreciable effect on health and safety within the project area. However, if climate change were to result in an increase in avalanche risk, the Gazex infrastructure proposed under Alternative 2 would provide snow safety personnel with an added tool to use for the Alpine Meadows snow safety program. Hazards associated with construction, operation, and maintenance of project infrastructure are negligible for the reasons described above. A detailed gondola evacuation plan will be created for Alternative 2 in the event of its selection; this is not expected to result in an appreciable change in demand to emergency service providers. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect effects of Alternative 2 on health and safety within the project area would be **minimally beneficial** because there would be a reduction in risk to snow safety personnel associated with the use of hand-charges.

CEQA Determination of Effects

Alternative 2 would not create a significant health or safety effect for the reasons described above. As described above in Section 4.6.2.3, "Issues Not Discussed Further," most of the CEQA criteria related to hazards and hazardous materials are not addressed in this section because project impacts were determined to be less than significant in the Initial Study (Appendix A). Potential hazards and fire risk related to propane and oxygen use would be less than significant for the reasons described above. Further, the existing occupational risk for ski patrollers would be reduced with the project. No other potential health or safety hazards have been identified that are associated with the project. Under CEQA, and using the CEQA criteria, the effect of Alternative 2 on health and safety within the project area would be **less than significant** because Alternative 2 would not create or expose people to an existing health or safety hazard. RPMs HAZ-2 through HAZ-4, HAZ-6, HAZ-8 through HAZ-10, WQ-1, and NOI-4 would further reduce risks associated with use of propane and oxygen, fire risk, and blasting during construction. However, these RPMs would not be necessary to reduce a significant impact to a less-than-significant level.

Mitigation Measures

All RPMs provided in Appendix B are adopted by Placer County as mitigation measures and are included in the MMRP for the project. The adoption of RPMs HAZ-2, through HAZ-4, HAZ-6, HAZ-8 through HAZ-10, WQ-1, and NOI-4 as mitigation measures would decrease risks associated with use

of propane and oxygen, fire risk, and blasting during construction, but are not necessary to reduce a significant effect.

Impact 4.6-2 (Alt. 2): Operations Efficiency

The installation of Gazex facilities at Alpine Meadows would represent an improvement in operations efficiency for ski patrollers, because Gazex facilities can be used for remote avalanche mitigation during the night and inclement weather cycles. It is estimated that approximately six to eight 105-mm howitzer shot placements would be eliminated with installation of the Gazex facilities; this would represent an estimated 20–25 percent reduction in the use/need of the 105-mm howitzer. However, the loss of these shot placements would result in the loss of a form of redundancy in avalanche mitigation, specifically within *the Buttress* area, meaning that hand-charges would be the only other form of avalanche mitigation available to ski patrollers in the event of failure of the Gazex facilities. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect effects related to operations efficiency would be **minorly beneficial** because Alternative 2 would constitute an improvement in operations efficiency for ski patrollers at Alpine Meadows. This impact analysis is specific to a NEPA analytical indicator and is not responsive to a CEQA criterion. No CEQA determination of effect is provided.

The installation of Gazex facilities at Alpine Meadows would represent a measurable improvement in the efficiency of avalanche mitigation operations. As described above in Section 4.6.1.1, the primary advantages of Gazex, as compared to other forms of avalanche mitigation, are that Gazex facilities can be operated remotely, detonated during the night, during inclement weather cycles, and do not require snow safety personnel to enter avalanche prone terrain to conduct avalanche mitigation. These advantages would be realized by mountain operations personnel at Alpine Meadows in the form of reduced time, effort, and expense to effectively reduce avalanche risk and open specific terrain for recreation. Remote detonation capabilities of Gazex infrastructure would improve efficiency of avalanche mitigation because the same avalanche mitigation could be accomplished with less work and a reduced need for the time-consuming use of hand-charges. The ability to conduct avalanche mitigation during the night and during inclement weather cycles would allow mountain operations personnel to perform stabilization activities overnight and during storms as snow buildup occurs. Ultimately, these improvements in efficiency of avalanche mitigation operations would allow for more timely and consistent opening of these areas at Alpine Meadows.

