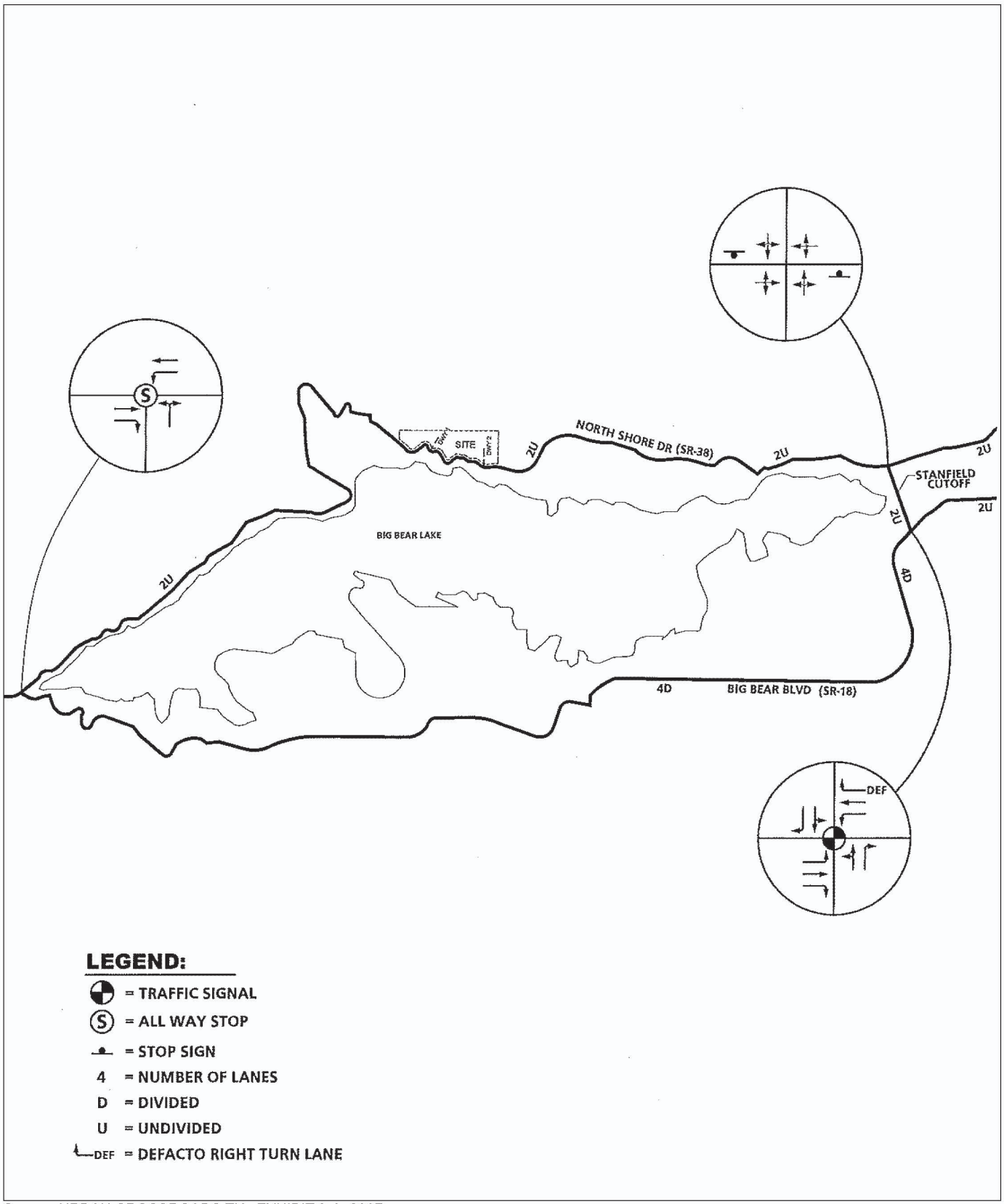

Source: URBAN CROSSROADS TIA, EXHIBIT 3-A, 2007.

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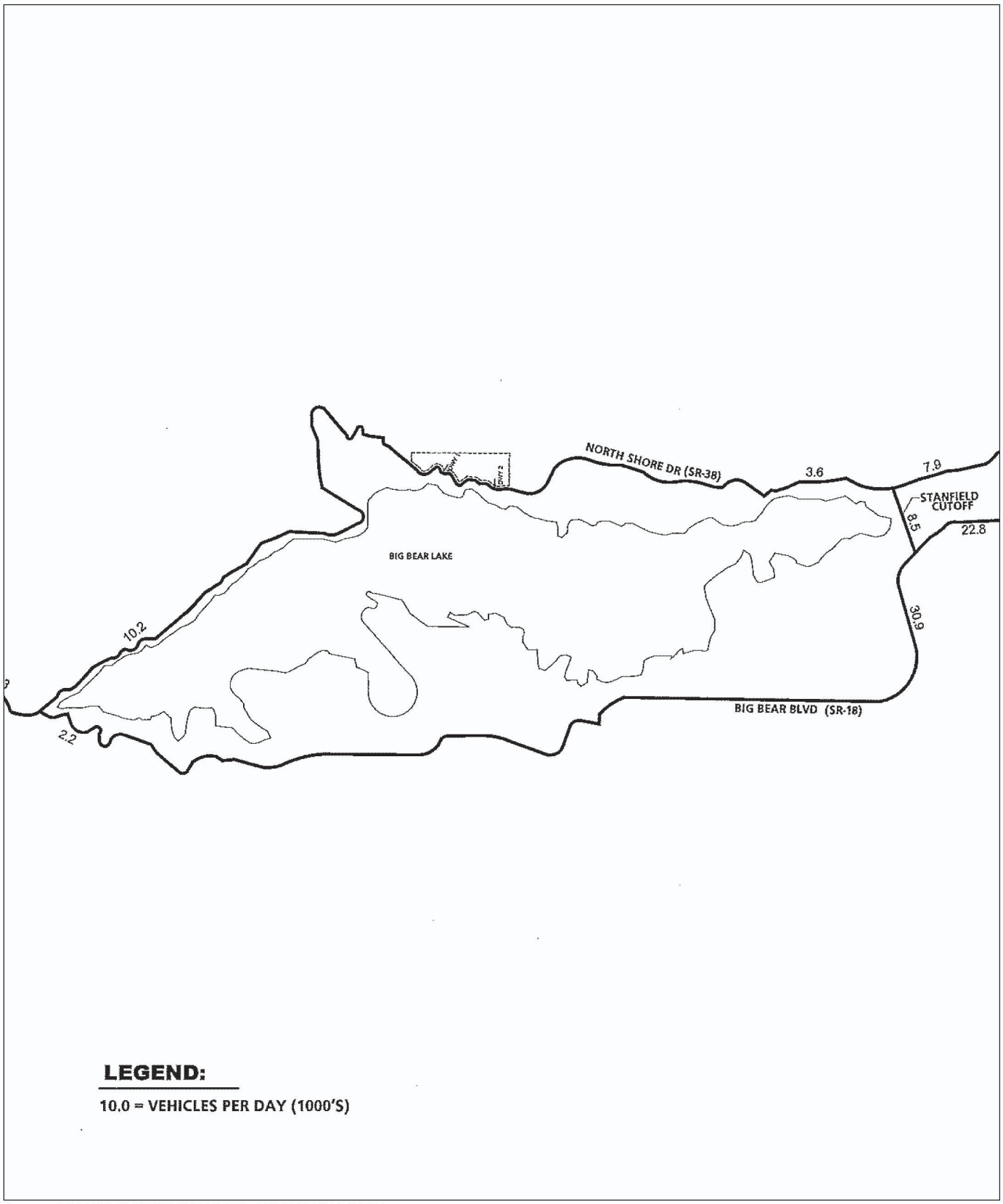
Exhibit 4.8-1
Existing Through Lanes and Intersection Controls



Source: URBAN CROSSROADS TIA, EXHIBIT 3-B, 2007.

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Exhibit 4.8-2
Existing Friday Average Daily Traffic (ADT)

Table 4.8-1: Moon Camp Proposed Alternative Project Trip Generation Rates

Trip Rate/Land Use	AM Peak Hour			PM Peak Hour			Total Daily Trips
	In	Out	Total	In	Out	Total	
PROJECT – 50 DU							
Single Family Residential	0.64	0.37	1.01	0.64	0.37	1.01	9.57
CUMULATIVE PROJECTS							
Hotel	0.31	0.28	0.59	0.31	0.28	0.59	8.17
Townhomes / Condominiums	0.35	0.17	0.52	0.35	0.17	0.52	5.86
Fast Food with drive through	18.01	16.63	34.64	18.01	16.63	34.64	496.12
Shopping Center	6.57	7.12	13.70	6.57	7.12	13.70	152.03
Shopping Center	4.99	5.4	10.39	4.99	5.4	10.39	114.43
Automobile Care Center	1.69	1.69	3.38	1.69	1.69	3.38	20.00
Mini-warehouse	1.99	1.84	3.83	1.99	1.84	3.83	38.87
Office	0.17	0.83	1.00	0.17	0.83	1.00	11.01
Church	0.34	0.32	0.66	0.34	0.32	0.66	9.11
Source: Urban Crossroads (Moon Camp Traffic Analysis, County of San Bernardino, California, April 24, 2007).							

Long Range General Plan Buildout (2030) conditions have been estimated based on the San Bernardino Mountain Model and the addition of both the Proposed Alternative Project related peak hour volumes and the known cumulative development peak hour volumes per discussions with County staff.

Proposed Alternative Project traffic volumes for all future conditions were estimated using the manual approach. Trip generation has been estimated based on data collected by the Institute of Transportation Engineers (ITE). The Proposed Alternative Project trip distribution was derived from a select zone run of the San Bernardino Mountain Model.

Table 4.8-2: Summary of Moon Camp Proposed Alternative Project Trip Generation

Land Use	Quantity	Units	Friday Pm Peak Hour In - Out - Total			Sunday Mid-Day Peak Hour In - Out - Total			Daily
Single Family Residential	50	DU	32	19	51	32	19	51	479

Traffic Operations Analysis

The current technical guide to the evaluation of traffic operations is the "2000 Highway Capacity Manual" (HCM) (Transportation Research Board Special Report 209). The HCM defines level of service as a qualitative measure which describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate LOS (Level of Service) conditions vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted. The definitions of level of service for uninterrupted flow (flow unrestrained by the existence of traffic control devices) are:

- LOS "A" represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream.
- LOS "B" is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver.
- LOS "C" is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.
- LOS "D" represents high-density but stable flow. Speed and freedom to maneuver are severely restricted, and the driver experiences a generally poor level of comfort and convenience.
- LOS "E" represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Small increases in flow will cause breakdowns in traffic movement.
- LOS "F" is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations.

Uninterrupted flow is generally found only on limited access (freeway) facilities in urban areas. The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control.

The level of service is typically dependent on the quality of traffic flow at the intersections along a roadway. The HCM methodology expresses the level of service at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control. The LOS determined in this study are calculated using the HCM methodology.

For signalized intersections, average total delay per vehicle for the overall intersection is used to determine LOS. LOS at signalized study intersections have been evaluated using a HCM intersection analysis program.

The study area intersections which are stop sign controlled with stop-control on the minor street only have been analyzed using the two-way stop controlled unsignalized intersection analysis methodology of the HCM. For these intersections, the calculation of level of service is dependent on the occurrence of gaps occurring in the traffic flow of the main street. Using data collected describing the intersection configuration and traffic volumes at these locations to calculate average intersection delay; the level of service has been calculated. The LOS criteria for this type of intersection analysis is based on total delay per vehicle for the worst minor street movement(s)

The six qualitative categories of Level of Service, LOS (A through F), which are standard for California, have been defined for the project area along with the corresponding delay range as measured in seconds, as shown in Table 4.8-3. The peak weekday hours selected for this analysis are 7 to 9 AM (morning or AM peak) and 4 to 6 PM (afternoon or PM peak).

Table 4.8-3: Level of Service Definitions

Level of Service (LOS)	Description	Average Total Delay Per Vehicle (seconds)	
		Signalized	Unsignalized
A	Occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0 – 10.00	0 - 10.00
B	Occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average total delay.	10.01 - 20.00	10.01 - 15.00
C	Generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level, although many still pass through the intersection without stopping.	20.01 - 35.00	15.01 - 25.00
D	Generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	35.01 - 55.00	25.01 - 35.00
E	Considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.	55.01 - 80.00	35.01 - 50.00

Table 4.8 3 (cont.): Level of Service Definitions

Level of Service (LOS)	Description	Average Total Delay Per Vehicle (seconds)	
		Signalized	Unsignalized
F	Considered to be unacceptable to most drivers. This condition often occurs with over-saturation (i.e., when arrive flow rates exceed the capacity of the intersection). It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	80.01 and up	50.01 and up
Source: Highway Capacity Manual, 2000.			

Definition of Deficiency

County of San Bernardino guidelines indicate that peak hour intersection operations of LOS "C" or better are considered acceptable. Therefore, any intersection operating at LOS "D" or worse is considered deficient. Per CMP direction, state controlled facilities (state highways, freeway ramp intersection, etc.) are subject to local jurisdiction (California Department of Transportation) traffic operations requirements, with no greater than 45 seconds average stopped delay per vehicle allowed during peak hour operations (middle of LOS "D").

The identification of a CMP deficiency requires further analysis in satisfaction of CMP and County requirements, including:

- Evaluation of the mitigation measures required to restore traffic operations to an acceptable level of service with respect to CMP and local jurisdiction LOS standards.
- Calculation of the Proposed Alternative Project share of new traffic on the impacted CMP facility during peak hours of traffic.
- Estimation of the cost required to implement the improvements required to restore traffic operations to an acceptable level of service as described above.

Definition of a Significant Impact

The identification of significant impacts is a requirement of California Environmental Quality Act (CEQA) and is not directly addressed in the CMP document. The County of San Bernardino General Plan and Circulation Element have been adopted in accordance with CEQA requirements, and any roadway improvements within the County of San Bernardino which are consistent with these documents are not considered a significant impact, so long as the Proposed Alternative Project contributes its "fair share" funding for improvements.

A traffic impact is considered significant and immitigable if a project both:

i) Contributes measurable to traffic; and

ii) Substantially and adversely changes the LOS at any off-site location projected to experience deficient operations under foreseeable cumulative conditions, where feasible improvements consistent with the County of San Bernardino General Plan cannot be constructed.

4.8.1 - Existing Conditions

This section summarizes existing roadway and traffic conditions in the study area. All analysis locations which exist today have been analyzed. The number of through travel lanes for existing roadways and intersection controls are presented, along with existing traffic count data collected for this study. This data was used to analyze existing traffic operations in the study area. Existing plans for roadway improvements are also described in this section.

Existing Roadway System and Daily Traffic Volumes

The number of through travel lanes for existing roadways and existing intersection controls within the study area are presented in Exhibit 4.8-1.

Exhibits 4.8-2 and 4.8-3 depict the current average daily traffic (ADT) volumes in the study area on Friday and Sunday, respectively. Existing ADT volumes are estimated based upon the latest traffic data collected by Urban Crossroads, Inc. (refer to E of this Revised and Recirculated Draft EIR). Peak hour data has been used to estimate the average daily traffic volumes on each leg using the following formula:

- Peak Hour (Approach Volume + Exit Volume) x 12 = Leg Volume.
- Regional access to the site is provided by North Shore Drive (SR-38)

Existing Peak Hour Traffic Volumes

Actual traffic count data was obtained from manual intersection counts (March 2007, see Appendix E) to quantify existing traffic conditions. The Friday PM peak hour traffic volumes were determined by counting the two hour period between 4:00 PM- 6:00 PM in the evening. The Sunday mid-day peak hour traffic volumes were identified by counting the two hour period from 12:00 PM – 2:00 PM. Per discussions with County staff, since the peak season of the study area occurs during the summer months, a 16 percent growth is applied to the manual intersection counts to represent existing peak hour intersection volumes.

Existing intersection level of service calculations are based upon the adjusted manual Friday PM and Sunday mid-day peak hour turning movement counts, as shown in Exhibits 4.8-4 and 4.8-5.

Based on the traffic study data, the LOS and estimated delay times at the local area intersections for both the morning (AM) and afternoon (PM) peak hours are currently below the standards (refer to Appendix E).

Existing Traffic Operations

Existing peak hour traffic operations have been evaluated for both the Friday PM and Sunday mid-day peak hours of traffic throughout the study area. The results of this analysis are summarized in Table 4.8-4, along with geometrics and control devices at each analysis location. As indicated in Table 4.8-4, the following study area intersections are currently operating at an unacceptable level of service during both Friday PM and Sunday mid-day peak hours:

Big Bear Blvd (SR-18) (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- Big Bear Blvd (SR-18) (EW)

The operations analysis worksheets for existing conditions are included in Appendix "B" of the TIA.

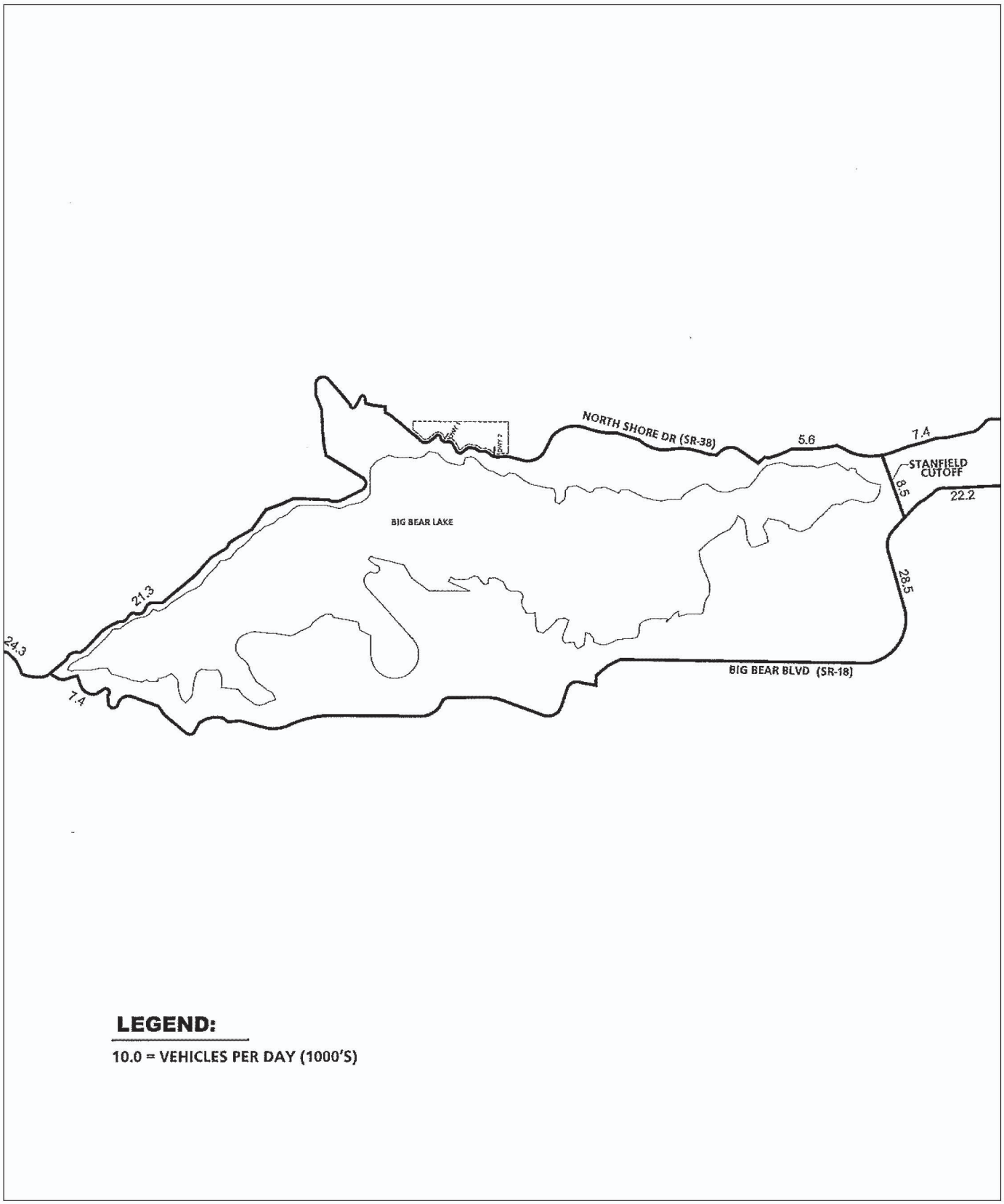
Traffic signal warrant analysis (included in Appendix "D" of the TIA) has been conducted for existing conditions and traffic signals are currently warranted at the following study area intersections:

Big Bear Blvd (SR-18) (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- North Shore Drive (SR-38) (EW)



Source: URBAN CROSSROADS TIA, EXHIBIT 3-C, 2007.

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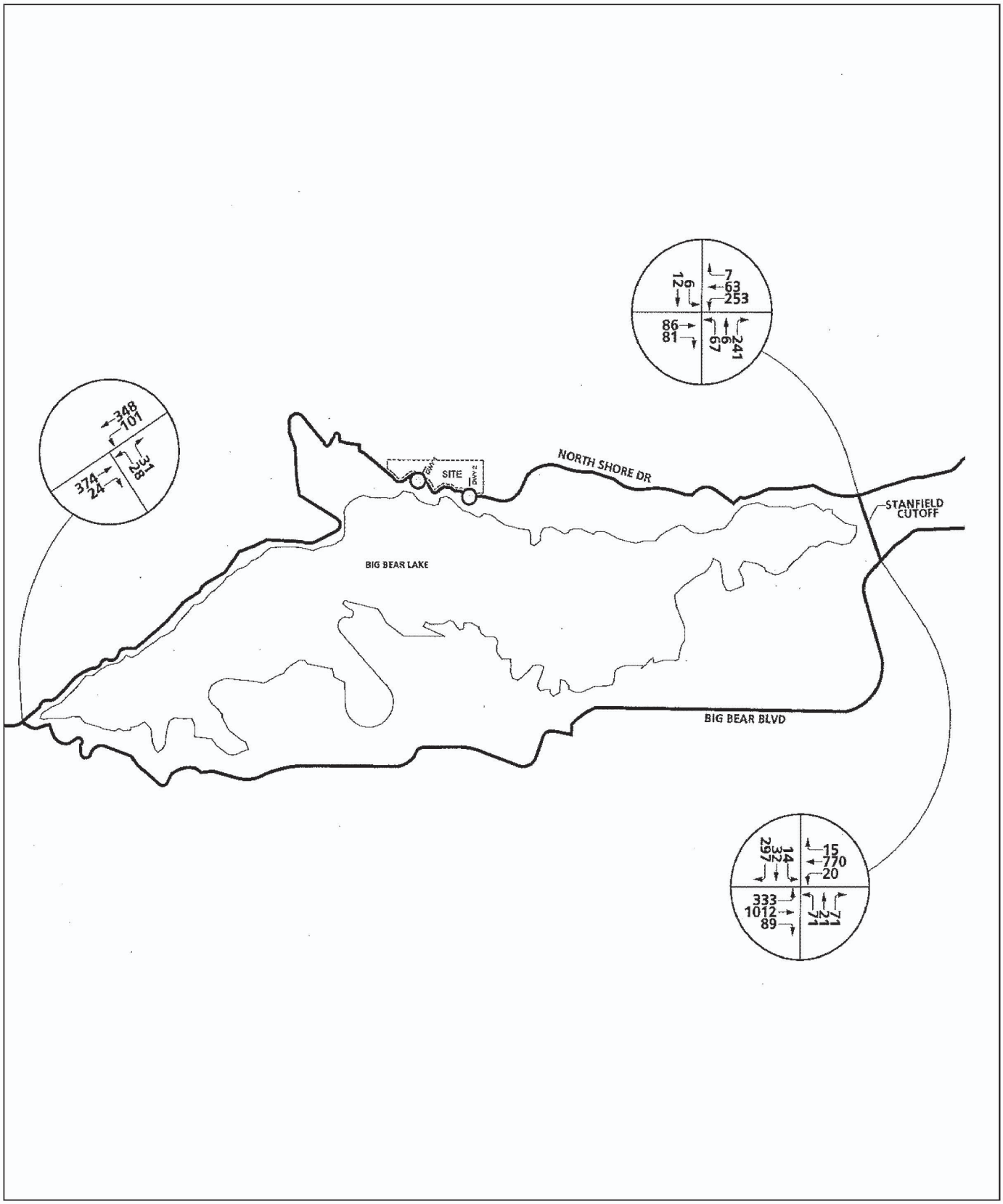
Exhibit 4.8-3
Existing Sunday Average Daily Traffic (ADT)



Source: URBAN CROSSROADS TIA, EXHIBIT 3-D, 2007.

