SECTION 7: ALTERNATIVES TO THE PROPOSED PROJECT

7.1 - Development of Alternatives

California Environmental Quality Act (CEQA) Guidelines Section 15126.6 requires consideration of alternatives to the Original Proposed Project in the Environmental Impact Report (EIR). More specifically, Section 15126.6 prescribes the following:

> **Alternatives to the Proposed Action -** Describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.
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> **Purpose -** Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21001.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objective, or would be more costly.
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> **Selection of a Range of Reasonable Alternatives -** The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination.
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> **Evaluation of Alternatives -** The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed but in less detail than the significant effects of the project as proposed.
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> **Rule of Reason -** The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. The EIR need examine in detail only those

alternatives that the lead agency determines could feasibly attain most of the basic objectives of the project while reducing one or more potential significant environmental impacts of the project to less than significant levels.

7.2 - Summary of the Original Proposed Project

In this section, the Original Proposed Project is evaluated against a range of alternatives, including the Proposed Alternative Project that is the subject of this Revised and Recirculated Draft EIR. Table 7-1 shows a summary of the components of the Original Proposed Project.

Table 7-1: Moon Camp Residential Development Project as Originally Proposed

Land Use	Land Plan	
	Acres	Dwelling Units
Residential	60.84	92
Roads to be Developed for the Project[1]	1.97	
Parking	0.45	
Water Wells	0.11	
Open Space/Conservation[2]	0.0	
Minimum Lot Size/land use designation	7,200 sf RS-1	
Marina		103 slips
1-In the Original Proposed Project, all project roads would be private with the exception of SR-38. 2-No conservation areas are associated with the Original Proposed Project.		

7.2.1 - Project Objectives

The range of potential alternatives to the Original Proposed Project must include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The following objectives were identified for the Original Proposed Project:

- Provide up to 92 single-family residential lots to be developed as custom lots in the future;
- Establish single-family residential lots that are part of a planned development;
- Realign State Route 38 (SR-38) to improve the design of the roadway. More specifically, eliminate existing sharp curves of the roadway to minimize conflicts on SR-38 and Project access roads. The proposed roadway realignment would also create the opportunity for lakefront residential lots; and
- Provide marina facilities for residents of Moon Camp to access Big Bear Lake.

7.2.2 - Significant Environmental Impacts of the Original Proposed Project

In evaluating the Original Proposed Project, the 2005 Final EIR concluded that there would be a number of project-related impacts that remained significant and unavoidable. Sections 4.1 through 4.16 of the 2004 Draft EIR evaluated the Original Proposed Project summarized in Table 7-1. The conclusion of the environmental analysis was that the Original Proposed Project would produce significant and unavoidable impacts to the following:

Aesthetics/Light and Glare

Significant and unavoidable impacts related to Aesthetics/Light and Glare were identified for viewshed alterations involving existing residents to the north, east and west of the project site. The proposed 92 dwelling units would adversely impact existing views of the lake and surrounding mountain peaks from some existing adjacent residences. Additionally, significant and unavoidable impacts were identified for views from SR-38, a scenic highway, to the south and from the south shore of Big Bear Lake.

Air Quality

Air quality impacts that would remain significant and unavoidable following mitigation were:

- Construction Activities: Reactive organic gases (ROG) and Nitrogen oxides (NO_x) emissions during site preparation and construction from equipment and vehicles would be significant in the short-term; and

- Project Operations: Long-term use of the project site would result in an overall increase in the local and regional pollutant load due to direct impacts from vehicle emissions, and indirect impacts from electricity and natural gas consumption. Combined mobile and area source emissions would exceed South Coast Air Quality Management District (SCAQMD) thresholds of ROG, Carbon monoxide (CO) and 10-micron or less particulate matter (PM_{10}).

Biological Resources

Project implementation would affect species identified as special status. Implementation of recommended mitigation measures would reduce impacts to less than significant levels with the exception of the bald eagle. Impacts to this species were considered to be significant and unavoidable due to short-term construction noise and long-term residential noise, as well as the removal of potential perch trees, particularly in the westerly portion of the project site.

Hydrology and Drainage

Due to potential overdraft conditions (resulting from the 92 lots) for the groundwater basin associated with the North Shore Hydrologic Subunit, project and cumulative impacts were considered to be significant and unavoidable.

Public Services and Utilities

Due to the inability of water providers to confirm service to the Original Proposed Project, the project impacts, as well as cumulative impacts, were considered to be significant and unavoidable. This conclusion was further supported by the significant and unavoidable conclusion cited in Section 5.11, Hydrology and Drainage, due to potential overdraft conditions for the groundwater basin associated with the North Shore Hydrologic Subunit.

Based on the aforementioned guidelines, several alternatives were developed to reduce or eliminate these significant impacts. In addition to a "No Project" alternative, several different land use alternatives are evaluated in the 2005 Final EIR. Each intended to reduce potential project impacts that are of greatest concern to local residents and local governing agencies.

Subsequent to the circulation of the 2005 Final EIR, and partially in response to public comments received on the document, the Applicant made the decision to consider an alternative that would reduce the impacts that remained significant and unavoidable, and to address other concerns raised in comments received on the 2005 Final EIR. The Proposed Alternative Project, which is the subject of this Revised and Recirculated Draft EIR, is considered herein along with the other alternatives evaluated in the relation to the Original Proposed Project.

7.3 - No Project / No Development Alternative

7.3.1 - Description of Alternative

CEQA requires that a specific "No Project" alternative shall be evaluated along with its impacts compared to the proposed project. The "No Project" analysis essentially evaluates existing conditions on the site. Under this alternative, existing uses on the property would remain as is and the site would not be developed. Assuming that the site remains undeveloped, all significant project-specific impacts will be avoided. However, according to CEQA, if the environmentally superior alternative is the "No Project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

7.3.2 - Evaluation of Impacts Compared to the Original Proposed Project

Aesthetics

The aesthetic impacts associated with the Original Proposed Project would be significant and unavoidable. With the No Project alternative, the visual character of the site, which consists of undeveloped forested land, would remain unchanged, and no site grading would occur. Existing views of Big Bear Lake and the distant mountain ranges to the south would not be obstructed from the project site, which includes views from SR-38. The highway would not be realigned and no lakefront lots that would disrupt views of the lake from the highway would be developed. In addition, there would be no lighting impacts, as no new light sources would be introduced onto the project site.

Therefore, compared to the Original Proposed Project, the No Project/No Development Alternative would be considered environmentally superior.

Agricultural Resources

Impacts to agricultural resources would be less than significant with the Original Proposed Project, because no agricultural use of the site has previously occurred and the site is not designated as prime farmland. Similar to the Original Proposed Project, the No Project / No Development Alternative would not affect agricultural resources.

Air Quality

The air quality impacts (short-and long-term) associated with the Original Proposed Project would be significant and unavoidable. With the No Project Alternative, air quality impacts would be eliminated, as no new emissions sources would be introduced onto the project site via increased traffic, wood burning fireplaces/stoves, etc.

Biological Resources

The Original Proposed Project would have significant and unavoidable impacts related to biological resources, specifically for bald eagle perch sites. There would be no impacts to biological resources with the No Project/No Development Alternative, because no habitat would be disturbed. Therefore, the No Project/No Development Alternative would be considered environmentally superior to the Original Proposed Project.

Cultural Resources

Although with the Original Proposed Project the impacts to cultural resources would be less than significant with mitigation, there would be no impacts to cultural resources with the No Project/No Development Alternative. Therefore, the No Project/No Development Alternative would be considered environmentally superior to the Original Proposed Project.

Geology and Soils

With implementation of mitigation measures, standard regulations and Uniform Building Code (UBC), the impacts to geologic resources would be less than significant for the Original Proposed Project. The No Project/No Development Alternative would not involve development within the project area. Consequently, no new structures would be subject to seismic hazards, such as ground shaking or seismically induced settling, and no grading impacts could occur. Compared to the Original Proposed Project, the No Project/No Development Alternative would be considered environmentally superior.

Hazards

Although the hazards and hazardous materials impacts would be less than significant with the Original Proposed Project, there would be no hazards and hazardous materials impacts with the No Project/No Development Alternative.

Hydrology (Drainage and Water Quality)

The impacts to hydrology would be significant for the Original Proposed Project. The No Project/No Development Alternative would not develop the project area. Thus, no groundwater source would be extracted and no new sources of stormwater runoff would be created. Compared to the Original Proposed Project, the No Project/No Development Alternative would be environmentally superior.

Land Use and Relevant Planning

The land use impacts would be less than significant for the Original Proposed Project. According to the County of San Bernardino General Plan Map, the project site is designated as Rural Living (RL-40). Under the No Project/No Development Alternative, no development would occur onsite. The existing General Plan designation (RL-40) would remain and an amendment to the Official Land Use District would not be required. With no development occurring within the project site, it would remain in its existing undeveloped condition.

Mineral Resources

The site is not within an area designated by the State for locally important mineral resources and it does not lie within the County of San Bernardino's Mineral Resource Zone. No impacts to mineral resources would occur as a result of the project's implementation.

Noise

The noise impacts associated with the Original Proposed Project would be less than significant with mitigation. However, the noise increases created by project-related traffic and watercraft on Big Bear Lake would not occur under the No Project Alternative.

Population and Housing

Although the impacts to Population and Housing would be less than significant with the Original Proposed Project, there would be no impacts with the No Project/No Development Alternative.

Public Services

The public services impacts associated with the Original Proposed Project would be less than significant.

Fire and Police Protection. The No Project/No Development Alternative would not involve new residences; thus, no new demand for fire and police protection services over existing conditions would be required.

Schools. The No Project/No Development Alternative would not generate additional schoolchildren and would not place demands on the school district serving the site. Thus, the No Project Alternative would not strain current educational resources.

Libraries. The No Project/No Development Alternative would not generate additional residents and would not place demands on libraries serving the project site. Thus, the No Project Alternative would not impact current resources.

Recreation

Although the recreation impacts would be less than significant with the Original Proposed Project, there would be no recreation impacts with the No Project/No Development Alternative. Since no new residents would be generated by the No Project Alternative, no new demands would be placed on Big Bear Lake or local and regional park facilities in the area. The No Project Alternative would retain existing on-site paths/trail, although as the project site is private property, these paths/trails are unauthorized and public access on the site and to the lakefront would not be assured since the project site is private property.

Traffic and Circulation

The traffic impacts associated with the Original Proposed Project would be less than significant with mitigation. The No Project/No Development Alternative would not result in the realignment of SR-38 and would not create new roads within the project area. The No Project Alternative would not increase project-related traffic above current levels.

Utilities

Water. The utility impacts associated with the Original Proposed Project would be significant and unavoidable for water services. Under the No Project/No Development Alternative the project site would not be developed. Consequently, the need to develop a water source on-site and extend water lines to the project site would not occur under the No Project Alternative.

Sewer. The utility impacts associated with the Original Proposed Project would be less than significant for sewer services. Under the No Project/No Development Alternative the project site would not be developed. Consequently, the need to extend sewer lines to the project site would not occur under the No Project Alternative.

Solid Waste. The utility impacts associated with the Original Proposed Project would be less than significant for solid waste services. The No Project/No Development Alternative would not produce any solid waste that could not impact existing County landfills. The No Project/No Development Alternative would be considered environmentally superior to the Original Proposed Project.

Utilities. The utility impacts associated with the Original Proposed Project would be less than significant for other utility services, like natural gas and electricity services. The No Project/No Development Alternative would not increase the demand for utility services beyond existing levels.

7.3.3 - Ability to Meet Project Objectives

The No Project/No Development Alternative would not have an impact on the environment because no development of the site would occur. The No Project Alternative would avoid any potential impacts resulting from construction and operation of the Original Proposed Project. However, the No Project Alternative is not consistent with the primary project objectives, which are to provide single-family residential lots to be developed with custom homes and to realign SR-38 to allow lakefront homes and a private marina for homeowners use.

7.3.4 - Summary

The No Project Alternative is the environmentally superior to the Original Proposed Project, as all project specific impacts would be avoided. However, according to CEQA, if the environmentally superior alternative is the "no project" alternative, an EIR shall also identify an environmentally superior alternative among the other alternatives.

7.4 - No Project / Existing Designation Alternative

7.4.1 - Description of Alternative

Implementation of the No Project/Existing Designation Alternative would be in accordance with the existing Official Land Use District Rural Living-40 (40-acre minimum lot size). At 62.43 acres, the site could be developed with up to 1.5 residential lots. Although only one dwelling unit could be realized within the site, for the purpose of this discussion, 1.5 units will be used. This Alternative would be less intensive than the Original Proposed Project. Approximately three persons (1.5 housing units x 2.31 persons/household) would be added to the population of the Community of Fawnskin. It is further noted that in addition to a single-residential structure, other uses can be allowed including those in the "Additional Uses" section of the County Development Code, subject to a Conditional Use Permit. The following discussion evaluates the potential environmental impacts associated with the No Project/Existing Designation Alternative as compared to impacts from the Original Proposed Project.

7.4.2 - Evaluation of Impacts Compared to the Original Proposed Project

Aesthetics

The aesthetic impacts associated with the Original Proposed Project would be significant and unavoidable. The visual character of the site, which consists of undeveloped forest land, would be slightly modified under the No Project/Existing Designation Alternative. Given that this Alternative proposes only 1.5 residential lots, no marina and no realignment of SR-38, fewer impacts are anticipated with respect to landform alteration, aesthetics, light and glare. This Alternative would remove substantially fewer trees. With the No Project/Existing Alternative, SR-38 would not be realigned and the area would largely maintain the views of Big Bear Lake and distant mountain

ranges to the south. Big Bear Lake would remain in its current aesthetic condition, as no recreational facilities on the lake would occur with this Alternative.

Agricultural Resources

Impacts to agricultural resources would be less than significant with the Original Proposed Project, because no agricultural use of the site has previously occurred and the site is not designated as prime farmland. Therefore, this Alternative would similarly not affect agricultural resources.

Air Quality

The air quality impacts (short-and long-term) associated with the Original Proposed Project would be significant and unavoidable. With this Alternative, fewer vehicular trips would be generated, which would also produce less mobile and energy source emissions. With fewer homes and residents, fewer emissions would be generated. This Alternative would result in less local and regional air pollutant emissions. Additionally, construction-related emissions from the realignment of SR-38 would not occur with this Alternative.

Biological Resources

The Original Proposed Project would have significant and unavoidable impacts related to biological resources, specifically for bald eagle perch sites. With the development of only 1.5 residential lots, the No Project/Existing Designation Alternative would slightly impact existing biological resources. This Alternative would substantially reduce the impacts to habitat (perch trees for the bald eagle).

Cultural Resources

Although with the Original Proposed Project, the impacts to cultural resources would be less than significant with mitigation, and there would be even fewer impacts to cultural resources with the No Project/Existing Designation Alternative because less land would be disturbed.

Geology and Soils

With implementation of mitigation measures, standard regulations and UBC, the impacts to geologic resources would be less than significant for the Original Proposed Project. Under this Alternative, less residents and structures would be exposed to seismic hazards. The Original Proposed Project would involve grading for the realignment of SR-38 and for structures to the north and south (lakefront) of SR-38. Grading required for this Alternative would occur on a much smaller scale and only for development of 1.5 residential lots.

Hazards and Hazardous Materials

Although the hazards and hazardous materials impacts would be less than significant with the Original Proposed Project, there would be even fewer hazards and hazardous materials impacts with the No Project/Existing Designation Alternative.

Hydrology (Drainage and Water Quality)

The impacts to hydrology would be for the Original Proposed Project. The No Project/Existing Designation Alternative would involve less development in the project area. Therefore, the amount of impermeable surface area (i.e., roads, rooftops, driveways, etc) would be greatly reduced with this Alternative. Additionally, this Alternative would involve fewer residences and vehicles on-site, thus reducing sources of stormwater pollution runoff. Compared to the Original Proposed Project, the No Project/Existing Designation Alternative would be considered environmentally superior.

Land Use and Relevant Planning

The land use impacts would be less than significant for the Original Proposed Project with adherence to development standards associated with the land use designation of low-density residential (7,200-square-foot lots). Currently, the project site is designated as RL-40, with minimum 40-acre lots. Under the No Project/Existing Designation Alternative, only 1.5 dwelling units would be allowed. Under this Alternative, the existing General Plan designation (RL-40) would remain and an amendment to the Official Land Use District would not be required.

Mineral Resources

The site is not within an area designated by the State for locally important mineral resources and it does not lie within the County of San Bernardino's Mineral Resource Zone. No impacts to mineral resources would occur if the site was developed. Therefore, there would be no impact to resources under either development scenario.

Noise

The noise impacts associated with the Original Proposed Project would be less than significant with mitigation. Given that approximately 90 fewer residential lots would occur under this Alternative, long-term noise levels associated with occupancy and vehicular traffic would be less than the noise levels under the Original Proposed Project. This Alternative does not include new marina facilities, which in turn, would not produce new noise sources from watercraft utilizing Big Bear Lake. Additionally, construction-related noise from site development and realignment of SR-38 would not occur with this Alternative.

Population and Housing

Although the impacts to Population and Housing would be less than significant with the Original Proposed Project, the impacts would be even less with the No Project/Existing Designation Alternative.

Public Services

The public services impacts associated with the Original Proposed Project would be less than significant.

Fire and Police Protection. The No Project/Existing Designation Alternative would result in development of 1.5 residential lots on the project site; thus, a nominal increase in the demand for fire and police protection services would occur over existing conditions. Similar to the Original Proposed Project, this Alternative would not result in the need for expansion or construction of police or fire protection facilities. However, compared to the Original Proposed Project, the number of service calls would decrease with this Alternative.

Schools. The No Project/Existing Designation Alternative would generate approximately one school child (.21 students x 1.5 dwelling units). This is substantially fewer students that would be generated with the Original Proposed Project. Since the No Project/Existing Designation Alternative would generate fewer students, fewer impacts would be placed on existing educational resources.

Libraries. The No Project/Existing Designation Alternative would generate approximately three additional residents; however, as with the Original Proposed Project, the addition of new residents would not significantly impact libraries serving the project site.

Recreation

Impacts to recreation would be less than significant with the Original Proposed Project. Approximately three new residents would be added to the Fawnskin area with this Alternative. This nominal increase in population would not adversely affect park facilities in the area. Unlike the Original Proposed Project, this Alternative would not include the construction of the marina. This Alternative would retain existing on-site paths/trails. However, public access on the project site and to the lakefront would not be assured since the Project site is private property.

Traffic and Circulation

The traffic impacts associated with the Original Proposed Project would be less than significant with mitigation. This Alternative would greatly reduce project related trips. In addition, the No Project/Existing Designation Alternative does not propose realignment of SR-38. Therefore, the General Plan Circulation Element would not have to be amended. Similar to the Original Proposed Project, this Alternative would contribute to the existing intersection deficiency at Stanfield Cutoff and Big Bear Boulevard, but to an insignificant degree, since it would likely generate less than 10 trips per day. This Alternative would result in substantially fewer new trips on the local road system when compared to the Original Proposed Project.

Utilities

Water. The utility impacts associated with the Original Proposed Project would be significant and unavoidable for water services. Given that the No Project/Existing Designation Alternative would result in development of only 1.5 residential lots on the project site, and would place a reduced demand on water resources.

Sewer. The utility impacts associated with the Original Proposed Project would be less than significant for sewer services. Given that the No Project/Existing Designation Alternative would result in development of 1.5 residential lots on the project site, the need to extend sewer lines to the project site would be less of an impact than with the Original Proposed Project. Alternatively, the 1.5 units that could be built would likely use septic instead of a tying into the sewer system. This Alternative would require a reduced demand on sewer services.

Solid Waste. The utility impacts associated with the Original Proposed Project would be less than significant for solid waste services. The No Project/Existing Designation Alternative would produce less solid waste when compared to the Original Proposed Project. However, this Alternative, as with the Original Proposed Project, would not result in significant impacts to existing landfills. Nonetheless, 1.5 residents would generate substantially less solid waste.