In addition, installation of Gazex facilities at Alpine Meadows would mean that six to eight fewer 105-mm howitzer shot placements would be required. Currently, mountain operations personnel have 31 targeted locations around Alpine Meadows for avalanche mitigation through use of the 105-mm howitzer. Implementation of Alternative 2 would represent an estimated 20–25 percent reduction in shot placements for the 105-mm howitzer. However, it is important to note that the reduction of these shot placements would result in the loss of a form of redundancy in avalanche mitigation within *the Buttress* area, meaning that hand-charges would be the only other form of avalanche mitigation available to ski patrollers in the event of failure of the Gazex facilities.

Gondola evacuation protocol under Alternative 2 would be more difficult to conduct than under Alternative 3 or 4. This is because the gondola alignment associated with Alternative 2 would run high on the ridgeline on the west edge of the Caldwell property, meaning that accessing the gondola line would be more difficult for rescue teams than if the gondola were located through Catch Valley. The applicant will be required to prepare an Emergency Preparedness and Evacuation Plan (EPEP) consistent with Government Code Section 65302(g) (protection from unreasonable risks associated with the effects of seismic, geologic or flooding events or wildland fires, etc.) and in furtherance of the Placer Operational Area Eastside Emergency Access Evacuation Plan. The EPEP would provide guidance and procedures for Squaw Valley Ski Holdings (SVSH) staff in the unlikely event of an emergency requiring evacuation. Refer to RPM HAZ-11 in Appendix B.

NEPA Effects Conclusion

The installation of Gazex facilities would constitute a considerable improvement in operations efficiency for mountain operations personnel at Alpine Meadows. The performance of avalanche mitigation during the

night and during inclement weather cycles would allow for more timely, consistent, and cost-effective opening of avalanche prone terrain at Alpine Meadows. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect effects related to operations efficiency would be **minorly beneficial** because Alternative 2 would constitute an improvement in operations efficiency for ski patrollers at Alpine Meadows.

CEQA Determination of Effects

This impact analysis is specific to a NEPA analytical indicator and is not responsive to a CEQA criterion. No CEQA determination of effect is provided.

Mitigation Measures

No mitigation measures are required.

4.6.3.3 ALTERNATIVE 3

Impact 4.6-1 (Alt. 3): Health and Safety

Alternative 3 would result in an improvement to health and safety within the project area, as fewer explosive hand-charges would be required for avalanche mitigation in the areas where Gazex facilities would be installed. There would be a reduction in risk to snow safety personnel associated with the use of hand-charges. There would not be a measurable improvement or change in health and safety for the public. Avalanche mitigation activities would continue within slide-prone terrain until an acceptable level of risk is achieved. These procedures presently occur within *the Buttress* area and would continue with implementation of Alternative 3. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect effects related to health and safety would be **minorly beneficial** because there would be a reduction in risk to snow safety personnel associated with the reduced use of hand-charges. Under CEQA, and using the CEQA criteria, this impact would be **less than significant** because Alternative 3 would not create or expose people to an existing health or safety hazard. In addition, RPMs HAZ-2 through HAZ-4, HAZ-6, HAZ-8 through HAZ-10, WQ-1, and NOI-4 would require detailed construction plans, enforce regulations related to the storage of hazardous wastes and CAL FIRE regulations, and regulate the qualifications of personnel conducting blasting. With implementation of these RPMs, this impact would be reduced, although these RPMs are not necessary to reduce a significant impact to a less-than-significant level.

Alternative 3 includes the same Gazex facilities as Alternative 2. Therefore, effects associated with the operation of the Gazex system would be the same as described for Alternative 2. Alternative 3 would result in an improvement to health and safety within the project area, as fewer explosive hand-charges would be required for avalanche mitigation in the areas where Gazex facilities would be installed. There would be a reduction in risk to snow safety personnel associated with the use of hand-charges. There would not be a measurable improvement or change in health and safety for the public. Avalanche mitigation activities would continue within slide-prone terrain until an acceptable level of risk is achieved. Under Alternative 3, the gondola alignment would run down Catch Valley. As a result, this gondola alignment could be more susceptible to damage by avalanche and slope failures on infrastructure than under Alternative 2 because it would be at the base of the valley and, therefore, near the path of potential avalanche runout zones. However, gondola infrastructure would be strategically engineered to avoid these avalanche runout zones as much as possible. In addition, like other ski area facilities at Squaw Valley and Alpine Meadows, the gondola would not operate if there was significant avalanche risk until appropriate avalanche mitigation actions had been implemented (e.g., hand charges, Avalauncher). As a result, this difference would not result in an appreciable reduction in health and safety as compared with Alternative 2. The gondola alignment under Alternative 3 is more easily accessible than under Alternative 2, making evacuation of gondola cabins, if needed, a simpler process.