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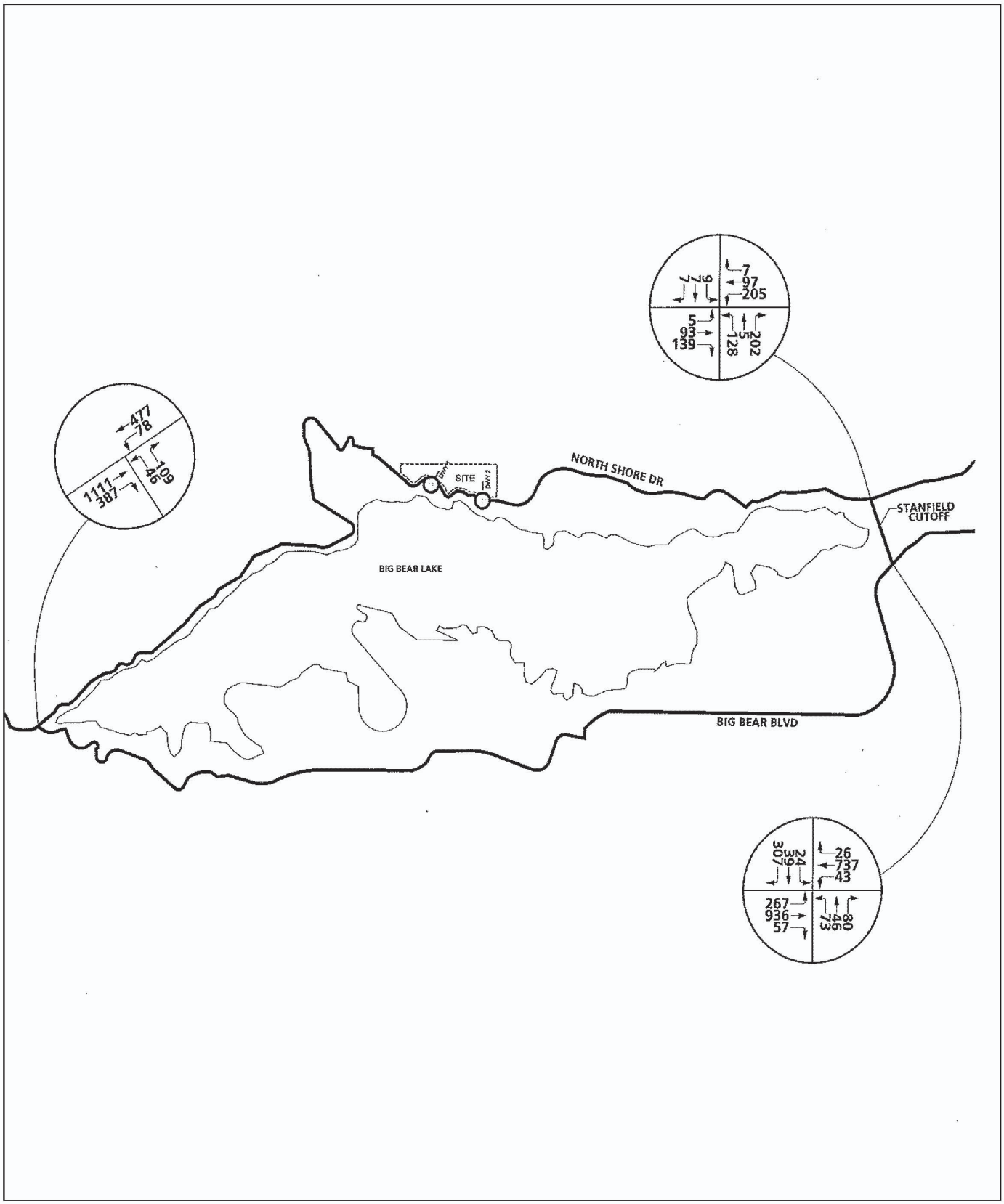
Exhibit 4.8-4
Existing Friday PM Peak Hour Intersection Volumes



Source: URBAN CROSSROADS TIA, EXHIBIT 3-E, 2007.

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Exhibit 4.8-5
Existing Sunday Mid-Day Peak Hour Intersection Volumes

Table 4.8-4: Local Intersection Conditions

Intersection	Traffic Control*	Seconds of Delay		Level of Service	
		Friday PM	Sunday MD	Friday PM Peak	Sunday MD Peak
North Shore Dr. (SR-38) at: Big Bear Blvd.(SR-18)(EW)	CSS	22.5	--	C	F
Stanfield Cutoff (NS) at: North Shore Dr. (SR-38)(EW)	CSS	25.5	34.5	D	D
Stanfield Cutoff (NS) at: Big Bear Blvd. (SR-18)(EW)	TS	--	81.1	F	F
TS = Traffic Signal; CSS = Cross Street Stop; MD = mid-day -- = Delay High, Intersection Unstable, Level of Service "F"					
Source: Urban Crossroads (Moon Camp Traffic Analysis, County of San Bernardino, California, 2007).					

Parking

There is currently no parking provided within the project site, as it is unimproved except for State Route 38 (SR-38).

Mass Transit and Railroad Service

There is currently no mass transit or rail service provided within the project site, as it is unimproved except for SR-38.

Scoping Meeting Comments

The following public comments regarding traffic were provided during the March 31, 2007, scoping meeting:

Discuss emergency access to the property. Emergency access to the property would be via Northshore Drive (SR-38) from the east or west. Interior circulation roads would provide access to all parts of the Proposed Alternative Project. Since there are no residences proposed along SR-38, emergency access through the property would be unencumbered.

Address emergency evacuation plan for the site and how it will integrate with the existing plan for the community. Emergency evacuation would occur via SR-38 and would be consistent with the existing plan for the community.

Will/Can the 80 foot easement along the existing Highway be used for a trail? Can it be used as a designated Class II bikeway? See recommended Proposed Alternative Project Design Features for Traffic in this Section.

Address project traffic on existing roads. Does the project trigger the need for turning lanes into existing streets? Particularly at Canyon Road and Highway 18. Residents do not want a traffic signal. Traffic impacts and recommended improvements both on and off site are discussed in this Section.

Will bikeway go through the existing neighborhood? The Proposed Alternative Project would provide the right-of-way that would allow a bikeway to follow Northshore Drive (SR-38).

The following criteria for establishing the significance of potential impacts on transportation and circulation were derived from Appendix G of the CEQA Guidelines. A significant impact would occur if the Proposed Alternative Project would:

a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections).

b) Exceeds, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.

c) Result in a change in traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment).

e) Result in inadequate emergency access.

f) Result in inadequate parking capacity.

g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

4.8.2 - Project Impact Analysis

The following paragraphs describe the development of the future year traffic volume forecasts and present the resulting daily traffic volumes which were used for traffic operations analysis. Future traffic conditions without the Proposed Alternative Project are presented first, followed by the future with Proposed Alternative Project traffic volumes. Traffic signal warrant analysis for future conditions has also been presented in this section.

Based on discussions with County staff, the areawide growth was interpolated from adjusted existing volumes (with 16 percent growth) to General Plan Buildout (2030) volumes. The area-wide growth varies for each movement at each intersection (see Appendix "D" of the TIA). The interpolated area-wide growth rate was added to peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the Proposed Alternative Project and other development.

Long Range General Plan Buildout (2030) conditions were estimated based on a select zone run of the San Bernardino Mountain Model, in addition to traffic generated by the Proposed Alternative Project and the known cumulative development.

The County of San Bernardino was contacted in order to determine if there were any projects planned within the study area that would have an impact on future traffic volumes at the study intersections. Based on information given by the County of San Bernardino and City of Big Bear staff, a total of 17 cumulative projects were identified that could affect the study intersections. The location of each of these other developments is shown in Exhibits 4.8-6 and 4.8-7A (Exhibit 4-A of the TIA).

As indicated in Table 4.8-3, other developments are projected to generate 15,111 trip-ends per day with 1,455 vehicles per hour during the AM peak hour and 1,455 vehicles per hour during the PM peak hour. Based on the identified trip distribution for the other development on arterial highways throughout the study area, other development ADT and Friday PM/Sunday mid-day peak hour intersection turning movement volumes (based on PM peak hour trip generation) are shown on Exhibits 4.8-7A and 4.8-7B (Exhibits 4-B and 4-C of the TIA), respectively.

Table 4.8-5: Friday PM Peak Hours/Sunday Mid-day Peak Hour
Other Development Trip Generation

Id #	Project Name	Land Use	Quantity	Units	Peak Hour						
					Friday PM			Sunday Mid-day			Daily
					In	Out	Total	In	Out	Total	
San Bernardino County											
1	TT 16771	SFR	242	DU	155	90	245	155	90	245	2.316
2	TT 16934	SFR	228	DU	146	84	230	146	84	230	2,182
3	TT 17217 &TT17022	SFR	53	DU	34	20	54	34	20	54	607
4	TT 16036	SFR	116	DU	74	43	117	74	43	117	1,110
5	TT 14916	SFR	51	DU	33	19	52	33	19	52	488
6	TT 16980	SFR	15	DU	10	6	16	10	6	16	144
7	TT 1776H	SFR	10	DU	6	4	10	6	4	10	98
8	TT 16749	SFR	86	DU	55	32	87	55	32	87	823
9	TT 17201	SFR	66	DU	42	24	66	42	24	66	632
	TOTAL (CO. OF SAN BERNARDINO)				**556**	**322**	**877**	**555**	**322**	**877**	**8,298**
CITY OF BIG BEAR											
10	Hilton Garden Inn	Hotel	91	Rooms	28	25	63	28	25	53	743

Table 4.8 5 (cont.): Friday PM Peak Hours/Sunday Midday Peak Hour
Other Development Trip Generation

Id #	Project Name	Land Use	Quantity	Units	Peak Hour						
					Friday PM			Sunday Mid-day			Daily
					In	Out	Total	In	Out	Total	
11	Mixed Use Development	Retail	22.5	TSF	112	122	234	112	122	234	2,575
		Less pass-by (15%)			-17	-16	-35	-17	-18	-35	-386
		Subtotal Commercial			95	104	199	95	104	199	2,189
		Office	6.3	TSF	1	5	6	1	5	6	69
		SFR	10	DU4	6	4	10	6	4	106	96
	Subtotal				102	113	215	102	113	215	2,354
12	Residential Lots	SFR	8	DU	5	3	8	5	3	8	77
13	Condominiums	MFDU	78	DU	27	13	40	27	13	40	457
14	41820 Big Bear Blvd.	Hotel	55	Rooms	17	15	32	17	15	32	449
		Retail	10	TSF	66	71	137	66	71	137	1,620
		Fast-food	2.5	TSF	45	42	87	45	42	87	1,240
		Less Pass-by (15%)			-17	-17	-34	-17	-17	-34	-414
		Subtotal Commercial			94	98	190	94	96	190	2,346
	Subtotal				111	111	222	111	111	222	2,795
15	World Harvest Faith Center	Church	20	TSF	7	6	13	7	6	13	182
16	Boat Parts Retail & Service	Auto Care Center	4,375	TSF	7	7	14	7	7	14	88
17	Storage Yard	Mini Warehouse	3	AC	6	6	12	6	6	12	117
	Total (City of Big Bear)				**294**	**284**	**576**	**294**	**284**	**578**	**6,813**
	TOTAL				**849**	**606**	**1,455**	**849**	**606**	**1,455**	**15,111**
SFR = Single Family Residence, DU = Dwelling Unit, TSF = Thousand Sq. Feet, AC = Acres											

Short-Term Impacts (Year 2010)

The ADT at key intersections for 2010 Without Project traffic conditions have been determined by adding the 2007 existing traffic volumes (with 16 percent adjustment) plus the two percent background growth volumes per year (6 percent for three years) plus the known cumulative development volumes. The 2010 Friday ADT and Sunday ADT volumes for without project traffic conditions are shown in Exhibits 4.8-8A and 4.8-8B (4-D and 4-E in the TIA).

2010 Without Project Conditions

For 2010 Without Project traffic conditions, no new traffic signals are projected to be warranted compared to Existing Conditions. Without improvements, the same intersections continue to operate at an unacceptable level of service. With traffic signals, the level of service would improve to acceptable levels.

Table 4.8-6: Intersection Analysis for 2010 Without Project Conditions

Intersection	Traffic Control	Delay in Seconds		Level of Service	
		Friday PM	Sunday MD	Friday PM	Sunday MD
Northshore Drive (SR-38) at Big Bear Blvd (SR-18)					
Without Improvements	CSS	—	—	F	F
With Improvements	TS	14.0	21.2	B	C
Standfield Cutoff at Northshore Drive:					
Without Improvements	CSS			F	F
With Improvements	TS	31.9	30.7	C	C
Stanfield Cutoff at Big Bear Blvd. (SR-18)					
Without Improvements	TS	—	—	F	F
With Improvements	TS	31.4	26.8	C	C
CSS = Cross Street Stop, TS = Traffic Signal, MD = mid-day -- = Delay High, Intersection Unstable, F LOS					

2010 With Project Conditions

The ADT for the 2010 With Project was determined by adding the Proposed Alternative Project-only traffic volumes to the 2010 Without Project traffic volumes. The 2010 Friday and Sunday ADT volumes with Proposed Alternative Project traffic are shown on Exhibit 4.8-8A and 4.8-8B (Exhibits: 4-F and 4-G of TIA), respectively.

For 2010 With Project traffic conditions, no new traffic signals are projected to be warranted as compared to 2010 Without Project conditions.

The intersection operations analysis for 2010 With Project traffic conditions are summarized in Table 4.8-7, based on the geometrics analysis at the study area intersections, without and with improvements. 2010 Without Project Friday PM and Sunday mid-day peak hour intersection turning movement volumes are shown on Exhibits 4.8-9A and 4.8-9B (Exhibits:5-A and 5-B of TIA) , respectively. As shown in Table 4.8-7, the following study area intersections are currently operating at an unacceptable level of service during both Friday PM and Sunday mid-day peak hours:

Big Bear Blvd (SR-18) (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- North Shore Drive (SR-38) (EW)

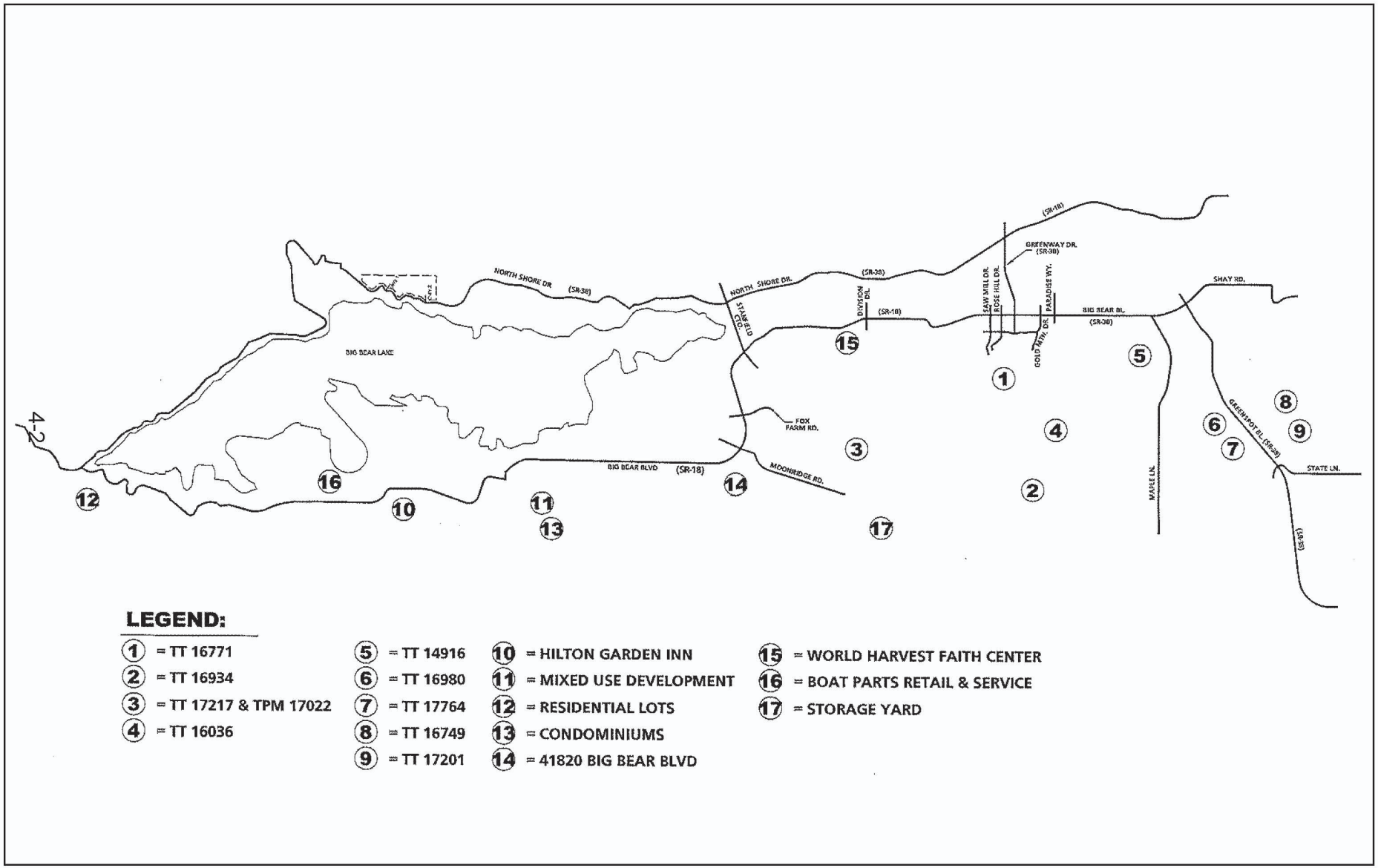
Stanfield Cut Off (NS) at:

- Big Bear Blvd (SR-18) (EW)

As shown in Table 4.8-7, these intersections will continue to operate at unacceptable levels without improvements, but will improve to acceptable levels with the addition of traffic signals with no significant impact due to this Proposed Alternative Project. Driveway or street intersections within the Proposed Alternative Project are projected to operate at acceptable levels without traffic signals.

Table 4.8-7: Intersection Analysis for 2010 With Project Conditions

Intersection	Traffic Control	Delay in Seconds		Level of Service	
		Friday PM	Sunday MD	Friday Pm	Sunday MD
Northshore Drive (SR-38)(NS) at Big Bear Blvd. (SR 18) (EW)					
Without Improvements		—	—	F	F
With Improvements		14.0	22.1	B	C
Stanfield Cutoff (NS) at Northshore DR. (SR-38)(EW)					
Without improvements	CSS	—	—	F	F
With Improvements	TS	32.4	31.5	C	C
Stanfield Cufoff at Big Bear Blvd (SR 18) (EW)					
Without Improvments	CSS	—	—	F	F
With Improvements	TS	32.5	276	C	C
Driveway # 1 at Northshore Drive	CSS	11.1	12.0	B	B
Driveway # 2 at Northshore Drive	CSS	11.2	12.1	B	B
CSS = Cross Street Stop, TS = Traffic Signal, MD = mid-day -- = Delay High, Intersection Unstable, F LOS					



LEGEND:

1 = TT 16771	5 = TT 14916	10 = HILTON GARDEN INN	15 = WORLD HARVEST FAITH CENTER
2 = TT 16934	6 = TT 16980	11 = MIXED USE DEVELOPMENT	16 = BOAT PARTS RETAIL & SERVICE
3 = TT 17217 & TPM 17022	7 = TT 17764	12 = RESIDENTIAL LOTS	17 = STORAGE YARD
4 = TT 16036	8 = TT 16749	13 = CONDOMINIUMS	
	9 = TT 17201	14 = 41820 BIG BEAR BLVD	

Source: URBAN CROSSROADS TIA, EXHIBIT 4-A, 2007.

NORTH

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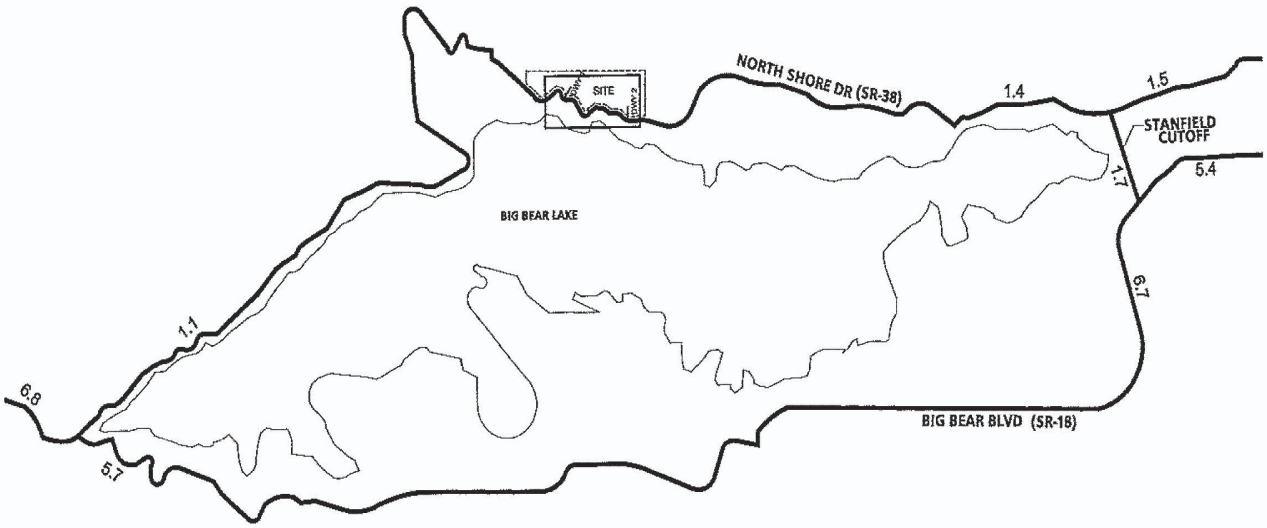
Exhibit 4.8-6
Other Development Location Map

SAN BERNARDINO COUNTY
MOON CAMP RESIDENTIAL SUBDIVISION PROJECT



Source: URBAN CROSSROADS TIA, EXHIBIT 4-B, 2007.

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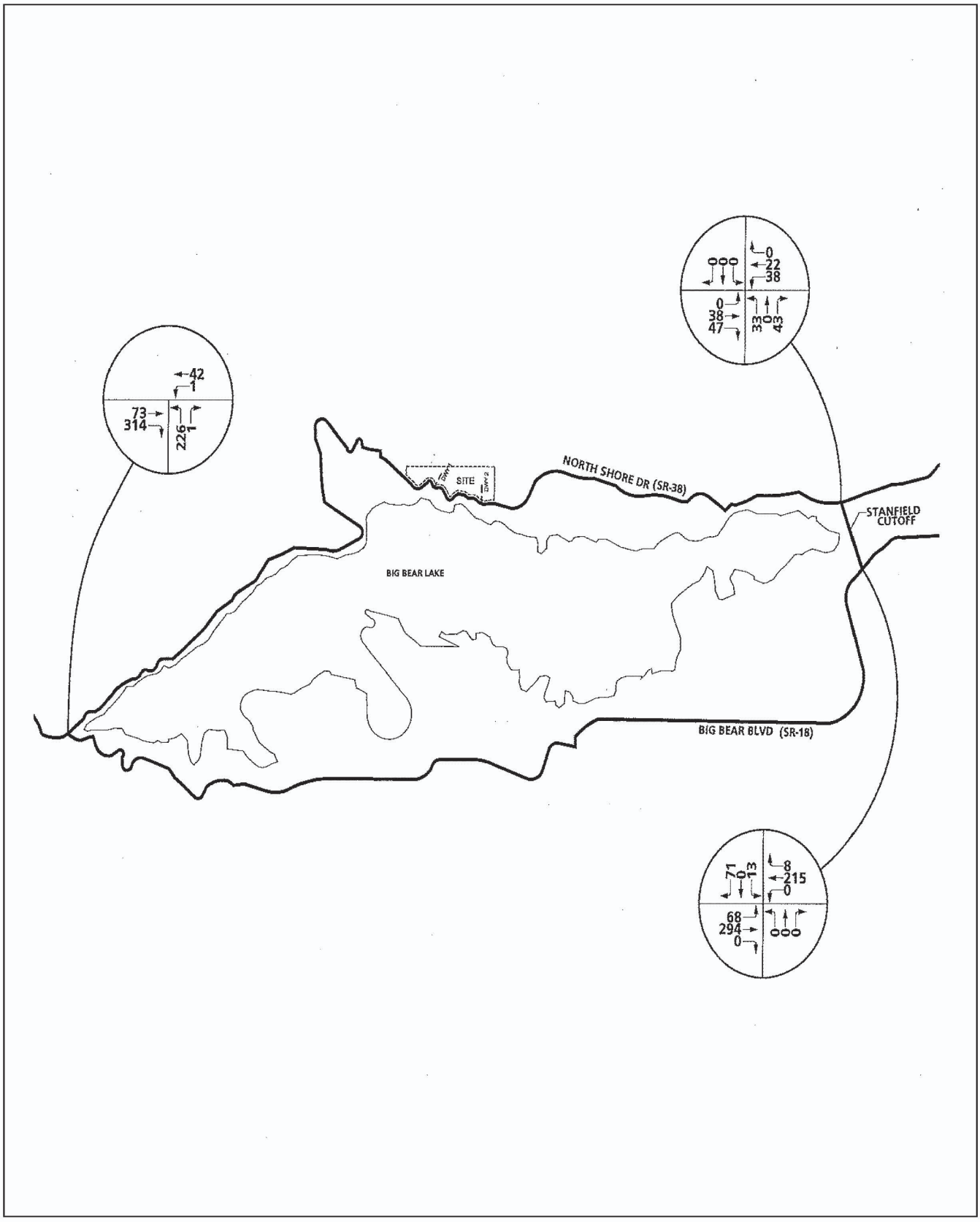
Exhibit 4.8-7A
Other Development Average Daily Traffic (ADT)



Source: URBAN CROSSROADS TIA, EXHIBIT 4-C, 2007.