Utilities. The utility impacts associated with the Original Proposed Project would be less than significant for other utility services, like natural gas and electricity services. The No Project/Existing Designation Alternative would result in a nominal increase in demand for utility services (i.e., gas, electric) beyond existing levels and at levels less than those of the Original Proposed Project. The need for modification and addition of utilities into the project site would be less than for the Original Proposed Project.

7.4.3 - Ability to Meet Project Objectives

The No Project/Existing Designation Alternative would substantially decrease the intensity of the environmental impacts associated development of the Original Proposed Project. By not realigning SR-38, the project site would maintain the majority of its existing visual character. The No Project/Existing Designation Alternative would substantially reduce all environmental impacts associated with the Original Proposed Project. However, this Alternative does not meet the objectives established for the Original Proposed Project, which are to provide a marina, realign SR-38 to allow lakefront homes and up to 92 single-family residential lots that would ultimately be developed with custom homes.

7.4.4 - Summary

Although the No Project/ Existing Designation Alternative would in no way fulfill the project objectives, it is considered to be an environmentally superior alternative because it would eliminate the significant unavoidable impacts associated with the Original Proposed Project.

7.5 - Reduced Density, Without Road Realignment and Without Marina Alternative

7.5.1 - Description of Alternative

For the Reduced Density, Without Road Realignment and Without Marina Alternative, development of 62 residential lots and associated infrastructure would occur on the north side of the existing

SR-38. SR-38 would not be realigned and no residential development would occur to the south of the highway. The land area south of SR-38, along the lakefront, would be retained in its current state. Approximately 143 persons (62 housing units x 2.31 persons/household) would be added to the population of the Community of Fawnskin.

7.5.2 - Evaluation of Impacts Compared to the Original Proposed Project

Aesthetics

The aesthetic impacts associated with the Original Proposed Project would be significant and unavoidable. As with the Original Proposed Project, the visual character of the site, which consists of undeveloped forest land, would be modified under the Reduced Density, Without Road Realignment and Without Marina Alternative. Given that this Alternative involves development to the north of SR-38 and no realignment of SR-38, fewer Aesthetic impacts are anticipated with respect to landform alteration, aesthetics, light and glare. Since this Alternative does not include development south of SR-38, views of Big Bear Lake from SR-38 would be retained. Although some existing views of the Lake and mountains to the south, from Flicker Road, may still be obstructed with this Alternative, surrounding uses to the east and west would retain views of the Lake and mountains. The scaled back nature of this Alternative would also reduce, but not eliminate the light and glare impacts.

Agricultural Resources

Impacts to agricultural resources would be less than significant with the Original Proposed Project, because no agricultural use of the site has previously occurred and the site is not designated as prime farmland. Therefore, the Reduced Density, With Project Redesign Alternative would similarly not affect agricultural resources.

Air Quality

The air quality impacts (short-and long-term) associated with the Original Proposed Project would be significant and unavoidable. Under the Reduced Density, Without Road Realignment and Without Marina Alternative, fewer residences would be generated. Therefore, less mobile (vehicular trips) and energy source emissions would be generated over the Original Proposed Project. In addition, with fewer homes, less particulate emissions would be generated. Overall, this Alternative would result in fewer local and regional air pollutant emissions. Additionally, construction-related emissions from the realignment of SR-38 would not occur with this Alternative.

Biological Resources

The Original Proposed Project would have significant and unavoidable impacts related to biological resources, specifically for bald eagle habitat. With this Alternative, the conversion of undeveloped forest land and impacts to biological resources north of SR-38 would be similar to those of the Original Proposed Project. However, this Alternative would not modify existing habitat to the south of SR-38. Therefore, no physical impacts to biological resources would occur south of SR-38.

Because less land disturbance would occur with this Alternative, compared to the Original Proposed Project, fewer trees would be removed.

Cultural Resources

Although with the Original Proposed Project the impacts to cultural resources would be less than significant with mitigation, there would be fewer impacts to cultural resources with the Reduced Density, Without Road Realignment and Without Marina Alternative because less land would be disturbed.

Geology and Soils

With implementation of mitigation measures, standard regulations and UBC, the impacts to geologic resources would be less than significant for the Original Proposed Project. Although the geologic impacts would be less than significant with the Original Proposed Project, there would be even fewer geological impacts with the Reduced Density, Without Road Realignment and Without Marina Alternative because less land would be disturbed. Under this Alternative, fewer residents and structures would be exposed to seismic hazards. This Alternative does not propose realignment of SR-38; therefore, the grading associated with the realignment would not occur. Additionally, the area south of SR-38 would not be developed, which further reduces that amount of required grading. Grading required for this Alternative would occur for development of approximately 62 residential lots north of SR-38. The grading associated with this Alternative would create similar potential impacts from slope stability as the Original Proposed Project, since both the Original Proposed Project and this Alternative would allow the development of homes on the steepest portions (northern half) of the site.

Hazards and Hazardous Materials

Although the hazards and hazardous materials impacts would be less than significant with the Original Proposed Project, there would be even fewer hazards and hazardous materials impacts with the Reduced Density, Without Road Realignment and Without Marina Alternative.

Hydrology (Drainage and Water Quality)

The impacts to hydrology would be significant for the Original Proposed Project. The Reduced Density, Without Road Realignment and Without Marina Alternative would involve less development within the project area and the amount of impermeable surface area (i.e., roads, driveways, etc) would be less than the Original Proposed Project. Additionally, this Alternative would involve fewer residences and vehicles on-site, thus reducing pollution sources of stormwater runoff.

Land Use and Relevant Planning

The land use impacts would be less than significant for the Original Proposed Project with adherence to the development standards established for the Low Density Residential (RS) land use designation. Currently, the project site is designated as RL-40. Like the Original Proposed Project, under the

Reduced Density, Without Road Realignment and Without Marina Alternative, development onsite would not be consistent with the RL-40 land use designation and a general plan amendment would be required. Development of the Reduced Density, Without Road Realignment and Without Marina Alternative would include 62 residential lots and associated infrastructure and would also be developed under the Single Residential (RS-7200) land use designation.

This Alternative would not include realignment of SR-38, thus no amendment to the Circulation Element of the General Plan would occur. Similar to the Original Proposed Project, development standards under this Alternative would be required to be consistent with the provisions of the Geologic Hazard, Fire Safety, Biotic Resources and Scenic Resources Overlay District provisions/requirements in the San Bernardino Development Code. Per the provisions of the Geologic Hazard, Fire Safety, and Biotic Resources Overlay Districts, either the Original Proposed Project or this Alternative would result in less than significant impacts, with compliance of the development standards outlined in the Development Code and mitigation measures referenced in the applicable technical reports (i.e., geology/soils and biological reports). This Alternative would not result in obstructed views of Big Bear Lake and distant mountain ranges from the lakefront and/or SR-38. Hence, this Alternative would be consistent with development standards set forth in the Scenic Resources Overlay District.

Mineral Resources

The site is not within an area designated by the State for locally important mineral resources and it does not lie within the County of San Bernardino's Mineral Resource Zone. No impacts to mineral resources would occur as a result of the project's implementation.

Noise

The noise impacts associated with the Original Proposed Project would be less than significant with mitigation. Given that approximately 30 fewer residential lots would occur under this Alternative, long-term noise levels associated with vehicular traffic would be less than the noise levels under the Original Proposed Project. Additionally, construction-related noise from the realignment of SR-38 would not occur with this Alternative.

Population and Housing

Although the impacts to Population and Housing would be less than significant with the Original Proposed Project, the impacts would be even less with the Reduced Density, Without Road Realignment and Without Marina Alternative.

Public Services

The public services impacts associated with the Original Proposed Project would be less than significant.

Fire and Police Protection. The Reduced Density, Without Road Realignment and Without Marina Alternative would result in development of 62 residential lots, as compared to 92 residential lots with the Original Proposed Project. Any development of the site would increase the demand for fire and police protection services over existing conditions. Similar to the Original Proposed Project, this Alternative would not result in the need for expansion or construction of police or fire protection facilities. However, compared to the Original Proposed Project, the number of service calls would be less with this Alternative.

Schools. The Reduced Density, Without Road Realignment and Without Marina Alternative would generate approximately 13 schoolchildren (.21 x 62 dwelling units). This is substantially fewer students than would be generated with the Original Proposed Project. Since this Alternative would generate fewer students, less impacts would be placed on existing educational resources.

Libraries. The Reduced Density, Without Road Realignment and Without Marina Alternative would generate approximately 133 residents; however, as with the Original Proposed Project, the addition of these new residents would not significantly impact libraries serving the project site.

Recreation

Although the recreation impacts to would be less than significant with the Original Proposed Project, there would be even less recreation impacts with the Reduced Density, Without Road Realignment and Without Marina Alternative. This Alternative does not include residential development along the lakefront, so the lakefront would remain in its existing condition. Public access on the site and to the lakefront would not be assured since the Project site is private property. Neither this Alternative, nor the Original Proposed Project would increase the use of existing parks or recreational facilities such that substantial physical deterioration would occur.

Traffic and Circulation

The traffic impacts associated with the Original Proposed Project would be less than significant with mitigation. The Reduced Density, Without Road Realignment and Without Marina Alternative does not include realignment of SR-38. Therefore, no amendment to the County's Circulation Element would be required. Because of the reduction in the number of residential lots, this Alternative would result in fewer new trips on the local road system when compared to the Original Proposed Project. However, both the Original Proposed Project and this Alternative would contribute to the existing intersection deficiency at Stanfield Cutoff and Big Bear Boulevard. Both the Original Proposed Project and this Alternative would be required to pay "fair-share" fees to mitigate respective contributions to the existing intersection deficiency.

Utilities

Water: The utility impacts associated with the Original Proposed Project would be significant and unavoidable for water services. Given that the Reduced Density, Without Road Realignment and

Without Marina Alternative would result in development of 62 residential lots on the project site, the need to increase water supply and storage facilities would be less of an impact than with the Original Proposed Project, but the impact would still be potentially significant. Because this Alternative proposes a reduction in the number of residential lots proposed, this Alternative would result in a reduced impact on existing water resources. In addition, because this Alternative includes a substantial reduction in the number of residential lots that would be developed, compared to the Original Proposed Project, the Reduced Density, Without Road Realignment and Without Marina Alternative would be considered environmentally superior.

Sewer. The utility impacts associated with the Original Proposed Project would be less than significant for sewer services. Given the substantial reduction in the number of residential lots that would be developed under this Alternative, this Alternative would place a reduced demand on sewer services.

Solid Waste. The utility impacts associated with the Original Proposed Project would be less than significant for solid waste services. The Reduced Density, Without Road Realignment and Without Marina Alternative would produce less solid waste when compared to the Original Proposed Project. However, this Alternative, as with the Original Proposed Project, would not create impacts to existing landfills.

Utilities. The utility impacts associated with the Original Proposed Project would be less than significant for other utility services, like natural gas and electricity services. The Reduced Density, Without Road Realignment and Without Marina Alternative would increase the demand for utility services (i.e., gas, electric) beyond existing levels, but at levels less than those of the Original Proposed Project. The need for modification and addition of utilities would be less than for the Original Proposed Project.

7.5.3 - Ability to Meet Project Objectives

The Reduced Density, Without Road Realignment and Without Marina Alternative would decrease the intensity of the environmental impacts associated with the proposed construction and operation of the Original Proposed Project. By not realigning SR-38, with this Alternative, the site would maintain the existing forested nature and visual character south of SR-38. Views of the Lake and mountain ranges would be retained from SR-38 and from uses to the east and west of the project site. This Alternative does not meet the primary objectives for the proposed Project, to provide a marina facility and realignment of North Shore Drive in order to improve the design of the roadway, which would also allow for lakefront lots to be developed. Therefore, this Alternative partially meets the project objectives, but falls short with only 62 residential lots, no realignment of SR-38 to create lakefront lots and no marina.

7.5.4 - Summary

The Reduced Density, Without Road Realignment and Without Marina Alternative would reduce but not eliminate all environmental impacts associated with the Original Proposed Project. However, because some impacts can be eliminated or substantially reduced under this alternative, it is considered to be environmentally superior to the Original Proposed Project.

7.6 - Reduced Density, Utilizing Proposed Project Redesign Alternative

7.6.1 - Description of Alternative

For the Reduced Density, utilizing the proposed Project Redesign Alternative, development of 66 residential lots and associated infrastructure would occur on the project site and SR-38 would be realigned. Under this Alternative, 45 lots would be developed north of the repositioned SR-38, and 21 lots would be developed on the south of the highway. This Alternative would include a marina facility, with 72 boat slips. Approximately 153 persons (66 housing units x 2.31 persons/household) would be added to the population of the Community of Fawnskin.

7.6.2 - Evaluation of Impacts Compared to the Proposed Project

Aesthetics

The aesthetic impacts associated with the Original Proposed Project would be significant and unavoidable. As with the Original Proposed Project, the visual character of the site, which consists of undeveloped forest land, would be modified under the Reduced Density, With Project Redesign Alternative. Given that this Alternative proposes development to the north and south of SR-38 and includes the realignment of SR-38, similar impacts are anticipated with respect to landform alteration, aesthetics and light and glare. Since this Alternative would involve decreased residential densities to the south of SR-38, views of Big Bear Lake and the distant mountain ranges from SR-38 would not be as obstructed when compared to the Original Proposed Project. Residential lot development associated with this Alternative, as well as the Original Proposed Project, would limit public access to the lakefront and change the visual character of the site. However, since the project site is privately owned, public access is not assured under existing conditions. As with the Original Proposed Project, this Alternative would alter the visual character of the lake with implementation of the marina facilities. Thus, similar to the Original Proposed Project, the Reduced Density, With Project Redesign Alternative would change the visual character of the project area and adversely impact views of the lake and the distant mountain ranges.

Agricultural Resources

Impacts to agricultural resources would be less than significant with the Original Proposed Project, because no agricultural use of the site has previously occurred and the site is not designated as prime farmland. Therefore, the Reduced Density, With Project Redesign Alternative would similarly not affect agricultural resources.

Air Quality

The air quality impacts (short-and long-term) associated with the Original Proposed Project would be significant and unavoidable. Because of the reduction in the number of residential lots that would be developed, fewer vehicular trips would be generated under this Alternative, which would produce less mobile and energy source emissions. Additionally, with fewer homes, less particulate emissions would be generated. This Alternative would result in fewer local and regional air pollutant emissions.

Biological Resources

The Original Proposed Project would have significant and unavoidable impacts related to biological resources, specifically for bald eagle habitat. The Reduced Density, With Project Redesign Alternative would impact existing on-site biological resources similar to the Original Proposed Project but to a lesser degree. Both the Original Proposed Project and this Alternative involves tree removal during individual lot development and construction of custom homes. Additionally, both the Original Proposed Project and this Alternative would remove approximately one-fourth of the existing 2,760 trees for realignment of SR-38. However, because fewer lots will be created that could impact bald eagle habitat, the Reduced Density, With Project Redesign Alterative is considered environmentally superior to the Original Proposed Project.

Cultural Resources

Although with the Original Proposed Project the impacts to cultural resources would be less than significant with mitigation, there would be fewer impacts to cultural resources with the Reduced Density, With Project Redesign Alternative because less land disturbance would occur. Therefore, the Reduced Density, With Project Redesign Alternative would be considered environmentally superior to the proposed Project.

Geology and Soils

With implementation of mitigation measures, standard regulations and UBC, the impacts to geologic resources would be less than significant for the Original Proposed Project. Under this Alternative, fewer residents and structures would be exposed to seismic hazards than would with the Original Proposed Project. Both this Alternative and the Original Proposed Project would involve grading for the realignment of SR-38 and for structures to the north and south (lakefront) of SR-38. Grading required for this Alternative would occur for development of approximately 66 residential lots to the north and south of SR-38. The amount of grading associated with this Alternative would create similar potential impacts from slope stability as the Original Proposed Project, since both would develop homes on the steepest portions (northern half) of the site.

Hazards and Hazardous Materials

Although the hazards and hazardous materials impacts would be less than significant with the Original Proposed Project, there would be even fewer hazards and hazardous materials impacts with the Reduced Density, With Project Redesign Alternative.

Hydrology (Drainage and Water Quality)

The impacts to hydrology would be significant for the Original Proposed Project. The Reduced Density, With Project Redesign Alternative would involve less development in the project area than the Original Proposed Project. The amount of impermeable surface area (i.e., residences, driveways, etc) would be reduced with this Alternative because fewer homes will cover the same amount of land. Additionally, this Alternative would involve fewer residences and vehicles onsite, which would reduce pollution sources of stormwater runoff.

Land Use and Relevant Planning

The land use impacts would be less than significant for the Original Proposed Project. As with the Original Proposed Project, this Alternative would require a general plan amendment. Currently, the project site is designated as RL-40. Under the Reduced Density, With Project Redesign Alternative, as well as the Original Proposed Project, development onsite would not be consistent with the RL-40 land use designation. Development of this Alternative would include 66 residential lots and associated infrastructure under the RS-7200 land use designation. This Alternative would include realignment of SR-38, thus an amendment to the Circulation Element of the General Plan would be required. Similar to the Original Proposed Project, development standards under this Alternative would be required to be consistent with the provisions of the Geologic Hazard, Fire Safety, Biotic Resources and Scenic Resources Overlay Districts in the San Bernardino Development Code. Per the provisions of the Geologic Hazard, Fire Safety, and Biotic Resources Overlay Districts, either Alternative would result in similar less than significant impacts with compliance of the development standards outlined in the Development Code and identified mitigation measures in the appropriate technical reports (i.e., geology/soils and biological reports). Similar to the Original Proposed Project, this Alternative would result in obstructed views of Big Bear Lake. Thus, this Alternative would not be consistent with the developments standards set forth in the Scenic Resources Overlay District. Therefore, impacts associated with this Alternative would be similar to those of the Original Proposed Project.

Mineral Resources

The site is not within an area designated by the State for locally important mineral resources and it does not lie within the County of San Bernardino's Mineral Resource Zone. No impacts to mineral resources would occur as a result of the project's implementation.

Noise

The noise impacts associated with the Original Proposed Project would be less than significant with mitigation. Given that 26 fewer residential lots would occur under this Alternative, long-term noise levels associated with vehicular traffic would be reduces with this Alternative. Additionally, this Alternative would include a 72-boat slip marina facility, compared to a 100-boat slip marina with the Original Proposed Project, which in turn, would produce less new noise sources from watercraft utilizing Big Bear Lake.

Population and Housing

Although the impacts to Population and Housing would be less than significant with the Original Proposed Project, there would be even fewer impacts to Population and Housing with the Reduced Density, With Project Redesign Alternative.

Public Services

The public services impacts associated with the Original Proposed Project would be less than significant.

Fire and Police Protection. The Reduced Density, With Project Redesign Alternative would result in development of 66 residential lots, as compared to 92 residential lots within the Original Proposed Project. Any development of the site would result in a nominal increase in the demand for fire and police protection services over existing conditions. Similar to the Original Proposed Project, this Alternative would not result in the need for expansion or construction of police or fire protection facilities. However, compared to the Original Proposed Project, the number of service calls would decrease with this Alternative.

Schools. The Reduced Density, with Project Redesign Alternative would generate approximately 14 schoolchildren (.21 x 66 dwelling units). This is substantially fewer students than would be generated with the Original Proposed Project. Since this Alternative would generate fewer students, less impacts would be placed on existing educational resources.

Libraries. The Reduced Density, With Project Redesign Alternative would generate approximately 153 residents; however, as with the Original Proposed Project, the addition of these new residents would not significantly impact libraries serving the project site.

Recreation

Impacts to recreation would be less than significant with the Original Proposed Project. Similar to the Original Proposed Project, this Alternative would include residential development along the lakefront. The shoreline/lakefront would be developed with residential uses (21 dwelling units) and would include marina facilities which would be located south of SR-38. However, public access on the site and to the lakefront would not be assured since the Project site is a private property. This Alternative would include a 72-boat slip marina facility. Neither this Alternative nor the Original Proposed Project would increase the use of existing parks or recreational facilities such that substantial physical deterioration would occur.