NEPA Effects Conclusion

Installation of Gazex facilities at Alpine Meadows would provide mountain operations personnel with a safer/improved form of avalanche mitigation. As a result, the level of occupational risk for ski patrollers would decrease. The introduction of Gazex technology would not specifically alter or reduce the level of avalanche risk at Alpine Meadows. Snow safety personnel presently conduct avalanche mitigation procedures using the methods and tools available to them, until the terrain is considered to be at an acceptable level of stability and risk; terrain remains closed to skiing until such time that the avalanche risk subsides to an acceptable level. Climate change may increase variability in climate, but this is not currently a measurable change and is not anticipated to have an appreciable effect on health and safety within the project area. However, if climate change were to result in an increase in avalanche risk, the Gazex infrastructure proposed under Alternative 3 would provide snow safety personnel with an added tool to use for the Alpine Meadows snow safety program. Hazards associated with construction, operation, and maintenance of project infrastructure are negligible for the reasons described above. While the gondola alignment associated with Alternative 3 through Catch Valley would result in the increased susceptibility of gondola infrastructure to damage by avalanche and slope failures, gondola infrastructure has been strategically engineered to avoid these avalanche runout zones as much as possible, so this factor would not cause an appreciable reduction in health and safety. A detailed gondola evacuation protocol will be prepared for Alternative 3 in the event of its selection; this is not expected to result in an appreciable change in demand to emergency service providers. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect effects of Alternative 3 on health and safety within the project area would be **minorly beneficial**.

CEQA Determination of Effects

Alternative 3 would not create a significant health or safety effect for the reasons described above. As described above in Section 4.6.2.3, "Issues Not Discussed Further," most of the CEQA criteria related to hazards and hazardous materials are not addressed in this section because project impacts were determined to be less than significant in the Initial Study (Appendix A). Potential hazards and fire risk related to propane and oxygen use would be less than significant for the reasons described above. Further, the existing occupational risk for ski patrollers would be reduced with the project. No other potential health or safety hazards have been identified that are associated with the project. Under CEQA, and using the CEQA criteria, effect of Alternative 3 on health and safety within the project area would be **less than significant** because Alternative 3 would not create or expose people to an existing health or safety hazard. RPMs HAZ-2 through HAZ-4, HAZ-6, HAZ-8 through HAZ-10, WQ-1, and NOI-4 would further reduce risks associated with use of propane and oxygen, fire risk, and blasting during construction. However, these RPMs would not be necessary to reduce a significant impact to a less-than-significant level.

Mitigation Measures

All RPMs provided in Appendix B are adopted by Placer County as mitigation measures and are included in the MMRP for the project. The adoption of RPMs HAZ-2 through HAZ-4, HAZ-6, HAZ-8 through HAZ-10, WQ-1, and NOI-4 as mitigation measures would decrease risks associated with use of propane and oxygen, fire risk, and blasting during construction, but are not necessary to reduce a significant effect.

Impact 4.6-2 (Alt. 3): Operations Efficiency

The installation of Gazex facilities at Alpine Meadows would represent an improvement in operations efficiency for ski patrollers, because Gazex facilities can be used for remote avalanche mitigation during the night and inclement weather cycles. It is estimated that approximately six to eight 105-mm howitzer shot placements would be eliminated with installation of the Gazex facilities; this would represent an estimated 20–25 percent reduction in the use/need of the 105-mm howitzer. However, the loss of these shot placements would result in the loss of a form of redundancy in avalanche mitigation specifically within *the Buttress* area, meaning that hand-charges would be the only other form of avalanche mitigation available to ski patrollers in the event of failure of the Gazex facilities. Because of its alignment through Catch Valley, the gondola alignment associated with Alternative 3 would be the easiest for rescue teams to access in the

event of an emergency requiring evacuation of the gondola. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect effects related to operations efficiency would be **beneficial** because Alternative 3 would constitute an improvement in operations efficiency for ski patrollers at Alpine Meadows, and because of the relative ease of gondola evacuation associated with Alternative 3. This impact analysis is specific to a NEPA analytical indicator and is not responsive to a CEQA criterion. No CEQA determination of effect is provided.