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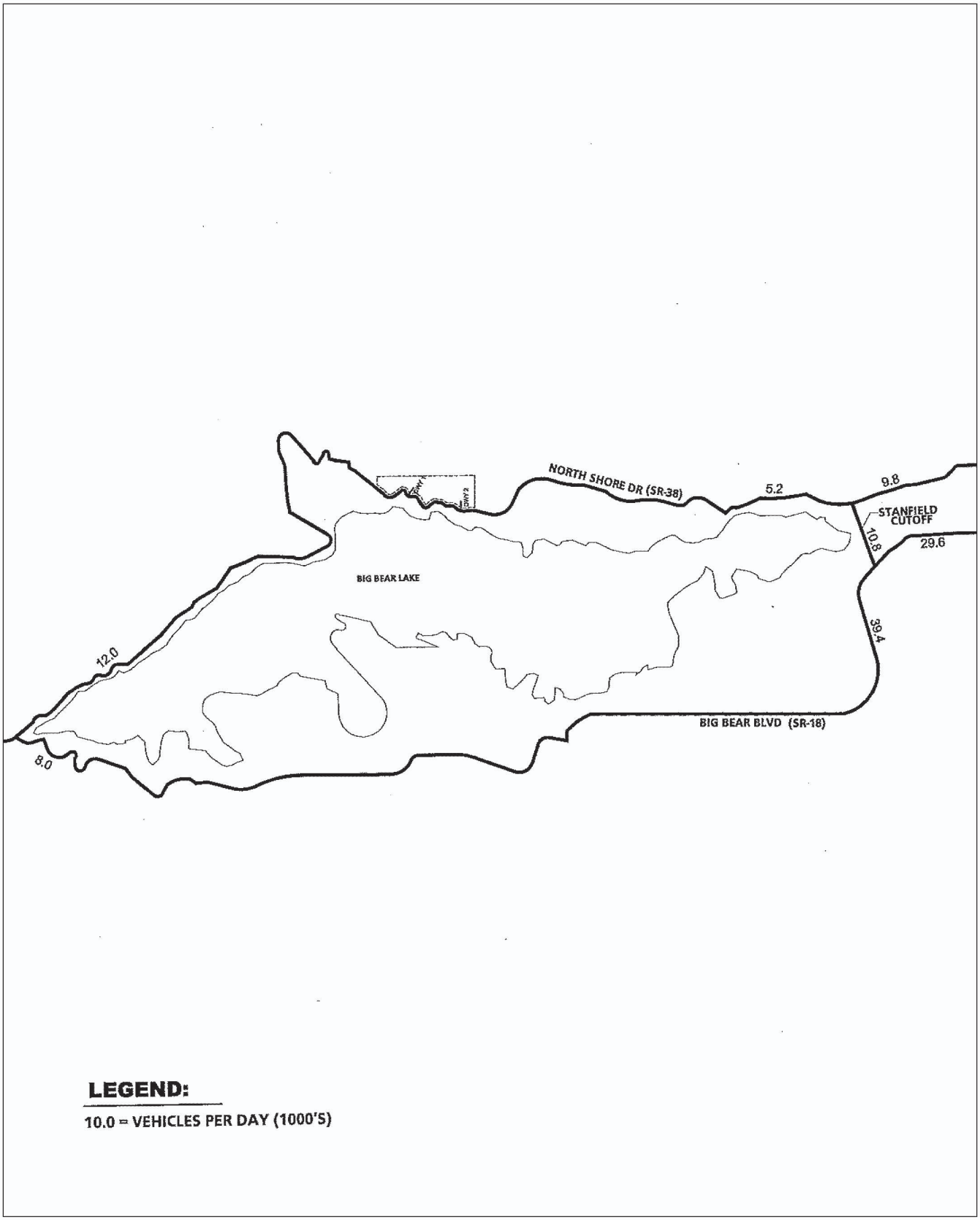
Exhibit 4.8-7B
Other Development Friday PM Peak Hour Sunday Mid-Day Peak Hour Intersection Volume

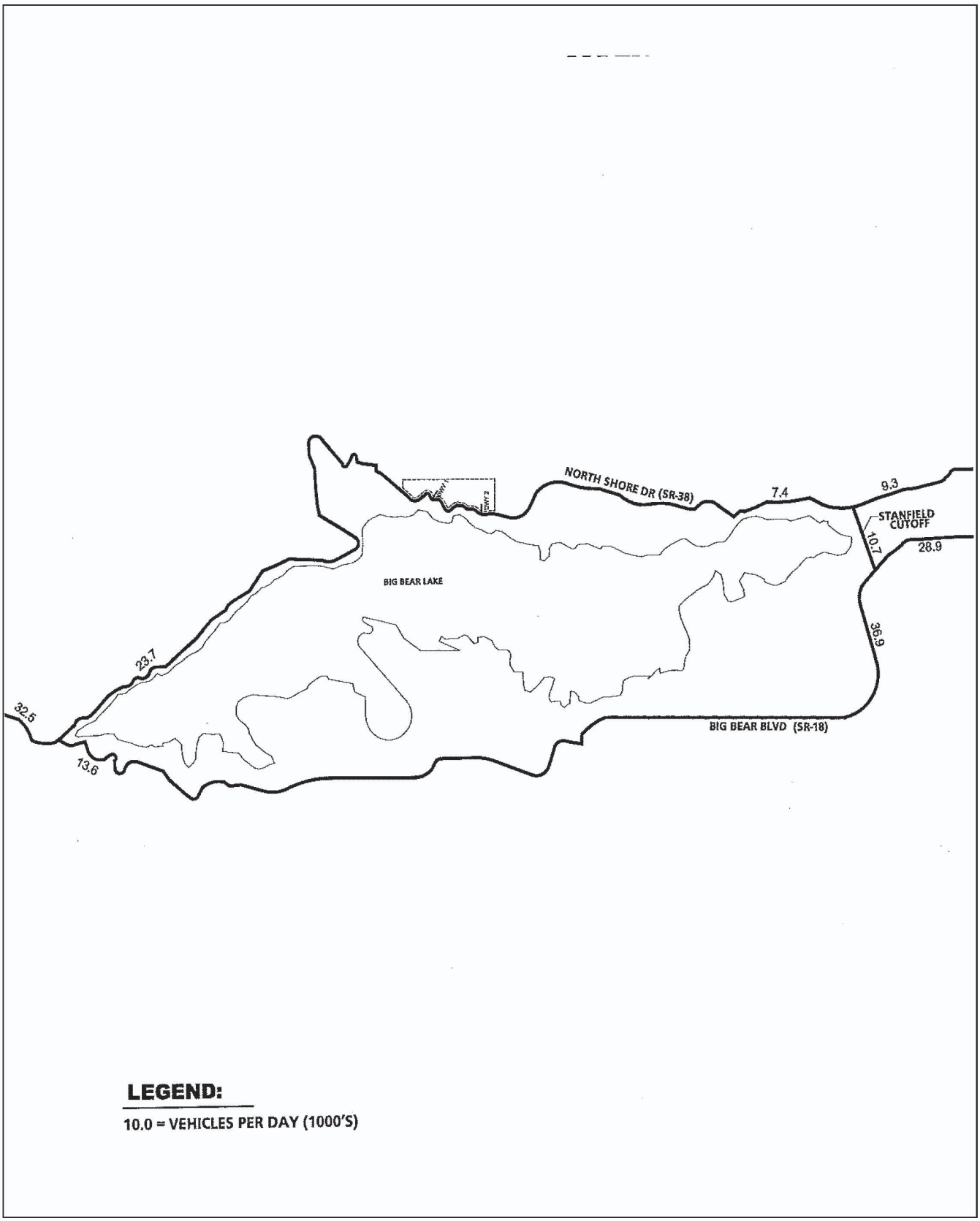


Source: URBAN CROSSROADS TIA, EXHIBIT 4-D, 2007.

NORTH

Michael Brandman Associates

Exhibit 4.8-8A
2010 Without Project Friday Average Daily Traffic (ADT)



Source: URBAN CROSSROADS TIA, EXHIBIT 4-E, 2007.

Michael Brandman Associates

Exhibit 4.8-8B
2010 Without Project Sunday Average Daily Traffic (ADT)

Long-Term Impacts (2030)

Long Range conditions were based on a General Plan Buildout (2030) that was estimated by adding the Proposed Alternative Project peak traffic and the known cumulative development peak traffic volumes to the San Bernardino Mountain Model. The intersection operations analysis for General Plan Buildout With Project (2030) traffic conditions are summarized in Table 4.8-8, based on the geometrics analysis at the study area intersections, without and with improvements. General Plan Buildout With Project (2030) Friday PM and Sunday mid-day peak hour intersection turning movement volumes are shown on Exhibits 4.8-10 A and 4.8-10B (Exhibits 5-E and 5-F of the TIA), respectively. The General Plan Buildout post-processed volumes worksheets are provided in Appendix "G" to the TIA. As shown in Table 4.8-8, without improvements, the following study area intersections would operate at an unacceptable level of service during both Friday PM and Sunday mid-day peak hours:

Big Bear Blvd (SR-18) (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- Big Bear Blvd (SR-18) (EW)

Driveway #1 (NS) at:

- North Shore Drive (SR-38) (EW)

Driveway #2 (NS) at:

- North Shore Drive (SR-38) (EW)

Table 4.8-8: Intersection Analysis for General Plan Buildout (2030) Conditions

Intersection	Traffic Control	Intersection Approach Lanes				Delay (Secs.)		Level of Service	
		North-bound	South-bound	East-bound	West-bound				
		L T R	L T R	L T R	L T R	Fri. PM	Sun. MD	Fri. PM	Sun. MD
Northshore Dr. (SR-38)(NS) at Big Bear Blvd									

Table 4.8 8 (cont.): Intersection Analysis for General Plan Buildout (2030) Conditions

Intersection	Traffic Control	Intersection Approach Lanes				Delay (Secs.)		Level of Service	
		North-bound	South-bound	East-bound	West-bound				
		L T R	L T R	L T R	L T R	Fri. PM	Sun. MD	Fri. PM	Sun. MD
Without improvements	CSS	0 1 0	0 0 0	0 1 1	1 1 0	—[1]	—[1]	F	F
With improvements	TS	1 0 1	0 0 0	0 2 1>	1 1 0	20.4	18.6	C	B
Stanfield Cutoff (NS) at Northshore Dr. (SR38) (EW)									
Without improvements	CSS	0 1 0	0 1 0	0 1 0	0 1 0	--[1]	--[1]	F	F
With improvements	TS	2 1 0	1 1 0	1 1 1>	1 1 0	34.2	26.0	C	C
Stanfield Cutoff (NS) at Big Bear Blvd (SR 16) (EW)									
Without improvements	TS	0 1 1	0 1 1	1 1 1	1 1 1	—[1]	—[1]	F	F
With improvements	TS	1 1 0	1 1 1>	1 2 0	1 2 1	31.7	21.5	C	C
Driveway #1 (NS) at Northshore Dr. (EW)									
Without improvments	CSS	0 0 0	0 1 0	0 1 0	0 1 0	49.6	24.2	E	C
With improvements	CSS	0 0 0	0 1 0	0 2 0	0 1 0	23.1	15.7	C	C
Driveway # 2 (NS) at Northshore Dr. (EW)									
Without improvements	CSS	0 0 0	0 1 0	0 1 0	0 1 0	41.9	18.8	E	C
With improvements	CSS	0 0 0	0 1 0	0 2 0	0 1 0	23.6	15.7	C	C

L = left, T= through, R = right, CSS = Cross Street Stop, TS = Traffic Signal, MD = mid-day
[1]-- = Delay high, intersection unstable, level of service F
1 = Improvement, > = Right turn overlap phase

Parking

Under the Proposed Alternative Project, each residence would have two parking spaces in the driveway, as required by San Bernardino County Development and building codes. Additionally, there would be a parking lot to service the marina and the open space conservation easement on the lakeshore. The parking lot would have 12 parking spaces for use by the public and the residents of Moon Camp. Only the residents would be allowed access to the marina and the boat launch. Each residence would be assigned a slip to store one boat.

Emergency Access

Emergency access would occur through the two driveways, and an additional fire gate would be provided on the east end of the Proposed Alternative Project.

Summary of Traffic Impacts

The traffic issues related to the Proposed Alternative Project have been evaluated in the context of CEQA and the San Bernardino County CMP. In conformance with the requirements of the San Bernardino County CMP, the Proposed Alternative Project does not require a CMP traffic study. (The CMP requires no analysis for projects that generate less than 250 peak hour trips.) The Proposed Alternative Project generates approximately 51 trips during the AM peak hours and 51 trips during the PM peak hours, which is less than the required threshold for a CMP traffic study. However, a long-range traffic analysis has been required by County staff.

Proposed Alternative Project traffic volumes for all future conditions were estimated using a manual approach. The trip generation calculation was based on the most recent *Institute of Transportation Engineers Trip Generation Rates*, 7th Edition. The Proposed Alternative Project trip distributions were derived from a select zone run of the San Bernardino Mountain Model. Long Range General Plan Buildout (2030) conditions were estimated based on the San Bernardino Mountain Model and the addition of both the Proposed Alternative Project related peak hour volumes and the known cumulative development peak hour volumes per discussions with County staff.

The traffic analysis indicates that under present conditions, affected intersections will operate at less than acceptable rates with or without the Proposed Alternative Project. Traffic improvements are needed for existing conditions and projected conditions whether or not this Proposed Alternative Project is implemented. According to the traffic study, all study intersections are expected to operate at a LOS C or better during peak hours for the scenario analyzed with improvements installed.

Level of Significance before Mitigation

Potentially significant.

4.8.3 - Standard Conditions and Uniform Codes

The traffic evaluation shall be consistent with CEQA and the San Bernardino County Congestion Management Plan. Additionally, the County of San Bernardino has required a long range traffic study to be generated for this Proposed Alternative Project.

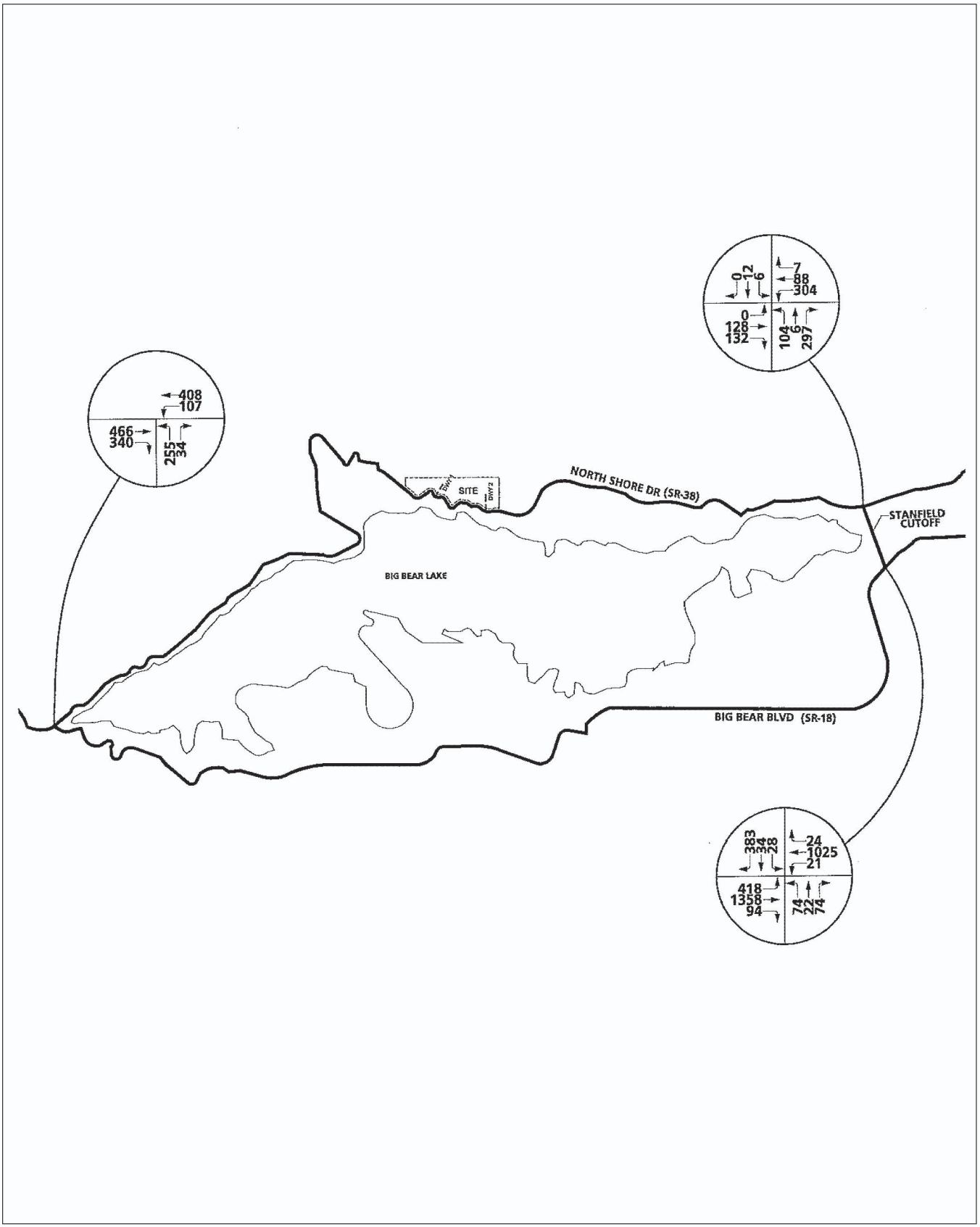
4.8.4 - Project Design Features

The TIA recommends the following Proposed Alternative Project design features:

On-Site Improvements

On-site improvements and improvements adjacent to the site will be required in conjunction with the proposed development to ensure adequate circulation within the Proposed Alternative Project. Exhibit 4.8-11 (Exhibit 6-A of TIA) illustrates the recommended improvement measures to address on-site circulation requirements of the proposed site, which include the following:

- Sight distance at the Proposed Alternative Project access roadway should be reviewed with respect to Caltrans / County of San Bernardino sight distance standards at the time of final grading landscape and street improvement plans.
- Traffic signing / striping should be implemented in conjunction with detailed construction plans for the Proposed Alternative Project site.
- Construct North Shore Drive at its ultimate half-section width as a Mountain Major highway from Canyon Drive to the Easterly Proposed Alternative Project boundary.
- Install a stop sign control at Driveway #1 and Driveway #2
- Construct an Eastbound Left Turn Lane at Driveway 1 / North Shore Drive and Driveway 2/ North Shore Drive for 2030 Buildout Conditions
- Construct a 2nd Eastbound Through Lane at Driveway 1 / North Shore Drive and Driveway 2/ North Shore Drive for 2030 Buildout Conditions.

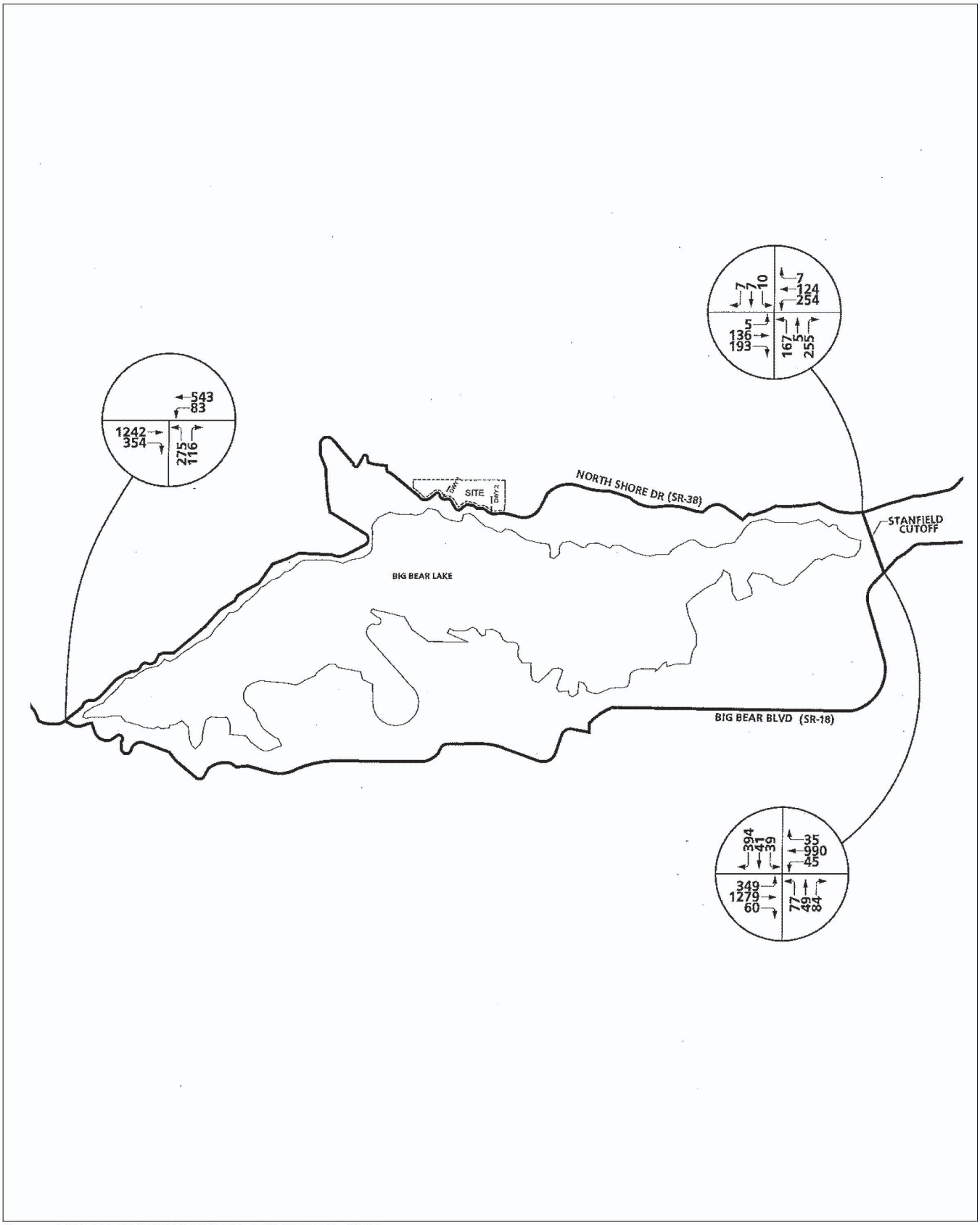


Source: URBAN CROSSROADS TIA, EXHIBIT 5-A, 2007.