Traffic and Circulation

The traffic impacts associated with the Original Proposed Project would be less than significant with mitigation. This Alternative also includes realignment of SR-38. As compared to the Original Proposed Project, the Reduced Density, With Project Redesign Alternative would generate less project-related traffic. This Alternative would result in fewer new trips on the local road system when

compared to the Original Proposed Project. However, both the Original Proposed Project and this Alternative would contribute to the existing intersection deficiency at Stanfield Cutoff and Big Bear Boulevard. The Original Proposed Project and this Alternative would be required to pay "fair-share" fees to mitigate their respective contribution to the existing intersection deficiency.

Utilities

Water. The utility impacts associated with the Original Proposed Project would be significant and unavoidable for water services. Given that the Reduced Density, With Project Redesign Alternative would result in development of 66 residential lots on the project site, the need to increase water supply and storage facilities would be less of an impact than with the Original Proposed Project. Because this Alternative proposes a reduction in the number of residential lots that would be developed, this Alternative would result in a reduced impact on water resources.

Sewer. The utility impacts associated with the Original Proposed Project would be less than significant for sewer services. Given the reduction in the number of residential lots that could be developed with this Alternative, this Alternative would place a reduced demand on sewer services over the Original Proposed Project.

Solid Waste. The utility impacts associated with the Original Proposed Project would be less than significant for solid waste services. The Reduced Density, With Project Redesign Alternative would produce less solid waste when compared to the Original Proposed Project.

Utilities. The utility impacts associated with the Original Proposed Project would be less than significant for other utility services, like natural gas and electricity services. The Reduced Density, With Project Redesign Alternative would increase the demand for utility services (i.e., gas, electric) beyond existing levels but, at levels less than those of the Original Proposed Project, but the impact would still be potentially significant. Given the density of this Alternative, the need for modification and addition of utilities would be less than for the Original Proposed Project.

7.6.3 - Ability to Meet Project Objectives

The Reduced Density, With Project Redesign Alternative would decrease the intensity of the environmental impacts associated with the construction and development of the Original Proposed Project. This Alternative would involve decreased residential densities to the south of SR-38, views of Big Bear Lake and the distant mountain ranges from SR-38 would be less obstructed, when compared to the Original Proposed Project. The Reduced Density, With Project Redesign Alternative would reduce but not eliminate all environmental impacts associated with the Original Proposed Project. However, this Alternative does not meet the primary objectives for the Original Proposed Project, which proposes 92 single-family residential custom lots. Therefore, this Alternative partially meets the project objectives, but falls short with only 66 residential lots.

7.6.4 - Summary

The Reduced Density, With Project Redesign Alternative would reduce but not eliminate some environmental impacts associated with the Original Proposed Project. Other impacts such as those related to aesthetics, biological resources would be similar because although the number of residential lots would be reduced by 26, the development of the site would be similar. So although some impacts can be eliminated or substantially reduced under this Alternative, it is not considered an environmentally superior alternative.

7.7 - Proposed Project Alternative

7.7.1 - Description of Alternative

The Proposed Project Alternative is the subdivision of the site into 57 lots, 50 numbered lots (residential lots) to be sold individually and developed into custom homes and 7 lettered lots, one would be designated as Open Space/Conservation easement; one would be designated as Open Space/Conservation and Neighbor Lake Access easement; three are the well sites; one would be potentially developed for an on-site reservoir, and one would be developed as the marina parking lot with a boat ramp. The Marina lot also includes some open space for the preservation of existing trees; however, because of the development of the parking lot and boat ramp, the lot would not be considered Open Space. Exhibit 2-4, Original Proposed Project, and Exhibit 2-5, Proposed Project Alternative, in Section 2, Project Description, show the following differences between the plans:

- The Tentative Tract Map has been revised to reduce the number of lots from 95 lots to 57 lots by: 1) proposing larger lot sizes (minimum 20,000-square-foot lots – BV/RS-20M); 2) eliminating all residential development along the shoreline; and 3) creating two distinct conservation areas – one covering a portion of the shoreline south of SR-38 (this lot includes Neighborhood Lake Access), and the other encompassing the pebble plain habitat and bald eagle perches on the west end of the site. A third lettered lot consists of the parking lot/boat launch ramp, which also includes some open space, but because of the proposed use, cannot be referred to as Open Space/Conservation. Finally, there are three lettered lots for the existing water well sites and one lettered lot for the potential reservoir site. In addition, a 10-acre offsite pebble plain habitat would be purchased and dedicated as an off-site Conservation Easement.

- The request for a General Plan Amendment has been revised to reflect the larger minimum lot size and to re-designate the site from BV/RL-40 (minimum lot size 40 acres) to BV/RS-20M (minimum lots size 20,000 square feet) instead of the Original Proposed Project's BV/RS (minimum lot size 7,200 square feet).

- The proposed marina has been moved from the lake shore near the west side of the site to the east side of the site, and the size of the marina has been reduced from 103 slips to 55 slips, to

reflect the proposed reduction in the number of residential lots to be developed. For the proposed marina parking lot, direct access from SR-38 is required, whereas under the Original Proposed Project, access to the marina parking lot was from private street A.

- The realignment of a segment of SR-38 has been deleted from the Proposed Alternative Project and no changes in the SR-38 configuration are now proposed. Because the road segment would not be realigned, the proposed removal of approximately 665 trees of the 2,760 trees identified on site would not occur. The incidence of tree removal to develop lots would also be reduced because larger lot sizes would allow homebuilders greater options in siting the homes to avoid trees. No direct access to SR-38 from individual lots is proposed. Access to individual lots would be from the proposed public streets (A and B). Also, with the deletion of all lakefront residential lots south of SR-38, the need for five points of ingress/egress from the south side has been reduced to two for the marina parking lot (refer to Exhibits 2-4 and 2-5), to allow traffic through the marina parking lot to flow. Residents' access from the project site north of SR-38 has been reduced from three streets to two, with the third street shown on the original site plan now proposed to be used for emergency access only.

7.7.2 - Evaluation of Impacts Compared to the Proposed Project

Aesthetics

The aesthetic impacts associated with the Original Proposed Project would be significant and unavoidable. As with the Original Proposed Project, the existing visual character of the site would be modified under the Proposed Project Alternative. However, the level of aesthetic impacts would be reduced with this Alternative. With this Alternative, no residential use is proposed south of SR-38 and the highway would not be realigned. Therefore, views of Big Bear Lake and the distant mountain ranges from SR-38 would not be obstructed with structures. In addition, 5.73 acres would be preserved for open space/conservation/Neighborhood Lake Access, and would therefore, be aesthetically superior and more inline with the existing conditions than would the Originally Proposed Project. Since this Alternative proposes no residential development along the lakeshore and less dense residential use (50 lots, with minimum 20,000-square-foot lots), fewer light and glare impacts would occur, and the area would retain its mountain community ambiance. Therefore, the Proposed Project Alternative would be considered environmentally superior to the Original Proposed Project.

Agricultural Resources

Impacts to agricultural resources would be less than significant with the Original Proposed Project, because no agricultural use of the site has previously occurred and the site is not designated as prime farmland. Therefore, the Proposed Project Alternative would similarly not affect agricultural resources.

Air Quality

The air quality impacts (short-and long-term) associated with the Original Proposed Project would be significant and unavoidable. Because of the reduction in proposed number of residential lots that could be developed, fewer vehicular trips would be generated under this Alternative, which would produce less mobile and energy source emissions. Additionally, with fewer homes, less particulate emissions would be generated. This Alternative would result in fewer local and regional air pollutant emissions. Therefore, the Proposed Project Alternative would be considered environmentally superior to the Original Proposed Project.

Biological Resources

The Original Proposed Project would have significant and unavoidable impacts related to biological resources, specifically for bald eagle habitat. The Proposed Project Alternative would preserve 5.73 acres of open space/conservation, which would preserve habitat for the bald eagle and pebble plain, and would acquire a 10-acre off-site Conservation Easement for Pebble Plain habitat preservation. In addition, fewer lots would be developed for residential use, and SR-38 would not be realigned from its current location, which would also reduce impacts to bald eagle habitat. However, tree removal and mitigation would still be required and some loss of habitat would occur, but not to the same degree as the Original Proposed Project.

Cultural Resources

Although with the Original Proposed Project, the impacts to cultural resources would be less than significant with mitigation, there would be fewer impacts to cultural resources with the Proposed Alternative Project because less land disturbance would occur. Therefore, the Proposed Project Alternative would be considered environmentally superior to the Original Proposed Project.

Geology and Soils

With implementation of mitigation measures, standard regulations and UBC, the impacts to geologic resources would be less than significant for the Original Proposed Project. Compared to the Original Proposed Project, under this Alternative, fewer residents and structures would be exposed to seismic hazards. This Alternative would not involve grading for the realignment of SR-38. The amount of grading associated with this Alternative would create similar potential impacts from slope stability as the Original Proposed Project, since both would develop homes on the steepest portions (northern half) of the site. However, because this alternative includes 42 fewer homes, and larger lot sizes, with 12 lots over 1 acre in size, this Alternative represents an opportunity to reduce the amount of grading that would be required to develop lots by being able to avoid steeper portions of lots and still develop building pads. Thus, less land disturbance and less potential to develop on steep slopes would occur.

Hazards and Hazardous Materials

Although the hazards and hazardous materials impacts would be less than significant with the Original Proposed Project, there would be even fewer hazards and hazardous materials impacts with the Proposed Project Alternative.

Hydrology (Drainage and Water Quality)

The impacts to hydrology would be significant for the Original Proposed Project due to the water supply issues. The Proposed Project Alternative would involve less development in the project area over the Original Proposed Project. The amount of impermeable surface area (i.e., residences, driveways, etc) would be reduced with this Alternative because substantially fewer homes would cover the same gross amount of land. Additionally, this Alternative would involve fewer residences and vehicles on-site, thus reducing pollution sources of stormwater runoff.

Land Use and Relevant Planning

The land use impacts would be less than significant for the Original Proposed Project. As with the Original Proposed Project, this Alternative would require an amendment to the Official Land Use District designation of the project site, per the County of San Bernardino General Plan. Currently, the project site is designated as RL-40, yet the Proposed Project Alternative includes 50 residential lots with minimum 20,000 square feet (BV/RS-20M). This Alternative would not include realignment of SR-38, thus an amendment to the Circulation Element of the General Plan would not be required. Similar to the Original Proposed Project, development standards under this Alternative would be required to be consistent with the provisions of the Geologic Hazard, Fire Safety, Biotic Resources and Scenic Resources Overlay Districts in the San Bernardino Development Code. Per the provisions of the Geologic Hazard, Fire Safety, and Biotic Resources Overlay Districts, both the Original Project and the Proposed Alternative Project will result in less than significant impacts with compliance of the development standards outlined in the Development Code and identified mitigation measures in the appropriate technical reports (i.e., geology/soils and biological reports).

Contrary to the Original Proposed Project, this Alternative would not result in obstructed views of Big Bear Lake and the distant mountain ranges from the portion of the lakefront and/or SR-38 that traverses the project site. Thus, this Alternative would be consistent with the developments standards set forth in the Scenic Resources Overlay District.

Mineral Resources

The site is not within an area designated by the State for locally important mineral resources and it does not lie within the County of San Bernardino's Mineral Resource Zone. No impacts to mineral resources would occur as a result of the Proposed Alternative Project's implementation.

Noise

The noise impacts associated with the Original Proposed Project would be less than significant with mitigation. Given that 42 fewer residential lots would occur under this Alternative, long-term noise levels associated with vehicular traffic would be reduced with this Alternative. Additionally, this Alternative would include a 55-boat slip marina facility, compared to a 103-boat slip marina with the Original Proposed Project, which in turn, would produce less new noise sources from watercraft utilizing Big Bear Lake.

Population and Housing

Although the impacts to Population and Housing would be less than significant with the Original Proposed Project, the impacts would be even less with the Proposed Project Alternative.

Public Services

The public services impacts associated with the Original Proposed Project would be less than significant.

Fire and Police Protection. This Alternative would result in development of 50 residential lots, as compared to 92 residential lots within the Original Proposed Project. Development under this Alternative or the Original Proposed Project would result in a nominal increase in the demand for fire and police protection services over existing conditions. Similar to the Original Proposed Project, this Alternative would not result in the need for expansion or construction of police or fire protection facilities. However, compared to the Original Proposed Project, the number of service calls would decrease with this Alternative.

Schools. The Proposed Project Alternative would generate approximately 11 schoolchildren (.21 x 50 dwelling units), which is eight fewer schoolchildren than the Original Proposed Project.

Libraries. The Proposed Project Alternative would generate approximately 116 new residents. However, as with the Original Proposed Project, the addition of these new residents would not significantly impact libraries serving the project site.

Recreation

Impacts to recreation would be less than significant with the Original Proposed Project. This Alternative includes 55 marina boat slips and 5.73 acres of open space/conservation/Neighborhood Lake Access, but because development would occur on the site, there would be a loss of trails and access to the forested areas to the north from the project site. However, since the trails on-site are unauthorized and not part of a public trail system, they are not guaranteed under existing conditions and access could be precluded at any time. Neither this Alternative, nor the Original Proposed Project would increase the use of existing parks or recreational facilities such that substantial physical deterioration would occur.

Traffic and Circulation

The traffic impacts associated with the Original Proposed Project would be less than significant with mitigation. Because this Alternative proposes substantially fewer residential lots, the Proposed Project Alternative would generate less project-related traffic. However, both the Original Proposed Project and this Alternative would contribute to the existing intersection deficiency at Stanfield Cutoff and Big Bear Boulevard, and either project would be required to pay "fair-share" fees to mitigate their respective contribution to the existing intersection deficiency.

Utilities

Water: The utility impacts associated with the Original Proposed Project would be significant and unavoidable for water services. In order to match the number of lots developed to the available onsite water supply, this Alternative proposes 50 residential lots. A Water Feasibility Study and Water Supply Report prepared specifically for this Alternative has shown that two of the three wells on-site can provide an adequate water supply for the proposed 50 residential lots. The wells will be deeded to County Service Area 53C or the Department of Water and Power (DWP) upon recordation of the final tract map. Therefore, under this Alternative, the Proposed Project Alternative has a secure water source. Coupled with the fact that this Alternative proposes substantially fewer residents, the Proposed Project Alternative is considered environmentally superior to the Original Proposed Project.

Sewer. The utility impacts associated with the Original Proposed Project would be less than significant for sewer services. Given the substantial reduction in the number of residential lots that could be developed with this Alternative, this Alternative would require a reduced demand on sewer services.

Solid Waste. The utility impacts associated with the Original Proposed Project would be less than significant for solid waste services. The Proposed Project Alternative would produce less solid waste when compared to the Original Proposed Project. This Alternative, as with the Original Proposed Project, would not create impacts to existing landfills. However, because this Alternative would generate substantially fewer residents, it would be considered environmentally superior to the Original Proposed Project.

Utilities. The utility impacts associated with the Original Proposed Project would be less than significant for other utility services, like natural gas and electricity services. The Proposed Project Alternative would increase the demand for utility services (i.e., gas, electric) beyond existing levels, but at levels less than those of the Original Proposed Project. Given the density of this Alternative, the need for modification and addition of utilities would be less than for the Original Proposed Project.

7.7.3 - Ability to Meet Project Objectives

Although the Proposed Project Alternative would result in reduced impacts to each environmental impact issue and is environmentally superior compared to the Original Proposed Project, this Alternative does not fully meet the objectives established for the Original Proposed Project. The Proposed Project Alternative includes only 50 residential lots instead of 92; it proposes only 55 marina boat slips, and it would not realign SR-38 and create lakefront lots. However, it will meet the objective of establishing a single-family residential subdivision on the project site that would be developed with custom homes and will also provide a marina for homeowner use as originally planned.

7.7.4 - Summary

The Proposed Project Alternative would significantly reduce, but not eliminate, the environmental impacts associated with the construction and operation of the Original Proposed Project. Because this Alternative proposes a 46 percent reduction in residential density, with no lakefront residential development south of SR-38, and no realignment of SR-38, views of Big Bear Lake and the distant mountain ranges from SR-38 would not be obstructed when compared to the proposed 92-lot Project. In addition, fewer biological impacts would occur because less land would be disturbed and because 5.73 acres of the site would be reserved for open space/conservation; in addition, 10 acres of offsite Pebble Plain habitat would be preserved through a Conservation Easement. The water feasibility study prepared for this Alternative has concluded that on-site wells can adequately provide water for the 50 residential lots proposed in this Alternative. The Proposed Project Alternative is environmentally superior to the Original Proposed Project and meets most of the primary project objectives, but not to the same degree as the Original Proposed Project.

7.8 - Comparison of Alternatives

Table 7-2 summarizes and compares the project characteristics and anticipated impacts of the alternatives compared to those of the Original Proposed Project. The Original Proposed Project has significant and unavoidable impacts to aesthetics, air quality, both short- and long-term, and biological resources, primarily for the impacts to bald eagle habitat, and utilities (water supply).

7.9 - Environmentally Superior Alternative

Based on the analysis of each alternative, the No Project – No Development alternative is the most environmentally superior alternative because it eliminates all of the significant impacts of the proposed project. However, CEQA Guidelines Section 15126.6 (e)(2) states the following:

> *If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.*

As shown in Table 7-1, project related impacts could be substantially reduced, by not realigning SR-38. Furthermore, the impacts could also be reduced by decreasing the overall density and reducing the number of residential lots. The Applicant has amended the Tentative Tract Map (TTM) to the standards of the Proposed Project Alternative. While several of the alternatives are environmentally superior to the Original Proposed Project, the Proposed Project Alternative evaluated in detail in this Revised Draft EIR is the preferred alternative and the environmentally superior alternative for the following reasons:

- The Proposed Project Alternative has the fewest number of residential lots, and the largest minimum lot size, with 12 of the lots over 1 acre in size;
- The Proposed Project Alternative includes 5.73 acres for conservation/open space and 10 acres of offsite Pebble Plain habitat would be preserved through a Conservation Easement. In addition, an area with the easternmost drainage that will be set aside for southern rubber boa habitat;
- The Proposed Project Alternative lessens the impacts of each impact area, and reduces significant impacts to Aesthetics Air Quality, and Water Supply to less than significant levels; and
- The Proposed Project Alternative would reduce the impacts to the greatest extent practicable, while maintaining a sound and fiscally feasible project.

Therefore, the Proposed Project Alternative is the Environmentally Superior alternative.

Table 7-2: Comparison of Alternatives

Issue	Original Proposed Project	No Project/No Development	No Project/ Existing Designation	Reduced Density, Without Road Realignment, Without Marina	Reduced Density, With Project Redesign	Proposed Project Alternative
Project Description	92 residential lots, 103-slip marina, realignment of SR-38, lake side properties, GP amendment required.	No development, site remains as is, no GP amendment required.	40-acre minimum lots, 1.5 lots could be developed, no marina, no GP amendment required.	62 residential lots, no marina, no SR-38 realignment, no development south of SR-38, GP amendment required.	66 residential lots, 72-slip marina, realignment of SR-38, residential development south of SR-38, GP amendment required.	50 residential lots, 55-slip marina, 5.73 acres of open space, no road realignment, no lake side properties, GP amendment required.
Aesthetics	**Significant**	No Impacts	Less Than Significant	**Potentially Significant**	**Significant, but not to the same degree as the Original Proposed Project**	Less Than Significant
Air Quality	**Significant**	No Impacts	Less Than Significant	**Significant, but not to the same degree as the Original Proposed Project**	**Significant, but not to the same degree as the Original Proposed Project**	Less Than Significant
Agriculture	Less Than Significant	No Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Biology	**Significant**	No Impacts	Less Than Significant	**Significant, but not to the same degree as the Original Proposed Project**	**Significant, but not to the same degree as the Original Proposed Project**	**Significant, but not to the same degree as the Original Proposed Project**
Cultural Resources	Less Than Significant	No Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Geology	Less Than Significant	No Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Hazards	Less Than Significant	No Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Hydrology [1]	Less Than Significant	No Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Land Use	Less Than Significant	No Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant

Table 7-2 (cont.): Comparison of Alternatives

Issue	Original Proposed Project	No Project/No Development	No Project/ Existing Designation	Reduced Density, Without Road Realignment, Without Marina	Reduced Density, With Project Redesign	Proposed Project Alternative
Mineral Resources	Less Than Significant	No Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Noise	Less Than Significant	No Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Pop and Housing	Less Than Significant	No Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Public Services	Less Than Significant	No Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Recreation	Less Than Significant	No Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Traffic	Less Than Significant	No Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Utilities	**Significant (water supply)**	No Impacts	Less Than Significant	**Potentially Significant**	**Potentially Significant**	Less Than Significant
Achieves Project Objectives?	Yes, completely	No	No	Housing: Yes, but not to the same degree. No lakefront lots. Marina: No.	Housing: Yes, but not to the same degree. Yes, lakefront lots. Marina: Yes, but not to the same degree.	Housing: Yes, but not to the same degree. No lakefront lots. Marina: Yes, but not to the same degree.
Feasible?	Yes	Yes	Yes	Yes	Yes	Yes

[1] Hydrology refers to drainage and water quality. Water supply is addressed under Utilities heading.
Note: "Less Than Significant" may or may not include mitigation. See detailed analysis for clarification.