Effects to operations efficiency under Alternative 3 are nearly the same as those discussed above for Alternative 2, with the following differences.

While the Alpine Meadows mid-station would not be located in proximity to *the Buttress* area under Alternative 3, Gazex facilities are still proposed for Alternative 3. These Gazex facilities would constitute infrastructure within the 600-meter radius of the existing 105-mm howitzer shot placements in *the Buttress* area, so six to eight shot placements would be eliminated under Alternative 3 for the same reasons described under Alternative 2.

Gondola evacuation protocol under Alternative 3 would be easier to conduct than under Alternative 2, because the gondola alignment associated with Alternative 3 runs through Catch Valley, and rescue teams would be able to access the gondola on the valley floor in this area much more easily than if the gondola were located high on the ridgeline along the west edge of the Caldwell property. Of all the action alternatives, the gondola alignment associated with Alternative 3 would be the easiest for rescue teams to access in the event of an emergency requiring evacuation of the gondola, although the difference between Alternatives 3 and 4 is minor. As described under Impact 4.6-2 (Alt. 2), the applicant is required to prepare an EPEP for the project. The EPEP would provide guidance and procedures for SVSH staff in the unlikely event of an emergency requiring evacuation. Refer to RPM HAZ-11 in Appendix B.

NEPA Effects Conclusion

The installation Gazex facilities would constitute a considerable improvement in operations efficiency for mountain operations personnel at Alpine Meadows. The performance of avalanche mitigation during the night and during inclement weather cycles would allow for more timely, consistent, and cost-effective opening of avalanche prone terrain at Alpine Meadows. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect effects related to operations efficiency would be **beneficial** because Alternative 3 would constitute an improvement in operations efficiency for ski patrollers at Alpine Meadows.

CEQA Determination of Effects

This impact analysis is specific to a NEPA analytical indicator and is not responsive to a CEQA criterion. No CEQA determination of effect is provided.

Mitigation Measures

No mitigation measures are required.

4.6.3.4 ALTERNATIVE 4

Impact 4.6-1 (Alt. 4): Health and Safety

Alternative 4 would result in an improvement to health and safety within the project area, as fewer explosive hand-charges would be required for avalanche mitigation in the areas where Gazex facilities would be installed. There would be a reduction in risk to snow safety personnel associated with the use of hand-charges. There would not be a measurable improvement or change in health and safety for the public. Avalanche mitigation activities would continue within slide-prone terrain until an acceptable level of risk is achieved. These procedures presently occur within *the Buttress* area and would continue with implementation of Alternative 4. Under NEPA, and considering the NEPA indicators, absent RPMs and/or

mitigation, direct and indirect effects related to health and safety would be **minorsly beneficial** because there would be a reduction in risk to snow safety personnel associated with the reduced use of hand-charges. Under CEQA, and using the CEQA criteria, this impact would be **less than significant** because Alternative 4 would not create or expose people to an existing health or safety hazard. In addition, RPMs HAZ-2 through HAZ-4, HAZ-6, HAZ-8 through HAZ-10, WQ-1, and NOI-4 would require detailed construction plans, enforce regulations related to the storage of hazardous wastes and CAL FIRE regulations, and regulate the qualifications of personnel conducting blasting. With implementation of these RPMs, this impact would be reduced, although these RPMs are not necessary to reduce a significant impact to a less-than-significant level.

Alternative 4 includes the same Gazex facilities as Alternative 2. Therefore, effects associated with the operation of the Gazex system would be the same as described for Alternative 2. Alternative 4 would result in an improvement to health and safety within the project area, as fewer explosive hand-charges would be required for avalanche mitigation in the areas where Gazex facilities would be installed. There would be a reduction in risk to snow safety personnel associated with the use of hand-charges. There would not be a measurable improvement or change in health and safety for the public. Avalanche mitigation activities would continue within slide-prone terrain until an acceptable level of risk is achieved.