NORTH

Michael Brandman Associates

Exhibit 4.8-9A
2010 Without Project Friday PM Peak Hour Intersection Volumes

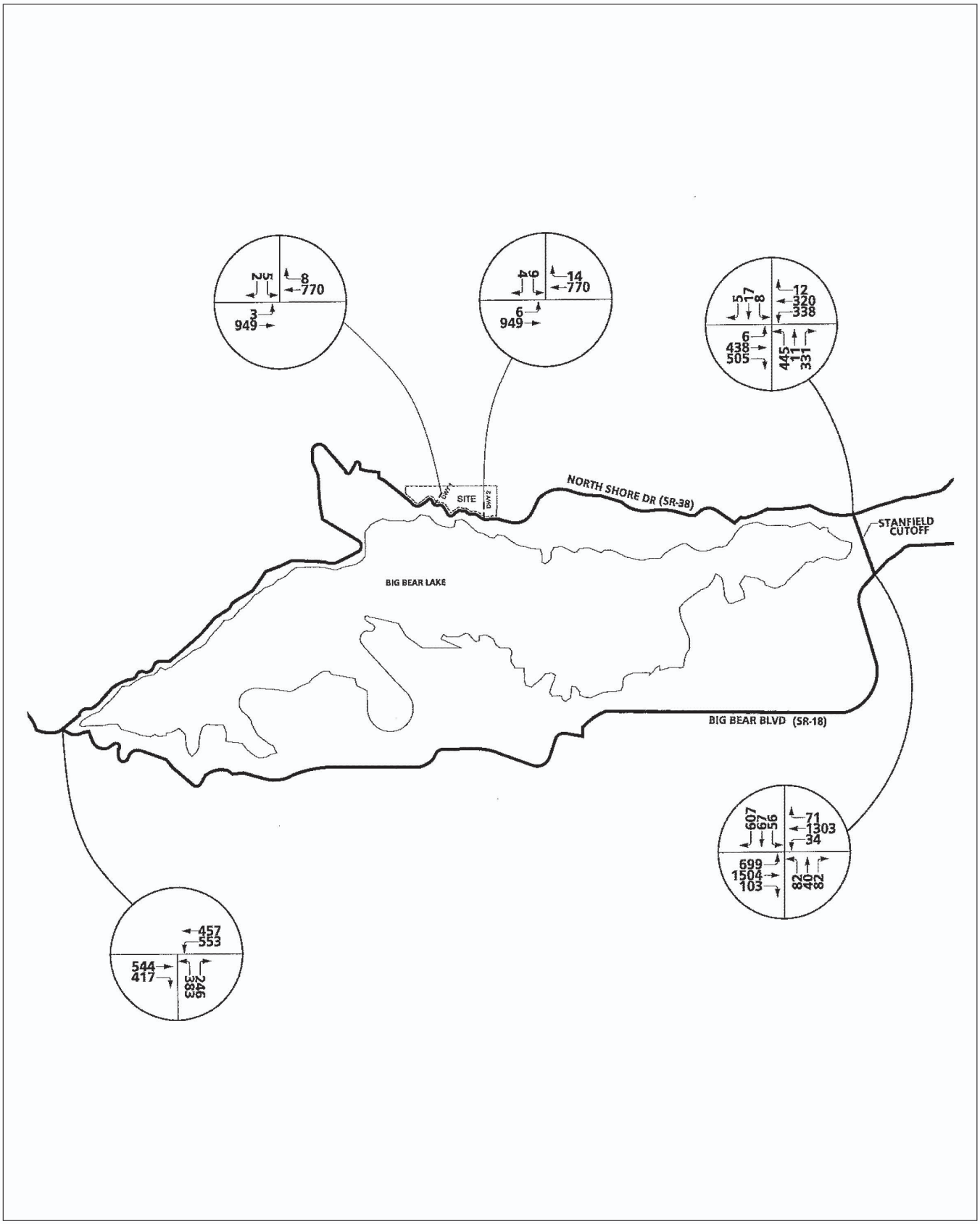


Source: URBAN CROSSROADS TIA, EXHIBIT 5-B, 2007.

NORTH

Michael Brandman Associates

Exhibit 4.8-9B
2010 Without Project Sunday Mid-Day Peak Hour Intersection Volumes

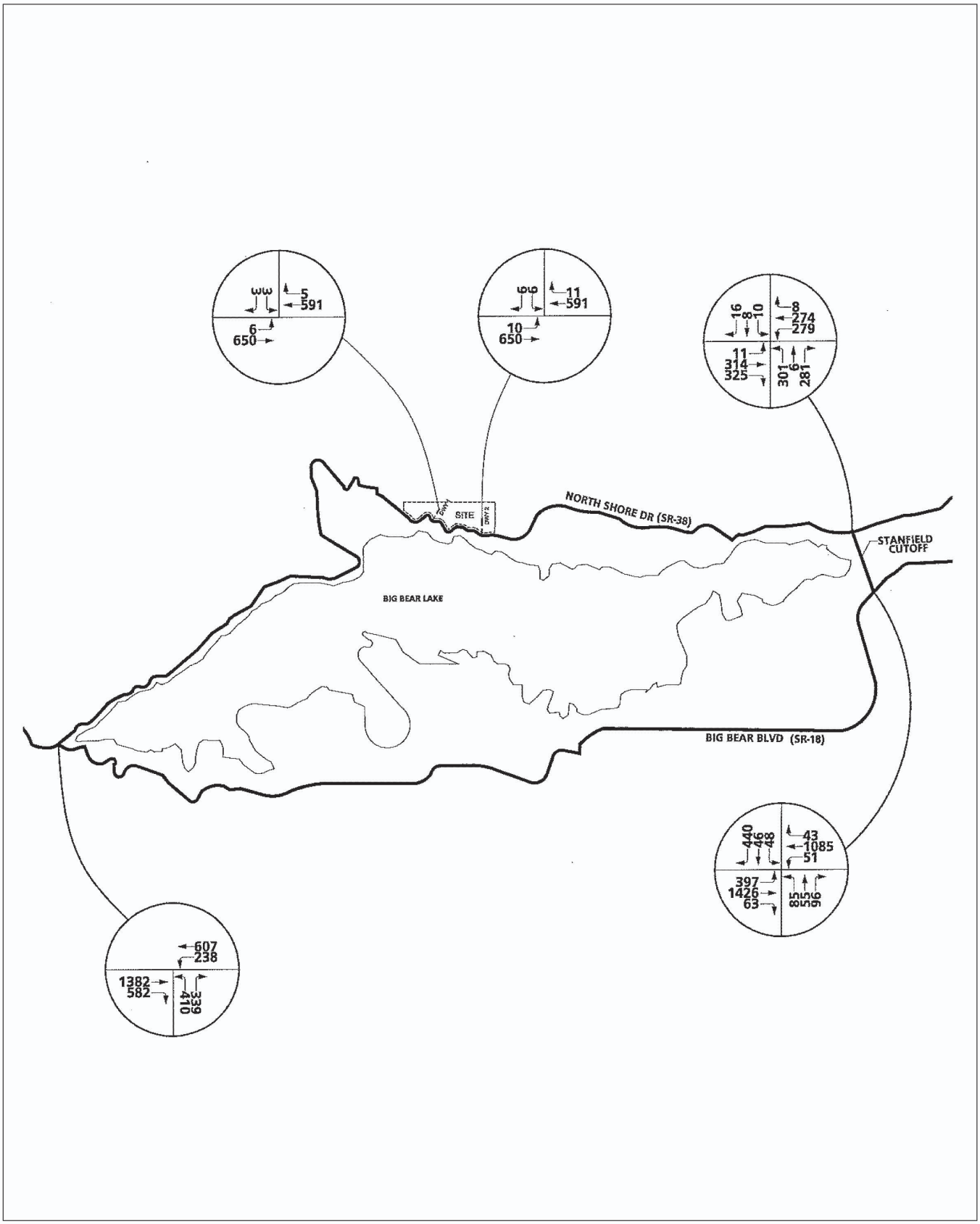


Source: URBAN CROSSROADS TIA, EXHIBIT 5-E, 2007.

NORTH

Michael Brandman Associates

Exhibit 4.8-10A
General Plan Buildout With Project Friday PM Peak Hour Intersection Volumes

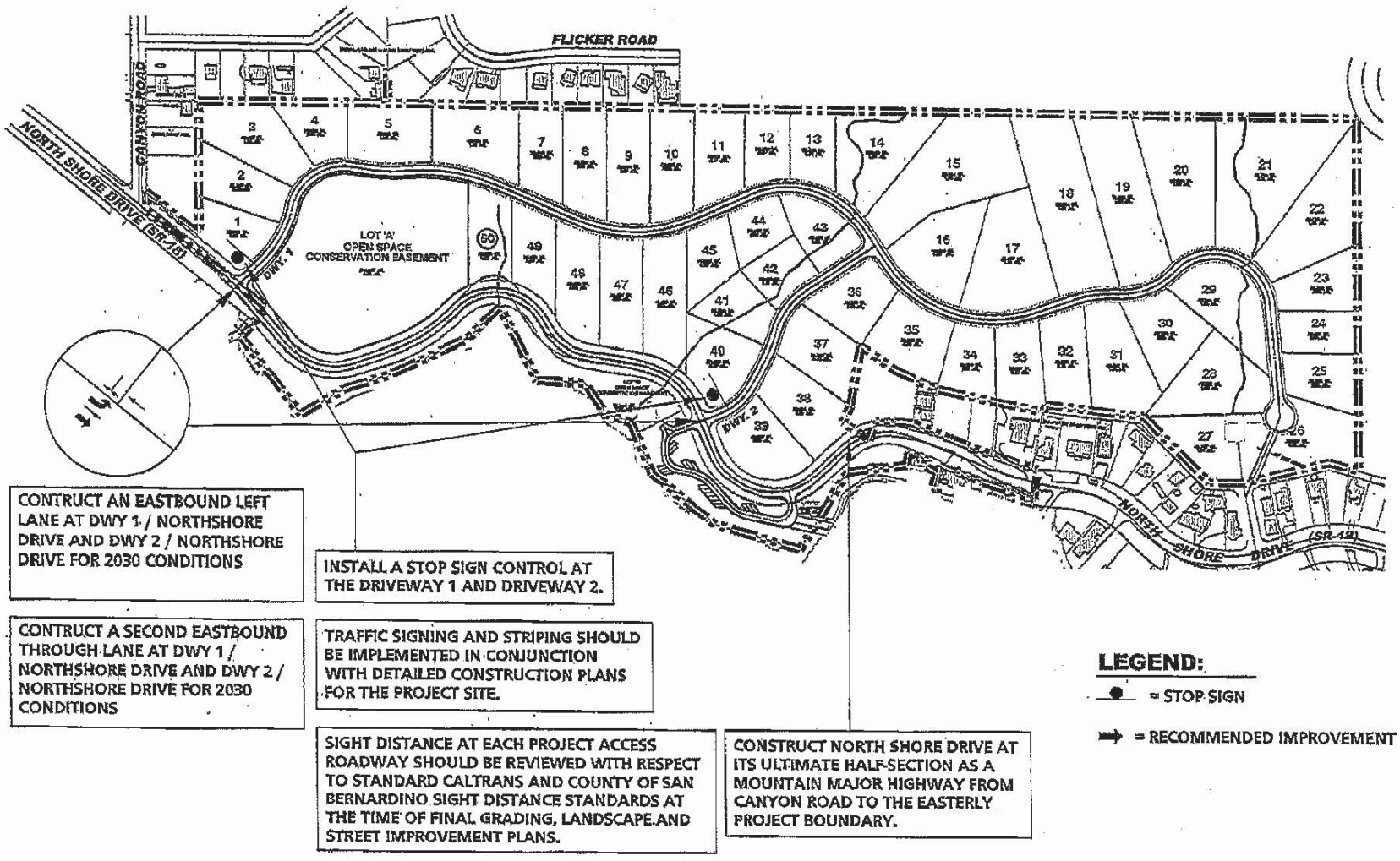


Source: URBAN CROSSROADS TIA, EXHIBIT 5-F, 2007.

NORTH

Michael Brandman Associates

Exhibit 4.8-10B
General Plan Buildout With Project Sunday Mid-Day Peak Hour Intersection Volumes



Source: URBAN CROSSROADS.

NORTH

Michael Brandman Associates

00520089 • 07/2009 | 4.8-11_Circ_Rec.cdr

Exhibit 4.8-11
Circulation Recommendations

SAN BERNARDINO COUNTY
MOON CAMP RESIDENTIAL SUBDIVISION PROJECT

Off Site Improvements

The traffic analysis indicates that under present conditions, affected intersections will operate at less than acceptable rates with or without the Proposed Alternative Project. Traffic improvements are needed for existing conditions and projected conditions whether or not this Proposed Alternative Project is implemented. If needed improvements are installed, implementation of this Proposed Alternative Project will not significantly reduce the level of service off-site. Nevertheless, fair share costs have been calculated.

Table 4.8-9 lists traffic improvements and associated costs needed to improve future traffic conditions in the Big Bear area as related to this Proposed Alternative Project.

Table 4.8-9: Roadway Improvement Costs

Intersection	2030 Improvements	Costs
North Shore Dr. (SR-38) at Big Bear Blvd (SR 18) (EW)	Install Traffic Signal Construct NB Left Turn Lane Construct EB Through Lane Add Right Turn Overlap Phasing Subtotal	$400,000 $50,000 $289,720 $25,000 $764.720
Stanfield Cutoff (NS) at Northshore Drive (EW)	Install Traffic Signal Construct 2 NB Left Turn Lanes Construct SB Left Turn Lane Construct EB Left Turn Lane Construct EB Right Turn Lane Add Right Turn Overlap Phasing Construct WB Left Turn Lane Subtotal	$400,000 $100,000 $50,000 $50,000 $50,000 $25,000 $50,000 $725,000
Stanfield Cutoff (NS) at Big Bear Blvd. (EW)	Construct NB Left Turn Lane Construct SB Left Turn Lane Construct SB Right Turn Lane Add Right Turn Overlap Phasing Construct EB Through Lane Construct WB Through Lane Signal Modification Subtotal	$50,000 $50,000 $50,000 $25,000 $289,720 $289,720 $40,000 $794,440
Total Cost of Construction		**$2,284,160**
Source: Appendix G of the San Bernardino Congestion Management Program, 2003 Update.		

The Proposed Alternative Project fair share contribution towards the required improvements has been calculated. Table 4.8-10 includes the Proposed Alternative Project's cost contribution based on the Proposed Alternative Project's percent of new traffic. As indicated in Table 4.8-10, the highest Friday PM or Sunday mid-day fair share cost is approximately $48,921.

Table 4.8-10: Proposed Alternative Project Fair Share Costs

Segment	Cost ($)	Peak Hours	Existing Traffic	2030 With Project Traffic	Project Traffic	Total New Traffic	Project % of New Traffic	(A) Friday PM Project Cost Share ($)	(B) Sunday MD Project Cost Share ($)	Highest Friday PM or Sunday MD Cost Share ($)
Northshore Dr. at Big Bear Blvd.	764,720	Fri. PM Sunday MD	906 2,208	2,600 3,558	16 26	1,694 1,350	0.94% 1.93%	7,223	14,728	14,728
Standfield Cutoff at Northshore Dr.	725,000	Fri. PM Sunday MD	822 904	2,436 1,833	36 26	1,614 929	2.23% 2.80%	16,171	20,291	20,291
Standfield Cutoff at Big Bear Blvd.	794,440	Fri. PM Sunday MD	2,745 2,635	4,648 3,835	29 21	1,903 1,200	1.52% 1.75%	12,107	13,903	13,903
Grand Total – Cost Share for Improvements								**35,500**	**48,921**	**48,921**

4.8.5 - Mitigation Measures

To assure that potential traffic impacts of the Proposed Alternative Project remain at less than significant levels, the following mitigation measures are proposed:

T-1 The following Project Design Features recommended in the Traffic Impact Analysis shall be incorporated into the Proposed Alternative Project design:

- Construction of North Shore Drive at its ultimate half-section width as a Mountain Major highway from Canyon Drive to the Easterly Proposed Alternative Project boundary.
- Installation of a stop sign control at Driveway #1 and Driveway #2
- Construction of an Eastbound Left Turn Lane at Driveway 1 / North Shore Drive and Driveway 2/ North Shore Drive for 2030 Buildout Conditions.
- Construction of a 2nd Eastbound Through Lane at Driveway 1 / North Shore Drive and Driveway 2/ North Shore Drive for 2030 Buildout Conditions.

T-2 The eastbound left turn lanes at both project access points will be constructed at opening year at 100 percent cost to the Applicant. The Applicant shall pay fair share costs of the construction of the eastbound through lanes at both project access points for the horizon year conditions. The developer shall pay the fair share cost of $48,921 toward the off-site traffic improvements recommended in Appendix G of the San Bernardino Congestion Management Program, 2003 Update.

4.8.6 - Level of Significance After Mitigation

Less than significant. With incorporation of recommended project design features and payment of fair share costs of impacted off-site roadway intersections, traffic and circulation impacts related to the Moon Camp Proposed Alternative Project will be reduced to less than significant.

4.9 - Utilities

This section presents a discussion of the existing and proposed utilities available to serve the Proposed Alternative Project (Moon Camp Project - 50 lots), which has been modified from the Original Proposed Project (92 lots) described in the 2005 Final Environmental Impact Report (EIR). This section includes an analysis of potential impacts to water supply, sewer and wastewater, natural gas, electricity, and stormwater.

In addition, the discussion of groundwater and water supply is based on the Recommendations for Groundwater Monitoring, prepared by Geoscience Support Services, Inc, September 2004 (Appendix G), the Final Feasibility Study to Serve the Proposed Moon Camp Residential Development (TTM No. 16136), March 2007, Prepared by ALDA Engineering, Inc. (Appendix G); the Moon Camp Well FP-Z Report, August 2008, prepared by California Collaborative Solutions, August 2008 (Appendix G); the "Water Supply Analysis," February 2009, prepared by California Collaborative Solutions (Appendix C); and the "Water Supply Report," May 2009, prepared by California Collaborative Solutions (containing the Thomas Harder Groundwater Consulting Analysis and Big Bear DWP correspondence letter, May 2009) (Appendix C).

4.9.1 - Existing Conditions

Water

The project site lies primarily within a tributary aquifer of the North Shore Subunit designated as Subarea A. A small area within the northwest portion of the project site lies within a separate, adjoining tributary aquifer of the Grout Creek Subunit designated as Subarea D. There are three groundwater wells within the project site, FP2, FP3 and FP4, which were constructed and are owned by the project's property owner and developer. Two of these Project Wells (FP2 and FP3) are located in Subarea A. As part of the North Shore Subunit, Subarea A is a separate groundwater basin and is not a part of the Grout Creek Subunit from which the existing Fawnskin system draws its water. Approximately 40 private, homeowner wells also withdraw water from Subarea A's groundwater aquifer. Project Well FP4 is located in the northwest corner of the project site and draws its water from Subarea D of the Grout Creek Groundwater Subunit. The general location of Project Well FP-4 is shown in Exhibit 4.4-1, Grout Creek Hydrologic Subunit.

Although water service is not presently provided to the project site, the site is immediately adjacent to the Fawnskin Water System, which is owned and operated by the Big Bear Lake Department of Water and Power. Water supply in the Fawnskin Water System is provided by two groundwater wells in the Lower Fawnskin pressure zone and by slant wells in the vicinity of the Racoon Reservoir, all of which draw water from the Grout Creek Subunit. Excess groundwater production from the Lower Fawnskin pressure zone is conveyed to the Upper Fawnskin pressure zone through a booster station located at the Cline Miller Reservoir.

The Department of Water and Power (DWP) provides water service to more than 16,000 customers from four separate water systems within the San Bernardino Mountains of southern California. All of the DWP's water comes from snow and rain that percolates back into the ground. Only 3 to 5 percent of the snow and rain reaches the water table and is recharged for future use. The DWP does not utilize water from Big Bear Lake and no additional water is imported into the Big Bear Valley. The DWP maintains 50 wells, 13 booster stations, 17 reservoirs, 16 chlorination stations, 20 sample stations, approximately 170 miles of water main pipeline, and a complex pressure-reducing network (www.bbldwp.com).

The majority of DWP customers are located in Big Bear Valley. The DWP provides water to its Big Bear Valley customers by pumping ground water from local aquifers. Currently, no outside water source is available to augment the local supply. The remaining system is in Rimforest, California, located near Lake Arrowhead and water used in this system is purchased from the Crestline-Lake Arrowhead Water Agency (CLAWA) (www.bbldwp.com).

Although DWP has completed a Water Feasibility Study (Alda, 2007) and provided a conditional will serve letter to the Applicant, the majority of the project site is outside of the DWP authorized service area as well as the City's Sphere of Influence. As a result, DWP cannot provide water service without first complying with the provisions of Government Code Section 56133, which requires that cities receive Local Agency Formation Commission (LAFCO) annexation approval to provide new or extended services outside their jurisdictional boundaries, but within their spheres of influence.

Wastewater

The project site is located within County Service Area 53B (CSA 53B) and the Big Bear Area Regional Wastewater Agency (BBARWA) sanitary sewer service area. The service area for BBARWA includes the entire Big Bear Valley (79,000 acres) and is served by three separate collection systems: City of Big Bear Lake, Big Bear City Community Services District, and the County of San Bernardino CSA 53B (representing approximately 4 percent of the BBARWA total flow). Each underlying Agency maintains and operates its own wastewater collection system and delivers wastewater to BBARWA's interceptor system for transport to BBARWA's Regional Wastewater Treatment Plant. The regional plant is a 93.5-acre site located adjacent to Baldwin Lake in unincorporated San Bernardino County. The regional plant processes approximately 2.8 billion gallons per year (gpy). In 2006, the Fawnskin area (CSA 53B) produced an average of 80,000 gallons of effluent per day, or approximately 29 million gpy.

Sewage from CSA 53B is transported via the BBARWA North Shore Interceptor/Force Main system to the Regional Wastewater Treatment Plant. Currently, BBARWA has a 10-inch sewer force main located within the shoulder along the south side of State Route 38 (SR-38) that traverses the project site. This force main conveys raw sewage from CSA 53B to the Regional Wastewater Treatment Plant.

Solid Waste

Solid waste collection within the project area would most likely be provided by Big Bear Disposal, Inc. Waste would be transported to the Big Bear Transfer Station, located on Holcomb Valley Road in Big Bear City, approximately 1.5 miles north of Highway 18. The transfer station is owned and operated by the County of San Bernardino Waste Management Division. From the transfer station, solid waste is transferred to the Barstow Landfill; a County of San Bernardino owned and operated facility. The landfill is currently permitted to receive 750 tons of waste per day. The landfill is currently at approximately 25 percent of the original capacity of 3.58 million cubic yards. Closure is scheduled for May 1, 2012. However, as part of the County's strategy for long-range solid waste disposal, the Barstow Landfill could be expanded onto adjacent county-owned property.

Natural Gas

The project site is located entirely within the Southwest Gas Corporation (SGC) utility service territory. A natural gas pipeline is currently installed on the project within the SR-38 right-of-way, very near Big Bear Lake. However, since the site is vacant, no service currently extends onto the site.

SGC is principally engaged in the business of purchasing, transporting and distributing natural gas to residential, commercial and industrial customers in the southwestern United States. SGC serves approximately 1.8 million customers in Arizona, Nevada and portions of California. The company added 71,000 customers in 2006, maintaining its status as one of the fastest-growing natural gas distribution companies in the nation (excluding mergers and acquisitions).

Electricity

Bear Valley Electric Service (BVE) is the local provider of electricity. BVE provides electric power to more than 20,000 customers in the communities surrounding Big Bear Lake, including the Fawnskin area.

BVE recently constructed a local power generating station to provide backup power and peak power to supplement the two power lines that feed the valley. An overhead power line traverses the project site in an east/west direction and is adjacent to and along SR-38.

4.9.2 - Thresholds of Significance

The following criteria for establishing the significance of potential impacts on public services resources were derived from Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The proposed project would result in potentially significant impacts to public services if the project would:

a.) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board (RWQCB);

b.) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

c.) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

d.) Have insufficient water supplies available to serve the project from existing entitlements and resource, or are new or expanded entitlements needed;

e.) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;

f.) Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; and

g.) Not comply with federal, state, and local statutes and regulations related to solid waste.

4.9.3 - Project Impact Analysis

Projected Utility Use

Table 4.9-1 estimates the utilities consumed/generated by the Proposed Alternative Project.