SECTION 8: REPORT PREPARATION RESOURCES

8.1 - EIR Preparation Personnel

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Land Use Services Department

Environmental Impact Report

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California Collaborative Solutions - Water / Hydrology..... Michael Perry

Geoscience Support Services Incorporated - Groundwater.....Dennis E. Williams, Ph.D.

Timothy Krantz Environmental Consulting - Focused Rare Plant..... Dr. Timothy P. Krantz

Mestre-Greve Associates - Noise ..... Fred Greve

Scott White Biological Consulting - Biology..... Scott D. White

So and Associates Engineers Inc. - Sewer Feasibility.....Wilson F. So, P.E.
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Draft
Revised and Recirculated
Environmental Impact Report
Moon Camp 50-Lot Residential Subdivision, TT No. 16136
(Based on the Revised Site Plan)
Big Bear Lake, San Bernardino County, CA
SCH # 2002021105

APPENDICES

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March 26, 2010

APPENDICES

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B.4 - Southwestern Willow Flycatcher Focused Survey Report (Michael Brandman Associates, August 2007)
B.5 - Peer Review of Existing Biological Documents (Michael Brandman Associates, January 2007
B.6 - Peer Review of Existing Biological Documents (Michael Brandman Associates, February 2007
B.7 - Draft Vegetation and Special Status Plants Survey (Scott White Biological Consulting, August 2007)
B.8 - Revised Vegetation and Special Status Plants Survey (Scott White Biological Consulting, February 2009)
B.9 - Supplemental Focused Rare Plant Survey (Tim Krantz, June 2008
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C.4 - Peer Review Memorandum (AEI CASC, March 2007)
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G.3 - Results of Rehabilitation and Aquifer Testing Well FP-Z (California Collaborative Solutions, August 2008)
G.4 - Water Supply Analysis (California Collaborative Solutions, February 2009)
G.5 - Recommendations for Ground Water Monitoring in the Mooncamp Development Area. (GEOSCIENCE, September 2004

Appendix A:
Air Quality Assessment

Air Quality Analysis Report
Moon Camp Tentative Tract
Community of Fawnskin
San Bernardino County, California

Prepared for:

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Michael Brandman Associates

July 6, 2007
Revised October, 2008 for Climate Change

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SECTION 1: INTRODUCTION

1.1 - Purpose and Methods of Analysis

The following air quality analysis was prepared to evaluate whether the expected criteria air pollutant emissions generated from the proposed project would cause significant impacts to air resources in the project area. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000 et seq.). The methodology follows the CEQA Air Quality Handbook prepared by the South Coast Air Quality Management District (SCAQMD) for quantification of emissions and evaluation of potential impacts to air resources. As recommended by SCAQMD staff, URBEMIS 2002 version 8.7.0, developed and approved by the California Air Resources Control Board (CARB), was used to quantify some project-related emissions.

1.2 - Executive Summary

1.2.1 - Site Location

The Moon Camp Tentative Tract Project (Project) site is located adjacent to the northwest shore of Big Bear Lake, in the relatively undeveloped eastern portion of Fawnskin. More specifically, the site is located in the northern half of Section 13, Township 2 North, Range 1 West, San Bernardino Base and Meridian. The Project site is generally situated between Flicker Road to the north, Big Bear Lake to the south, Polique Canyon Road to the east, and Oriole Lane/Canyon Road to the west.

1.2.2 - Development Description

The Project is a proposed subdivision consisting of 50 residential lots and 3 lettered lots for open space and common area, on approximately 62.43 acres. Proposed lot sizes range from one-half acre to over two acres, and the subdivision will be developed for custom lot sales.

1.2.3 - Findings

The study found that with mitigation measures all emissions are below the applicable SCAQMD thresholds during construction and operation of the proposed project. The analysis supports the following findings:

- The project is in compliance with the SCAQMD Air Quality Management Plan (AQMP);
- The project-generated emissions will not contribute to a violation of Federal and/or State ambient air quality standards;
- The project's contribution to cumulative impacts is not significant;
- The project will not expose sensitive receptors to substantial pollutant concentrations; and
- Project-generated odors will not affect a substantial number of people.

1.2.4 - Mitigation Measures

The following mitigation measures are considered feasible, practical, and effective and would be implemented to reduce emissions from the proposed project:

AQ – 1 Fugitive Dust Control Plan

Prior to construction, the project proponent will provide a Fugitive Dust Control Plan that will describe the application of standard best management practices to control dust during construction. The Fugitive Dust Control Plan shall be submitted to the County and SCAQMD for approval and approved prior to construction. Best management practices will include, but not limited to:

- For any earth moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
- For all disturbed surface areas (except completed grading areas), apply dust suppression in a sufficient quantity and frequency to maintain a stabilized surface; any areas which cannot be stabilized, as evidenced by wind driven dust, must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
- For all inactive disturbed surface areas, apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind-driven fugitive dust, excluding any areas that are inaccessible due to excessive slope or other safety conditions.
- For all unpaved roads, water all roads used for any vehicular traffic once daily and restrict vehicle speed to 15 mph.
- For all open storage piles, apply water to at least 80 percent of the surface areas of all open storage piles on a daily basis when there is evidence of wind-driven fugitive dust.

AQ – 2 Emission Reductions from Construction Equipment

To reduce emissions from the construction equipment within the project site, the construction contractor will:

- To the extent that equipment and technology is available and cost effective, the contractor shall use catalyst and filtration technologies.
- All diesel-fueled engines used in construction of the project shall use ultra-low sulfur diesel fuel containing no more than 15-ppm sulfur, or a suitable alternative fuel.
- All construction diesel engine, which have a rating of 50 hp or more, shall meet the Tier II California Emission Standards for off-road compression-ignition engines, unless certified by the contractor that such engine is not available for a particular use. In the event that a Tier II engine is not available, Tier I compliant or 1996 or newer engines will be used preferentially. Older engines will only be used if the contractor certifies that compliance is not feasible.
- Heavy duty diesel equipment will be maintained in optimum running condition.

AQ – 3 Reduce Woodburing Emissions

To reduce the emissions from woodburning apparatus; the following requirement will be placed on all new residences constructed on the proposed project's lots:

- No open-hearth fireplace will be allowed in new construction, only Environmental Protection Agency (EPA) Phase II Certified fireplaces and wood stoves, pellet stoves, and natural gas fireplaces shall be allowed.

AQ – 4 Good Neighbor Policy for Burning

To establish a "Good Neighbor Policy for Burning" that will further help reduce the potential for localized nuisance complaints related to woodburning; the proponent shall distribute an informational flyer to each purchaser of lots. At a minimum, the flyer will say:

- Know When To Burn
  - Monitor all fires; never leave a fire unattended.
  - Upgrade an older woodstove to one with a catalytic combustor that burns off excess pollutants.
  - Be courteous when visitors come to your home. Wood smoke can cause problems for people with developing or sensitive lungs (i.e. children, the elderly) and people with lung disease.
- Know What To Burn
  - Split large pieces of wood into smaller pieces and make sure it has been seasoned (allowed to dry for a year). Burning fresh cut logs = smoky fires.
  - When buying wood from a dealer, do not assume it has been seasoned.
  - Small hot fires are more efficient and less wasteful than large fires.
  - Never burn chemically treated wood or non-wood materials.
  - Manufactured firelogs provide a nice ambience, have the least impact to air quality, and are a good choice for homeowners who use a fireplace infrequently.
- Know How To Burn
  - Proper combustion is key. Make sure your wood fire is not starved; if excess smoke is coming from the chimney or stack, the fire isn't getting enough air.
  - Visually check your chimney or stack 10 to 15 minutes after you light a fire to ensure it is not emitting excess amounts of smoke.
  - Homeowners should have woodstoves and fireplaces serviced and cleaned yearly to ensure they are working properly.

1.3 - Project Description and Location

The proposed Moon Camp Tentative Tract #16136 Residential Subdivision ("Moon Camp") encompasses approximately 62.43 currently vacant acres along the northwest shore of Big Bear Lake, in the community of Fawnskin, County of San Bernardino (refer to Exhibit 1, *Regional Vicinity*).

The Project site is located adjacent to the northwest shore of Big Bear Lake, in the relatively undeveloped eastern portion of Fawnskin (refer to Exhibit 2, *Local Vicinity*). More specifically, the site is located in the northern half of Section 13, Township 2 North, Range 1 West, San Bernardino Base and Meridian. The Project site is generally situated between Flicker Road to the north, Big Bear Lake to the south, Polique Canyon Road to the east, and Oriole Lane/Canyon Road to the west. Regional access to the site is provided via State Route 38, which currently bisects the property.

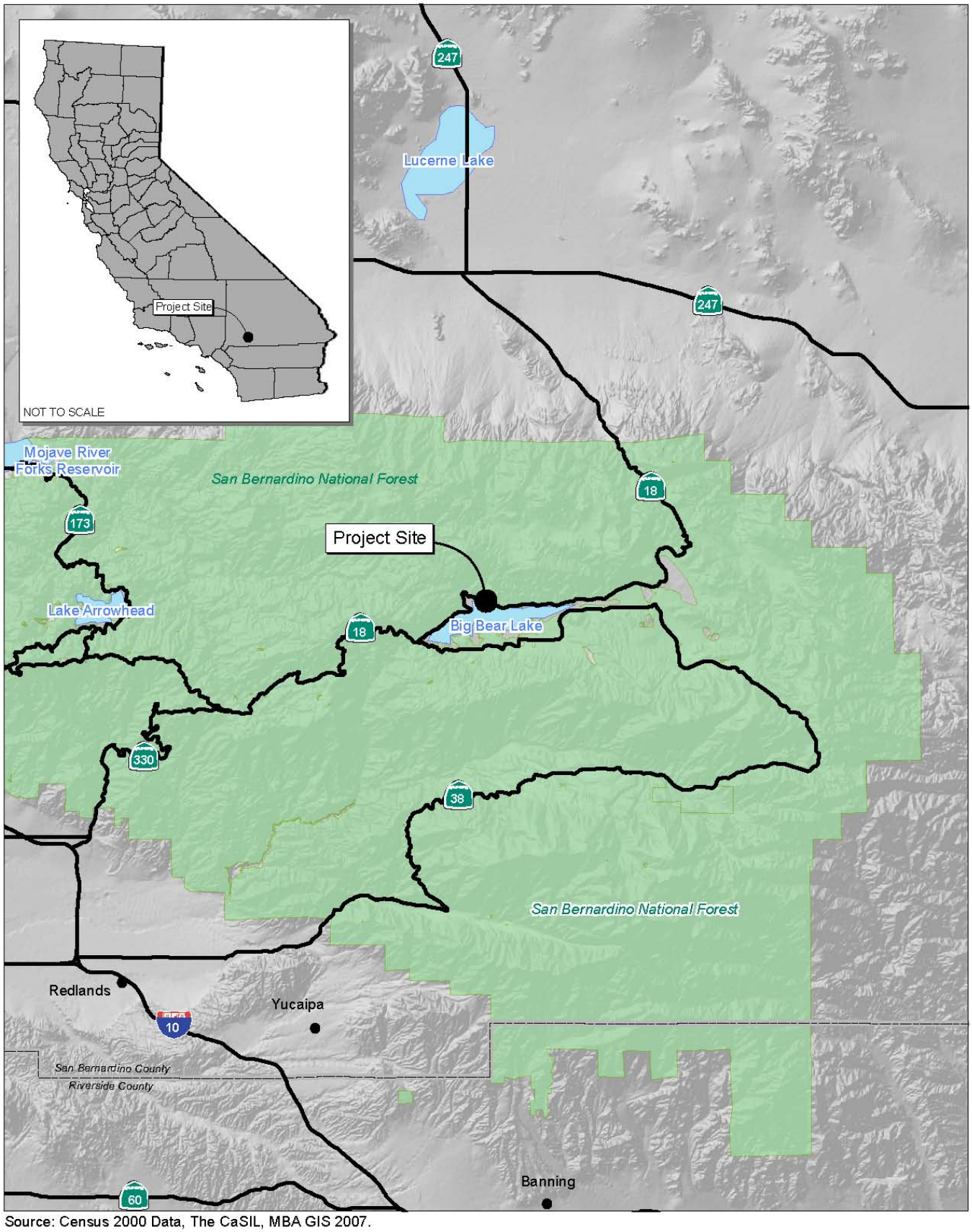
The Project is a proposed subdivision consisting of fifty (50) residential lots and three (3) lettered lots for open space and common area, on approximately 62.43 acres. Proposed lot sizes range from one-half acre to over two acres, and the subdivision will be developed for custom lot sales. Overall density of the project is 0.90 dwelling units per acre. Even though for this Project-specific grading will be limited to the construction of the interior streets and infrastructure and no grading of individual lots is proposed, for the purposes of determining the reasonably foreseeable impacts associated with full construction, this Report assumes the construction of the homes.

1.4 - Sensitive Receptors

Those who are sensitive to air pollution include children, the elderly, and persons with preexisting respiratory or cardiovascular illness. For purposes of CEQA, the SCAQMD considers a sensitive receptor to be a location where a sensitive individual could remain for 24 hours, such as residences, hospitals, or convalescent facilities. Commercial and industrial facilities are not included in the definition because employees do not typically remain onsite for 24 hours. However, when assessing the impact of pollutants with 1-hour or 8-hour standards (such as nitrogen dioxide and carbon monoxide), commercial and/or industrial facilities would be considered sensitive receptors for those purposes.

Existing sensitive receptors within the vicinity of the project site include residential uses to the east along Highway 38, to the west along Canyon Road and to the north along Flicker Road. Other sensitive receptors include the following:

- Schools
    - 2.5 miles east – North Shore Elementary School (765 N. Stanfield Cutoff)
    - 2 miles southeast – Big Bear Middle School (41275 Big Bear Boulevard)
- Hospitals
    - 2.4 miles east southeast – Big Bear Valley Community Hospital (41870 Garstin Road)



Source: Census 2000 Data, The CaSIL, MBA GIS 2007.

NORTH

5 2.5 0 5 Miles

Michael Brandman Associates

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Exhibit 1-1
Regional Location Map

SAN BERNARDINO COUNTY
MOON CAMP 50-LOT RESIDENTIAL SUBDIVISION

Source: National Agriculutre Imagery Program, San Bernardino County (2005).

Michael Brandman Associates

NORTH

2,000 1,000 0 2,000

Feet

Exhibit 1-2
Project Vicinity Map - Aerial Base

SECTION 2: SETTING

2.1 - Regulatory Setting

Air pollutants are regulated at the national, state, and air basin level; each agency has a different degree of control. The United States Environmental Protection Agency (EPA) regulates at the national level. CARB regulates at the state level and the SCAQMD regulates at the air basin level.

2.1.1 - Federal and State Regulatory Agencies

EPA handles global, international, national, and interstate air pollution issues and policies. EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans (SIP), provides research and guidance in air pollution programs, and sets National Ambient Air Quality Standards (NAAQS), also known as federal standards. There are NAAQS for six common air pollutants, called criteria air pollutants, which were identified resulting from provisions of the Clean Air Act of 1970. The six criteria pollutants are:

- Ozone
- Particulate matter (PM_{10} and $PM_{2.5}$)
- Nitrogen dioxide
- Carbon monoxide (CO)
- Lead
- Sulfur dioxide

The NAAQS were set to protect the health of sensitive individuals; thus, the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants.

CARB has overall responsibility for statewide air quality maintenance and air pollution prevention. The SIP for the State of California is administered by CARB. A SIP is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain NAAQS. CARB also administers California ambient air quality standards, or state standards, for the ten air pollutants designated in the California Clean Air Act (CCAA). All of the national criteria pollutants are also regulated by the state but California adds 4 pollutants. The additional state air pollutants are:

- Visibility reducing particulates
- Hydrogen sulfide
- Sulfates
- Vinyl chloride

The national and state ambient air quality standards and the most relevant effects are summarized in Table 1.

Table 1: Ambient Air Quality Standards

Air Pollutant	Averaging Time	California Standard	National Standard	Most Relevant Effects
Ozone	1 Hour	0.09 ppm	—	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; (f) Property damage
	8 Hour	0.070 ppm	0.075 ppm	
Carbon Monoxide (CO)	1 Hour	20 ppm	35 ppm	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
	8 Hour	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm	—	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration
	Mean	0.030 ppm	0.053 ppm	
Sulfur Dioxide (SO_2)	1 Hour	0.25 ppm	—	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma
	24 Hour	0.04 ppm	0.14 ppm	
	Mean	—	0.030 ppm	
Particulate Matter (PM_{10})	24 hour	50 $\mu g/m^3$	150 $\mu g/m^3$	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; (c) Increased risk of premature death from heart or lung diseases in the elderly
	Mean	20 $\mu g/m^3$	—	
Particulate Matter ($PM_{2.5}$)	24 Hour	—	35 $\mu g/m^3$	
	Mean	12 $\mu g/m^3$	15.0 $\mu g/m^3$	
Sulfates	24 Hour	25 $\mu g/m^3$	—	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage
Lead	30-day	1.5 $\mu g/m^3$	—	(a) Learning disabilities; (b) Impairment of blood formation and nerve conduction
	Quarter	—	1.5 $\mu g/m^3$	

Abbreviations:
ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter
Mean = Annual Arithmetic Mean
30-day = 30-day average
Quarter = Calendar quarter

Source: South Coast Air Quality Management District, 2007 AQMP. CARB, Ambient Air Quality Standards, 2007.

2.1.2 - South Coast Air Quality Management District

The air pollution control agency for the South Coast Air Basin (Basin) is the SCAQMD. SCAQMD is responsible for controlling emissions primarily from stationary sources. SCAQMD maintains air quality monitoring stations throughout the Basin. SCAQMD, in coordination with the Southern

California Association of Governments (SCAG), is also responsible for developing, updating, and implementing the AQMP for the Basin. An AQMP is a plan prepared by an air pollution control district for a county or region designated as a nonattainment area for bringing the area into compliance with the requirements of the national and/or California ambient air quality standards. The term nonattainment area is used to refer to an air basin where ambient air quality standards are exceeded. The current AQMP for SCAQMD is the 2007 AQMP. The 2007 AQMP was adopted by the SCAQMD Governing Board on June 1, 2007 with the exception of the Transportation Conformity Budgets. The SCAQMD Governing Board adopted the 2007 AQMP Transportation Conformity Budgets at their July 13, 2007 meeting. The AQMP is designed to meet the state and federal Clean Air Act planning requirements and focuses on ozone and $PM_{2.5}$. The AQMP incorporates significant new emissions inventories, ambient measurements, scientific data, control strategies, and air quality modeling.