Effects to health and safety under Alternative 4 are nearly the same as those discussed above for Alternative 3; while the gondola under Alternative 4 would not follow an identical alignment to Alternative 3, it would still run through Catch Valley. As a result, the increased susceptibility of gondola infrastructure, discussed in more detail under Alternative 3, would be a factor for Alternative 4 as well.

NEPA Effects Conclusion

Installation of Gazex facilities at Alpine Meadows would provide mountain operations personnel with a safer/improved form of avalanche mitigation. As a result, the level of occupational risk for ski patrollers would decrease. The introduction of Gazex technology would not specifically alter or reduce the level of avalanche risk at Alpine Meadows. Snow safety personnel presently conduct avalanche mitigation procedures using the methods and tools available to them, until the terrain is considered to be at an acceptable level stability and risk; terrain remains closed to skiing until such time that the avalanche risk subsides to an acceptable level. Climate change may increase variability in climate, but this is not currently a measurable change and is not anticipated to have an appreciable effect on health and safety within the project area. However, if climate change were to result in an increase in avalanche risk, the Gazex infrastructure proposed under Alternative 4 would provide snow safety personnel with an added tool to use for the Alpine Meadows snow safety program. Hazards associated with construction, operation, and maintenance of project infrastructure are negligible for the reasons described above. While the gondola alignment associated with Alternative 4 through Catch Valley would result in the increased susceptibility of gondola infrastructure to damage by avalanche and slope failures, gondola infrastructure has been strategically engineered to avoid these avalanche runout zones as much as possible, so this factor would not cause an appreciable reduction in health and safety. A detailed gondola evacuation protocol will be prepared for Alternative 4 in the event of its selection; this is not expected to result in an appreciable change in demand to emergency service providers. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect effects of Alternative 4 on health and safety within the project area would be **minorsly beneficial**.

CEQA Determination of Effects

Alternative 4 would not create a significant health or safety effect for the reasons described above. As described above in Section 4.6.2.3, "Issues Not Discussed Further," most of the CEQA criteria related to hazards and hazardous materials are not addressed in this section because project impacts were determined to be less than significant in the Initial Study (Appendix A). Potential hazards and fire risk related to propane and oxygen use would be less than significant for the reasons described above. Further, the existing occupational risk for ski patrollers would be reduced with the project. No other potential health or safety hazards have been identified that are associated with the project. Under CEQA, and using the CEQA criteria, effect of Alternative 4 on health and safety within the project area would be **less than significant**

because Alternative 4 would not create or expose people to an existing health or safety hazard. RPMs HAZ-2 through HAZ-4, HAZ-6, HAZ-8 through HAZ-10, WQ-1, and NOI-4 would further reduce risks associated with use of propane and oxygen, fire risk, and blasting during construction. However, these RPMs would not be necessary to reduce a significant impact to a less-than-significant level.

Mitigation Measures

All RPMs provided in Appendix B are adopted by Placer County as mitigation measures and are included in the MMRP for the project. The adoption of RPMs HAZ-2 through HAZ-4, HAZ-6, HAZ-8 through HAZ-10, WQ-1, and NOI-4 as mitigation measures would decrease risks associated with use of propane and oxygen, fire risk, and blasting during construction, but are not necessary to reduce a significant effect.

Impact 4.6-2 (Alt. 4): Operations Efficiency

The installation of Gazex facilities at Alpine Meadows would represent an improvement in operations efficiency for ski patrollers, because Gazex facilities can be used for remote avalanche mitigation during the night and inclement weather cycles. It is estimated that approximately six to eight 105-mm howitzer shot placements would be eliminated with installation of the Gazex facilities; this would represent an estimated 20–25 percent reduction in the use/need of the 105-mm howitzer. However, the loss of these shot placements would result in the loss of a form of redundancy in avalanche mitigation specifically within the *Buttress* area, meaning that hand-charges would be the only other form of avalanche mitigation available to ski patrollers in the event of failure of the Gazex facilities. Because of its alignment through Catch Valley, the gondola alignment associated with Alternative 4 would be easier than Alternative 2 for rescue teams to access in the event of an emergency requiring evacuation of the gondola. Overall, Alternative 4 would constitute an improvement in operations efficiency for ski patrollers at Alpine Meadows. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect effects related to operations efficiency would be **beneficial** because Alternative 4 would constitute an improvement in operations efficiency for ski patrollers at Alpine Meadows, and because of the relative ease of gondola evacuation associated with Alternative 4. This impact analysis is specific to a NEPA analytical indicator and is not responsive to a CEQA criterion. No CEQA determination of effect is provided.