Table 4.9-1: Projected Utility Use

Utility	Average Usage	Moon Camp Total/Day*	Moon Camp Total/Year*
Water			
Consumption Rate	250gallons/day/unit	12,500 gallons/day	14 acre-feet/year([1])
Sewer			
Generation Rate	215 gallons/day/unit	10,750 gallons/day	3.9 million/gallons/year([2])
Electricity			
Consumption Rate	16.66 kWh /unit/day	833 kWh/day	304 thousand kWh/year
Natural Gas			
Consumption Rate	219.12 cubic feet/unit/day	10,956 cubic feet/day	4 million cubic feet/year
Solid Waste			
Generation Rate	20 pounds/day/household	1,000 pounds/day	182.5 tons/year

Source - Water Feasibility Study([1]) (Alda, 2007); Sewer Feasibility Study([2])(So, 2007).
* Based on 116 residents (50 units at 2.31 persons/unit; persons/unit).
Note: Totals could be slightly off due to rounding.

4.9.4 - Water Service Alternatives

Although water service is not presently provided to the project site, the site is immediately adjacent to the jurisdiction of the DWP and annexation to the DWP's authorized service area is one of three

possible water service alternatives. DWP has conducted a Water Feasibility Study (Alda, 2007), and provided a conditional will serve letter to the Applicant. However, the majority of the project site is outside of the DWP authorized service area as well as the City's Sphere of Influence. DWP cannot provide water service without first complying with the provisions of Government Code Section 56133, which pertains to the LAFCO annexation process. In order for the DWP to provide water service to the project site and to own and operate the Proposed Alternative Project's water system, LAFCO would have to approve an expansion of the City of Big Bear Lake's Sphere of Influence (SOI) to include the entire existing DWP Water Service Area in Fawnskin as well as the entire project site. The developer would be required to construct the on-site and off-site facilities as described in the DWP's Water Feasibility Study (Alda, 2007). This is Water Service Alternative #1 (see below for details).

Water Service Alternative #2 (see below for details) would not require LAFCO's approval and would not create the expansion of the City's Sphere of Influence around Fawnskin and the project site. Instead, County Service Area 53C (CSA 53C) would own and operate the water facilities within the project site and contract with the DWP for a water interconnection to the existing Fawnskin water system. The developer would be required to construct the same on-site and off-site facilities as described in the DWP's Water Feasibility Study (Alda, 2007).

Water Service Alternative #3 (see below for details) would not require LAFCO's approval and would not create the expansion of the City's Sphere of Influence around Fawnskin and the project site. Alternative #3 would involve the developer constructing an independent water system completely within the project site. The developer would construct the same on-site water lines as in Water Alternatives #1 and #2, and, in addition the required water reservoir and water booster station would be constructed by the developer on the project site (rather than constructing the off-site water facilities identified in the DWP's Water Feasibility Study). CSA 53C would own and operate this independent water system.

Water Service Alternative #1

According to the Water Feasibility Study prepared by Alda Engineering Inc. (Appendix G), water service to the project site could be provided from the DWP's Upper Fawnskin pressure zone (*Water Feasibility Study*, Appendix G, Alternative B). However, significant transmission improvements in the Fawnskin system would be needed to provide fire flow to the project site. The closest DWP pipeline within the Upper Fawnskin system is a single six-inch-diameter pipeline located near the intersection of Flicker Road and Chinook Road, approximately 2,000 feet from the westerly boundary of the project site.

The Upper Fawnskin pressure zone has an operating hydraulic grade of 7,113 feet set by the high water level of the existing 0.25-million gallon Racoon Reservoir. Based on this hydraulic elevation, static pressures within the project site would range from a low of 71 psi at the highest point in Lot 18 to 157 psi near the lake. Therefore, individual pressure regulators would be required for all lots with

static pressures exceeding 80 psi. The future home owners would install and fund the individual pressure regulators as required for specific lots.

Projected water demand for the Proposed Alternative Project, Moon Camp 50-lot subdivision, is based on the DWP's Water Feasibility Study consumption rate of 250 gallons per day (gpd) per connection. Exhibit 2-6, Proposed Water Facilities, shows the proposed water system. Maximum day demand is estimated based on information provided in the recently completed DWP Water Master Plan and it is equivalent to 1.76 times the average day demand. Therefore, the average and maximum day demands for the Proposed Alternative Project's 50-lot subdivision are estimated as follows:

- Average Day Demand (ADD) = 12,500 gpd or 8.68 gallons per minute (gpm); and
- Maximum Day Demand (MDD) = 15.27 gpm.

Based on an estimated average day demand of 12,500 gallons, the annual water demand for the Proposed Alterative Project (50 lots) is estimated at 4.56 million gallons or 14 acre-feet per year. Required fire flow and water storage for the Proposed Alternative Project are identified in the Alda Water Feasibility Study (Appendix G) as 1,750 gpm with a 2-hour duration, and 238,600 gallons of storage.

Currently there are three groundwater wells on-site (constructed by the project's property owner and developer), Wells FP2, FP3 and FP4. Alternative #1 involves wells FP2, FP3, and FP4 being deeded to the DWP at the time the tract map is recorded.

The Water Feasibility Study provides two options (A and B) for expanding the existing Fawnskin Water System infrastructure. Option B has been chosen by DWP and the Applicant as the preferred Water Feasibility Study alternative for Water Service Alternative #1. In either case, the Applicant would install all common infrastructures, including fire hydrants, and would also install the water main lines within the project site. The water improvements will primarily occur within existing paved roads. Nearby residents are not required to tie into the proposed DWP water system. The impacts related to the installation of the off-site and on-site water improvements would be temporary and are considered less than significant. See Exhibit 2-6 for the proposed water facilities and improvements.

Water Service Alternative #2

This Alternative assumes the City does not wish to expand its Sphere of Influence, or that LAFCO does not approve an expansion of the City of Big Bear Lake's Sphere of Influence to include the entire existing DWP Water Service Area in Fawnskin as well as the entire project site (Water Service Alternative #1). The existing County Service Area 53C (CSA 53C) is authorized to own and operate water systems, and currently CSA 53C encompasses the entire project site. No LAFCO action would be required for CSA 53C to own and operate the Proposed Alternative Project's Water System.

Alternative #2 would include the developer constructing the on-site and off-site water facilities contained in the DWP's Water Feasibility Study (Alda, 2007); CSA 53C owning and operating the Proposed Alternative Project's Onsite Water System (the three water wells and the water main lines); DWP owning and operating the water facilities constructed by the developer within the DWP's Fawnskin Water System; and CSA 53C contracting with the DWP for a water interconnect between the DWP's existing Fawnskin Water System and the Proposed Alternative Project's Onsite Water System.

All of the water demand calculations for the Proposed Alternative Project, water system descriptions, and the Water Feasibility Study Option B described in Water Service Alternative #1, apply to Water Service Alternative #2.

The water improvements for Water Service Alternative #2 would primarily occur within existing paved roads. The impacts related to the installation of the off-site and on-site water improvements would be temporary and are considered less than significant. See Exhibit 2-6 for the proposed water facilities and improvements.

Water Service Alternative #3

Instead of constructing the off-site water facilities (within the Fawnskin Water System) identified in the DWP's Water Feasibility Study Option B (Alda, 2007, which is the basis for Water Service Alternatives #1 and #2, above), the Proposed Alternative Project's developer would construct an on-site reservoir (238,600 gallons) and an on-site booster station capable of providing the daily water supply flow and the required 1,750 gallons per minute fire flow. The reservoir and booster station would be sized based upon the same demand calculations contained in the Water Feasibility Study and Water Service Alternatives #1 and #2:

- Average Day Demand (ADD) = 8.68 gpm.
- Maximum Day Demand (MDD) = 15.27 gpm;
- Fire Flow = 1,750 gpm with a 2 hour duration;
- Operational Storage = 30% of MDD (15.27 gpm) = 6,600 gallons;
- Emergency Storage = 100% of MDD (15.27 gpm) = 22,000 gallons;
- Fire Flow Storage for 1,750 gpm (2 hour duration) = 210,000 gallons; and
- Total Storage Requirement per the Alda Water Feasibility Study = 238,600 gallons.

The developer would also construct the same on-site (within the project site) water facilities (water main lines, fire hydrants, etc) identified in the Alda Water Feasibility Study. Existing water wells FP2 and FP4 would be connected to the on-site water system and pump their water into the 238,600 gallon on-site reservoir. The on-site booster station would produce the Average and Maximum Daily Demand flows (8.68 gpm and 15.27 gpm) and the Fire Flow of 1,750 gpm for the 2-hour duration. The booster station would include an emergency electrical generator to allow the station to operate during a power outage.

The water improvements for Water Service Alternative #3 will primarily occur within the Proposed Alternative Project's paved roads and at the Proposed Alternative Project's reservoir site. The construction of the reservoir would include grading an approximately 75-foot-diameter pad for the reservoir. The impacts related to the installation of the on-site water improvements would be temporary and are considered less than significant.

4.9.5 - Proposed Alternative Project - Water Demand and Water Supply

The Water Feasibility Study calculates the Water Demand for the Proposed Alternative Project as:

- 250 gallons per day per connection x 50 lots = 12,500 gallons per day;
- 12,500 gallons per day x 365 days/year = 4,562,500 gallons per year; and
- 4,562,500 gallons per year is equal to 14 acre-feet per year.

The water supply for the Proposed Alternative Project's 14 acre-feet per year demand will come from two groundwater basins. Based on two separate reports prepared by Geoscience in 2000 and 2003 (included as appendices to the 2005 Final EIR), the annual groundwater recharge for Subarea A of the North Shore Subunit is between 14 and 44 acre-feet per year, with an estimated annual Maximum Perennial Yield of 29 acre-feet per year. In order to be as conservative as possible, the "minimum recharge" of 14 acre-feet per year will be utilized for Subarea A. There are also existing private, homeowner wells that withdraw their water supply from Subarea A. Table 4-2 of the DWP's 2006 Water Master Plan, prepared by CDM Engineering, shows the "Private Wells Production" within Subarea A as 5 acre-feet per year of groundwater production. Subtracting the 5 acre-feet of groundwater production from the minimum recharge for Subarea A of 14 acre-feet leaves 9 acre-feet available to supply the Proposed Alternative Project. Existing Project Well FP-2 is capable of pumping the 5.6 gallons per minute that will produce the 9 acre-feet per year of groundwater production from Subarea A and will also produce the Maximum Day Demand of 15.27 gpm (Geoscience Support Services Inc, 2008, Results of Rehabilitation and Aquifer Testing Moon Camp Well FP2).

The remaining 5 acre-feet per year of Proposed Alternative Project Demand will be supplied from the Grout Creek Groundwater Subunit, Subarea D. Project Well FP-4, which was drilled by the developer in the northwest corner of the project site, will supply the 5 acre-feet per year of groundwater production, which is 3.1 gallons per minute (Harich Enterprises, 2009, Well FP-4 Driller's Report). Thomas Harder Groundwater Consulting noted in its report that the only potential impact from FP-4 would be the draw-down influence onto neighboring private wells as indicated from pump test data. The data indicated that FP-4, at a sustained rate of 3.5 gpm, would result in a 2-foot draw-down in groundwater level for the nearest private well, which is located approximately 250 feet from Well FP-4. The available data on private wells suggests that the nearest private well has a saturated thickness that would be able to accommodate the additional 2-foot draw-down and that pumping from Well FP-4 would not significantly impact the private well's routine operations. Based on these data, mitigation (per the 2009 Water Supply Report) shall be incorporated into the Proposed

Project Alternative that will limit the Proposed Alternative Project's allocation of water supply from Well FP-4 to a maximum of 5 acre-feet per year.

Geoscience (2003) reports the groundwater annual recharge of Grout Creek Subarea D to be between 32 and 99 acre-feet per year, with an estimated annual Maximum Perennial Yield of 66 acre-feet per year. At present, the only groundwater production in this subarea is from 11 private wells and is calculated to be 3 acre-feet per year. The additional 5 acre-feet per year of annual groundwater production from Well FP-4, combined with the existing 3 acre-feet per year of annual groundwater production, results in 8 acre-feet per year of total annual groundwater production, well below the low end of the annual recharge for Subarea D, which is 32-acre-feet per year, and also well below the estimated Maximum Perennial Yield for Subarea D which is 66 acre-feet per year.

Project Well FP-2 was cleaned, rehabilitated and test pumped by Roadrunner Drilling, under the supervision of Geoscience, in July of 2008. Geoscience's August 2008 Report concluded that:

- Well FP-2 has successfully been rehabilitated and its specific capacity restored to near original levels;
- Well FP-2 can yield up to 35 gpm on a long term basis with less than 10 ft of drawdown;
- At the 35 gpm discharge rate, pumping interference with the nearest private well (910 feet to the east of FP2) is expected to be less than 0.3 ft (less than 3.6 inches);
- Groundwater quality data from Well FP-2 indicates the water from the well is suitable for municipal supply; and
- There is no evidence from the Microscopic Particulate Analysis that the ground water produced by Well FP-2 is under the direct influence of surface water in Big Bear Lake.

Thomas Harder, Groundwater Consulting (formerly with Geoscience), stated in his May 1, 2009, letter (Appendix C) that the potential impact of pumping Project Well FP-2 on the surface water of Big Bear Lake would be minimal. The top of perforations for Project Well FP-2 (the area of the well where water is withdrawn from the surrounding soil) occur (begin) approximately 60 feet below ground surface, at an elevation of approximately 6,686 feet above mean sea level (msl). The high surface water elevation in the lake is 6,743 feet msl and the average depth of the lake is 30 feet. Thus, the elevation of the bottom of Big Bear Lake is approximately 27 feet above the top of perforations for Project Well FP-2. The geologic log for Project Well FP-2 shows multiple silt and clay layers between the land surface and top of perforations. If the silt and clay layers extend beneath the lake, they would provide some hydraulic separation between the lake water and aquifer system. While it is possible that some vertical leakage could occur from the lake into the aquifer system of FP-2, the majority of groundwater produced by FP-2 would be from the aquifer underlying Subarea A.

The third existing, on-site well, FP-3, located to the east of the FP-2 well, would not be equipped nor pumped, but will be used as a monitoring well to record groundwater levels.

Groundwater Recharge

Impacts from Project Wells FP-2 and FP-4 will be less than significant as long as mitigation measures established in the Thomas Harder Groundwater Consulting Report are implemented to ensure that annual groundwater production limits for FP-2 are 9 acre-feet per year; and FP-4 are 5 acre-feet per year.

In summary, the Proposed Alternative Project demand is 14 acre-feet per year. Well FP-2 is capable of producing the 5.6 gallons per minute, which is 9 acre-feet per year from North Shore Subunit, Subarea A, and Well FP-4 will produce the 3.1 gallons per minute, which is 5 acre-feet per year from Grout Creek Subunit, Subarea D. Therefore, there is sufficient water available to serve the Proposed Alternative Project, and the impacts in regard to water supply for the Proposed Alternative Project are considered less than significant.

Wastewater

So and Associates Engineers Inc. prepared a wastewater feasibility study for the Proposed Alternative Project (So, April 2007; Appendix G). According to So and Associates, the project would generate approximately 10,750 gallons of effluent per day, with an estimated peak flow of 43,000 gallons per day. According to the study, the existing sewer system has the capacity to service the Proposed Alternative Project.

Before service can be extended to the site, both on and off-site improvements would be necessary. The improvements include an extension of 1,200 linear feet along North Shore Drive to connect to the existing 8-inch collector sewer southwest of the property. Other requirements include that 1) all gravity facilities must be minimum 8-inch diameter; 2) all on-site facilities must meet CSA 53B standards and specifications and construction plans must be submitted for plan check and approval by the District Engineer; and 3) the Applicant will be required to construct 4,400 lineal feet of on-site collector sewer mainlines as shown in Exhibit 2-7, Proposed Sewer Facilities.

The Proposed Alternative Project would convey part of the wastewater flow via gravity sewer to the existing Pump Station B, southeast of the property, as shown in Exhibit 2-7. However, depending upon where houses are built on each lot, some of the lots may require individual, on-site, household pump stations. This will depend on the individual lot design and will be decided at the time each lot is developed. The future homeowner will fund and install the lot-specific sewer improvements.

The Applicant would construct and pay for all common sewer infrastructure required for implementing the Proposed Alternative Project. The future homeowners will fund the lot-specific improvements. The future homeowners will pay for the associated connection fees to CSA 53B and BBARWA. The County's local fee for connecting to CSA-53B is $1,358.72 per dwelling unit. This

represents $67,936 in local connection fees for the 50 residential lots in the Proposed Alternative Project. Regional fees are also imposed by BBARWA for sewage treatment and disposal. These fees are assessed at $2,704.99 per dwelling unit, which represents $135,249.50 in regional connection fees for the 50 residential lots in the Proposed Alternative Project.

The sewer line design and connection details must be submitted to the County's Special Districts Department (SDD) for plan check and approval. The Applicant will pay the sewer line design and inspection fees that are related to the common infrastructure. Individual lot owners / home builders do not pay any of these fees. Individual home builders would pay an inspection fee to CSA 53B for the inspection of their house lateral connection to the common infrastructure.

The future residents would pay monthly user fees that offset the sewer system maintenance. Therefore, all project related costs would be paid for by the Applicant and/or the future residents, and the utility providers would not be financially impacted by the future residential development.

The existing sewer system has the capacity to service the 50 residential lots in the Proposed Alternative Project, and the cost of providing service will not impact BBARWA, the County or existing Fawnskin residents. The impacts in regard to sewer service are considered less than significant and no mitigation is required.

Solid Waste

According to the website of the California Integrated Solid Waste Management Board, local residents generate an average of 20.0 pounds of solid waste per household per day. Since the Proposed Alternative Project would have 50 single-family residences, the Proposed Alternative Project could generate as much as 1,000 pounds or one-half ton of solid waste per day.

Solid waste collection within the project area would be provided by Big Bear Disposal, Inc. Waste would be transported to the Big Bear Transfer Station, located on Holcomb Valley Road in Big Bear City, approximately 1.5 miles north of Highway 18. The transfer station is owned and operated by the County of San Bernardino Waste Management Division. From the transfer station, solid waste is transferred to the Barstow Landfill; a County of San Bernardino owned and operated facility. The landfill is currently permitted to receive 750 tons of waste per day. The landfill is currently at approximately 25 percent of the original capacity of 3.58 million cubic yards. Closure is scheduled for May 1, 2012. However, as part of the County's strategy for long-range solid waste disposal, the Barstow Landfill could be expanded onto adjacent county-owned property.

County landfills do not accept hazardous wastes. The County operates regular programs/operations to routinely collect hazardous wastes from residential sources (i.e., residential round-ups, once a month collection locations, etc.). Each new residence is expected to generate approximately 50 pounds of hazardous waste per year, according to data from the State Integrated Waste

Management Board website. All residents, including those within the project site, are expected to take advantage of these programs to a similar degree as existing County residents.

Since the cost is passed down to the residents via monthly service fees and because the landfill has adequate storage capacity, no significant impacts are anticipated with regard to solid waste collection or disposal.

Natural Gas

SGC has indicated that natural gas main pipelines are installed in the right-of-way of SR-38. According to the 2005 Final EIR, the Southwest Gas Corporation has concluded that there is sufficient capacity in their facilities to provide natural gas service to the project area without any significant impact on the environment. As such, extensions to existing facilities would be required in order to provide service to the Proposed Alternative Project. Service would be provided in accordance with SGC's policies and extension rules on file with the California Public Utilities Commission. Future natural gas service to the project area would require coordination with the company's engineering department for a comprehensive plan as to levels of service required.

Because the larger (92-lot) Original Proposed Project would not cause significant impacts, the Proposed Alternative Project, with 46 percent fewer residential units, would also not cause significant impacts. Therefore, implementation of the Proposed Alternative Project would result in a less than significant impact with respect to natural gas service.

There is a natural gas line underneath Big Bear Lake, located to the east of the proposed marina. There has been some public concern regarding this natural gas line and the potential for it to rupture during construction activities in the lake, associated with the construction of the boat launch ramp and placement of the floating docks. The gas line does not pose a threat to public safety, as it is buried, and, therefore, protected from boating activities during low lake levels. Furthermore, no dredging of the lake is proposed for the marina. The only proposed construction that would interfere with the lake is the proposed ramp. However, the ramp would not be located in the area of the natural gas line. Additionally, prior to any excavation, Underground Service Alert must be called and all utilities respond and mark the location of their underground lines. The impacts in this regard are therefore considered less than significant.

Electricity

The Proposed Alternative Project would result in an increased demand for electrical service. Based on a daily average of 16.66 kilowatts per unit, at project buildout the Proposed Alternative Project would utilize 833 kilowatts per day. BVE recently constructed a local power generating station to provide backup power and peak power to supplement the two power lines that feed the valley. According to BVE, service is available and of adequate supplies.

The Applicant will construct and fund all infrastructure related to the Proposed Alternative Project. In addition, the future residents of the site will pay monthly user fees that offset the cost of service and maintenance. Therefore, the impacts in this regard are considered less than significant and no mitigation is required.

4.9.6 - Standard Conditions and Uniform Codes

All utility improvements constructed as part of the Proposed Alternative Project will meet applicable uniform codes (i.e., plumbing, fire, and building), including potable water and sewer systems, electrical cables and wiring, natural gas lines, solid waste containers and enclosures, and telephone/cable lines. The County's development review and construction inspection processes would assure that these improvements are constructed according to appropriate standards.

Water conservation measures recommended by the California Department of Water Resources must be incorporated as appropriate, including but not limited to: (a) low flush toilets of no greater than 1.6 gallons per flush; (b) insulation of hot water lines to provide hot water faster with less waste; and (c) keeping water pressure at 55 pounds psi or less. Some portion of the landscaping, especially shrubs and trees, may be native species or species that are adapted to drought conditions.

The project must comply with energy conservation standards contained in Titles 20 and 24 of the California Code of Regulations, Section 2-5307(b), which is the California Energy Conservation (CEC) Standard for New Buildings. These regulations prohibit the installation of fixtures unless the manufacture has certified to the CEC compliance with the flow rate standards. Title 24, California Code of Regulations Sections 2-5452(i) and (j) addresses pipe installation requirements, which can reduce water use before hot water reaches equipment or fixtures. Title 20, California Code of Regulations Section 1604(f) and 1606(b) are Applicable Efficiency Standards that set the maximum flow rates of all plumbing fixtures and prohibit the sale of non-conforming fixtures.

The Applicant or individual property owners would also be responsible for paying applicable utility impact fees charged by various service providers. Payment of these fees helps the local agencies anticipate future demand and establish plans and construct new facilities to serve growth.

4.9.7 - Project Design Features

The Proposed Alternative Project includes master water and sewer plans that will provide comprehensive utility systems. All utility improvements will be constructed to the satisfaction of the County Public Works Department; and SWG, Bear Valley Electric and BBARWA, CSA 53B, CSA 53C and Big Bear Lake Department of Water and Power will maintain their respective utility lines within the public right-of-way, as appropriate. The Applicant will install all common infrastructures necessary to support the proposed residential development, including the required wastewater improvements, water mains, and fire hydrants.

4.9.8 - Mitigation Measures

Project design features and standard conditions and uniform code reduce many potential impacts to less than significant levels. However, the following mitigation measures are recommended in order to mitigate utility impacts associated with the Proposed Alternative Project to the maximum extent feasible.

Water

U-1a The Moon Camp Home Owners Association shall create a "conservation guidelines" booklet that outlines the following measures:

- All indoor water fixtures shall be low flow / low flush.
- Landscape shall not be irrigated between the hours of 9:00 a.m. and 6:00 p.m.
- Residences, buildings, and premises shall be limited to watering landscaping every other day.
- Water from landscape irrigation shall not be allowed to run off into streets or other paved areas.
- Water leaks are not permitted and must be repaired as soon as practicable.
- Sidewalks, paved driveways, and parkways shall not be washed off with hoses, except as required for sanitary purposes.
- Washing non-commercial vehicles (cars, boats RVs) is permitted; however, it shall only be permitted with an automatic shut-off nozzle on a hose, or with a bucket.
- Turf landscaping shall be limited to 500 square feet on a parcel or lot unless the water purveyor's regulations allow additional turf area.
- Turf irrigation shall include an automatic controller that incorporates evapo-transpiration and rain shutoff features.
- Sprinklers are only allowed on turf. All other landscape plantings must be irrigated with efficient, low water use devices, such as, drip systems or bubblers.
- All outdoor irrigation systems shall be shut off and winterized between November 1st and April 1st of each year.
- A model landscaping and irrigation guide shall be prepared for the tract and required by homeowner association rules. The guide shall identify the following conservation measures: Landscaping shall include a plant palate that emphasizes Xeriscape, native plants and cultivars that are suitable for the mountain climate. Plant materials shall be low water consuming and fire

resistant. Irrigation shall limit aerial spray methods and shall emphasize drip and bubbler type emitters. The landscaping guidelines shall be reviewed and approved by the Land Use Services Department. In addition, the project shall comply with the local water agency's Model Landscape and Irrigation Ordinance'.