Rules Applicable to the Project

The rules and regulations that apply to this project include but are not limited to the following:

- SCAQMD Rule 403, which governs emissions of fugitive dust. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour (mph), sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on finished sites.

- SCAQMD Rule 1108 governs the sale, use, and manufacturing of asphalt and limits the ROG content in asphalt used in the South Coast Air Basin. Although this rule does not directly apply to the project, it does dictate the ROG content of asphalt available for use during the construction.

- SCAQMD Rule 1113 governs the sale, use, and manufacturing of architectural coating and limits the ROG content in paints and paint solvents. Although this rule does not directly apply to the project, it does dictate the ROG content of paints available for the use during the construction of buildings.

- SCAQMD Rule 402 governs the discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

2.1.3 - Local Government

The local government with jurisdiction over the Project area is the County of San Bernardino. In 2007, the County of San Bernardino adopted a General Plan (SBC 2007). The General Plan contains the goals, policies, and implementing actions for a variety of issues including natural and man-made hazards and natural and man-made resources; sets the framework for decision-making regarding the County's long-term development and utilization of resources; provides the data and analyses to support that decision-making framework; provides the rules by which land can be developed (what, where, and under what conditions); provides a consensus vision of what the citizens and Board of Supervisors want for the County's future; and establishes the operating rules for achieving that vision. Listed below are policies and programs contained in the General Plan that are pertinent to the protection of air quality.

Land Use Element

- **LU 8.1** – Potentially polluting, hazardous, and other health risk facilities should be located no closer than one-quarter mile to a sensitive receptor and vice versa.
- **LU 8.2** – Review development proposals to minimize impacts, such as air emissions, on sensitive receptors.
- **LU 9.2** – Discourage leap-frog development and urban sprawl by restricting the extension or creation of new urban services or special districts to areas that cannot be sustained in a fiscally responsible manner.

Circulation and Infrastructure Element

- **CI 3.1** – Encourage the reduction of automobile usage through various incentive programs.
- **CI 4.2** – To reduce the dependence on the automobile for local trips, integrate transportation and land use planning at the community and regional levels by promoting transit-oriented development (TOD), where appropriate and feasible.
- **CI 6.1** – Require safe and efficient pedestrian and bicycle facilities in residential, commercial, industrial, and institutional developments to facilitate access to public and private facilities and to reduce vehicular trips. Install bicycle lanes and sidewalks on existing and future roadways, where appropriate and as funding is available.
- **CI 6.3** – Retain residual road dedication that may result whenever a road is changed to a lower highway designation, thus reducing the required right-of-way, until it is determined that such dedication will not be needed for bicycle, pedestrian or equestrian trail purposes.
- **M/CI 1.10** – Support the development of park and ride transit service in the mountain communities.
- **M/CI 1.11** – When population and residential densities permit or warrant, develop shuttle services from residential neighborhoods to recreational areas and major commercial centers

Housing Element

- **H 2.5** – Continue to evaluate residential developments with emphasis on energy-efficient design and siting options that are responsive to local climatic conditions and applicable laws.
- **H 2.10** – Encourage the use of energy conservation features in residential construction, remodeling, and existing homes.

Conservation Element

- **CO 4.1** – Because developments can add to the wind hazard (due to increased dust, the removal of wind breaks, and other factors), the County will require either as mitigation measures in the appropriate environmental analysis required by the County for the development proposal or as conditions of approval if no environmental document is required, that developments in areas identified as susceptible to wind hazards to address site-specific analysis of:

  a) Grading restrictions and/or controls on the basis of soil types, topography, or season.
  b) Landscaping methods, plant varieties, and scheduling to maximize successful revegetation.
  c) Dust-control measures during grading, heavy truck travel, and other dust generating activities.

- **CO 4.2** – Coordinate air quality improvement technologies with the SCAQMD and the Mojave Air Quality Management District (MAQMD) to improve air quality through reductions in pollutants from the region.

- **CO 4.3** – The County will continue to ensure through coordination and cooperation with all airport operators a diverse and efficient ground and air transportation system, which generates the minimum feasible pollutants.

- **CO 4.4** – Because congestion resulting from growth is expected to result in a significant increase in the air quality degradation, the County may manage growth by insuring the timely provision of infrastructure to serve new development.

- **CO 4.5** – Reduce emissions through reduced energy consumption.

- **CO 4.6** – Provide incentives such as preferential parking for alternative-fuel vehicles (e.g., CNG or hydrogen).

- **CO 4.8** – Replace existing vehicles in the County fleet with the cleanest vehicles commercially available that are cost-effective and meet the vehicle use needs.

- **CO 4.9** – Manage the County's transportation fleet fueling standards to improve the number of alternative fuel vehicles in the County fleet.

- **CO 4.10** – Support the development of alternative fuel infrastructure that is publicly accessible.

- **CO 4.11** – Establish programs for priority or free parking on County streets or in County parking lots for alternative fuel vehicles.

- **CO 4.12** – Provide incentives to promote siting or use of clean air technologies (e.g., fuel cell technologies, renewable energy sources, UV coatings, and hydrogen fuel).

- **CO 8.6** – Fossil fuels combustion contributes to poor air quality. Therefore, alternative energy production and conservation will be required, as follows:

    a) New developments will be encouraged to incorporate the most energy-efficient technologies that reduce energy waste by weatherization, insulation, efficient appliances, solar energy systems, reduced energy demand, efficient space cooling and heating, water heating, and electricity generation.

    b) All new subdivisions for which a tentative map is required will provide, to the extent feasible, for future natural heating or cooling opportunities in the subdivision. This can be accomplished by design of lot size and configuration for heating or cooling from solar exposure or shade and breezes, respectively.

    c) For all new divisions of land for which a tentative map is required, a condition of approval will be the dedication of easements, for the purpose of assuring solar access, across adjacent parcels or units.

- **CO 8.8** – Promote energy-efficient design features, including appropriate site orientation, use of lighter color roofing and building materials, and use of deciduous shade trees and windbreak trees to reduce fuel consumption for heating and cooling.

- **CO 8.9** – Promote the use of automated time clocks or occupant sensors to control central heating and air conditioning.

2.1.4 - Global Climate Change

Gases that trap heat in the atmosphere are called greenhouse gases (GHGs). The effect is analogous to the way a greenhouse retains heat. Common GHGs include water vapor, carbon dioxide, methane, nitrous oxides, chlorofluorocarbons, hydrofluorocarbons, Perfluorocarbons, and sulfur hexafluoride. Both natural processes and human activities emit GHGs. However, it is believed that emissions from human activities, such as electricity production and vehicle exhaust, have elevated the concentration of these gases in the atmosphere, leading to a trend of unnatural warming of the Earth's climate, known as global warming or climate change.

Global climate change alleged to be caused by GHGs is currently one of the most important and widely debated scientific, economic, and political issues in the United States. Global climate change

is a change in the average weather of the earth, which can be measured by wind patterns, storms, precipitation, and temperature. Historical records have shown that temperature changes have occurred in the past, such as during previous ice ages. Some data indicates that the current temperature record differs from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of GHGs at 400-450 ppm carbon dioxide-equivalent concentration is required to keep global mean warming below 2 degrees Celsius, which is assumed to be necessary to avoid dangerous climate change (IPCC 2001).

The State of California is a substantial contributor of global GHGs as it is the second largest contributor in the U.S. and the sixteenth largest in the world (CEC 2006). The California Energy Commission calculated that in 2004 California produced 492 million metric tons of carbon dioxide equivalent (CEC 2006).

Federal Regulation

The EPA currently does not regulate GHG emissions from motor vehicles. Massachusetts v. EPA (Supreme Court Case 05-1120) was argued before the United States Supreme Court on November 29, 2006, in which it was petitioned that EPA regulate four GHGs, including carbon dioxide, under Section 202(a)(1) of the Clean Air Act. A decision was made on April 2, 2007, in which the Court held that petitioners have a standing to challenge the EPA and that the EPA has statutory authority to regulate emissions of GHGs from new motor vehicles.

State Regulation

There has been significant legislative activity regarding global climate change and GHGs in California. California Assembly Bill 1493 (Pavley), enacted on July 22, 2002, required the CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Regulations adopted by the CARB would apply to 2009 and later model year vehicles. The CARB estimates that the regulation would reduce climate change emissions from the light-duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030.

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S 3-05, the following GHG emission reduction targets:

1) by 2010, reduce GHG emissions to 2000 levels;
2) by 2020, reduce GHG emissions to 1990 levels; and
3) by 2050, reduce GHG emissions to 80 percent below 1990 levels.

Climate Action Team

To meet these targets, the Governor directed the Secretary of the Cal EPA to lead a Climate Action Team (CAT) made up of representatives from the Business, Transportation and Housing Agency; the Department of Food and Agriculture; the Resources Agency; the Air Resources Board; the Energy Commission; and the Public Utilities Commission. The CAT's Report to the Governor in 2006 (2006 CAT Report) contains recommendations and strategies to help ensure the targets in Executive Order S-3-05 are met.

AB 32

Also in 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006, which charged the CARB to develop regulations on how the state would address global climate change. AB 32 focuses on reducing GHG emissions in California. Greenhouse gases, as defined under AB 32, include carbon dioxide, methane, nitrous oxide, HFCs, PFCs, and SF6. AB 32 requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. The CARB is the state agency charged with monitoring and regulating sources of emissions of GHGs that cause global warming in order to reduce emissions of GHGs. AB 32 requires that by January 1, 2008, the CARB must determine what the statewide GHG emissions level was in 1990, and it must approve a statewide GHG emissions limit so it may be applied to the 2020 benchmark. The CARB adopted the 1990 GHG emission inventory/2020 emissions limit of 427 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) on December 6, 2007.

The 2006 CAT Report contains baseline emissions as estimated by the CARB and the California Energy Commission. The emission reduction strategies reduce GHG emissions to the targets contained in AB 32; the 2006 CAT Report is consistent with AB 32.

SB 97

SB 97 was passed in August 2007. SB 97 indicates that Section 21083.05 will be added to the Public Resources Code, "(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a)" (SB 97). Section 21097 is also added to the Public Resources Code and indicates that the failure to analyze adequately the effects of GHGs in a document related to the environmental review of a transportation project funded under the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 does not create a cause of action for a violation. However, SB 97 does not safeguard non-transportation funded projects from being challenged in court for omitting a global climate change analysis.

OPR

The Governor's Office of Planning and Research (OPR) published a technical advisory on CEQA and Climate Change, as required under SB 97, on June 19, 2008. The guidance did not include a suggested threshold, but stated that the OPR has asked CARB to, "recommend a method for setting thresholds which will encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the state." The OPR does recommend that CEQA analyses include the following components:

- • Identify GHG emissions;
- • Determine Significance; and
- • Mitigate Impacts.

The OPR has also started tracking environmental documents that contain GHG analysis and mitigation measures. The website "www.ceqamap.com" contains the list of documents in electronic form and is maintained by CEQAdocs.com.

CARB

Under AB 32, the CARB published its Final Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California. Discrete early action measures are currently underway or are enforceable by January 1, 2010. Early action measures are regulatory or non-regulatory and are currently underway or to be initiated by the CARB in the 2007 to 2012 timeframe. The CARB has 44 early action measures that apply to the transportation, commercial, forestry, agriculture, cement, oil and gas, fire suppression, fuels, education, energy efficiency, electricity, and waste sectors. Of the 44 early action measures, nine are considered discrete early action measures, as they are regulatory and enforceable by January 1, 2010. The CARB estimates that implementation of all 44 recommendations will to result in reductions of at least 42 $MMTCO_2e$ by 2020, representing approximately 25 percent of the 2020 target. Note that the CARB currently defers measures involving General Plans and CEQA.

Under AB 32, the CARB has the primary responsibility for reducing GHG emissions. However, the CAT Report contains strategies that many other California agencies can take. The CAT published a public review draft of Proposed Early Actions to Mitigate Climate Change in California. Most of the strategies were in the 2006 CAT Report or are similar to the 2006 CAT strategies.

California is also exploring the possibility of cap and trade systems for GHGs. The Market Advisory Committee to the CARB published draft recommendations for designing a GHG cap and trade system for California.

Executive Order S-01-07

Executive Order S-01-07 was enacted by the Governor on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels

by at least 10 percent by 2020. It also requires that a Low Carbon Fuel Standard for transportation fuels be established for California.

California Air Pollution Control Officers Association White Paper

The California Air Pollution Control Officers Association has released a white paper entitled "CEQA & Climate Change," which discussed three alternative thresholds, including a no significance threshold, a zero increase threshold, and a non-zero threshold, as well as multiple analysis options. The white paper is a resource guide developed to support local governments, and details tools for GHG assessment, emission models, and mitigation strategies to reduce potentially significant GHG emissions from a project.

SCAQMD

The SCAQMD is currently in the process of developing a threshold of significance for GHG emissions. The SCAQMD's GHG CEQA Significance Thresholds Working Group released a draft threshold methodology in August 2008 (SCAQMD 2008b). The proposed threshold methodology is a "Tiered Decision Tree" approach based on the concept of business-as-usual (BAU). This approach contains a series of tiers to evaluate a project, starting with exemptions (Tier 1), continuing through consistency with regional plan GHG budgets (Tier 2), quantitative screening level threshold (Tier 3), performance standards (Tier 4), to application of emission offsets (Tier 5).

Local Public Agencies

The California Attorney General sued San Bernardino County based on the County's General Plan Update EIR. That case resulted in a settlement agreement between the County and the California Attorney General's office, filed with the Central District Superior Court of San Bernardino County on August 28, 2007. Under the settlement agreement, the County agreed to prepare an amendment to the General Plan to add a policy that describes the County's goal of reducing GHG attributable to the County's discretionary land use decisions and internal government operations. The County also agreed to prepare a Greenhouse Gas Emissions Reduction Plan. The settlement agreement details the contents of the Greenhouse Gas Emission Reduction Plan, including GHG inventories and emission reduction targets. Both the General Plan amendment and the Greenhouse Gas Emission Reduction Plan should be completed within 30 months of the execution of the settlement agreement. The settlement agreement also contains provisions for diesel engine exhaust control measures to be implemented by the County.

2.2 - Pollutants

Criteria air pollutants are those pollutants that have been determined by EPA or CARB to have detrimental health effects for "sensitive" populations such as people with asthma, children, and older adults and for which health criteria have been established. Criteria air pollutants have historically been reported in three main categories – stationary sources, areawide sources, and mobile sources. Stationary sources are those that generate emissions from a stationary location, usually associated

with manufacturing and industrial sources. Areawide sources are sources of emissions which are widely distributed and produce many emissions, individually small but collectively significant, such as consumer products, fireplaces, and solvent evaporation. Mobile source emissions are associated with motor vehicles and include on-road and off-road sources. On-road sources are emissions from vehicles, trucks, motorcycles, buses, etc. Off-road sources include equipment and vehicles in the following sectors: recreational, construction, mining, industrial, lawn and garden, farm, airport service, and rail. A brief summary of the criteria pollutants of concern follows.

2.2.1 - Carbon Monoxide

Description and Properties: Carbon monoxide (CO) is a colorless, odorless toxic gas produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). CO is a primary pollutant, which means that it is emitted directly into the air (unlike secondary pollutants like ozone that are formed by the reactions of other pollutants). CO levels tend to be highest during the winter months when the meteorological conditions favor the accumulation of the pollutants. This occurs when relatively low inversion levels trap pollutants near the ground and concentrate the CO. Because CO is somewhat soluble in water, normal winter conditions of rainfall and fog can suppress CO conditions.

Health Effects: CO is essentially inert to plants and materials but can have significant effects on human health. CO gas enters the body through the lungs, dissolves in the blood, and creates a solid bond to hemoglobin, not allowing it to form a loose bond with CO_2, which is essential to the CO_2/O_2 exchange to occur. This firm binding therefore reduces available oxygen in the blood and oxygen delivery to the body's organs and tissues. Effects on humans range from slight headaches to nausea to death from asphyxiation. Elevated levels of CO can also cause visual impairments, reduced manual dexterity, poor learning ability, reduced work capacity, and trouble performing complex tasks.

Sources: The primary source of CO is from on-road motor vehicles. It is a component of on-road motor vehicle exhaust, which contributes about 47 percent of all CO emissions in the Basin portion of San Bernardino County. Other non-road engines and vehicles (such as construction equipment and recreational boats) contribute about 28 percent. Higher levels of CO generally occur in areas with heavy traffic congestion. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust.

2.2.2 - Ozone

Description and Physical Properties: Ozone is what is known as a photochemical pollutant. Ozone is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between volatile organic compounds (VOC), NO_X, and sunlight. VOC and NO_X are emitted from automobiles, solvents, and fuel combustion. In order to reduce ozone, it is necessary to control emissions of these ozone precursors. Significant ozone formation generally requires an adequate

amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. A reduction of ozone precursors reduces ozone. Ozone is a regional pollutant and is generated over a large area and is transported and spread by the wind. The conditions conducive to the formation of ozone include extended periods of daylight (solar radiation) and hot temperatures. These conditions are prevalent during the summer when thermal inversions are most likely to occur. As a result, summertime conditions of long periods of daylight and hot temperatures form ozone in the greatest quantities. During the summer, thermal inversions trap ozone from dispersing vertically, and high concentrations of this pollutant are prevalent.

Health Effects: Health effects of ozone can include the following: respiratory system irritation, reduction of lung capacity, asthma aggravation, inflammation, and damage to lung cells, aggravated cardiovascular disease, and permanent lung damage. The greatest health risk is to those who are more active outdoors during smoggy periods, such as children, athletes, and outdoor workers. Ozone also damages natural ecosystems such as forests and foothill communities, and damages agricultural crops and some man-made materials such as rubber, paint, and plastics.

Sources: Ozone is a secondary pollutant, thus is not emitted directly into the lower level of the atmosphere. The ozone precursors are NO_X and VOC. Sources of NO_X and VOC are addressed below.

2.2.3 - Nitrogen Oxides

Description and Physical Properties: During combustion of fossil fuels, oxygen reacts with nitrogen to produce NO_X (NO, NO_2, NO_3, N_2O, N_2O_3, N_2O_4, and N_2O_5). This occurs primarily in motor vehicle internal combustion engines and fossil fuel-fired electric utility and industrial boilers. NO_X is also an ozone precursor, which means that when it is emitted into the atmosphere, it forms or causes ozone to be formed. When NO_X and VOC are released in the atmosphere, they can chemically react with one another in the presence of sunlight to form ozone. NO_X can also be a precursor to PM_{10} and $PM_{2.5}$.

Health Effects: EPA has concluded that the only form of NO_X that exists at a level high enough to cause public health concerns is nitrogen dioxide (NO_2). Nitrogen dioxide is a brown gas with a strong odor. NO_X can react with moisture, ammonia, and other compounds to form nitric acid and related particles. The main human health concerns of nitrogen dioxide include lung damage, increased incidence of chronic bronchitis, eye and mucus membrane damage, negative effects on the respiratory system, pulmonary dysfunction, and premature death. Small particles can penetrate deeply into the sensitive tissue of the lungs and can cause or worsen respiratory disease such as emphysema, asthma, and bronchitis, and can also aggravate existing heart disease.

Because NO_X is an ozone precursor, the health effects associated with ozone (as discussed above) are also indirect health effects associated with unhealthful levels of NO_X emissions.

Sources: Natural sources of NO_X include lightning, soils, wildfires, stratospheric intrusion, and the oceans, but natural sources only accounted for approximately two percent of emissions of NO_X in the Basin portion of San Bernardino County. The primary sources of NO_X in this area are heavy-duty diesel trucks, construction equipment and other off-road vehicles, and trains.

