

1310

Willows that occur along the lakeshore meadow margin may provide suitable habitat for the state and federal endangered southwest willow flycatcher. Similar habitat around Grout Bay, 1/2-mile to the west, is known to support this species during the breeding season.

The threatened southern mountain buckwheat (*Eriogonum kemedji* var. *austromontanum*) and threatened Bear Valley sandwort (*Arenaria ursina*) are known to occur in pebble plain habitat on National Forest land adjacent and north of Moon Camp, and may occur at Moon Camp. Like the Bald Eagle, the threatened southern mountain buckwheat is not mentioned in the Biological Assessment. Meadow habitat along the shoreline may support listed endangered plant species, including bird's foot checkerbloom (*Sidalcea pedata*), slender-petaled mustard (*Thelypodium stenopetalum*), California taraxacum (*Taraxacum californicum*), and San Bernardino Mountains bluegrass (*Poa airopurpurea*). The taraxacum is known to occur in similar lake-margin meadow habitat approximately 1/2-mile to the east of the parcel, and the checkerbloom has a non-specific historic record for the Fawnskin area.

Development of this parcel in 92 lots will likely result in the complete destruction of the important occurrence of ash-gray paintbrush. Such impacts to this species, to the bald eagle as described above, pebble plains habitat, meadow habitats, and associated sensitive species should trigger findings of significance under the California Environmental Quality Act, and may not be mitigable. Loss of pebble plain habitat and an important occurrence of ash-gray paintbrush would be difficult if not impossible to mitigate to below the level of significance. Should this development proposal go forward, a complete Environmental Impact Report is needed to fully analyze and disclose significant impacts. A thorough biological resource analysis must be performed, including protocol surveys for southwest willow flycatcher, complete and accurate wildlife and botanical surveys, and an analysis of expected impacts to habitats, plants, and wildlife on adjacent lands.

I appreciate the opportunity to review this project notice, please add me to the distribution list for all environmental documentation and notices related to this project, and any future projects affecting the Community of Fawnskin.

Sincerely,

Scott A. Eliason
Botanist

Dennis Large,
P.O. Box 110417
Big Bear Lake, California 92315
Phone: (909) 878-3465 Fax: (909) 878-5965
email: dnlarge@compuserve.com

DATE: MARCH 22, 2002

TO: MS. TEACY CLEASON

NUMBER OF PAGES: 3 (INCLUDING COVER)

REMARKS: RE: EIR FOR MOON CAMP
TT # 16136

PLEASE ACCEPT THE ATTACHED
AS PART OF THE RECORD.
THANKS!

Dennis M. Large,
 P.O. Box 110417
 Big Bear Lake, California 92315
 Phone: (909) 878-3465 Fax: (909) 878-5965
 Email: dmlarge@compuserve.com

March 21, 2002

VIA FAX

Ms. Tracy Creason, Senior Associate Planner
 County of San Bernardino
 Advance Planning Division
 385 N. Arrowhead Avenue, Third Floor
 San Bernardino, California 92415-0182

RE: Environmental Impact Report For Tentative Tract No. 16136 (Moon Camp)

Dear Ms. Creason:

Thank you for holding the recent hearing in Big Bear Lake on the above referenced matter. This letter will supplement my remarks at the hearing regarding the scope of the pending Environmental Impact Report (EIR) and I wish included for the record.

First, an adequate EIR should encompass a full analysis of the environmental consequences of both the Moon Camp project and the adjacent proposed Marina Point Development project. A site-specific EIR would segment any potential cumulative environmental consequence and undermine the purpose for conducting an EIR in the first place.

The similarities of both proposed projects provide a basis for evaluating their environmental consequences together. Geographically, the proposed projects are in the same general location. Both propose similar land use development for high-density housing/condominium units and use of lake recreation resources in the form of a private yacht club and marina. Additionally, development of both projects would be approximately concurrent in time.

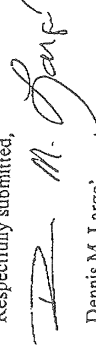
Second, an adequate EIR should include an analysis of alternatives available to the project developer for achieving the desired goals in another manner for the proposed project. Further, the EIR should contain a no-action alternative analysis. Inclusion of alternatives would ensure that the public and the appropriate governmental agencies

involved in this project have been provided full environmental disclosure by the project developers.

Lastly, an adequate EIR should be based on real-time observation and analysis. The project development area is a four-season area and undergoing significant environmental changes on a yearly basis. Types and kind of air quality vary with climate conditions. Traffic conditions are subject to weekend and holiday loads. Lake water levels are constantly changing and pollution concentration levels change accordingly.

The Lake District is currently working with the Santa Ana Regional Water Quality Control Board on a Storm Water Pollution Prevention Plan and involved in the TMDL (Total Maximum Daily Load) process. Consequently, any EIR should include a detailed analysis of pollutant runoff before, during and after project construction.