Effects to operations efficiency under Alternative 4 are nearly the same as those discussed above for Alternative 3; while the gondola under Alternative 4 would not follow an identical alignment to Alternative 3, it would still run through Catch Valley.

As a result, gondola evacuation protocol under Alternative 4 would be easier to conduct than under Alternative 2, because rescue teams would be able to access the gondola on the valley floor in this area much more easily than if the gondola were located high on the ridgeline separating the National Forest System-GCW and the Caldwell property. The gondola alignment associated with Alternative 4 would be easier than Alternative 2 for rescue teams to access in the event of an emergency requiring evacuation; Alternative 3 would be the easiest for rescue teams to access out of all the action alternatives, although the difference between Alternatives 3 and 4 is minor. As described under Impact 4.6-2 (Alt. 2), the applicant is required to prepare an EPEP for the project. The EPEP would provide guidance and procedures for SVSH staff in the unlikely event of an emergency requiring evacuation. Refer to RPM HAZ-11 in Appendix B.

NEPA Effects Conclusion

The installation of Gazex facilities would constitute a considerable improvement in operations efficiency for mountain operations personnel at Alpine Meadows. The performance of avalanche mitigation during the night and during inclement weather cycles would allow for more timely, consistent, and cost-effective opening of avalanche prone terrain at Alpine Meadows. Under NEPA, and considering the NEPA indicators, absent RPMs and/or mitigation, direct and indirect effects related to operations efficiency would be **beneficial** because Alternative 4 would constitute an improvement in operations efficiency for ski patrollers at Alpine Meadows.

CEQA Determination of Effects

This impact analysis is specific to a NEPA analytical indicator and is not responsive to a CEQA criterion. No CEQA determination of effect is provided.

Mitigation Measures

No mitigation measures are required.

4.6.3.5 SUMMARY OF DIRECT AND INDIRECT EFFECTS

Table 4.6-1 provides a summary of the effects determinations for the direct and indirect effects evaluated above for each alternative.

For Alternative 1 – No Action Alternative, there would be no effect for both Impact 4.6-1 and Impact 4.6-2.

For Impact 4.6-1, there would be a minorly beneficial effect under NEPA, and a less-than-significant effect under CEQA for all three action alternatives because fewer explosive hand-charges would be required for avalanche mitigation in the areas where Gazex facilities would be installed, resulting in a reduction in risk to snow safety personnel associated with the use of hand-charges. The alignments of Alternatives 3 and 4 along Catch Valley would increase the susceptibility of gondola infrastructure to avalanche because there are numerous avalanche runout zones along Catch Valley. The increased susceptibility of Alternatives 3 and 4 to avalanche is not critical because the gondola would be specifically sited to avoid avalanche runout zones as much as possible, the gondola would not operate during periods of high avalanche risk, and the gondola cabins could be evacuated in the event of an emergency caused by avalanche. There are no meaningful differences between Alternatives 3 and 4 with regard to susceptibility to avalanche.

For Impact 4.6-2, there would be a minorly beneficial effect under NEPA for Alternative 2 and a beneficial effect for Alternatives 3 and 4; the analysis of Impact 4.6-2 is specific to a NEPA analytical indicator and is not responsive to a CEQA criteria, so no CEQA determination of effect is provided. Installation of Gazex facilities would benefit avalanche mitigation crews by allowing for remote avalanche mitigation during the night and inclement weather cycles. Under Alternative 2, the gondola would be more difficult to evacuate in an emergency than under Alternatives 3 and 4 because of its alignment along the Squaw Valley saddle, which would complicate access for safety crews; evacuation protocol would be easier to carry out under Alternatives 3 and 4 because of their proposed alignments along Catch Valley, which is easily accessible by safety crews. The alignment of the gondola under Alternative 2 is what distinguishes the magnitude of its operations efficiency benefit from Alternatives 3 and 4. There is only a minor difference between Alternatives 3 and 4 with regard to ease of evacuation protocol, with an evacuation anticipated to be slightly easier to execute under Alternative 3.