2.2.4 - Particulate Matter (PM_{10} and $PM_{2.5}$)

Description and Physical Properties: Particulate matter is a generic term that defines a broad group of chemically and physically different particles (either liquid droplets or solids) that can exist over a wide range of sizes. Examples of atmospheric particles include those produced from combustion (diesel soot or fly ash), light produced (urban haze), sea spray produced (salt particles), and soil-like particles from resuspended dust. In discussions of air pollution, particulate matter is typically divided into two size categories: PM_{10} and $PM_{2.5}$ because of the adverse health effects associated with the smaller sized particles. PM_{10} refers to particulate matter that is 10 microns or less in diameter (1 micron is one-millionth of a meter) and is conventionally known as Inhalable Particulate Matter. $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter and is conventionally known as Fine Particulate Matter. Soil dust consists of the minerals and organic material found in soil being lifted up into the air by winds. Fugitive dust is entrained particulate matter caused by anthropogenic (grading, road dust) or natural (windblown dust) activities.

Health Effects: Particulate matter can be inhaled directly into the lungs where it can be absorbed into the bloodstream. It is a respiratory irritant and can cause direct pulmonary effects such as coughing, bronchitis, lung disease, respiratory illnesses, increased airway reactivity, and exacerbation of asthma. Particulate matter is also thought to have direct effects on the heart. Relatively recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. Non-health effects include reduced visibility and soiling of property.

Sources: Particulate matter originates from a variety of stationary and mobile sources but in the Basin portion of San Bernardino County, the majority of PM_{10} emissions are from paved road dust and construction equipment. For $PM_{2.5}$, the same categories are major with the added category of wildfires.

Diesel Particulate Matter

A subset of particulate matter that is a matter of concern is Diesel Particulate Matter (DPM). Diesel exhaust is a mixture of many particles and gases that is produced when an engine burns diesel fuel. Many compounds found in diesel exhaust are carcinogenic, including sixteen that are classified as possibly carcinogenic by the International Agency for Research on Cancer. DPM includes the particle-phase particles in diesel exhaust. Components of DPM include elemental and organic carbon. Elemental carbon is carbon that has had hydrogen taken from it. Organic carbon contains molecules containing carbon and hydrogen, and can also contain oxygen, sulfur, and nitrogen.

Exposure to diesel exhaust can cause immediate health effects. Some of the health effects include eye, nose, and throat irritation as well as cough, nausea, and phlegm. The elderly, children, people with allergies, and those with asthma, emphysema, and chronic heart and lung disease are more susceptible to the effects of DPM.

2.2.5 - Volatile Organic Compounds and Reactive Organic Gases

Description and Physical Properties: VOC, or ROG, are defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. VOC consist of nonmethane hydrocarbons and oxygenated hydrocarbons. Hydrocarbons are organic compounds that contain only hydrogen and carbon atoms. Nonmethane hydrocarbons are hydrocarbons that do not contain the unreactive hydrocarbon, methane. Oxygenated hydrocarbons are hydrocarbons with oxygenated functional groups attached.

It should be noted that there are no state or national ambient air quality standard for VOC because they are not classified as criteria pollutants. They are regulated, however, because a reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOC are also transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} and lower visibility.

Health Effects: Although health-based standards have not been established for ROG, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of VOC are suspected to cause eye, nose, and throat irritation; headaches, loss of coordination, nausea, damage to liver, kidney, and the central nervous system.

Sources: VOC emissions result primarily from incomplete fuel combustion and the evaporation of chemical solvents and fuels. On-road mobile sources are the largest contributor to VOC emissions in the Basin portion of San Bernardino County, with most of that coming from light-duty vehicles, construction equipment and other off-road vehicles, and recreational boats. Areawide VOC sources in the area are primarily from consumer products.

2.2.6 - Greenhouse Gases

Gases that trap heat in the atmosphere are often called GHGs, analogous to a greenhouse. Greenhouse gases are emitted by natural processes and human activities. The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without these natural GHGs, the Earth's surface would be about 61degrees Fahrenheit cooler (CA 2006). Emissions from human activities such as electricity production and vehicles have elevated the concentration of these gases in the atmosphere.

The California State Legislature adopted the California Global Warming Solutions Act of 2006 (AB-32), which requires CARB to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020. Greenhouse gases as defined under AB-32 include:

carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

Carbon Dioxide: Carbon dioxide (CO_2) is an odorless, colorless natural GHG. Outdoor levels of CO_2 are not high enough to result in negative health effects. However, CO_2 can be a concern as a GHG. CO_2 is emitted from natural and anthropocentric (human) sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood. CO_2 can also be removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks.

Methane: Methane (CH_4) is an extremely effective absorber of radiation, though its atmospheric concentration is less than CO_2 and its lifetime in the atmosphere is brief (10 to 12 years), compared to other GHGs. Methane has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen (anaerobic) environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide: Nitrous oxide (N_2O), also known as laughing gas, is a colorless GHG. Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars.

Chlorofluorocarbons: Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C2H6) with chlorine and/or fluorine atoms. CFCs are no longer being used; therefore, it is not likely that health effects would be experienced. CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining level or declining. The proposed project is not expected to generate or be exposed to CFCs because of the ban on chlorofluorocarbons. Therefore, it is not assessed in this report.

Hydrofluorocarbons: Hydrofluorocarbons (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs. Of all the GHGs, they are one of three groups with the highest global warming potential. Most HFCs do not have health effects associated with their direct emissions. HFCs are man made for applications such as automobile air conditioners and refrigerants. The project may emit a small amount of HFC emissions from leakage and service of refrigeration and air

conditioning equipment and from disposal at the end of the life of the equipment. However, the quantity is expected to be minimal because of the relative small size of the project and is not further evaluated.

Perfluorocarbons: Perfluorocarbons (PFCs) have stable molecular structures and do not break down though the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. The two main sources of PFCs are primary aluminum production and semiconductor manufacture. Since PFCs are typically used in industrial applications, it is not anticipated that the project would emit any of these GHGs.

Sulfur Hexafluoride: Sulfur hexafluoride (SF6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection. Since sulfur hexafluorides are typically used in industrial and specialized manufacturing applications, it is not anticipated that the project would emit any of these GHGs.

2.3 - Physical Setting

2.3.1 - Local Climate

The project is located near the community of Fawnskin, on the north shore of Big Bear Lake in San Bernardino County. This region is located within the South Coast Air Basin (Basin). Regional and local air quality is impacted by dominant airflows, topography, atmospheric inversions, location, season, and time of day.

The presence and intensity of sunlight are necessary prerequisites for the formation of ozone. Under the influence of the ultraviolet radiation of sunlight, certain primary pollutants (mainly VOC and NO_X) react to form a secondary pollutant – ozone. Since this process is time dependent, ozone can be formed many miles downwind from the emission sources. Because of the prevailing daytime winds and time-delayed nature of ozone, concentrations are highest in the inland areas of Southern California. However, a majority of the smog in the Big Bear Valley is created by the transport of pollutants from Los Angeles, Riverside, and San Bernardino Counties as opposed to local sources.

The climate in the Basin is characterized by moderate temperatures and comfortable humidities with precipitation limited to a few storms during the winter season (November through April). The average annual temperature varies little throughout the Basin, averaging 75 degrees Fahrenheit (ºF). More specifically, the Community of Fawnskin enjoys an Alpine climate. The Community is located in an area that intercepts water-laden clouds that can result in rainfall and/or snow. Precipitation at Big Bear Lake's National Weather Service station from 1960 to 2006 averaged about 18 inches for the six-month period from November to April and the average snowfall for January, February, and March is above 14 inches per month. The area's watershed is mountainous with steep upper slopes

leading to a mildly sloping valley. The coolest month of the year is January with a mean monthly temperature of 33.7 ºF. The warmest month is July with a mean monthly temperature of 63.9 ºF.

Dominant airflows provide the driving mechanism for transport and dispersion of air pollution. The mountains surrounding the Los Angeles region form natural horizontal barriers to the dispersion of air contaminants. Air pollution created in the coastal areas and around the Los Angeles area is transported inland until it reaches the mountains where the combination of mountains and inversion layers generally prevent further dispersion. The area in which the Community of Fawnskin is located offers approximately 300 days/year of clear skies and sunshine and is above the typical inversion altitudes of the Los Angeles area; however, it is still susceptible to air inversions. This traps a layer of stagnant air near the ground where it is further loaded with pollutants. These inversions cause haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, wood stoves, and other sources.

2.3.2 - Local Air Quality

The local air quality can be evaluated by reviewing relevant air pollution concentrations near the project area. SCAQMD has divided the basin into 38 Source Receptor Areas (SRA) for evaluation purposes and operates monitoring stations within each one. Existing levels of ambient air quality and historical trends and projections of air quality in the project area are best documented from measurements made near the project site. SCAQMD operates an air monitoring station in Big Bear City, approximately 4 miles east of the project but it only measures $PM_{2.5}$. The nearest site that measures PM_{10} is located in Lucerne Valley at the Middle School, approximately 10 miles north of the project, which is operated by the Mojave Desert Air Quality Management District. The nearest ozone monitor is operated by the SCAQMD and is located at Lake Gregory – Crestline, approximately 20 miles west of the project site. Table 2 summarizes 2004-2006 published monitoring data for the nearest monitors measuring nonattainment pollutants. The SCAQMD and CARB have decided that the only pollutant of concern enough to be monitored in the area where the project is located is $PM_{2.5}$. PM_{10} and ozone monitoring information are supplied for informational purposes but may not represent accurate localized conditions of the project site.

Table 2: Air Quality Monitoring Summary

Air Pollutant, Averaging Time (Units)	2004	2005	2006
Ozone - Crestline			
Max 1 Hour (ppm)	0.163	0.182	0.164
Days > CAAQS (0.09 ppm)	75	80	73
Days > NAAQS (0.12 ppm)*	9	18	–
Max 8 Hour (ppm)	0.145	0.145	0.142
Days > CAAQS (0.070 ppm)*	–	119	103
Days > NAAQS (0.08 ppm)	66	69	59

Table 2: Air Quality Monitoring Summary (Cont.)

Air Pollutant, Averaging Time (Units)	2004	2005	2006
Particulate Matter (PM_{10}) – Lucerne Valley			
Mean ($\mu g/m^3$)	18.1	19.1	23.0
24 Hour ($\mu g/m^3$) Days > CAAQS (50 $\mu g/m^3$) Days > NAAQS (150 $\mu g/m^3$)	47 0 0	57 1 0	50 0 0
Particulate Matter ($PM_{2.5}$) – Big Bear City			
Mean ($\mu g/m^3$)	NA	NA	NA
24 Hour ($\mu g/m^3$) Days > NAAQS (35 $\mu g/m^3$)	28.6 0	38.7 0	40.0 0

Abbreviations:
> = exceed ppm = parts per million $\mu g/m^3$ = micrograms per cubic meter
NA = not available max = maximum Mean = Annual Arithmetic Mean
CAAQS = California Ambient Air Quality Standard NAAQS = National Ambient Air Quality Standard

Note: NAAQS for 1-hour ozone and the CAAQS for 8-hour are presented for the years the standards were in effect

Source: CARB Air Quality Data/Statistics/Top 4 Summary, 6/1/2007.

Local Sources of Air Pollutants

The project area is primarily a resort area with recreational activities for all four seasons. The primary source of local pollution is vehicular in both summer and winter, with the addition of wood smoke during the winter. Recreational boating is also a CO and VOC source.

2.3.3 - Alternate forms of Transportation

The Mountain Area Regional Transit Authority (MARTA) is the primary public transportation provider on the mountain-top, providing local and off-the-mountain bus service to the Big Bear Valley, Running Springs, Lake Arrowhead, Crestline, and San Bernardino. The agency operates both fixed route and demand-response services (Dial-A-Ride). MARTA has connecting services to Metrolink, Omnitrans, and Greyhound.

2.3.4 - Attainment Status

Air basins where ambient air quality standards are exceeded are referred to as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified." National nonattainment areas are classified as severe, serious, or moderate as a function of deviation from standards.

The current attainment designations for the project area are shown in Table 3. The "attainment year" is the goal of the existing 2003 AQMP and 2007 AQMP. The basin is in state non-attainment for ozone, PM_{10}, and $PM_{2.5}$, and is in federal nonattainment for ozone, CO, PM_{10}, and $PM_{2.5}$. Note that

CO is still classified as "serious nonattainment" for the federal CO standard even though the attainment date has passed and the basin met the CO standard by December 2002. In 2004, SCAQMD requested that EPA re-designate the basin as in attainment with the CO ambient air quality standard, but EPA has not made a formal action to do so. The 2003 AQMP served as a maintenance plan for CO, and the 2007 AQMP is an update to that maintenance plan.

Table 3: Attainment Status

Pollutant	State Status	National Status [Attainment Year]
Ozone (1-hour)	Nonattainment	Not Subject
Ozone (8-hour)	Nonattainment	Severe Nonattainment [2021]
Carbon Monoxide	Attainment	Serious Nonattainment [2000]
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
PM_{10}	Nonattainment	Serious Nonattainment [2006]
$PM_{2.5}$	Nonattainment	Nonattainment [2015]
Source: State Status from CARB, 2006. National Status from U.S. EPA, 2007.		

2.4 - Global Climate Change

Global climate change alleged to be caused by GHGs is currently one of the most important and widely debated scientific, economic, and political issues in the United States. Global climate change is a change in the average weather of the earth, which can be measured by wind patterns, storms, precipitation, and temperature. Historical records have shown that temperature changes have occurred in the past, such as during previous ice ages. Some data indicates that the current temperature record differs from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of GHGs at 400-450 ppm carbon dioxide-equivalent concentration is required to keep global mean warming below 2 degrees Celsius, which is assumed to be necessary to avoid dangerous climate change (IPCC 2001).

Potential Environmental Effects

Worldwide, average temperatures are likely to increase by 1.8 degrees Celsius (°C) to 4°C, or approximately 3 degrees Fahrenheit (°F) to 7 °F by the end of the 21st Century (IPCC 2007a). However, a global temperature increase does not translate to a uniform increase in temperature in all locations on the earth. Regional climate changes are dependant on multiple variables, such as topography. One region of the Earth may experience increased temperature, increased incidents of drought and similar warming effects, whereas another region may experience a relative cooling.

According to the IPCC's Working Group II Report, Climate Change impacts to North America may include (IPCC 2007b): diminishing snowpack; increasing evaporation; exacerbated shoreline erosion; exacerbated inundation from sea level rising; increased risk and frequency of wildfire; increased risk of insect outbreaks; increased experiences of heat waves; and, rearrangement of ecosystems, as species and ecosystem zones shift northward and to higher elevations.

For California, Climate Change has the potential to incur/exacerbate the following environmental impacts (CAT 2006):

- Increased frequency, duration, and intensity of conditions conducive to air pollution formation (particularly ozone);
- Reduced precipitation;
- Changes to precipitation and runoff patterns;
- Reduced snowfall (precipitation occurring as rain instead of snow);
- Earlier snowmelt;
- Decreased snowpack;
- Increased agricultural demand for water;
- Intrusion of seawater into coastal aquifers;
- Increased agricultural growing season;
- Increased growth rates of weeds, insect pests and pathogens;
- Inundation of low-lying coastal areas by sea level rise;
- Increased incidents and severity of wildfire events; and
- Expansion of the range and increased frequency of pest outbreaks.

Although certain environmental effects are widely accepted to be a potential hazard to certain locations, such as rising sea level for low-laying coastal areas, it is currently infeasible to predict all environmental effects of climate change on any one location.

SECTION 3: THRESHOLDS

3.1 - CEQA Guidelines

The following significance thresholds were derived from Appendix G of the CEQA guidelines. A significant impact would occur if the proposed project would:

a) Conflict with or obstruct implementation of the applicable air quality plan;

b) Violate any air quality standard or contribute substantially to an existing or protected air quality violation;

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

d) Expose sensitive receptors to substantial pollutant concentrations;

e) Create objectionable odors affecting a substantial number of people; or

f) Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone).

While the final determination of whether or not a project is significant is within the purview of the lead agency pursuant to §15064(b) of the State CEQA Guidelines, the SCAQMD recommends that the following quantitative air pollution thresholds be used by the lead agencies in determining whether the proposed project could result in a significant impact. If the lead agency finds that the proposed project has the potential to exceed these air pollution thresholds, the project should be considered significant. These thresholds have been defined by SCAQMD for the Basin based on scientific data the SCAQMD has obtained and factual data within the federal and state Clean Air Acts. Since the project is located within the Basin and current air quality in the project area is typical of the air basin as a whole, these thresholds are considered valid and reasonable. Each of these threshold factors is discussed below.

3.2 - Regional Significance Thresholds

The following regional significance thresholds have been established by SCAQMD. Projects within the Basin region with construction- or operation-related emissions in excess of any of the thresholds presented in Table 4 are considered significant.

Table 4: SCAQMD Regional Thresholds

Pollutant	Construction (pounds per day)	Operation (pounds per day)
Oxides of Nitrogen (NO_X)	100	55
Volatile Organic Compounds (VOC)	75	55
Particulate Matter (PM_{10})	150	150
Particulate Matter ($PM_{2.5}$)	55	55
Oxides of Sulfur (SO_X)	150	150
Carbon Monoxide (CO)	550	550
Source: South Coast Air Quality Management District, 2006.		

3.3 - Local Significance Thresholds

Construction

The SCAQMD Governing Board adopted a methodology for calculating localized air quality impacts through localized significance thresholds (LSTs), which is consistent with SCAQMD's Environmental Justice Enhancement Initiative I-4. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable state or national ambient air quality standard. The LSTs are developed based on the ambient concentrations of that pollutant for each source receptor area and are applicable to NO_X, CO, PM_{10}, and $PM_{2.5}$.

The project is located in Source Receptor Area 38. Even though the Project's construction activity is limited to the construction of the interior streets and infrastructure and no grading of individual lots is proposed, again in order to evaluate worst-case conditions, it is assumed that construction on the 50 lots will occur over a 12 month period and that a maximum of 4 acres would be disturbed per day. Using the 2003-2005 look-up tables provided in the LST Guidelines for a conservative 5 acres per day disturbed at a receptor distance of 25 meters, Table 5 shows the appropriate LST's for construction activity.

Table 5: SCAQMD Localized Thresholds for Construction

Pollutant	Localized Significance Threshold (lbs/day)
Nitrogen Dioxide (NO_2)	439
Carbon Monoxide (CO)	1,363
Particulate Matter (PM_{10})	14
Particulate Matter ($PM_{2.5}$)	9
Source: South Coast Air Quality Management District, 2003 and 2006.	

LSTs for operational emissions only apply to onsite sources. Since the primary source of emissions for this project is associated with offsite vehicle trips, an LST analysis of long-term emissions is not required.

Nuisance

The SCAQMD has a regulation that governs the discharge from any source such quantities of air contaminants, which cause a nuisance or annoyance to any considerable number of persons or to the public. Creating the potential for a violation of the SCAQMD's Nuisance Rule (Rule 402) would create a potentially significant effect.

3.4 - Global Warming Project Level Thresholds

The potential effect of GHG emissions on climate change is an emerging issue that warrants discussion under CEQA. Unlike the pollutants discussed above that may have regional and/or local effects, Project-generated GHG emissions do not directly produce local or regional environmental impacts, but may contribute to an impact on global climate. Individual projects contribute relatively small amounts of GHGs that, when added to all other GHG emitting activities around the world, result in global increases in these emissions. Local or regional environmental effects may occur if the regional or local climate is changed. For the purposes of analyzing the Project's potential to contribute to climate change, the following threshold will be used:

> Does the Project comply with provisions of an adopted Greenhouse Gas Reduction Plan or Strategy? If no such Plan or Strategy is applicable, would the Project significantly hinder or delay California's ability to meet the reduction targets contained in AB 32?

3.5 - Cumulative Impact Thresholds

Section 15130(b) of the CEQA Guidelines states the following:

> The following elements are necessary to an adequate discussion of significant cumulative impacts: 1) Either a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact.