- The Project shall comply with the local water agency's "Model Landscape and Irrigation" ordinance.

U-1b Pumping and extraction of groundwater shall be limited to 9 acre-feet per year for Well FP-2, 0 acre-feet per year for Well FP-3, and 5 acre-feet per year for Well FP-4. If the water purveyor desires to extract groundwater from Well FP-2 in excess of 9 acre-feet per year, the purveyor shall conduct an independent environmental analysis to identify and consider potential impacts at that time.

U-1c The grant deeds transferring ownership of Wells FP-2, FP-3 and FP-4 shall include the pumping and extraction limitations included in Mitigation Measure U-1b. The grant deeds shall also state that the water purveyor, on January 1st of each year, shall report the amount of the prior year's annual groundwater production from Wells FP-2, FP-3 and FP-4 to the County Land Use Services Department and the County Health Department.

Wastewater

U-2 Prior to issuance of building permits, the Applicant shall fund all on-site and off-site sewer improvements required to support development of the project site. Such improvements shall be to the satisfaction of the County Service Area (CSA)53B.

U-3 Prior to issuance of building permits, the Applicant shall provide evidence to the County of San Bernardino that the BBARWA has sufficient transmission and treatment plant capacity to accept sewage flows from the project site.

4.9.9 - Level of Significance after Mitigation

The utility impacts of the Proposed Alternative Project would be less than significant with mitigation.

SECTION 5: CUMULATIVE IMPACTS

5.1 - Introduction

California Environmental Quality Act (CEQA) Guidelines (Section 15130) require identification of related projects, both public and private, that together with a proposed project could have cumulative impacts on the environment. There are several development projects in the general vicinity of the Proposed Alternative Project that may produce a cumulative impact on the community. These projects may produce community-wide and area-wide cumulative impacts related to traffic, noise, and air quality, in addition to various site-specific impacts.

CEQA Guidelines Section 15604(i), which is the same as CEQA Statute Section 21083(b), includes a vague definition of "cumulatively considerable." Project contributions to cumulative impacts are "considerable" when viewed in connection with the effects of past, current, and "probable future projects." This information will be used as guidance in evaluating the cumulative impacts of planned growth and the Proposed Alternative Project's contributions to those impacts. For all environmental issues, the area of consideration of potential cumulative impacts will be specified so the contribution of the Proposed Alternative Project to cumulative impacts can be clearly identified.

5.2 - Cumulative Projects

CEQA Guidelines Section 15130 requires identification of related projects, both public and private, that together with a proposed project could have cumulative impacts on the environment. The County of San Bernardino and City of Big Bear Lake have identified 17 development projects, in addition to the Proposed Alternative Project, that are either pending or recently approved, or in process of being constructed within the Proposed Alternative Project area. These "cumulative" projects represent a total of 957 residential units, 146 hotel rooms, approximately 40,000 square feet of retail space, 6,300 square feet of office space, a 20,000 square-foot church, and 3 acres of mini-storage. Table 5-1, Cumulative Project List, summarizes the projects within the study area that could have a direct or connected indirect impact or influence on the project site or surrounding area.

If approved and constructed, these projects could introduce an additional 2,110 residents into the Big Bear Valley. This estimate is based on an average household size of 2.31 persons per household for standard single-family units based on data from the federal census.

Table 5-1: Cumulative Project List

Project Type	Description	Number of Units/Size	Population
County of San Bernardino			
TT 16771	SFR	242	559
TT 16934	SFR	228	527
TT 17217 &TT17022	SFR	53	122
TT 16036	SFR	116	268
TT 14916	SFR	51	118
TT 16980	SFR	15	35
TT 1776H	SFR	10	23
TT 16749	SFR	86	199
TT 17201	SFR	66	152
Total (County of San Bernardino)		**867 Residential Lots**	**2,003**
City of Big Bear Lake			
Hilton Garden Inn	Hotel	91 Rooms	- -
Mixed use Development	Retail	22,500 square feet	9
	Office	6,300 square feet	
	Residential	10 acres/4 lots	
Residential	SFR	8 lots	18
Residential	Condominiums	78 dwelling units	180
Mixed use Development	Hotel	55 rooms	- -
	Retail	10,000 square feet	- -
	Fast Food	2,500 square feet	- -
World Harvest Faith Center	Church	20,000 square feet	- -
Boat Parts Retail & Service	Boat/Auto Care Center	4,375 square feet	- -
Storage Yard	Mini Storage	3 acres	- -
Total (Big Bear)		**12 SFR/78 MFR, 65,675 square feet of mixed use, 3 acres of storage, 149 hotel rooms**	**207**
TOTAL		**879 SFR 78 MFR 65,675 square feet of mixed use 3 acres of storage 146 hotel rooms**	**2,210**

The potential cumulative impacts of these developments are evaluated herein. Each environmental issue analyzed previously in Sections 4.1 through 4.9 of this Revised and Recirculated Draft Environmental Impact Report (EIR) is also evaluated here in terms of cumulative impacts.

5.3 - Cumulative Impacts Analysis

Cumulative impacts related to Geology and Soils, Public Safety, and Cultural Resources were determined to have been adequately addressed in the 2005 Final EIR and are not re-analyzed in this Revised and Recirculated Draft EIR. Please refer to the 2005 Final EIR for a discussion of cumulative impacts to these areas.

5.3.1 - Aesthetics/ Light and Glare

Build-out of the Proposed Alternative Project, together with cumulative projects, may alter the nature and appearance of the area and contribute to the loss of undeveloped areas. As development occurs in the Fawnskin area as well as the broader Big Bear Valley, residents and visitors in the area would notice the visual effects of development projects. Construction of currently approved and pending projects in the vicinity would permanently alter the nature and appearance of the area through the loss of undeveloped properties. Security and street lighting would introduce some light and glare to the area; however with adherence to development code requirements, these impacts can be minimized. The significance of these visual/aesthetic changes is difficult to determine, since aesthetic value is subjectively determined and potential impacts are site-specific, and impacts are typically evaluated on a project-by-project basis.

The County of San Bernardino identifies the Proposed Alternative Project site within a Scenic Resources (SR) Overlay District and SR-38 as a County Scenic Highway. The State of California has also designated this portion of SR-38 as a "Scenic Highway" and the U.S. Forest Service (USFS) has designated SR-38 as a "scenic byway." The intent of the SR Overlay District is to "provide development standards that will protect, preserve, and enhance the aesthetic resources of the County." Thus, cumulative impacts in this area can be mitigated to less than significant levels by following the development standards of the SR Overlay District for building and structure placement, project design, access drives, landscaping, roads, undergrounding of utilities, grading and signs, in addition to the use of building materials that are consistent with the general character of the area, and proper lighting techniques to direct light on-site and away from adjacent properties. Although no mitigation measures were specifically recommended to reduce cumulative impacts, Mitigation Measures A-1a through A-4f are required to further reduce the Proposed Alternative Project's impacts to Aesthetics/Light and Glare.

Project-specific impacts to Aesthetics/Light and Glare will be reduced to less than significant levels by the incorporation of mitigation measures, along with standard conditions and Conditions, Covenants & Restrictions (CC&Rs). Similarly, the Proposed Project Alternative's contribution to

Aesthetics/Light and Glare is less than significant when considered in connection with cumulative projects and will not result in a significant cumulative impact.

5.3.2 - Air Quality

The requirement for the assessment of cumulative impacts to Air Quality has evolved recently and now includes discussions of greenhouse gas emissions and global warming. There are no published thresholds for measuring the significance of a project's cumulative contribution to global climate change. Global climate change is an international phenomenon; the regulatory background and scientific data are changing rapidly. However, it is reasonable to apply the same requirements used for criteria pollutants; that significance is when a project results in a cumulatively considerable net increase of greenhouse gases (GHG).

The following four-tiered approach was used to assess cumulative air quality impacts.

- Consistency with the South Coast Air Quality Management District (SCAQMD) project specific thresholds for construction and operation;
- Project consistency with existing air quality plans;
- Assessment of the cumulative health effects of the pollutants; and
- Cumulative impact of global climate change.

Cumulative Health Impacts

The South Coast Air Basin is in non-attainment for ozone, 10-micron or less particulate matter (PM_{10}), Fine particulate matter ($PM_{2.5}$), and Carbon monoxide (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.

The localized significance analysis (Section 4.2, Air Quality) 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 SCAQMD's significance thresholds. Reactive organic gases (ROG) and Nitrogen oxides (NO_X) are precursors to ozone; and 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. Proposed Alternative 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.

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. Operational

emissions of PM_{10} and $PM_{2.5}$ are not expected to exceed the regional significance threshold. Therefore, Proposed Alternative 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 to create a significant impact. Implementation of Mitigation Measures AQ-3 and AQ-4 (identified in Section 4.2, Air Quality) would create an environment where woodburning activities may contribute to the local wood smoke, but such contribution would not be considered cumulatively considerable. Thus, the Proposed Alternative Project's impact to Air Quality is less than significant when considered in connection with cumulative projects.

Greenhouse Gas (GHG) Emissions/Global Climate Change

As demonstrated in the Project Air Quality Analysis (refer to Appendix A) and the information presented in Section 4.2, the Proposed Alternative Project would not conflict with the attainment of the state's goals of reducing greenhouse gas emissions as dictated by AB 32. In addition, the Proposed Alternative Project will include design features that will further reduce the Proposed Alternative Project's contribution to global climate change. As such, the Proposed Alternative Project's potential to contribute considerably (either individually or cumulatively) to a global climate change impact through GHG emissions is less than significant.

5.3.3 - Biological Resources

Significant and unavoidable impacts from development of the Proposed Alternative Project related to Biological Resources have been identified for impacts to bald eagle. Mitigation Measure BR-4 requires that eagle perch locations be preserved in place upon completion of the Proposed Alternative Project, and that any development that may occur within the Proposed Alternative Project site and in the individual lots must avoid impacts to trees larger than 24 inches dbh and their root structures. Still, even with the implementation of Mitigation Measure BR-4 and the establishment of nearly 6 acres of Conservation/Open Space set aside, some trees will still need to be removed from the Proposed Alternative Project site to allow for the development of the 50 residential lots. This is considered a significant and unavoidable project-specific, as well as cumulative, impact.

Six special status plant species have been observed on the Proposed Alternative Project site: ash-gray Indian paintbrush; Parish's rock cress; Big Bear Valley woollypod; Bear valley phlox; purple monkeyflower; and silver-haired ivesia. Impacts to special status plants and plant communities will be reduced by implementation of Mitigation Measures BR-1a and BR-1b, which require creation of a 4.91-acre on-site conservation easement to preserve the 0.69-acre Pebble Plain and 4.91 acres of occupied ash-grey Indian paintbrush habitat, and creation of the 10-acre Dixie Lee Lane Pebble Plain Habitat conservation easement that will mitigate the remaining impacts to ash-grey Indian paintbrush at a 3:1 ratio. Implementation of these Mitigation Measures will reduce impacts to plant species to less than significant levels. When considered in connection with the development of the cumulative

projects, the impacts of the Proposed Alternative Project on special status plant species are less than significant.

A total of 0.69 acres of pebble plain habitat occurs within the Proposed Alternative Project site; however, all of this habitat would be permanently preserved in an Open Space/Conservation easement consisting of a 4.91-acre easement (Lot A) at the westerly end of the Proposed Alternative Project site. The 0.69-acre site is near the center of the easement area, which would be buffered from future development of adjacent residential lots. Approximately 1,511 acres of pebble plain are known to exit in the San Bernardino Mountains (Krantz, 2008), 60 percent (906 acres) of which occurs on public lands. Development of the site would not result in the removal of any of the pebble plain that occurs on the project site. Further, in addition to the 0.69 acre of pebble plain habitat that will be preserved by Proposed Alternative Project implementation, an additional 10 acres of pebble plain habitat will be preserved through the purchase of the off-site mitigation area. When considered in connection with the development of the cumulative projects, the impacts of the Proposed Alternative Project on pebble plain habitat are less than significant.

A total of 50.72 acres of Jeffrey pine forest, including 13.81 acres of open Jeffrey pine forest, would be impacted by Proposed Alternative Project implementation. Approximately 58,526 acres of Jeffrey pine forest occurs in the San Bernardino National Forest and 141,604 acres in the Cleveland, San Bernardino, Angeles and Los Padres National Forests, collectively. Approximately 4.2 acres of open Jeffrey pine forest will be permanently preserved by a conservation easement. Impacts on this vegetation type would be considered cumulatively less than significant since this vegetation type is common throughout the San Bernardino Mountains and other mountain ranges in the region.

A total of 4.0 acres of ruderal lake shoreline would be impacted by Proposed Alternative Project implementation. Man-made lakes are essentially distinct ecosystems, with an aquatic fauna and flora that bears little resemblance to what naturally occurs in the streams that formed them. Impacts on this vegetation type would be considered less than significant.

A total of 2.82 acres of disturbed vegetation in developed areas (SR-38) would be impacted by Proposed Alternative Project implementation. Impacts on this vegetation type would not be considered significant since this vegetation type is considered to have a low biological value.

In sum, when considered in conjunction with the other cumulative projects, the Proposed Alternative Project would add incrementally to the cumulative significant impact on the bald eagle. Accordingly, cumulative impacts to the bald eagle are considered significant. The Proposed Alternative Project would not result in a significant cumulative impact to any other biological resource.

5.3.4 - Hydrology and Water Quality

For purposes of the drainage and water quality analysis, cumulative impacts are considered for projects in the same watershed as the project site, which would also drain into Big Bear Lake. For

purposes of this discussion, it is assumed that the list of cumulative proposed projects would all drain into the lake. The County of San Bernardino follows State standards for water quality. During construction, projects will be required to obtain coverage under the State's General Permit for Construction Activities that is administered by the California Regional Water Quality Control Board (RWQCB). The Proposed Alternative Project will obtain coverage under the statewide National Pollutant Discharge Elimination System (NPDES) permit for construction activities and develop and implement a Stormwater Pollution Prevention Program (SWPPP) to control erosion and protect water quality during the construction phase of the Proposed Alternative Project, as well as operate under an approved WQMP. The SWPPP must also implement other applicable BMPs as needed to keep pollutants away from stormwater. The SWPPP must also identify additional applicable measures taken during the storm season and when storms are anticipated.

It is assumed that any of the cumulative proposed projects would be required to comply with the same standards for urban runoff as outlined in the Santa Ana Region's NPDES Permit and Water Discharge Requirements, as a condition of approval. Each project would be required to prepare and implement a SWPPP for construction and a Water Quality Management Plan (WQMP) for long-term conditions after construction. Therefore, with adherence to the requirements of each project's respective NPDES permit and SWPPP requirements, no cumulative impacts would occur as a result of the Proposed Alternative Project.

5.3.5 - Land Use and Planning

Development of the site under the Proposed Alternative Project would not result in any cumulative significant land use impacts. The Proposed Alternative Project involves a request for a General Plan Amendment from Rural Living – 40 (minimum 40-acre lot sizes) (RL-40) to Single Family Residential with 20,000-square-foot minimum lot sizes (RS-20M). Upon approval of the General Plan Amendment, the Proposed Alternative Project will be developed consistent with the goals and policies of the Bear Valley Community Plan and the San Bernardino National Forest Land Use Management Plan and does not conflict with any applicable Habitat Conservation Plan (HCP) or any Community Conservation Plan.

The current land use designation of the Proposed Alternative Project site, RL-40, is a remnant of the previous General Plan. It appears that subsequent development on adjacent and nearby private properties in the Fawnskin community has converted to a higher density on a tract by tract basis, and now the Proposed Alternative Project site is bordered on the west, northwest and southeast by development with a typical residential lot density of 7,200 square feet or greater. Thus, the Proposed Alternative Project will have a lower density than other residential uses in the immediate area.

It is assumed that as other projects are implemented in the area, each new project will undergo the same review process as the Proposed Alternative Project, in order to preclude potential land use compatibility issues and planning policy conflicts. It is further assumed that cumulative development will progress in accordance with the City of Big Bear Lake and County of San Bernardino General

Plan and Development Code, and that each individual project would be analyzed independent of other land uses, as well as within the context of existing and planned developments, to ensure that the goals, objectives and policies of the General Plans are consistently upheld. Thus, the Proposed Project Alternative's impacts on Land Use and Planning are less than significant when considered in connection with cumulative projects, and will not result in a significant cumulative impact.

5.3.6 - Noise

Implementation of the Proposed Alternative Project, when combined with development of cumulative projects, would contribute to ambient noise levels in the vicinity. This increase would be due to both vehicular traffic noises along local roadways; noise associated with boating activities on the lake; and stationary noise sources from residences and other proposed land uses. The Proposed Alternative Project is required to reduce noise impacts to comply with County noise standards and to adhere to Development Code and General Plan requirements. The analysis of the Proposed Alternative Project showed that development of the project site would not contribute to ambient noise in excess of County noise standards and, therefore, does not contribute to a significant cumulative noise impact. The evaluation of noise impacts is typically determined on a project-by-project basis in order to focus mitigation on a particular noise source. As such, future development proposals within the County would require separate discretionary approval and CEQA assessment, which would address potential noise impacts and identify appropriate attenuation measures where appropriate. Thus, the Proposed Project Alternative's contribution to Noise is less than significant when considered in connection with cumulative projects, and will not result in a significant cumulative impact.

5.3.7 - Public Services

The Proposed Alternative Project site is located in an area that is served by existing public services. Service providers have indicated that the Proposed Alternative Project's incremental impacts can be sufficiently mitigated through various fire protection measures, design features, an Emergency Operations plan, implementation of mitigation measures and the payment of development impact fees and property taxes by future homeowners. Therefore, the Proposed Alternative Project would not result in a significant impact to Public Services when considered in connection with cumulative projects and will not result in a significant cumulative impact.

5.3.8 - Traffic and Circulation

The Proposed Alternative Project would generate approximately 51 trips during AM peak hours, 51 trips during PM peak hours, and a total of 479 daily trips. The San Bernardino County Congestion Management Program (CMP) does not require analysis for projects that generate less than 250 peak hour trips; however, a long-range traffic analysis has been prepared for the Proposed Alternative Project.

A total of 17 cumulative projects were identified by the County of San Bernardino and City of Big Bear staff as affecting the study intersections. Other developments are projected to generate 15,111

trip-ends per day, with 1,455 vehicles per hour during the AM peak hour and 1,455 vehicles per hour during the PM peak hour.

For 2010 With Project traffic conditions, including traffic generated by cumulative projects, no new traffic signals are projected to be warranted as compared to 2010 Without Project conditions. The following study area intersections are currently operating at an unacceptable level of service during both Friday PM and Sunday mid-day peak hours:

Big Bear Blvd (SR-18) (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- Big Bear Blvd (SR-18) (EW)

These intersections will continue to operate at unacceptable levels without improvements, but will improve to acceptable levels with the addition of traffic signals with no significant impact due to the Proposed Alternative Project.

For General Plan Buildout With Project Conditions, the following study area intersections would operate at an unacceptable level of service during both Friday PM and Sunday mid-day peak hours without improvements:

Big Bear Blvd (SR-18) (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- Big Bear Blvd (SR-18) (EW)

Driveway #1 (NS) at:

- North Shore Drive (SR-38) (EW)

Driveway #2 (NS) at:

- North Shore Drive (SR-38) (EW)

Traffic improvements are needed for existing conditions and projected conditions whether or not this Proposed Alternative Project is implemented. If needed improvements are installed, implementation of this Proposed Alternative Project will not significantly reduce the level of service off-site. Nevertheless, fair share costs for off-site improvements have been calculated in the amount of $48,921 and will be paid as required by Mitigation Measure T-2.

The installation of on-site improvements as required by Mitigation Measure T-1, and the payment of fair share costs of improvements to impacted off-site roadway intersections will reduce traffic and circulation impacts related to the Proposed Alternative Project to a less than significant level. According to the traffic study, all study intersections are expected to operate at a level of service C or better during peak hours for the scenario analyzed with improvements installed. Other cumulative projects would also presumably be subject to fair share costs for necessary intersection improvements; thus, when considered in connection with cumulative projects, the Proposed Alternative Project's cumulative impact on traffic and circulation is less than significant and will not result in a significant cumulative impact.

5.3.9 - Utilities

The Proposed Alternative Project site is located in an area that is served by utilities and has its own water wells on-site that, when developed, will be turned over to the Department of Water and Power (DWP) or County Service Area 53C to administer. Although water service is not presently provided to the project site, the site is immediately adjacent to the Fawnskin Water System, which is owned and operated by the Big Bear Lake Department of Water and Power (DWP). DWP has conducted a Water Feasibility Study (Alda, 2007) and has provided a conditional will-serve letter to the Applicant. Annexation to the DWP's authorized service area is one of three possible water service alternatives. Other alternatives include ownership and operation of the Proposed Alternative Project's water facilities by County Service Area 53C, or the construction of an on-site, 238,600 gallon reservoir and on-site booster station.

The Water Feasibility Study calculates the Water Demand for the Proposed Alternative Project (50-lot subdivision) as:

- 250 gallons per day per connection x 50 lots = 12,500 gallons per day;
- 12,500 gallons per day x 365 days/year = 4,562,500 gallons per year; and
- 4,562,500 gallons per year is equal to 14 acre-feet per year.

The Water Supply for the Proposed Alternative Project's 14 acre-feet per year demand will come from two groundwater basins. Based on two separate reports prepared by Geoscience in 2000 and 2003 (which are appended to the 2005 Final EIR) the annual groundwater recharge for Subarea A of the North Shore Subunit is between 14 and 44 acre-feet per year. In order to be as conservative as possible, the minimum recharge of 14 acre-feet per year will be utilized for Subarea A. There are also existing private wells that withdraw their water supply from Subarea A. Table 4-2 of DWP's 2006 Water Master Plan, prepared by CDM Engineering, shows the "Private Wells Production" within Subarea A as 5 acre-feet per year. Subtracting the 5 acre-feet from the minimum recharge for Subarea A of 14 acre-feet leaves 9 acre-feet available to supply the Proposed Alternative Project. Existing Project Well FP-2 is capable of pumping the 5.6 gallons per minute that will produce the 9-acre-feet per year from Subarea A and will also produce the Maximum Day Demand of 15.27 gpm

(Geoscience Support Services Inc, 2008, Results of Rehabilitation and Aquifer Testing Moon Camp Well FP2).

The remaining 5 acre-feet of Project Demand will be supplied from the Grout Creek Groundwater Subunit, Subarea D. Well FP-4, which was drilled by the developer in the northwest corner of the project site, will produce the 5 acre-feet per year, which is 3.1 gallons per minute (Harich Enterprises, 2009, Well FP4 Driller's Report). Geoscience (2003) reports the groundwater recharge of Grout Creek Subarea D to be between 32 and 99 acre-feet per year, with a midpoint of 66 acre-feet per year. At present, the only groundwater production in this subarea is from 11 private wells and is calculated to be 3 acre-feet per year. The additional 5 acre-feet per year of pumping from Well FP-4, combined with the existing 3 acre-feet per year of pumping, results in 8 acre-feet per year of total pumping, well below the low end of the recharge for Subarea D, which is 32 acre-feet per year.

The third existing, on-site well, FP-3, located to the east of the FP2 well, would not be equipped nor pumped, but will be used as a monitoring well to record groundwater levels.

In summary, the Proposed Alternative Project demand is 14 acre-feet per year. Well FP-2 is capable of producing 5.6 gallons per minute, which is 9 acre-feet per year from North Shore Subunit, Subarea A, and Well FP-4 will produce the 3.1 gallons per minute, which is 5 acre-feet per year from Grout Creek Subunit, Subarea D. Impacts to groundwater levels from pumping from FP-2 and FP-4 will be less than significant, with implementation of Mitigation Measure U1-b, which establishes annual groundwater production limits for FP-2 as 9 acre-feet per year, and FP-4 as 5 acre-feet per year, and implementation of Mitigation Measure U1-c, which stipulates that the grant deeds transferring ownership of Wells FP-2, FP-3 and FP-4 must include the pumping and extraction limitations included in Mitigation Measure U-1b. In addition, if the water purveyor desires to extract groundwater from Well FP-2 in excess of 9 acre-feet per year, the purveyor must conduct an independent environmental analysis and consider potential impacts at that time. Therefore, there is sufficient water available to serve the Proposed Alternative Project, and the impacts in regard to water supply for the project are considered less than significant with mitigation, when considered in connection with the development of other cumulative projects.