Table 4.6-1 Summary of Direct and Indirect Effects

Impact	Applicable Analytical Indicators and Significance Criteria	Alt. 1	Alt. 2	Alt. 3	Alt. 4
4.6-1: Health and Safety	Description of the existing level of avalanche risk and avalanche mitigation protocols in the study area based on existing data	No effect	Minorly beneficial under NEPA; less than significant under CEQA	Minorly beneficial under NEPA; less than significant under CEQA Similar to Alternative 2	Minorly beneficial under NEPA; less than significant under CEQA Similar to Alternatives 2 and 3
	Description of changes to the level of avalanche risk and avalanche mitigation protocols	No effect	Minorly beneficial under NEPA; less than	Minorly beneficial under NEPA; less than	Minorly beneficial under NEPA; less than

Table 4.6-1 Summary of Direct and Indirect Effects

Impact	Applicable Analytical Indicators and Significance Criteria	Alt. 1	Alt. 2	Alt. 3	Alt. 4
			significant under CEQA	significant under CEQA Similar to Alternative 2	significant under CEQA Similar to Alternatives 2 and 3
	Discussion of potential changes to avalanche risk resulting from climate change	No effect	Minorsly beneficial under NEPA; less than significant under CEQA	Minorsly beneficial under NEPA; less than significant under CEQA Similar to Alternative 2	Minorsly beneficial under NEPA; less than significant under CEQA Similar to Alternatives 2 and 3
	Description of hazards associated with construction, operation, and maintenance of project infrastructure	No effect	Minorsly beneficial under NEPA; less than significant under CEQA	Minorsly beneficial under NEPA; less than significant under CEQA Similar to Alternative 2	Minorsly beneficial under NEPA; less than significant under CEQA Similar to Alternatives 2 and 3
	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or acutely hazardous materials	No effect	Minorsly beneficial under NEPA; less than significant under CEQA	Minorsly beneficial under NEPA; less than significant under CEQA Similar to Alternative 2	Minorsly beneficial under NEPA; less than significant under CEQA Similar to Alternatives 2 and 3
	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	No effect	Minorsly beneficial under NEPA; less than significant under CEQA	Minorsly beneficial under NEPA; less than significant under CEQA Similar to Alternative 2	Minorsly beneficial under NEPA; less than significant under CEQA Similar to Alternatives 2 and 3
	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands	No effect	Minorsly beneficial under NEPA; less than significant under CEQA	Minorsly beneficial under NEPA; less than significant under CEQA Similar to Alternative 2	Minorsly beneficial under NEPA; less than significant under CEQA Similar to Alternatives 2 and 3

Table 4.6-1 Summary of Direct and Indirect Effects

Impact	Applicable Analytical Indicators and Significance Criteria	Alt. 1	Alt. 2	Alt. 3	Alt. 4
	Create any health hazard or potential health hazard; Expose people to existing sources of potential health hazards	No effect	Minorsly beneficial under NEPA; less than significant under CEQA	Minorsly beneficial under NEPA; less than significant under CEQA Similar to Alternative 2	Minorsly beneficial under NEPA; less than significant under CEQA Similar to Alternatives 2 and 3
	Expose people to existing sources of potential health hazards	No effect	Minorsly beneficial under NEPA; less than significant under CEQA	Minorsly beneficial under NEPA; less than significant under CEQA Similar to Alternative 2	Minorsly beneficial under NEPA; less than significant under CEQA Similar to Alternatives 2 and 3
4.6-2: Operations Efficiency	Description of the existing level of avalanche risk and avalanche mitigation protocols in the study area based on existing data	No effect	Minorsly beneficial under NEPA	Minorsly beneficial under NEPA Similar to Alternative 2	Minorsly beneficial under NEPA Similar to Alternatives 2 and 3
	Description of changes to the level of avalanche risk and avalanche mitigation protocols (including development of an Avalanche Mitigation Plan) under the proposed project	No effect	Minorsly beneficial under NEPA	Minorsly beneficial under NEPA Similar to Alternative 2	Minorsly beneficial under NEPA Similar to Alternatives 2 and 3
	Disclosure of proposed gondola evacuation protocol and potential changes in demand on emergency service providers	No effect	Minorsly beneficial under NEPA	Beneficial under NEPA Less than under Alternative 2	Beneficial under NEPA Less than under Alternative 2 and similar to Alternative 3

4.6.4 Cumulative Effects

4.6.4.1 METHODS AND APPROACH

The list of past, present, and reasonably foreseeable future projects considered in this cumulative analysis is provided in Chapter 3 of this Draft EIS/EIR. Past ski area and Placer County development projects have been incorporated and analyzed in this document as part of the Affected Environment. The spatial scope for this cumulative effects analysis of public safety includes the extent of the Alpine Meadows and Squaw Valley developed ski areas and public and private lands immediately adjacent to the ski areas.