In accordance with CEQA Guidelines 15130(b), this analysis of cumulative impacts incorporates a summary of projections. The following tiered approach is to assess cumulative air quality impacts. This approach includes the analysis of the following:

1. Regional analysis of project air pollutants;
2. Project consistency with existing air quality plans; and
3. Assessment of the cumulative health effects of the pollutants;

SECTION 4: IMPACT ANALYSIS

This section analyzes the potential impacts of the proposed project on the air quality in the area surrounding the site. It calculates the expected emissions from the construction and operation of the project as a necessary requisite for assessing the regulatory significance of project emissions on a local and regional level and contains an analysis of the criteria in the CEQA guidelines regarding air quality as well as an assessment of project conformity with the General Plan.

4.1 - Short-Term Impacts

Short-term impacts will include fugitive dust and other particulate matter, as well as exhaust emissions generated by earthmoving activities and operation of grading equipment during site preparation. Construction emissions are caused by onsite or offsite activities. Onsite emissions principally consist of exhaust emissions (NO_X, CO, VOC, PM_{10}, and $PM_{2.5}$) from heavy-duty construction equipment, motor vehicle operation, and fugitive dust (mainly PM_{10}) from disturbed soil. Offsite emissions are caused by motor vehicle exhaust from delivery vehicles, as well as worker traffic, but also include road dust (PM_{10}). Major construction-related activities include the following:

- Grading/clearing, including the excavation;
- Excavation and earth moving for infrastructure construction of the utilities, both on and offsite, and dwelling unit foundations and footings;
- Building construction;
- Asphalt paving of access roads throughout the development; and
- Application of architectural coatings for things such as dwelling stucco and interior painting.

Construction equipment such as scrapers, bulldozers, forklifts, backhoes, water trucks, and industrial saws are expected to be used on the project site and will result in exhaust emissions consisting of CO, NO_X, VOC, PM_{10}, and $PM_{2.5}$. During the finishing phase, paving operations and application of architectural coatings will release VOC emissions. Construction emission can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions. For the purposes of determining worst-case emissions and including reasonably foreseeable results, this Report assumes that the only the area of the home site will be graded with approximately 4 acres being the maximum acreage graded on any one day. Equipment usage was estimated using the Recommended Construction Fleet Calculator created for their Indirect Source Review Regulation (http://www.valleyair.org/ISR/ISRResources.htm). It was assumed that construction equipment would operate for 6 to 8 hours per day and the entire construction period would last for 12 months.

4.1.1 - Unmitigated Short-Term Emissions

Table 6 summarizes these construction-related emissions (without mitigation). The emission estimates were derived from the project description using the URBEMIS 2002 Version 8.7 emission model. The URBEMIS data files are provided in Appendix A.

Table 6: Short-Term Emissions (Unmitigated)

Source	Emissions (maximum pounds per day)						
	VOC	NO_X	CO	PM_{10} Exhaust	PM_{10} Dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Dust
Site Grading	8.09	49.85	68.64	1.81	41.60	1.67	8.74
Building Construction	69.30	53.32	67.76	1.91	0.09	1.76	0.02
Maximum lbs/day	**69.30**	**53.32**	**68.64**	**43.54**		**10.49**	
Regional Threshold	75	100	550	150		55	
Significant Impact?	No	No	No	No		No	
Local Significant Threshold	NA	439	1,363	14		9	
Significant Impact?		No	No	**Yes**		**Yes**	
NA =Not applicable Source: URBEMIS, MBA 2007							

The information shown in the above table indicates that the SCAQMD regional emission thresholds will not be exceeded by any pollutant but the locally significant thresholds will be potentially exceeded for PM_{10} and $PM_{2.5}$ emissions.

Level of Significance before Mitigation

Potentially Significant – Without mitigation, the short-term emissions are considered to have a significant local impact for particulate matter but a less than significant regional impact.

It is important to note that a previous analysis for a project on this site — Moon Camp TT #16136 EIR) — had a significant and unavoidable impact to the short-term construction emissions of ROG and NO_X. A review of the analysis showed that the majority of the ROG emissions were assigned to architectural coatings off-gas. Used in the old analysis was the default emissions factor for architectural coating, however, that does not reflect the effect of the SCAQMD's Architectural Coatings Rule (Rule 1113). The majority of the NO_X emissions from came from construction equipment exhaust. The updated URBEMIS version uses emission factors that are more up-to-date and more accurately reflect the current fleet of construction equipment.

4.1.2 - Construction Mitigation

AQ-1 Prior to construction of the project, the project proponent will provide a Fugitive Dust Control Plan that will describe the application of standard best management practices to

control dust during construction. The Fugitive Dust Control Plan shall be submitted to the County and SCAQMD for approval and approved prior to construction. Best management practices will include, but not be limited to:

- For any earth moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
- For all disturbed surface areas (except completed grading areas), apply dust suppression in a sufficient quantity and frequency to maintain a stabilized surface; any areas which cannot be stabilized, as evidenced by wind driven dust, must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
- For all inactive disturbed surface areas, apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind-driven fugitive dust, excluding any areas that are inaccessible due to excessive slope or other safety conditions.
- For all unpaved roads, water all roads used for any vehicular traffic once daily and restrict vehicle speed to 15 mph.
- For all open storage piles, apply water to at least 80 percent of the surface areas of all open storage piles on a daily basis when there is evidence of wind-driven fugitive dust.

AQ-2 To reduce emissions from the construction equipment within the project site, the construction contractor will:

- To the extent that equipment and technology is available and cost effective, the contractor shall use catalyst and filtration technologies.
- All diesel-fueled engines used in construction of the project shall use ultra-low sulfur diesel fuel containing no more than 15-ppm sulfur, or a suitable alternative fuel.
- All construction diesel engines, which have a rating of 50 hp or more, shall meet the Tier II California Emission Standards for off-road compression-ignition engines, unless certified by the contractor that such engine is not available for a particular use. In the event that a Tier II engine is not available, Tier I compliant or 1996 or newer engines will be used preferentially. Older engines will only be used if the contractor certifies that compliance is not feasible.
- Heavy duty diesel equipment will be maintained in optimum running condition.

4.1.3 - Short-Term Construction Emissions after Mitigation

Using the URBEMIS model and applying construction mitigation, short-term emissions on PM_{10} and $PM_{2.5}$ after implementation of the above mitigation measures were estimated and are provided in Table 7. As shown in Table 7, short-term localized construction emissions are expected to be less than significant after application of mitigation measures.

Table 7: Short-term Emissions of PM_{10} & $PM_{2.5}$ (Mitigated)

Source	Emissions (maximum lbs/d)	
	PM_{10}	$PM_{2.5}$
Site Grading	6.57	1.64
Building Construction	6.59	1.65
Maximum lbs/day	**6.59**	**1.65**
Local Significant Threshold	14	9
Significant Impact?	No	No
Source: MBA 2007		

Level of Significance after Mitigation

Less than Significant.

4.2 - Long-Term Impacts

Long-term emissions for the proposed development are considered for project build-out. Emission sources consist of mobile emissions and stationary emissions. Mobile emissions estimates are derived from motor vehicle traffic. Stationary emissions estimates are derived from the consumption of natural gas, electricity and consumer products, as well as emissions resulting from landscape maintenance. Assumptions relevant to model input for the long-term emissions estimates are:

- The project is assumed to generate 479 average daily trips at buildout of the project (2008);
- Natural gas consumption is based on the residential land use;
- Landscape equipment emissions during the summer are based on default rates within the URBEMIS 2002 model for residential land uses at buildout year 2008; and
- Fireplace hearth emissions during the wintertime assume the conservative URBEMIS default of that 35 percent of the units would have wood stoves, 10 percent would have wood fireplaces, and 55 percent would have natural gas fireplaces;

Since the proposed project is at an altitude of over 5,000 feet and basic exhaust emission rates are based on tests at CARB's Haagen-Smit Laboratory at and altitude of 300 feet, emission rates from

vehicles in the vicinity of the project may not be accurately represented in the URBEMIS calculations. According to CARB's on-road motor vehicle emissions model methodology (CARB 2000), some older technology vehicles emit more VOC and CO emissions and fewer NO_X emissions when at higher altitudes. This is a special concern for vehicles operating above 5,000 feet elevation. At higher altitudes, the air pressure and air density is lower than that at sea level. Older technology vehicles, designed for operation at sea level, were not equipped with adaptive fuel controls to reduce the fuel flow for operation at high altitudes. Hence, older technology vehicles tended to run rich at higher altitudes. This increased VOC and CO emissions but suppressed NO_X formation due to the quenching effect of the excess fuel.

Therefore, CARB established correction factors of 1.3 for VOC, 1.9 for CO, and 0.6 for NO_X to be applied to the running exhaust and continuous starting emissions for operation above 5,000 feet (CARB 2000). However, these correction factors are only applicable to older technology gasoline fueled vehicles. Newer technology vehicles have adaptive fuel controls that compensate for higher altitudes. CARB determined that the correction factor would only apply to the Technology Groups listed in Table 8.

Table 8: Technology Groups with Altitude Correction Factors

Tech Group	Model Years	Technology Group Description
1	Pre-1975	With Secondary Air
2	Pre-1975	Without Secondary Air
3	1975-1982	No Catalyst
4	1975-1976	Oxidation Catalyst with Secondary Air
5	1975-1979	Oxidation Catalyst without Secondary Air
6	1980-1989	Oxidation Catalyst without Secondary Air
7	1977-1987	Oxidation Catalyst with Secondary Air
Source: (CARB 2000)		

An analysis of EMFAC2007 for the Basin portion of San Bernardino County for the current year (2007), buildout year (2008), and long-term operations (2030) was conducted. Results of this analysis are presented in Appendix B. The number of vehicles operating in these technology groups as a percentage of all vehicles was determined to be only 2.78 percent in 2007, 1.69 percent in 2008, and 0 percent in 2030. Therefore, it was determined that further application of correction factors would not be necessary due to the negligible effect on the total emissions.

An estimate of the daily total long-term project emissions is derived by combining both mobile and stationary emissions (natural gas consumption, consumer product consumption, hearth use, paint applications, and landscape maintenance). Using the model URBEMIS, total daily emissions were

estimated for summer and winter. Table 9 shows long-term estimated daily total summer emissions and Table 10 shows winter emissions.

Table 9: Long-Term Emissions (summer)

Pollution Source	Emissions (pounds per day)				
	VOC	NO_X	CO	PM_{10}	$PM_{2.5}$
Mobile Emissions	3.48	6.06	43.49	4.86	1.21
Natural Gas Consumption	0.05	0.63	0.27	NG	NG
Landscape Emissions	0.25	0.01	1.74	0.01	NG
Consumer Products	2.45	NG	NG	NG	NG
Architectural Coatings	1.70	NG	NG	NG	NG
Combined Emissions Totals (lbs/day)	**7.93**	**6.70**	**45.50**	**4.87**	**1.21**
Regional Threshold	55	55	550	150	55
Exceed Threshold?	No	No	No	No	No
NG = negligible Source: URBEMIS, MBA 2007					

Table 10: Long-Term Emissions (winter)

Pollution Source	Emissions (pounds per day)				
	VOC	NO_X	CO	PM_{10}	$PM_{2.5}$
Mobile Emissions	4.23	7.23	52.66	4.86	1.21
Natural Gas Consumption	0.05	0.63	0.27	NG	NG
Hearth Emissions	28.38	0.98	51.91	7.74	7.12
Consumer Products	2.45	NG	NG	NG	NG
Architectural Coatings	1.70	NG	NG	NG	NG
Combined Emissions Totals (lbs/day)	**36.81**	**8.84**	**104.84**	**12.60**	**7.39**
Regional Threshold	55	55	550	150	55
Exceed Threshold?	No	No	No	No	No
NG = negligible Source: URBEMIS, MBA 2007					

Level of Significance before Mitigation

Less than Significant – When emissions projections are compared with the SCAQMD suggested regional thresholds for significance; it is shown that long-term emissions are below all the applicable thresholds.

It is important to note that a previous analysis for a project on this site — Moon Camp TT #16136 EIR) — had a significant and unavoidable impact to the regional levels of ROG, CO, and PM_{10}. A

review of the analysis showed that the majority of the emissions were assigned to wood fireplaces. The analysis used the URBEMIS model version available at the time (Version 7G), which has been determined to have had an error in calculating emissions from hearth activities. The emissions calculated for this report used the current version of URBEMIS (Version 8.7), which is considered more reliable.

4.2.1 - CO Hotspots

Carbon monoxide (CO) is a localized problem requiring additional analysis beyond total project emissions quantification. Projects with sensitive receptors or projects that could negatively impact levels of service (LOS) of existing roads need to use the University of California Davis, Institute of Transportation Studies document *Transportation Project-Level Carbon Monoxide Protocol (CO Protocol)* (UCD 1997) (hereafter referred to as the *CO Protocol*) to determine the potential to create a CO hot spot. A CO hot spot is a localized concentration of CO that is above the State or Federal 1-hour or 8-hour ambient air standards. Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles. The proposed project has the potential to negatively impact the LOS on adjacent roadways as well as have idling vehicles queued in the drive-thru area and therefore, requires a CO hotspot analysis.

The significance of project-related CO impacts is generally based on guidance presented in the CO Protocol. This document presents a series of criteria that are used to determine the significance of impacts. The impact on CO is considered significant if the project will:

- Degrade operation of an intersection to level of service (LOS) E or F, or
- Substantially worsen an intersection already operating at LOS F.

For the purposes of determining potential impacts on CO concentrations, a screening procedure was developed to allow the conservative evaluation of CO concentrations without having to run computational models such as EMFAC and CALINE4. Screening procedures provide a relationship among CO concentrations and the most important parameters that affect those concentrations. The screening procedure is contained in the *CO Protocol*. The Protocol states that the determination of project-level CO impacts should be carried out according to a Local Analysis flow chart.

As presented in the Moon Camp Traffic Impact Analysis (TIA) conducted by Urban Crossroads (2007), study area intersections are projected to operate at a Level of Service "C" or better during peak hours with the improvements listed. According to Section 4.7.2 of the CO Protocol, if the project does not involve any intersections with an LOS "E" or "F", no further analysis is necessary.

Level of Significance before Mitigation

Less than Significant.

4.2.2 - Residential Woodburning

Wood stoves and fireplaces are reasonably common in the area surrounding Big Bear Lake. Some people use wood as a primary source of heat, and others have wood stoves as a back-up in case of emergencies, such as power failures. Wood heating is also popular for cultural reasons when one considers that it can be beneficial because wood is a renewable fuel. However, the smoke from wood stoves and fireplaces pollutes the air outdoors. Smoke from outside can seep into buildings, including nearby homes, also affecting indoor air quality. Smoke from neighborhood stoves and fireplaces, a common source of both odor and reduced visibility, greatly contributes to the air pollution problems people complain about most.

Complete combustion gives off light, heat, and the gases carbon dioxide and water vapor. Because when wood burns, complete combustion does not occur, it also produces wood smoke, which contains CO, NO_X, and ROG. The ROG from woodburning includes toxic and/or cancer-causing substances, such as benzene, formaldehyde and benzo-a-pyrene, a polycyclic aromatic hydrocarbon (PAH).

Most wood heaters, such as woodstoves and fireplaces, release far more air pollution, indoors and out, than heaters using other fuels. In winter, when we heat our homes the most, cold nights with little wind cause smoke and air pollutants to remain stagnate at ground level for long periods. Even though there is no shorter averaging time for particulate matter air quality standards, there is a still a potential for nuisance violations in the area.

Level of Significance before Mitigation

Potentially Significant

Conventional factory-built fireplaces are not efficient at producing heat. These fireplaces are also the source of smoke, indoors and out. To reduce the nuisance risks of smoke – indoor and outside, while still allowing homeowners the ambiance, an EPA-certified fireplace insert is suggested. Additionally, wood heat can be supplied with various EPA-certified wood stoves, pellet stoves, or natural gas heaters. While older uncertified stoves and fireplaces release 40 to 60 grams of smoke per hour, new EPA-certified stoves produce only 2 to 5 grams of smoke per hour.

CARB explains that (CARB 2007) the heating efficiency of any wood heater depends on combining two factors: 1) how completely it burns the firewood (combustion efficiency), and 2) how much of the fire's heat gets into the room, rather than going up the flue (transfer efficiency). The measured heat efficiency of an open-hearth fireplace can range from -10 percent to 10 percent. The heating efficiency of an EPA-certified stove, insert, or fireplace can range from 60 percent to 80 percent.

CARB recommends (CARB 2007) that the owner to get into the habit of glancing out at their chimney top every so often. Apart from the half hour after lighting and refueling, a properly burning fire should give off only a thin wisp of white steam. If they see smoke, they should adjust the

dampers or air inlets to let in more air. The darker the smoke, the more pollutants it contains and the more fuel is being wasted.

Homeowners choosing to use fireplaces and woodstoves need to understand that healthy outdoor and indoor air quality requires good wood burning habits. Most fireplaces will rob the house of heat because they draw air from the room and send it up the chimney. Occupants are warmed if they sit within six feet of the fire, but the rest of the house gets colder as outdoor air leaks in to replace the hot air going up the chimney. The key to burning clean and hot is to control the airflow. Most fireplaces waste wood because of unrestricted airflow. A lot of air helps the fire burn fast, but a load of wood will last only one or two hours.

AQ-3 To reduce the emissions from woodburning apparatus; the following requirement will be placed on all new residences constructed on the proposed project's lots:

- No open-hearth fireplace will be allowed in new construction, only EPA Phase II Certified fireplaces and wood stoves, pellet stoves, and natural gas fireplaces shall be allowed.

AQ-4 To establish a "Good Neighbor Policy for Burning" that will further help reduce the potential for localized nuisance complaints related to woodburning; the proponent shall distribute an informational flyer to each purchaser of lots. At a minimum, the flyer will say:

- Know When To Burn
  - Monitor all fires; never leave a fire unattended.
  - Upgrade an older woodstove to one with a catalytic combustor that burns off excess pollutants.
  - Be courteous when visitors come to your home. Wood smoke can cause problems for people with developing or sensitive lungs (i.e. children, the elderly) and people with lung disease.

- Know What To Burn
  - Split large pieces of wood into smaller pieces and make sure it has been seasoned (allowed to dry for a year). Burning fresh cut logs = smoky fires.
  - When buying wood from a dealer, do not assume it has been seasoned.
  - Small hot fires are more efficient and less wasteful than large fires.
  - Never burn chemically treated wood or non-wood materials.

- Manufactured firelogs provide a nice ambience, have the least impact to air quality, and are a good choice for homeowners who use a fireplace infrequently.

- Know How To Burn
  - Proper combustion is key. Make sure your wood fire is not starved; if excess smoke is coming from the chimney or stack, the fire isn't getting enough air.
  - Visually check your chimney or stack 10 to 15 minutes after you light a fire to ensure it is not emitting excess amounts of smoke.
  - Homeowners should have woodstoves and fireplaces serviced and cleaned yearly to ensure they are working properly.

Level of Significance after Mitigation

Less than Significant

4.3 - Contribution to Climate Change

The threshold of significance proposed in this document is not simply if the Project would result in an increase in GHG emissions, but if the Project would result in an increase in GHGs that would significantly hinder or delay the State's ability to meet the reduction targets contained in AB 32.

This analysis contains two components. One component contains the Project's GHG emission estimates. The emissions estimate describes the sources of emissions, the emissions without incorporation of mitigation measures, and the emissions after the incorporation of mitigation measures, if required. The second component contains the measures used to compare the Project's components to the applicable State and local strategies and known mitigation measures to reduce GHGs.

This analysis is structured with the unmitigated emissions estimates provided before the State and local strategies.

4.3.1 - Emissions Inventory

Emissions Estimation Assumptions

Construction. The Project would emit GHGs during construction of the Project from combustion of fuels in worker vehicles accessing the site as well as from the construction equipment. The Project would also emit GHGs during the manufacture and transportation of the cement and building materials. However, emissions resulting from materials consumption will not be incorporated into the Project's emissions estimates. CEQA does not require a 'lifecycle' analysis approach to determine significance of potential environmental impacts.

Exhaust emissions during construction for the Project were estimated using URBEMIS2007 version 9.2.4 (URBEMIS 2007). The detailed calculations are provided in Appendix C.