In addition to project design features and standard conditions and uniform code requirements that will be incorporated into the Project, Mitigation Measures U-1 through U-3 will be implemented to further mitigate utility impacts in the areas of solid waste, wastewater, natural gas, and electricity to the maximum extent feasible, which are less than significant with mitigation. Therefore, the Proposed Alternative Project would not add incrementally to a significant cumulative impact to utilities when considered in connection with the development of other cumulative projects and will not result in a significant cumulative impact.

5.3.10 - Summary

The evaluation of cumulative impacts has shown that all impacts associated with the Proposed Alternative Project can be reduced to less than significant levels except for Biological Resources, due to impacts to the bald eagle. When considered in conjunction with the other reasonably foreseeable cumulative projects, the Proposed Alternative Project would add incrementally to the cumulative significant impact to the bald eagle.

SECTION 6: OTHER CEQA ANALYSIS

This section includes a discussion of the following issues required by California Environmental Quality Act (CEQA) to be analyzed in a project Environmental Impact Report (EIR): Significant Environmental Effects Which Cannot be Avoided if the Proposed Project is Implemented; Significant Irreversible Environmental Changes Which Would be Caused by the Proposed Project Should it be Implemented; and Growth Inducing Impacts.

6.1 - Significant Environmental Effects Which Cannot Be Avoided If the Proposed Project Is Implemented

CEQA Guidelines Section 15126.2 (b) requires that an EIR identify any significant environmental impacts that cannot be avoided. The analysis of potential environmental effects that could occur with implementation of the Proposed Alternative Project were addressed in Section 4, Environmental Impact Analysis, of the Revised and Recirculated Draft EIR. The findings of that analysis were that the Proposed Alternative Project - Moon Camp Residential Subdivision, consisting of 50 residential lots on approximately 62.43 acres, including approximately 8.6 acres of open space and other non-residential uses such as flood control and well sites, would have a significant impact on Biological Resources. Specifically, significant and unavoidable impacts to the bald eagle population were identified. Mitigation Measure BR-4 would mitigate impacts by requiring replacement of perch trees at a ratio of 5:1 with the creation of artificial perch trees along the shoreline designated open space. In addition, any development that may occur within the project site and in the individual lots must avoid impacts to these trees and their root structures. All construction or landscaping improvements, including irrigation, will be prohibited on or around the exposed root structures or within the dripline of these trees. However, because the Proposed Alternative Project would result in a permanent change in existing conditions under which the bald eagle currently occupies the site and vicinity, impacts would remain significant and unavoidable.

No other impacts were identified that could not be mitigated to a less than significant level.

6.2 - Significant Irreversible Environmental Changes Which Would be Caused by the Proposed Project Should it be Implemented

CEQA Guidelines Section 15126.2(c) requires that an EIR include a discussion of Significant Irreversible Environmental Changes associated with the use of non-renewable resources during the initial and continued phases of a project. Approval of the Proposed Alternative Project would cause irreversible environmental changes, as follows:

- Commitment of land, which would be physically altered by the proposed development of the 50 residential lots and related infrastructure;

- Alteration of the project site through the removal of some trees and other vegetation to accommodate grading and construction;
- Commitment to residential and recreational uses which intensify land uses on the project site, thus causing incremental increases in vehicular activity in the surrounding circulation system, resulting in associated increases in air emissions and noise levels; and
- Utilization of various new raw materials, such as lumber, sand and gravel for construction. Some of these resources are already being depleted worldwide. The energy consumed in development and maintaining the site may be considered a permanent investment.

6.3 - Growth Inducing Impacts

CEQA Guidelines Section 15126.2(d) requires the evaluation of growth-inducing impacts of a proposed project. This discussion must address ways a project could encourage economic and population growth, or construction of additional housing in the surrounding area, either directly or indirectly. Also required is a discussion of project characteristics, which may encourage or facilitate other activities that could significantly affect the environment, either individually or cumulatively.

Growth inducement can take many forms. A project can remove barriers, provide access, or eliminate other constraints, which encourage growth that has already been approved and anticipated through the General Plan process. The "planned" growth would be reflected in land use plans that have been developed and approved with underlying assumptions that adequate supporting infrastructure will be built. This is perhaps best described as accommodating or facilitating growth, but for the purpose of this section, the term "inducing" is used.

Implementation of the Proposed Alternative Project would result in the development of up to 50 residential lots. Using the City of Big Bear Lake average household size multiplier of 2.31 persons per household, the Proposed Alternative Project has the potential to increase Fawnskin's population by approximately 115 persons at buildout, or approximately 100 less than under the Original Proposed Project (92 Lots). The potential population growth under the Proposed Alternative Project represents an approximate 28 percent increase over the Community's permanent population estimate of 409 persons (2000) and an approximately 8 percent increase over the Community's peak weekend/holiday period population of 1,428 persons. Implementation of the Proposed Alternative Project, like the Original Proposed Project, would be considered growth inducing inasmuch as it would result in the construction of additional housing, consequentially fostering population growth. However, based on the findings of the Environmental Impact Analysis (Section 4 of the Revised and Recirculated Draft EIR), the Proposed Alternative Project would not require the extension of new infrastructure, since infrastructure is available adjacent to the project site, and utility providers have indicated the ability to serve the site.

Overall, development under the Proposed Alternative Project would not require the substantial development of unplanned/unforeseen support uses and services. As a result, the Proposed Alternative Project would not result in significant growth-inducing impacts.

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.
>
> **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.
>
> **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.
>
> **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.
>
> **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

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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

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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.

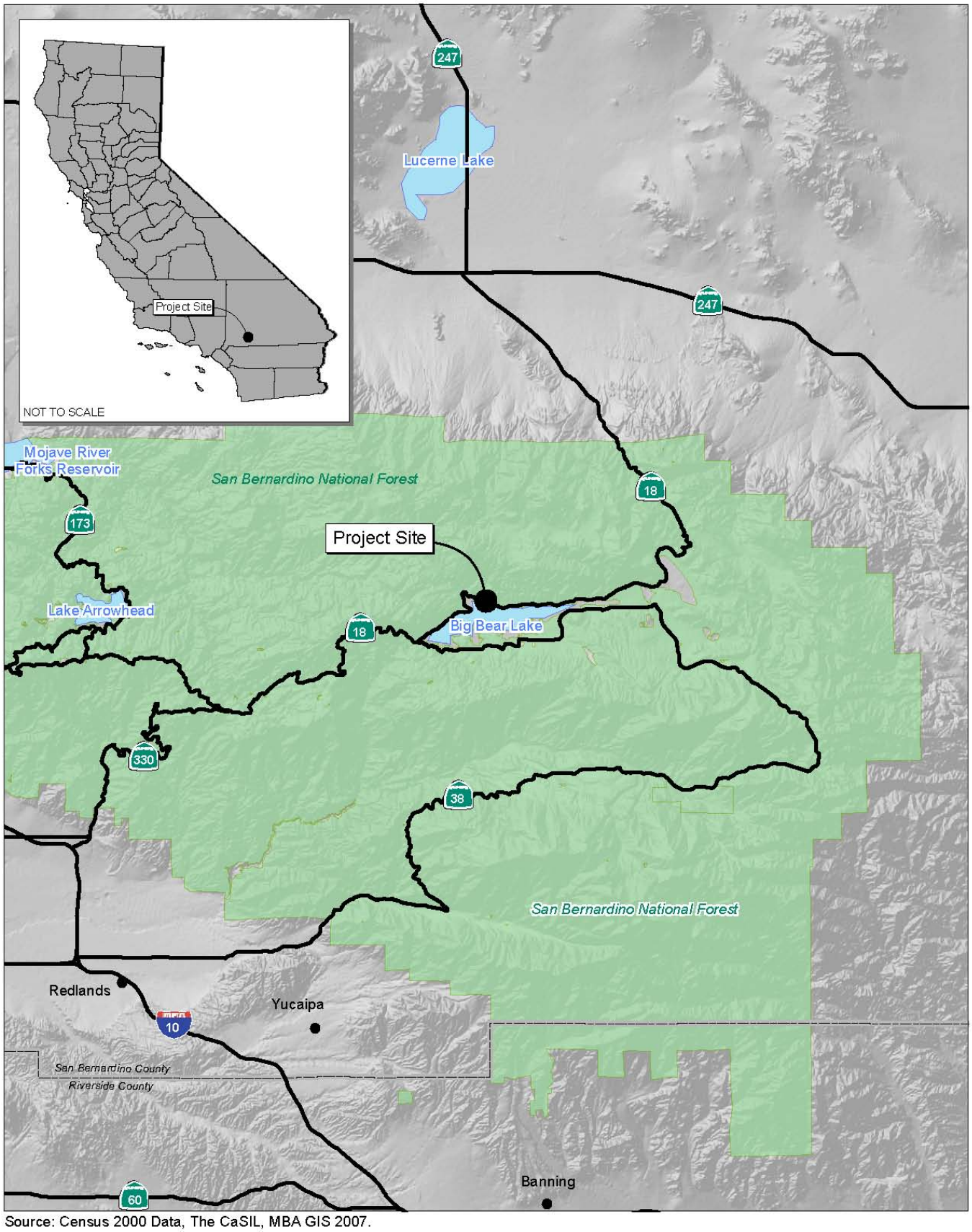
The Project is a proposed subdivision consisting of fifty (50) residential lots and three (3) lettered lots for open space and common area, on approximately 62.43 acres. Proposed lot sizes range from one-half acre to over two acres, and the subdivision will be developed for custom lot sales. Overall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

SECTION 5: REFERENCES

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Appendix A:
URBEMIS Output

URBEMIS 2002 For Windows 8.7.0

File Name: E:\URBEMIS\Moon Camp\Moon Camp 2007.urb
Project Name: Moon Camp 2007
Project Location: South Coast Air Basin (Los Angeles area)
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES

*** 2008 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (lbs/day,unmitigated)	69.31	53.38	68.71	0.00	43.51	1.91	41.60
TOTALS (lbs/day, mitigated)	69.31	42.76	68.71	0.00	6.59	0.38	6.21

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	4.45	0.63	2.01	0.02	0.01

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	3.48	6.06	43.49	0.03	4.86

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	7.92	6.70	45.50	0.04	4.87

SUMMARY REPORT
(Pounds/Day - Winter)

CONSTRUCTION EMISSION ESTIMATES

*** 2008 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (lbs/day,unmitigated)	69.31	53.38	68.71	0.00	43.51	1.91	41.60
TOTALS (lbs/day, mitigated)	69.31	42.76	68.71	0.00	6.59	0.38	6.21

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	32.58	1.61	52.18	0.12	7.74

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	4.23	7.23	52.66	0.03	4.86

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	36.81	8.84	104.83	0.15	12.60

DETAIL REPORT
(Pounds/Day - Winter)

Construction Start Month and Year: January, 2008
Construction Duration: 12
Total Land Use Area to be Developed: 16.67 acres
Maximum Acreage Disturbed Per Day: 4.16 acres
Single Family Units: 50 Multi-Family Units: 0
Retail/Office/Institutional/Industrial Square Footage: 0

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2008***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	41.60	-	41.60
Off-Road Diesel	8.03	49.74	67.35	-	1.81	1.81	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.06	0.13	1.36	0.00	0.00	0.00	0.00
Maximum lbs/day	8.09	49.87	68.71	0.00	43.41	1.81	41.60
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	4.15	30.14	31.84	-	1.29	1.29	0.00
Bldg Const Worker Trips	0.20	0.12	2.62	0.00	0.04	0.00	0.04
Arch Coatings Off-Gas	60.45	-	-	-	-	-	-
Arch Coatings Worker Trips	0.20	0.12	2.62	0.00	0.04	0.00	0.04
Asphalt Off-Gas	0.60	-	-	-	-	-	-
Asphalt Off-Road Diesel	3.58	20.75	30.41	-	0.57	0.57	0.00
Asphalt On-Road Diesel	0.12	2.23	0.42	0.00	0.05	0.05	0.00
Asphalt Worker Trips	0.02	0.01	0.29	0.00	0.00	0.00	0.00
Maximum lbs/day	69.31	53.38	68.21	0.00	2.00	1.91	0.09
Max lbs/day all phases	69.31	53.38	68.71	0.00	43.51	1.91	41.60

Phase 1 - Demolition Assumptions: Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jan '08
Phase 2 Duration: 1.3 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
1	Crawler Tractors	143	0.575	8.0
1	Graders	174	0.575	8.0
1	Off Highway Trucks	417	0.490	8.0
1	Rubber Tired Loaders	165	0.465	8.0
1	Scrapers	313	0.660	8.0
1	Tractor/Loaders/Backhoes	79	0.465	8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Feb '08
Phase 3 Duration: 10.7 months
Start Month/Year for SubPhase Building: Feb '08
SubPhase Building Duration: 10.7 months
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
2	Other Equipment	190	0.620	8.0

Start Month/Year for SubPhase Architectural Coatings: Nov '08
SubPhase Architectural Coatings Duration: 1.1 months
Start Month/Year for SubPhase Asphalt: Dec '08
SubPhase Asphalt Duration: 0.5 months
Acres to be Paved: 2.5
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
2	Pavers	132	0.590	8.0
2	Rollers	114	0.430	8.0

CONSTRUCTION EMISSION ESTIMATES MITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2008***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	6.21	-	6.21
Off-Road Diesel	8.03	39.79	67.35	-	0.36	0.36	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.06	0.13	1.36	0.00	0.00	0.00	0.00
Maximum lbs/day	8.09	39.92	68.71	0.00	6.57	0.36	6.21
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	4.15	24.11	31.84	-	0.26	0.26	0.00
Bldg Const Worker Trips	0.20	0.12	2.62	0.00	0.04	0.00	0.04
Arch Coatings Off-Gas	60.45	-	-	-	-	-	-
Arch Coatings Worker Trips	0.20	0.12	2.62	0.00	0.04	0.00	0.04
Asphalt Off-Gas	0.60	-	-	-	-	-	-
Asphalt Off-Road Diesel	3.58	16.60	30.41	-	0.11	0.11	0.00
Asphalt On-Road Diesel	0.12	1.78	0.42	0.00	0.01	0.01	0.00
Asphalt Worker Trips	0.02	0.01	0.29	0.00	0.00	0.00	0.00
Maximum lbs/day	69.31	42.76	68.21	0.00	0.47	0.38	0.09
Max lbs/day all phases	69.31	42.76	68.71	0.00	6.59	0.38	6.21

Construction-Related Mitigation Measures

Phase 2: Soil Disturbance: Apply soil stabilizers to inactive areas
Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 30.0%)
Phase 2: Soil Disturbance: Replace ground cover in disturbed areas quickly
Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 15.0%)
Phase 2: Soil Disturbance: Water exposed surfaces - 2x daily
Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 34.0%)
Phase 2: Off-Road Diesel Exhaust: Use diesel particulate filter
Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
Phase 2: Off-Road Diesel Exhaust: Use diesel oxidation catalyst
Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
Phase 2: On-Road Diesel Exhaust: Use diesel particulate filter
Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
Phase 2: On-Road Diesel Exhaust: Use diesel oxidation catalyst
Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
Phase 2: Stockpiles: Cover all stock piles with tarps
Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 9.5%)
Phase 2: Unpaved Roads: Water all haul roads 2x daily
Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 30.0%)
Phase 2: Unpaved Roads: Reduce speed on unpaved roads to < 15 mph
Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 40.0%)
Phase 3: Off-Road Diesel Exhaust: Use diesel particulate filter
Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
Phase 3: Off-Road Diesel Exhaust: Use diesel oxidation catalyst
Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
Phase 3: Off-Road Diesel Exhaust: Use diesel particulate filter
Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
Phase 3: Off-Road Diesel Exhaust: Use diesel oxidation catalyst
Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
Phase 3: On-Road Diesel Exhaust: Use diesel particulate filter
Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
Phase 3: On-Road Diesel Exhaust: Use diesel oxidation catalyst
Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
Phase 1 - Demolition Assumptions: Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jan '08

Phase 2 Duration: 1.3 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
1	Crawler Tractors	143	0.575	8.0
1	Graders	174	0.575	8.0
1	Off Highway Trucks	417	0.490	8.0
1	Rubber Tired Loaders	165	0.465	8.0
1	Scrapers	313	0.660	8.0
1	Tractor/Loaders/Backhoes	79	0.465	8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Feb '08
Phase 3 Duration: 10.7 months
Start Month/Year for SubPhase Building: Feb '08
SubPhase Building Duration: 10.7 months
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
2	Other Equipment	190	0.620	8.0

Start Month/Year for SubPhase Architectural Coatings: Nov '08
SubPhase Architectural Coatings Duration: 1.1 months
Start Month/Year for SubPhase Asphalt: Dec '08
SubPhase Asphalt Duration: 0.5 months
Acres to be Paved: 2.5
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
2	Pavers	132	0.590	8.0
2	Rollers	114	0.430	8.0

AREA SOURCE EMISSION ESTIMATES (Winter Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.05	0.63	0.27	0	0.00
Hearth	28.38	0.98	51.91	0.12	7.74
Landscaping - No winter emissions					
Consumer Prdcts	2.45	-	-	-	-
Architectural Coatings	1.70	-	-	-	-
TOTALS(lbs/day,unmitigated)	32.58	1.61	52.18	0.12	7.74

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	4.23	7.23	52.66	0.03	4.86
TOTAL EMISSIONS (lbs/day)	4.23	7.23	52.66	0.03	4.86

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2008 Temperature (F): 40 Season: Winter

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Single family housing	62.43	9.57 trips/dwelling unit	50.00	478.50
		Sum of Total Trips		478.50
		Total Vehicle Miles Traveled		3,201.40

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	55.00	1.60	98.00	0.40
Light Truck < 3,750 lbs	15.00	2.70	95.30	2.00
Light Truck 3,751- 5,750	16.20	1.20	97.50	1.30
Med Truck 5,751- 8,500	7.20	1.40	95.80	2.80
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.40	0.00	50.00	50.00
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.70	76.50	23.50	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.20	8.30	83.30	8.40

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.5	4.9	6.0	10.3	5.5	5.5
Rural Trip Length (miles)	11.5	4.9	6.0	10.3	5.5	5.5
Trip Speeds (mph)	35.0	40.0	40.0	40.0	40.0	40.0
% of Trips - Residential	20.0	37.0	43.0			

Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing
have changed from the defaults 9.57/16.67 to 9.57/62.43

Changes made to the default values for Construction

Architectural Coatings: # ROG/ft2 (residential) changed from 0.0185 to 0.00602
Architectural Coatings: # ROG/ft2 (non-res) changed from 0.0185 to 0.0116
Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Replace ground cover in disturbed areas quickly
has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel oxidation catalyst
has been changed from off to on.
Phase 2 mitigation measure On-Road Diesel Exhaust: Use diesel particulate filter
has been changed from off to on.
Phase 2 mitigation measure On-Road Diesel Exhaust: Use diesel oxidation catalyst
has been changed from off to on.
Phase 2 mitigation measure Stockpiles: Cover all stock piles with tarps
has been changed from off to on.
Phase 2 mitigation measure Unpaved Roads: Water all haul roads 2x daily
has been changed from off to on.
Phase 2 mitigation measure Unpaved Roads: Reduce speed on unpaved roads to < 15 mph
has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel oxidation catalyst
has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel oxidation catalyst
has been changed from off to on.
Phase 3 mitigation measure On-Road Diesel Exhaust: Use diesel particulate filter
has been changed from off to on.
Phase 3 mitigation measure On-Road Diesel Exhaust: Use diesel oxidation catalyst
has been changed from off to on.

Changes made to the default values for Area

The landscape year changed from 2005 to 2007.

Changes made to the default values for Operations

The operational emission year changed from 2005 to 2008.
The operational winter temperature changed from 50 to 40.
The operational winter selection item changed from 3 to 1.
The operational summer temperature changed from 90 to 60.
The operational summer selection item changed from 8 to 3.

DETAIL REPORT
(Pounds/Day - Summer)

Construction Start Month and Year: January, 2008
Construction Duration: 12
Total Land Use Area to be Developed: 16.67 acres
Maximum Acreage Disturbed Per Day: 4.16 acres
Single Family Units: 50 Multi-Family Units: 0
Retail/Office/Institutional/Industrial Square Footage: 0

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source *** 2008***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	41.60	-	41.60
Off-Road Diesel	8.03	49.74	67.35	-	1.81	1.81	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.06	0.13	1.36	0.00	0.00	0.00	0.00
Maximum lbs/day	8.09	49.87	68.71	0.00	43.41	1.81	41.60
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	4.15	30.14	31.84	-	1.29	1.29	0.00
Bldg Const Worker Trips	0.20	0.12	2.62	0.00	0.04	0.00	0.04
Arch Coatings Off-Gas	60.45	-	-	-	-	-	-
Arch Coatings Worker Trips	0.20	0.12	2.62	0.00	0.04	0.00	0.04
Asphalt Off-Gas	0.60	-	-	-	-	-	-
Asphalt Off-Road Diesel	3.58	20.75	30.41	-	0.57	0.57	0.00
Asphalt On-Road Diesel	0.12	2.23	0.42	0.00	0.05	0.05	0.00
Asphalt Worker Trips	0.02	0.01	0.29	0.00	0.00	0.00	0.00
Maximum lbs/day	69.31	53.38	68.21	0.00	2.00	1.91	0.09
Max lbs/day all phases	69.31	53.38	68.71	0.00	43.51	1.91	41.60

Phase 1 - Demolition Assumptions: Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jan '08
Phase 2 Duration: 1.3 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
1	Crawler Tractors	143	0.575	8.0
1	Graders	174	0.575	8.0
1	Off Highway Trucks	417	0.490	8.0
1	Rubber Tired Loaders	165	0.465	8.0
1	Scrapers	313	0.660	8.0
1	Tractor/Loaders/Backhoes	79	0.465	8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Feb '08
Phase 3 Duration: 10.7 months
  Start Month/Year for SubPhase Building: Feb '08
  SubPhase Building Duration: 10.7 months
  Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
2	Other Equipment	190	0.620	8.0

  Start Month/Year for SubPhase Architectural Coatings: Nov '08
  SubPhase Architectural Coatings Duration: 1.1 months
  Start Month/Year for SubPhase Asphalt: Dec '08
  SubPhase Asphalt Duration: 0.5 months
  Acres to be Paved: 2.5
  Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
2	Pavers	132	0.590	8.0
2	Rollers	114	0.430	8.0

CONSTRUCTION EMISSION ESTIMATES MITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2008***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	6.21	-	6.21
Off-Road Diesel	8.03	39.79	67.35	-	0.36	0.36	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.06	0.13	1.36	0.00	0.00	0.00	0.00
Maximum lbs/day	8.09	39.92	68.71	0.00	6.57	0.36	6.21
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	4.15	24.11	31.84	-	0.26	0.26	0.00
Bldg Const Worker Trips	0.20	0.12	2.62	0.00	0.04	0.00	0.04
Arch Coatings Off-Gas	60.45	-	-	-	-	-	-
Arch Coatings Worker Trips	0.20	0.12	2.62	0.00	0.04	0.00	0.04
Asphalt Off-Gas	0.60	-	-	-	-	-	-
Asphalt Off-Road Diesel	3.58	16.60	30.41	-	0.11	0.11	0.00
Asphalt On-Road Diesel	0.12	1.78	0.42	0.00	0.01	0.01	0.00
Asphalt Worker Trips	0.02	0.01	0.29	0.00	0.00	0.00	0.00
Maximum lbs/day	69.31	42.76	68.21	0.00	0.47	0.38	0.09
Max lbs/day all phases	69.31	42.76	68.71	0.00	6.59	0.38	6.21

Construction-Related Mitigation Measures

Phase 2: Soil Disturbance: Apply soil stabilizers to inactive areas
  Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 30.0%)
Phase 2: Soil Disturbance: Replace ground cover in disturbed areas quickly
  Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 15.0%)
Phase 2: Soil Disturbance: Water exposed surfaces - 2x daily
  Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 34.0%)
Phase 2: Off-Road Diesel Exhaust: Use diesel particulate filter
  Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
Phase 2: Off-Road Diesel Exhaust: Use diesel oxidation catalyst
  Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
Phase 2: On-Road Diesel Exhaust: Use diesel particulate filter
  Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
Phase 2: On-Road Diesel Exhaust: Use diesel oxidation catalyst
  Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
Phase 2: Stockpiles: Cover all stock piles with tarps
  Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 9.5%)