The following is a list of present and reasonably foreseeable future projects that could affect public safety.

Project	Potential impacts
Caldwell property (White Wolf) development	Proximity of residences or other structures associated with this project to the gondola alignment could result in effects on health and safety and operational efficiency.
General Development in Olympic Valley	Presence of additional residential and commercial developments in Olympic Valley could result in effects on health and safety and operational efficiency.

4.6.4.2 CUMULATIVE IMPACTS

Alternative 1 – No Action Alternative

Alternative 1 – No Action Alternative would result in a continuation of existing conditions. There would be no direct and indirect effects and thus, by definition, no cumulative impacts to public safety.

Alternative 2

Under Alternative 2, the gondola and Gazex facilities would be constructed. The only reasonably foreseeable projects with the potential to interact with the public safety effects of Alternative 2 is the Caldwell property (White Wolf) development and General Development in Olympic Valley, which would most likely to occur after the implementation of Alternative 2. These projects are not actions connected to Alternative 2 and are instead considered here as additive actions; implementation of these projects does not depend on implementation of Alternative 2, and implementation of Alternative 2 does not depend on development of the Caldwell property or General Development at Olympic Valley.

Based on the initial proposal submitted to Placer County for the Caldwell property development, no residences or other structures on the Caldwell property would be constructed in proximity to or beneath the gondola alignment associated with Alternative 2, so no cumulative effects to health and safety associated with the Caldwell property development are anticipated.

Placer County estimates that General Development in Olympic Valley would result in 569 new lodging/residential units and 80,500 square feet of commercial units by 2039. This development would not occur within the operational boundaries of Squaw Valley or Alpine Meadows and therefore would not result in any cumulative effects to operations efficiency at either resort. Similarly, cumulative effects to health and safety would not occur because residential and commercial development in Olympic Valley would have no effect on avalanche mitigation protocol or construction, operation, and maintenance of the gondola or Gazex facilities.

Alternative 2, on its own, would result in minorly beneficial impacts to health and safety and operations efficiency under NEPA, and less-than-significant impacts to health and safety under CEQA. When added to these Alternative 2 effects, the effects of the Caldwell property development discussed above would not result in any cumulative adverse effects to public safety within the project area.

Alternatives 3 and 4

Under Alternatives 3 and 4, the gondola and Gazex facilities would be constructed. The only reasonably foreseeable projects with the potential to interact with the public safety effects of Alternatives 3 and 4 is the Caldwell property (White Wolf) development and General Development in Olympic Valley, which would most likely occur after the implementation of Alternative 3 or 4. For the same reasons described under Alternative

2, the Caldwell property development and General Development in Olympic Valley are not a connected actions to Alternative 3 or 4.

Based on the initial proposal submitted to Placer County for the Caldwell property development, residences or other structures could be constructed on the Caldwell property in proximity to, or potentially beneath, the gondola alignment associated with Alternatives 3 and 4. However, aerial tramway regulation established by ANSI would require that the interface between the proposed gondola alignments and the specific development of habitable structures on the Caldwell property be consistent with public safety standards; see ANSI B77.1-2017 for more details.

For the same reasons described above under Alternative 2, General Development in Olympic Valley would result in no cumulative effects to operations efficiency or health and safety under Alternative 3 or 4.

Alternatives 3 and 4 on their own would result in minorly beneficial impacts to health and safety and beneficial impacts to operations efficiency under NEPA, and less-than-significant impacts to health and safety under CEQA. When added to these effects associated with Alternatives 3 and 4, the effects of the Caldwell property development and General Development at Olympic Valley discussed above would not result in any cumulative adverse effects to public safety within the project area.

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