Operation. Greenhouse gas emissions from area emissions and motor vehicles were generated using URBEMIS 2007. Emissions of nitrous oxide and methane emissions from natural gas consumption were estimated using emission factors as described in the attached spreadsheets in Appendix B.

Electricity usage for commercial operations was estimated using emission factors as described in the attached spreadsheets in Appendix B. The California Climate Action Registry (CCAR) emission factors for electricity use are 804.54 pounds of CO_2 per MWh, 0.0067 pounds of NH4 per MWh, and 0.0037 pounds of N_2O per MWh.

Note that emissions models such as EMFAC and URBEMIS evaluate aggregate emissions and do not demonstrate, with respect to a global impact, how much of these emissions are "new" emissions specifically attributable to the proposed project. For most projects, the main contribution of GHG emissions is from motor vehicles, but how much of those emissions are "new" is uncertain.

Inventory

The emissions are estimated in tons per year, which are converted to metric tons of carbon dioxide equivalents ($MTCO_2e$). The carbon dioxide emissions from construction activity are shown in Table 11. The GHG emissions from operation of the project are shown in Table 12. At buildout, the project will emit approximately 1,591.60 $MTCO_2e$ per year. Approximately 82 percent of operational GHGs will be generated by vehicular activity associated with the project. Natural gas use and indirect emissions from electricity generation will contribute approximately 11 percent and 6 percent of the operational GHG inventory, respectively.

Table 11: Construction Generated Carbon Dioxide Emissions

Source	Total Tons	MTCO2e
Project Construction	401.22	363.99

Table 12: Operational Greenhouse Gas Emissions

Source	Tons			Metric Tons CO_2e
	Carbon Dioxide	Nitrous Oxide	Methane	
Motor Vehicles	1,378.00	0.18	0.39	1,309.49
Natural Gas	189.75	0.00	0.02	172.67
Indirect Electricity	113.17	0.00	0.00	102.83
Hearth	6.63	-	-	6.01

Table 12: Operational Greenhouse Gas Emissions (Cont.)

Source	Tons			Metric Tons CO_2e
	Carbon Dioxide	Nitrous Oxide	Methane	
Landscape Equipment	0.65	-	-	0.59
Total	**1,688.20**	**0.19**	**0.41**	**1,591.60**
Source: Michael Brandman Associates, 2008				

4.3.2 - Applicable State and Local Strategies

Under AB 32, the CARB has the primary responsibility for reducing GHG emissions. However, the many public agencies involved in land use decisions, energy use, waste streams, construction, and other areas are also involved in the creation and implementation of strategies to reduce GHG emissions in California. The CAT addresses strategies for certain California public agencies. In addition, the California Attorney General's office has been active in advising public agencies on reducing GHG emissions. Therefore, this analysis will focus on the Project's early implementation of applicable state strategies. State strategies include measures in the 2006 CAT Report and the CARB's Early Action Measures. In addition, this analysis will focus on the Project's implementation of the applicable California Attorney General's Office suggested mitigation strategies for reducing GHG emissions. To assess significance, the following documents were used.

- The 2006 Climate Action Team Report to Governor Schwarzenegger (CAT 2006).
- ARB's Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California (ARB 2007).
- California Attorney General's Office Mitigation Letter (AG 2008).

2006 CAT Report

A discussion on the background of the 2006 CAT Report is in the Regulatory Framework section. The 2006 CAT Report to Governor Schwarzenegger and the Legislature contains existing bills, regulations, and standards that help reduce California's GHG emissions. The 2006 CAT Report also contains new strategies that can be implemented by the CARB and other California agencies to help reduce California's emissions to 1990 levels in 2020. The 2006 CAT Report lists the recommendation for emission reduction strategies to be implemented in the "next two years" for the public agencies involved in the CAT. As an example, the 2006 CAT Report contains the following possible measure: the CARB could ban the retail sale of hydroflourocarbons in small cans. It is important to understand that compliance with all applicable state standards and regulations is a requirement. As such, this Project will comply with all applicable laws and standards as they are adopted.

Although the 2006 CAT Report applies to adoption of strategies by public agencies, this project can contribute to early implementation of applicable strategies by incorporating as design features or mitigation measures that help achieve the goals of the reduction strategies. An assessment of project's early implementation of applicable and feasible 2006 CAT Report strategies is contained in Table 3.2 14.

Table 13: 2006 CAT Report Strategies

Applicable and Feasible Strategy	Incorporated into Project?
Achieve 50 percent Statewide Recycling Goal: Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	No
Afforestation/Reforestation Projects: Reforestation projects focus on restoring native tree cover on lands that were previously forested and are now covered with other vegetative types.	No
Water Use Efficiency: Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions.	No
Building Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and additions to and alterations to existing buildings).	No
Appliance Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes the Energy Commission to adopt and periodically update its appliance energy efficiency standards (that apply to devices and equipment using energy that are sold or offered for sale in California).	No
Green Buildings Initiative: Green Building Executive Order, S-20-04 (CA 2004), sets a goal of reducing energy use in public and private buildings by 20 percent by the year 2015, as compared with 2003 levels.	No
California Solar Initiative: Installation of 1 million solar roofs or an equivalent 3,000 MW by 2017 on homes and businesses; increased use of solar thermal systems to offset the increasing demand for natural gas; use of advanced metering in solar applications; and creation of a funding source that can provide rebates over 10 years through a declining incentive schedule.	No

As shown in Table 13, there are seven measures that are applicable and feasible for the project. Currently, the project does not contain design features or programs that contribute to early implementation of these measures.

ARB Early Action Measures

The CARB published its Expanded Early Actions to Mitigate Climate Change in California, which describes recommendations for discrete early action measures to reduce GHG emissions. A review of the CARB's reduction measures underway or to be initiated by the CARB in the 2007 to 2012 timeframe indicates that only one measure would be applicable to the project. This measure is the "Cool Communities Program," which is anticipated to have a CARB hearing date in the third quarter of 2008. This program is recommended to be a non-regulatory voluntary program with guidelines to foster the establishment or transition to cool communities in California. The following is a brief description of the strategies to be adopted in the Cool Communities Program guidelines:

- Cool Roofs. Cool roof programs as part of the Building Energy Efficiency standards (Title 24) can save as much as 15 percent of cooling energy use during hot months of the year. The per-house cost premium is estimated at about $500.
- Cool Pavements. Cool pavements can reduce the ambient air temperature by 1 degree Fahrenheit, thereby reducing energy cooling demand.
- Shade Trees and Urban Forest. The Tree Benefit Estimator reports that a mature tree system would save about 700 kWh of energy (1,100 kg of CO_2 per household).

If the project were to take part in the voluntary early action strategies, it would be consistent with the strategies. However, as the project is currently designed, it does not implement the Cool Communities Program.

Attorney General Mitigation

The Office of the California Attorney General maintains a list of CEQA Mitigations for Global Warming Impacts on its website. The Attorney General's Office has listed some examples of types of mitigations that local agencies may consider to offset or reduce global warming impacts from a project. The Attorney General's Office states that the presented lists are examples and not intended to be exhaustive but are instead provided as measures and policies that could be undertaken. Moreover, the measures cited may not be appropriate for every project, so the Attorney General suggests that the lead agency should use its own informed judgment in deciding which measures it would analyze, and which measures it would require, for a given project. The mitigation measures are divided into two groups—generally applicable measures and general plan measures. As this Project does not involve the development of a general plan, only the generally applicable measures were reviewed.

The Attorney General presents 'generally applicable' measures in the following areas:

- Energy efficiency;
- Renewable energy;
- Water conservation and efficiency;
- Solid waste measures;

- Land use measures;
- Transportation and motor vehicles; and
- Carbon offsets.

The project does preserve open space and existing trees (Land Use Measures). However, the size of the project, rural nature of the development, and distance to public transportation make some Land Use and Transportation measures infeasible, such as incorporating public transit into the project design. The project could, but does not currently, incorporate measures to increase energy efficiency, use of renewable energy, water conservation and efficiency, and reduce solid waste.

4.3.3 - Conclusion

The project will generate a limited amount of GHG generation during construction, and it will lead to a low-amount on-going operational emissions from the use of the 50 residential units. The project would emit less than 25 percent of the SCAQMD's draft numerical GHG threshold of significance (currently proposed as 6,500 $MTCO_2e$). Therefore, because of the size of the project, the project will not significantly hinder or delay California's ability to meet the reduction targets contained in AB 32.

It is possible to incorporate additional measures into the project to reduce the project's contribution of GHGs, thereby reducing the project's likelihood of hindering or delaying California's ability to meet the reduction targets contained in AB 32. However, as the project is less than significant, mitigation measures to further reduce this impact are not required. Measures that reduce the emissions generation motor vehicles, natural gas consumption, and electricity consumption would reduce the main operational sources of GHGs.

4.4 - Conformance with Air Quality Management Plan

The CEQA checklist indicates that a significant impact would occur if the proposed project would conflict with or obstruct implementation of the applicable air quality plan.

This assessment will use four criteria for determining project consistency with the current AQMP, as discussed below. The first and second criteria are from the SCAQMD. According to the SCAQMD, there are two key indicators of AQMP consistency: 1) whether the project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP; and 2) whether the project will exceed the assumptions in the AQMP based on the year of project build out and phase (SCAQMD 2006b). The third criterion is compliance with the control measures in the AQMP. The fourth criterion is compliance with the SCAQMD regional thresholds.

4.4.1 - Project's Contribution to Air Quality Violations

As shown above in Sections 4.1 - Short-Term Impacts and 4.2 - Long-Term Impacts, the project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Therefore, the project meets the first indicator.

4.4.2 - AQMP Assumptions

One way to assess project compliance with the AQMP assumptions is to ensure that the population density and land use are consistent with the growth assumptions used in the air plans for the air basin. According to CARB transportation performance standards, the rate of growth in vehicle miles traveled (VMT) and trips should be held to the rate of population growth (SCAQMD 2006b). Compliance with this performance standard is one way suggested by CARB of showing compliance with the growth assumptions used in the AQMP. If the total VMT generated by the proposed project at build-out is at or below that predicted by the AQMP, then the proposed project's mobile emissions is consistent with the AQMP. It is assumed that the existing and future pollutant emissions computed in the AQMP were based on land uses from area general plans.

As the project site is currently zoned, only one lot would be allowed on the 62.43 acres. The Proposed Project will allow 50 lots in the same area. This would result in a net increase of 487 trips per day over what is in the current general plan expected growth. The TIA provided an estimation of daily traffic generated by projects planned in the area in 2030. The results indicate that the other development's trip generation would be 15,111 in 2030. The proposed project's traffic generation in 2030 would be 497 for a total of 15,608 total trips including the Project. This represents just over 3 percent of the projected cumulative growth. Whereas the increase above the parcel alone will be considerable, the relative increase above the vicinity general plan projection is minimal. Therefore, the project is consistent with the assumptions in the AQMP.

4.4.3 - Control Measures

The third criterion is compliance with the control measures in the AQMP. The AQMP contains a number of land use and transportation control measures including the following: the District's Stationary and Mobile Source Control Measures; State Control Measures proposed by CARB; and Transportation Control Measures provided by SCAG (AQMP 2003). CARB's strategy for reducing mobile source emissions include the following approaches: new engine standards; reduce emissions from in-use fleet, require clean fuels, support alternative fuels and reduce petroleum dependency, work with EPA to reduce emissions from national and state sources, and pursue long-term advanced technology measures (AQMP 2003). Transportation control measures provided by SCAG include those contained in the Regional Transportation Plans (RTP), the most current version being the 2004 RTP. The RTP has control measures to reduce emissions from on-road sources by incorporating strategies such as high occupancy vehicle interventions, transit, and information-based technology interventions (AQMP 2003). The measures implemented by CARB and SCAG effect the project

indirectly by regulating the vehicles that the residents may use and regulating public transportation. The project indirectly will comply with the control measures set by CARB and SCAG.

The project will comply with all of the District's applicable rules and regulations. Therefore, the project complies with this criterion.

4.4.4 - Compliance with the SCAQMD Regional Thresholds

Although there is no known guidance that correlates AQMP consistency with the SCAQMD regional thresholds, it is common to use the thresholds in assessing AQMP compliance.

The regional significance analysis of construction and operational emissions demonstrated that emissions would not exceed the SCAQMD regional significance thresholds. Therefore, the project is consistent with the SCAQMD regional thresholds.

Level of Significance before Mitigation

Less than Significant

4.5 - Potential for Air Quality Standard Violation

The CEQA guidelines indicate that a significant impact would occur if the proposed project would violate any air quality standard or contribute substantially to an existing or projected air quality violation.

The South Coast Air Basin, the geographical area in which the project is located, is in nonattainment for CO, PM_{10}, $PM_{2.5}$, and ozone. Levels of PM_{10} and $PM_{2.5}$ are locally high enough that contributions from new sources may add to the concentrations of those pollutants and contribute to a projected air quality violation. Although background levels of ozone are high in the basin, the project alone (without other cumulative sources) would not contribute substantially to a projected air quality violation of ozone. Project emissions of VOC and NO_X (ozone precursors) and their cumulative contribution to ozone concentrations are discussed in Cumulative Impacts below.

Although CO is still listed as a nonattainment pollutant, the basin has not exceeded the CO standard for the past several years. Additionally, as shown in Table 2, the project's source receptor area has not violated the CO standard for the past several years.

Two criteria are used to assess the significance of this impact: 1) the localized construction analysis; and 2) the CO hotspot analysis. These analyses are discussed above and have concluded that they would result in a less than significant impact.

Particulate matter emissions during operation (PM_{10} and $PM_{2.5}$) are primarily from paved road dust and fireplaces. It is not likely that the project would generate enough road dust during operation to violate a PM_{10} or $PM_{2.5}$. Also, it is not likely that particulate matter emissions from woodburning

devices in an entire day would be enough to violate the 24-hour standards for either PM_{10} or $PM_{2.5}$. In addition, the regional significance analysis demonstrated that emissions of PM_{10} and $PM_{2.5}$ are below the regional significance thresholds.

Sulfur dioxide emissions from the project are negligible. The regional analysis demonstrated that emissions are far under the regional significance threshold. Therefore, it follows that on a localized basis, emissions of sulfur dioxide would not exceed the ambient air quality standards. In addition, the basin is in attainment for sulfur dioxide and does not experience high pollutant episodes of that pollutant. Therefore, potential impacts of sulfur dioxide are less than significant.

Level of Significance before Mitigation

Less than Significant

4.6 - Cumulative Impacts

Section 15130(b) of the CEQA Guidelines states the following:

> The following elements are necessary to an adequate discussion of significant cumulative impacts, either:
>
> - A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or
> - A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document, which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact.

In accordance with CEQA Guidelines 15130(b), this analysis of cumulative impacts incorporates a summary of projections. The following four-tiered approach is to assess cumulative air quality impacts.

- Consistency with the SCAQMD project specific thresholds for construction and operation;
- Project consistency with existing air quality plans; and
- Assessment of the cumulative health effects of the pollutants;

4.6.1 - Project Specific Thresholds

After implementation of mitigation measures, during construction, emissions of VOC, NO_X, PM_{10}, and $PM_{2.5}$ is not expected to exceed the SCAQMD regional significance thresholds. In addition, during operation, the proposed project is not expected to exceed the established regional emission thresholds for VOC, NO_X, CO, PM_{10}, and $PM_{2.5}$. The SCAQMD considers construction or

operational emissions that do not exceed the project specific thresholds will not result in a cumulative impact.

Level of Significance before Mitigation

Less than Significant

4.6.2 - Air Quality Plans

The South Coast Air Basin, in which the project is located, is in nonattainment for ozone, PM_{10}, $PM_{2.5}$, and CO. As such, the SCAQMD is required to prepare and maintain an AQMP and a SIP to document the strategies and measures to be undertaken to reach attainment of ambient air quality standards. While the SCAQMD does not have direct authority over land use decisions, it was recognized that changes in land use and circulation planning were necessary to maintain clean air. As discussed above in Section 4.4 - Conformance with Air Quality Management Plan, the project is compliant with the AQMP.

Level of Significance before Mitigation

Less than Significant

4.6.3 - Cumulative Health Impacts

The basin is in nonattainment for ozone, PM_{10}, $PM_{2.5}$, and CO, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect the health of sensitive individuals (i.e., elderly, children, and the sick). Therefore, when the concentration of those pollutants exceed the standard, it is likely that some of the sensitive individuals of the population experience health effects as described above in Section 2.2 - Pollutants

The localized significance analysis in Section 4.1 - Short-Term Impacts demonstrated that during construction activities, no localized significance threshold was expected to be exceeded; therefore, the emissions of particulate matter, primarily in the form of fugitive dust, would not result in a significant cumulative health impact.

Long-term operational emissions are not expected to exceed the District's significance thresholds. ROG and NO_X are precursors to ozone. Because ozone is a secondary pollutant (it is not emitted directly but formed by chemical reactions in the air), it can be formed miles downwind of the project site. Project emissions of VOC and NO_X may still contribute to the background concentration of ozone but such contributions would not be considered cumulatively considerable.

Operational emissions of PM_{10} and $PM_{2.5}$ are not expected to exceed the regional significance threshold. The combination of ozone and PM_{10} can aggravate health effects. $PM_{2.5}$ is a component of PM_{10}. The ambient air quality standard for both PM_{10} and $PM_{2.5}$ are exceeded in the Basin.

Therefore, project emissions may contribute to the background of those pollutants but such contributions would not be considered cumulatively considerable.

Long-term health effects from residential woodburning are not expected create a significant impact. Implementation of Mitigation Measures AQ-3 and AQ-4 will create the environment where woodburning activities may contribute to the local wood smoke but such contribution would not be considered cumulatively considerable.

Level of Significance before Mitigation

Less than Significance

4.7 - Expose Sensitive Receptors to Substantial Pollutant Concentrations

The CEQA guidelines indicate that a significant impact would occur if the proposed project would expose sensitive receptors to substantial pollutant concentrations.

The localized construction analysis demonstrated that without mitigation, the project would not exceed the localized thresholds for CO, NO_2, PM_{10}, or $PM_{2.5}$. Therefore, during construction, the project would not expose sensitive receptors to substantial pollutant concentrations of CO, NO_2, PM_{10}, or $PM_{2.5}$.

The construction equipment would emit diesel particulate matter, which is a carcinogen. However, the diesel particulate matter emissions are short term in nature. Determination of risk from diesel particulate matter is considered over a 70-year exposure time. Therefore, considering the dispersion of the emissions and the short time frame, exposure to diesel particulate matter is anticipated to be less than significant.

During operation of the project, a CO hotspot analysis is the appropriate tool to determine if project emissions of CO during operation would exceed ambient air quality standards. The main source of air pollutant emissions during operation are from offsite motor vehicles traveling on the roads surrounding the project. The study area intersections were projected to operate at a Level of Service "C" or better during peak hours with the improvements listed in the TIA. According to Section 4.7.2 of the CO Protocol, if the project does not involve any intersections with an LOS "E" or "F", no further analysis is necessary. Therefore, according to this criterion, air pollutant emissions during operation would result in a less than significant impact.

During operation of the project, the addition of woodburning devices to the area would potentially expose sensitive receptors to localized concentrations of criteria and toxic pollutants. With the incorporation of mitigations, the project would not expose sensitive receptors to substantial pollutant concentrations.

Level of Significance before Mitigation

Less than Significant

4.8 - Odors

The CEQA guidelines indicate that a significant impact would occur if the proposed project would create objectionable odors affecting a substantial number of people.

The proposed project does not contain land uses typically associated with emitting objectionable odors, with the possible exception of wood smoke. Wood smoke is pleasant to some and may be a nuisance to others. Implementation and compliance with SCAQMD Rule 402 will ensure that wood smoke will not be offensive to a substantial number of people. Diesel exhaust and VOCs will be emitted during construction of the project, which are objectionable to some; however, emissions will disperse rapidly from the project site and therefore should not be at a level to induce a negative response.

Level of Significance before Mitigation

Less than Significant