Phase 2: Unpaved Roads: Water all haul roads 2x daily
Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 30.0%)
Phase 2: Unpaved Roads: Reduce speed on unpaved roads to < 15 mph
Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 40.0%)
Phase 3: Off-Road Diesel Exhaust: Use diesel particulate filter
Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
Phase 3: Off-Road Diesel Exhaust: Use diesel oxidation catalyst
Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
Phase 3: Off-Road Diesel Exhaust: Use diesel particulate filter
Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
Phase 3: Off-Road Diesel Exhaust: Use diesel oxidation catalyst
Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
Phase 3: On-Road Diesel Exhaust: Use diesel particulate filter
Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
Phase 3: On-Road Diesel Exhaust: Use diesel oxidation catalyst
Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
Phase 1 - Demolition Assumptions: Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jan '08
Phase 2 Duration: 1.3 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
1	Crawler Tractors	143	0.575	8.0
1	Graders	174	0.575	8.0
1	Off Highway Trucks	417	0.490	8.0
1	Rubber Tired Loaders	165	0.465	8.0
1	Scrapers	313	0.660	8.0
1	Tractor/Loaders/Backhoes	79	0.465	8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Feb '08
Phase 3 Duration: 10.7 months
Start Month/Year for SubPhase Building: Feb '08
SubPhase Building Duration: 10.7 months
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
2	Other Equipment	190	0.620	8.0

Start Month/Year for SubPhase Architectural Coatings: Nov '08
SubPhase Architectural Coatings Duration: 1.1 months
Start Month/Year for SubPhase Asphalt: Dec '08
SubPhase Asphalt Duration: 0.5 months
Acres to be Paved: 2.5
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
2	Pavers	132	0.590	8.0
2	Rollers	114	0.430	8.0

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.05	0.63	0.27	0	0.00
Hearth - No summer emissions					
Landscaping	0.25	0.01	1.74	0.02	0.01
Consumer Prdcts	2.45	-	-	-	-
Architectural Coatings	1.70	-	-	-	-
TOTALS(lbs/day,unmitigated)	4.45	0.63	2.01	0.02	0.01

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	3.48	6.06	43.49	0.03	4.86
TOTAL EMISSIONS (lbs/day)	3.48	6.06	43.49	0.03	4.86

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2008 Temperature (F): 60 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Single family housing	62.43	9.57 trips/dwelling unit	50.00	478.50
		Sum of Total Trips		478.50
		Total Vehicle Miles Traveled		3,201.40

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	55.00	1.60	98.00	0.40
Light Truck < 3,750 lbs	15.00	2.70	95.30	2.00
Light Truck 3,751- 5,750	16.20	1.20	97.50	1.30
Med Truck 5,751- 8,500	7.20	1.40	95.80	2.80
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.40	0.00	50.00	50.00
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.70	76.50	23.50	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.20	8.30	83.30	8.40

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.5	4.9	6.0	10.3	5.5	5.5
Rural Trip Length (miles)	11.5	4.9	6.0	10.3	5.5	5.5
Trip Speeds (mph)	35.0	40.0	40.0	40.0	40.0	40.0
% of Trips - Residential	20.0	37.0	43.0			

Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing
 have changed from the defaults 9.57/16.67 to 9.57/62.43

Changes made to the default values for Construction

Architectural Coatings: # ROG/ft2 (residential) changed from 0.0185 to 0.00602
Architectural Coatings: # ROG/ft2 (non-res) changed from 0.0185 to 0.0116
Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
     has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Replace ground cover in disturbed areas quickly
     has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel oxidation catalyst
     has been changed from off to on.
Phase 2 mitigation measure On-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 2 mitigation measure On-Road Diesel Exhaust: Use diesel oxidation catalyst
     has been changed from off to on.
Phase 2 mitigation measure Stockpiles: Cover all stock piles with tarps
     has been changed from off to on.
Phase 2 mitigation measure Unpaved Roads: Water all haul roads 2x daily

     has been changed from off to on.
Phase 2 mitigation measure Unpaved Roads: Reduce speed on unpaved roads to < 15 mph
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel oxidation catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel oxidation catalyst
     has been changed from off to on.
Phase 3 mitigation measure On-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure On-Road Diesel Exhaust: Use diesel oxidation catalyst
     has been changed from off to on.

Changes made to the default values for Area

The landscape year changed from 2005 to 2007.

Changes made to the default values for Operations

The operational emission year changed from 2005 to 2008.
The operational winter temperature changed from 50 to 40.
The operational winter selection item changed from 3 to 1.
The operational summer temperature changed from 90 to 60.
The operational summer selection item changed from   8 to 3.

Appendix B:
EMFAC Analysis of Technology Groups

2030 Summary

Veh Type	Veh Year	TGP (x1000)
	TOTAL LDA	***0.000***
	TOTAL LDT1	***0.000***
	TOTAL LDT2	***0.000***
	TOTAL MDV	***0.000***
	TOTAL VEHICLES	1,047,886.000
	TOTAL TG 1-7	0.000
	% OF TOTAL	**0.00%**

2007 Summary

Veh Type	Veh Year	TGP (x1000)	TotP (x1000)	% of TotP
LDA	1965	2,127.114	2,129.649	99.9%
LDA	1966	1,054.100	1,055.712	99.8%
LDA	1967	937.481	939.148	99.8%
LDA	1968	910.751	911.422	99.9%
LDA	1969	1,003.926	1,005.247	99.9%
LDA	1970	893.548	895.583	99.8%
LDA	1971	739.652	740.342	99.9%
LDA	1972	872.333	875.737	99.6%
LDA	1973	895.211	897.495	99.7%
LDA	1974	681.231	684.558	99.5%
LDA	1975	406.189	414.556	98.0%
LDA	1976	455.765	463.110	98.4%
LDA	1977	555.996	593.659	93.7%
LDA	1978	732.738	816.530	89.7%
LDA	1979	771.968	948.703	81.4%
LDA	1980	241.385	718.516	33.6%
LDA	1981	149.421	919.534	16.2%
LDA	1982	166.446	1,079.029	15.4%
LDA	1983	180.102	1,406.913	12.8%
LDA	1984	33.823	2,387.082	1.4%
	TOTAL LDA	***13,809.179***		
LDT1	1965	904.890	907.484	99.7%
LDT1	1966	222.413	223.192	99.7%
LDT1	1967	199.522	200.404	99.6%
LDT1	1968	273.651	275.200	99.4%
LDT1	1969	343.665	344.312	99.8%
LDT1	1970	364.708	365.372	99.8%
LDT1	1971	420.192	422.456	99.5%
LDT1	1972	604.163	604.164	100.0%
LDT1	1973	545.358	546.010	99.9%
LDT1	1974	166.056	168.243	98.7%
LDT1	1975	110.031	110.741	99.4%
LDT1	1976	115.987	116.717	99.4%
LDT1	1977	146.099	150.429	97.1%
LDT1	1978	180.474	189.669	95.2%
LDT1	1979	238.247	264.268	90.2%
LDT1	1980	147.882	179.066	82.6%
LDT1	1981	109.117	233.525	46.7%
LDT1	1982	71.595	248.413	28.8%
LDT1	1983	20.562	278.765	7.4%
LDT1	1984	60.277	523.409	11.5%
LDT1	1985	26.775	637.906	4.2%
LDT1	1986	25.913	877.323	3.0%
LDT1	1987	14.738	866.121	1.7%
	TOTAL LDT1	***5,312.315***		

2007 Summary

Veh Type	Veh Year	TGP (x1000)	TotP (x1000)	% of TotP
LDT2	1965	39.487	39.487	100.0%
LDT2	1966	133.292	134.152	99.4%
LDT2	1967	112.417	112.417	100.0%
LDT2	1968	146.344	146.344	100.0%
LDT2	1969	243.119	244.840	99.3%
LDT2	1970	257.403	259.123	99.3%
LDT2	1971	253.366	253.366	100.0%
LDT2	1972	345.455	345.454	100.0%
LDT2	1973	367.132	367.132	100.0%
LDT2	1974	272.309	274.006	99.4%
LDT2	1975	149.987	152.844	98.1%
LDT2	1976	175.004	176.031	99.4%
LDT2	1977	228.003	231.798	98.4%
LDT2	1978	279.084	283.345	98.5%
LDT2	1979	292.667	338.422	86.5%
LDT2	1980	253.411	283.680	89.3%
LDT2	1981	186.685	354.017	52.7%
LDT2	1982	137.460	429.802	32.0%
LDT2	1983	38.697	455.725	8.5%
LDT2	1984	133.001	1,005.232	13.2%
LDT2	1985	69.562	1,473.149	4.7%
LDT2	1986	79.022	2,414.753	3.3%
LDT2	1987	43.141	2,404.837	1.8%
	TOTAL LDT2	***4,236.047***		
MDV	1965	17.103	17.103	100.0%
MDV	1966	9.366	9.366	100.0%
MDV	1967	8.602	9.087	94.7%
MDV	1968	15.797	15.798	100.0%
MDV	1969	17.925	17.925	100.0%
MDV	1970	22.565	22.566	100.0%
MDV	1971	18.638	18.639	100.0%
MDV	1972	30.914	30.916	100.0%
MDV	1973	40.836	41.389	98.7%
MDV	1974	217.067	217.068	100.0%
MDV	1975	225.970	226.665	99.7%
MDV	1976	306.338	306.339	100.0%
MDV	1977	474.019	474.700	99.9%
MDV	1978	408.403	408.405	100.0%
MDV	1979	496.554	497.294	99.9%
MDV	1980	193.758	193.761	100.0%
MDV	1981	180.549	184.238	98.0%
MDV	1982	198.413	214.750	92.4%
MDV	1983	142.619	274.586	51.9%
MDV	1984	418.633	434.835	96.3%
	TOTAL MDV	***3,444.068***		
TOTAL VEHICLES		963,536.400		
TOTAL TG 1-7		26,801.609		
% OF TOTAL		**2.78%**		

2010 Summary

Veh Type	Veh Year	TGP (x1000)	TotP (x1000)	% of TotP
LDA	1966	728.149	729.124	99.9%
LDA	1967	666.324	667.453	99.8%
LDA	1968	646.154	646.503	99.9%
LDA	1969	696.347	696.998	99.9%
LDA	1970	605.605	606.681	99.8%
LDA	1971	496.416	496.834	99.9%
LDA	1972	593.822	596.017	99.6%
LDA	1973	613.049	614.466	99.8%
LDA	1974	471.000	472.843	99.6%
LDA	1975	284.473	288.840	98.5%
LDA	1976	347.733	351.672	98.9%
LDA	1977	459.493	485.760	94.6%
LDA	1978	647.690	710.131	91.2%
LDA	1979	678.873	818.051	83.0%
LDA	1980	209.749	605.396	34.6%
LDA	1981	127.998	769.213	16.6%
LDA	1982	140.614	880.851	16.0%
LDA	1983	149.781	1,144.968	13.1%
LDA	1984	26.331	1,843.312	1.4%
	TOTAL LDA	***8,589.600***		
LDT1	1966	150.962	151.483	99.7%
LDT1	1967	137.079	137.599	99.6%
LDT1	1968	190.132	191.305	99.4%
LDT1	1969	239.112	239.684	99.8%
LDT1	1970	252.259	252.842	99.8%
LDT1	1971	292.306	293.966	99.4%
LDT1	1972	424.511	424.511	100.0%
LDT1	1973	387.946	388.412	99.9%
LDT1	1974	119.660	121.186	98.7%
LDT1	1975	80.816	81.314	99.4%
LDT1	1976	91.065	91.557	99.5%
LDT1	1977	121.103	124.248	97.5%
LDT1	1978	158.142	165.084	95.8%
LDT1	1979	208.044	229.687	90.6%
LDT1	1980	129.042	155.191	83.2%
LDT1	1981	94.796	202.539	46.8%
LDT1	1982	61.873	213.832	28.9%
LDT1	1983	17.427	229.042	7.6%
LDT1	1984	48.350	398.396	12.1%
LDT1	1985	20.355	475.097	4.3%
LDT1	1986	19.188	646.869	3.0%
LDT1	1987	11.031	653.041	1.7%
	TOTAL LDT1	***3,255.199***		

2010 Summary

Veh Type	Veh Year	TGP (x1000)	TotP (x1000)	% of TotP
LDT2	1966	89.585	90.439	99.1%
LDT2	1967	76.740	76.740	100.0%
LDT2	1968	101.683	101.683	100.0%
LDT2	1969	168.791	170.499	99.0%
LDT2	1970	176.806	178.514	99.0%
LDT2	1971	173.313	173.314	100.0%
LDT2	1972	239.237	239.237	100.0%
LDT2	1973	258.503	258.503	100.0%
LDT2	1974	195.013	195.353	99.8%
LDT2	1975	109.197	109.768	99.5%
LDT2	1976	135.786	136.398	99.6%
LDT2	1977	186.101	188.594	98.7%
LDT2	1978	240.544	243.047	99.0%
LDT2	1979	251.307	284.530	88.3%
LDT2	1980	217.352	243.496	89.3%
LDT2	1981	159.004	302.536	52.6%
LDT2	1982	116.658	360.235	32.4%
LDT2	1983	32.264	376.760	8.6%
LDT2	1984	104.820	781.872	13.4%
LDT2	1985	51.974	1,098.812	4.7%
LDT2	1986	57.631	1,759.146	3.3%
LDT2	1987	31.994	1,784.045	1.8%
	TOTAL LDT2	***3,174.304***		
MDV	1966	6.304	6.304	100.0%
MDV	1967	5.823	6.009	96.9%
MDV	1968	10.770	10.770	100.0%
MDV	1969	12.265	12.266	100.0%
MDV	1970	15.412	15.413	100.0%
MDV	1971	12.661	12.662	100.0%
MDV	1972	21.198	21.199	100.0%
MDV	1973	27.996	28.392	98.6%
MDV	1974	150.621	150.622	100.0%
MDV	1975	158.748	159.151	99.7%
MDV	1976	227.250	227.251	100.0%
MDV	1977	367.807	368.280	99.9%
MDV	1978	332.531	332.533	100.0%
MDV	1979	406.800	407.318	99.9%
MDV	1980	159.296	159.299	100.0%
MDV	1981	148.195	151.223	98.0%
MDV	1982	162.622	175.821	92.5%
MDV	1983	117.035	224.813	52.1%
MDV	1984	332.762	344.083	96.7%
	TOTAL MDV	***2,676.098***		
TOTAL VEHICLES		1,047,886.000		
TOTAL TG 1-7		17,695.202		
% OF TOTAL		**1.69%**		

Appendix C:
Summary of Operational Greenhouse Gases

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\Moon Camp GHG.urb924

Project Name: Moon Camp 2008

Project Location: San Bernadino County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (tons/year unmitigated)	0.86	3.10	2.85	0.00	3.80	0.19	3.99	0.79	0.18	0.97	401.22

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.61	0.15	0.70	0.00	0.04	0.04	197.03

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	1.28	2.18	14.94	0.01	2.33	0.47	1,378.00

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	1.89	2.33	15.64	0.01	2.37	0.51	1,575.03

Construction Unmitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009	0.86	3.10	2.85	0.00	3.80	0.19	3.99	0.79	0.18	0.97	401.22
Mass Grading 01/01/2009-03/30/2009	0.10	0.84	0.46	0.00	2.63	0.04	2.67	0.55	0.04	0.59	76.15
Mass Grading Dust	0.00	0.00	0.00	0.00	2.63	0.00	2.63	0.55	0.00	0.55	0.00
Mass Grading Off Road Diesel	0.10	0.83	0.41	0.00	0.00	0.04	0.04	0.00	0.04	0.04	70.79
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36
Fine Grading 02/19/2009-03/30/2009	0.05	0.37	0.20	0.00	1.17	0.02	1.19	0.24	0.02	0.26	33.85
Fine Grading Dust	0.00	0.00	0.00	0.00	1.17	0.00	1.17	0.24	0.00	0.24	0.00
Fine Grading Off Road Diesel	0.04	0.37	0.18	0.00	0.00	0.02	0.02	0.00	0.02	0.02	31.46
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.38
Trenching 03/19/2009-03/30/2009	0.01	0.08	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.54
Trenching Off Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.86
Trenching Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68
Asphalt 03/31/2009-04/11/2009	0.02	0.12	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	12.60
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.09	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01	6.38
Paving On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.49
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72

Building 03/31/2009-11/21/2009	0.37	1.69	2.05	0.00	0.01	0.12	0.12	0.00	0.11	0.11	268.64
Building Off Road Diesel	0.33	1.47	0.97	0.00	0.00	0.11	0.11	0.00	0.10	0.10	136.99
Building Vendor Trips	0.01	0.17	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	28.09
Building Worker Trips	0.03	0.06	0.96	0.00	0.00	0.00	0.01	0.00	0.00	0.00	103.56
Coating 11/21/2009-12/16/2009	0.31	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.45
Architectural Coating	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.45

Phase Assumptions

Phase: Fine Grading 2/19/2009 - 3/30/2009 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 16.67

Maximum Daily Acreage Disturbed: 4.17

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2009 - 3/30/2009 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 16.67

Maximum Daily Acreage Disturbed: 4.17

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 3/19/2009 - 3/30/2009 - Default Trenching Description

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 3/31/2009 - 4/11/2009 - Default Paving Description

Acres to be Paved: 4.17

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 3/31/2009 - 11/21/2009 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 11/21/2009 - 12/16/2009 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

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Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.01	0.15	0.06	0.00	0.00	0.00	189.75
Hearth	0.03	0.00	0.23	0.00	0.04	0.04	6.63
Landscape	0.07	0.00	0.41	0.00	0.00	0.00	0.65
Consumer Products	0.47						
Architectural Coatings	0.03						
TOTALS (tons/year, unmitigated)	0.61	0.15	0.70	0.00	0.04	0.04	197.03

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 10% to 12.5%

Percentage of residences with wood fireplaces changed from 5% to 0%

Percentage of residences with natural gas fireplaces changed from 85% to 87.5%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	1.28	2.18	14.94	0.01	2.33	0.47	1,378.00
TOTALS (tons/year, unmitigated)	1.28	2.18	14.94	0.01	2.33	0.47	1,378.00

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	16.67	9.57	dwelling units	50.00	478.50	7,313.54
					478.50	7,313.54

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.3	1.3	98.5	0.2
Light Truck < 3750 lbs	9.9	3.0	91.9	5.1
Light Truck 3751-5750 lbs	20.7	1.0	99.0	0.0
Med Truck 5751-8500 lbs	11.1	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.0	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.7	0.0	42.9	57.1

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	1.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.1	68.3	31.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.3	7.7	84.6	7.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Summary of Operational Greenhouse Gases
Unmitigated
Moon Camp
Prepared by Michael Brandman Associates
Buildout Year 2010

	Emissions (tons per year)				
Source	**Carbon Dioxide**	**Nitrous Oxide**	**Methane**	**Other**	**Metric Tons CO2e**
Motor vehicles	1,378.00	0.18	0.39		1309.49
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
Water transport	0	0.00	0.00		0.00
Landscape	0.65				0.59
Aerosols				0.00	0.00
Refrigerants				0.00	0.00
Total	1,688.20	0.19	0.41	0.00	1591.60

Total	1,532	0.17	0.38	0.00	metric tons per year
GWP	1	310	21	varies	
Total	1,532	52	8	0	MTCO2E per year
Total	0.0015	0.0001	0.0000	0.0000	MMTCO2E per year

Total - all gases	1,592	MTCO2e per year
	0.0016	MMTCO2e per year
California emissions in 2004	500	MMTCO2e per year
Project percent of emissions	0.000318%	
U.S. emissions in 2005	7,260.4	
Project percent of emissions	0.000022%	
Global emissions in 2004	20135	
Project percent of emissions	0.000008%	

Emissions converted from tons per year to metric tons of carbon dioxide equivalents (MTCO2e) per year by using the formula: (tons of gas) x (global warming potential) x (0.9072 metric tons)

Emissions converted to million metric tons of carbon dioxide equivalents (MMTCO2E) using the formula: MMTCO2e = (metric tons of gas) / (1,000,000).

Electricity - Indirect Emissions

Project: Moon Camp
Prepared by: Michael Brandman Associates
Prepared on: 10/1/2008

Land Use	Units	Electricity Use (kWh/unit/year)*	Electricity Use (kWh/year)
Single Family Residential	50	5,626.50	281,325.00
Total			281,325.00
			281.33 MWh/year

Greenhouse Gas	Emission Factor (pounds per MWh/year)	Emissions (pounds/year)	Emissions (tons/year)
Carbon dioxide	804.54	226,337	113
Methane	0.0067	2	0.001
Nitrous oxide	0.0037	1	0.001

Emission factor source: California Climate Action Registry. General Reporting Protocol. Reporting Entity-Wide Greenhouse Gas Emissions. Version 2.2, March 2007. www.climateregistry.org

Residential electricity usage rate: 5626.50 kwh/unit/year, from South Coast Air Quality Management 1993 CEQA Handbook, Table 9-11-A

* Table E-1 from California Energy Commission. California Commercial End-Use Survey. Consultant Report. March 2006. CEC-400-2006-005

Table E-1: Overview of Energy Usage in the Statewide Service Area

Building Type	Floor Stock (kft^2)	Annual Energy Intensities			Total Annual Usage	
		Electricity (kWh/ft^2)	Natural Gas (therms/ft^2)	Natural Gas (kBtu/ft^2)	Electricity (GWh)	Natural Gas (Mtherms)
All Commercial	4,920,114	13.63	0.26	25.99	67077	1278.60
Small Office (<30k ft^2)	361,584	13.10	0.11	10.54	4738	38.10
Large Office (>=30k ft^2)	660,429	17.70	0.22	21.93	11691	144.80
Restaurant	148,892	40.20	2.10	209.96	5986	312.60
Retail	702,053	14.06	0.05	4.62	9871	32.50
Food Store	144,209	40.99	0.28	27.60	5911	39.80
Refrigerated Warehouse	95,540	20.02	0.06	5.60	1913	5.30
Unrefrigerated Warehouse	554,166	4.45	0.03	3.07	2467	17.00
School	445,106	7.46	0.16	15.97	3322	71.10
College	205,942	12.26	0.34	34.24	2524	70.50
Health	232,606	19.61	0.76	75.53	4561	175.70
Lodging	270,044	12.13	0.42	42.40	3275	114.50
Miscellaneous	1,099,544	9.84	0.23	23.34	10817	256.60
All Offices	1,022,012	16.08	0.18	17.90	16430	182.90
All Warehouses	649,706	6.74	0.03	3.44	4380	22.40

Appendix B:
Biological Resources Assessment

B.1 - Results of Bald Eagle Survey on Tentative Tract 16136 (Bontera Consulting, 2002)

Bonterra
CONSULTING
An Environmental Planning/Resource Management Corporation

April 16, 2002

Mr. Glenn Lajoie
RBF Consulting
14725 Alton Parkway
Irvine, CA 92618-2027

VIA FACSIMILE AND MAIL
(949) 472-8373

Subject: Results of Bald Eagle surveys on Tentative Tract 16136, Moon Camp, Fawnskin, San Bernardino County, California

Dear Mr. Lajoie:

This letter report presents the results of bald eagle (*Haliaeetus leucocephalus*) surveys performed in February 2002 by William S. La Haye and Brian Kertson on Tentative Tract 16136 in unincorporated San Bernardino County, California (hereafter referred to as the project site). In addition, a summary of a records search of historic sightings of this species on and in the vicinity of the project site is also presented.

Project Location and Description

The project site consists of an approximately 62.5-acre parcel on the north shoreline of Big Bear Lake, San Bernardino County, California. The project site is covered by U.S. Geological Survey's Fawnskin, California Quadrangle at Township 2N, Range 1E and includes portions of Sections 7 and 12. Project regional location and vicinity maps are presented in Exhibits 1 and 2, respectively.

The southwestern portion of the project site includes shoreline of Big Bear Lake and Highway 38 parallels the lakeshore on the property for approximately 1/4 mile. Historically, the project site consisted of Moon Camp, a small cabin resort which existed from the early 1920s through 1951 when a forest fire destroyed most of the buildings. At some later date, most of the remnants of the cabins and foundations were removed from the site.

The project site includes a series of low, rolling hills between approximately 6,940 feet above mean sea level (msl) and 6,740 feet above msl. The vegetation on the site is primarily open Jeffrey pine (*Pinus jeffreyi*) forest near the lake and highway and gradually transitions into mixed-conifer forest towards the northeast portion of the property. Other common trees encountered on the site consist of white fir (*Abies concolor*) and black oak (*Quercus kelloggii*).

Background

The bald eagle is a large raptor which ranges from Alaska to northern Mexico. It typically nests in large trees near lakes and rivers where its prey is plentiful. This species feeds primarily on fish and waterfowl; however, it is also known to

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