Respectfully submitted,



Dennis M. Large

965 DEER TRAIL
FAWNSKIN, CA 92333

March 22, 2002

Land Use Services Department
March 22, 2002
Page 2

highway at least through the Running Springs community. Should the proponents be required to widen Highway 18 above the Snow Valley area, or to provide turn-outs or parking areas so that the additional traffic generated can be accommodated?

VIA FACSIMILE 909 387-3223
ORIGINAL VIA U.S. MAIL

Land Use Services Department
Attention: Tracy Creason, Senior Associate Planner
385 North Arrowhead Avenue
San Bernardino, CA 92415-0182

Re: Notice of Preparation of Environmental Impact Report,
Application of RCK Properties, Inc. concerning Tentative Tract
Map 16136, Proposed General Plan Amendment, Land Use
District Change and Conditional Use Permit
(Fawnskin Community)

Ladies and Gentlemen:

I am writing to request that the environmental impact report concerning the project/application described above, and your department's consideration of both the report and the applications, take into consideration the factors discussed in this letter.

The proposed project contemplates converting a significant part of the private open lake-shore property from rural zoning and use to a densely populated use more typical of urban areas. How would this change affect the environment, not only of Fawnskin, but of the entire Big Bear Valley, in the areas discussed below? What actions should the proponents of the changes be required to take to mitigate or offset the impact of this change?

1. What restrictions should be placed on light fixtures, both on structures and on roads, paths or marinas, to limit or avoid light pollution? One aspect of rural living is the absence of glare from light fixtures, which permits stars, comets and other astronomical phenomena to be observed. Nocturnal animals, birds and fish are likely to be disturbed, and their feeding and other habits altered, by increased lighting, especially if a marina is built.
2. Will the views of residents on the south shore, and visitors to south shore hotels and restaurants, be adversely affected in the day time by replacing trees with structures, and at night be increased glare, obscuring views of mountains and the night sky?
3. What will be the impact of increased traffic on Highway 38 and on Highway 18, both below the Big Bear Lake dam, and across and through the Staafeld cut-off? There is already extreme traffic congestion on weekends and holidays on the cut-off and on the

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4. Will the increased traffic from the proposed change exacerbate existing air quality problems, especially on days when a temperature inversion occurs? Please consider both carbon dioxide/monoxide, ozone, incompletely burned fuel and particulates. Will increased emissions affect the health of residents and visitors, of wildlife, of plants, especially trees? What will the short-term and long-term effect on the national forest be, especially considering the impact and stress from emissions now "blowing in" from areas below?
5. Will the loss of trees from the proposal, from cutting them down to relocate the road and for construction, and from noise, air quality deterioration, traffic vibration, compaction of soil affecting root zones, withdrawal of water by the proposed wells and other factors affect the forest environment? Can the loss of mature trees be mitigated? Please consider increased soil erosion and alteration of the habitat for smaller plant species.
6. Will the project's proposed wells affect the water table for adjacent natural forest areas, including the meadows, and/or affect the amount of runoff, both surface and sub-surface, entering Big Bear Lake? Will this impact the lake's salinity or its clarity?
7. Will the proposed marina impact water circulation in the lake generally or Grouse Bay in particular? Will it lead to increased siltation or to a deterioration in water clarity? Will marina use increase noise pollution, and how will this impact plant and animal life, including feeding and migration patterns? Should marina use be restricted in terms of hours, for example, daylight versus night, or in terms of seasons? Should marina use be prohibited, or certain uses (such as jet skis) be limited, especially during the times when access to Grouse Bay and adjacent areas is currently prohibited or limited? Should lighting be restricted to avoid "light pollution"? Should refueling and servicing of water craft be prohibited to avoid contamination of the lake environment? What steps are needed to mitigate the impact of waste disposal or spillage from the contemplated marina?
8. Will water craft emissions contribute to air quality deterioration such that the marina should be eliminated as a condition to approval?
9. Should fireplaces be prohibited or limited to those not burning wood? Particulate emissions in areas with similar inversion characteristics such as Telluride, Colorado, have led to rules prohibiting the use of wood-burning stoves or fireplaces for entire days or more extended periods. Many residents of the valley now heat their homes by wood stoves or fireplaces. Will the proposed project's emissions pose a risk of similar bans? How will this impact the health of residents who see their use of wood for heat curtailed? How will the economic impact on these residents be addressed?

Land Use Services Department
March 22, 2002
Page 3

10. Will increased traffic cause air emissions to increase, especially from idling of engines stopped in traffic? Will this affect the national forest and endangered plant or animal species?
11. Will increased vehicle and foot traffic adversely affect recreational use of the nearby campgrounds on federal land or the usability of hiking and bicycle trails? Please have the report consider noise, dust, glare and soil compaction, as well as air and water quality.
12. What will the impact of increased, dense housing be on landfills, trash disposal areas, sewer facilities and storm water runoff? Will more trash disposal sites be needed?
13. Will increased traffic endanger those who presently walk or bike along Highway 38? Since the proposal plans to move the road inland, away from lake views, and to put up walls or structures which will obstruct the view of those using the road for recreational uses such as hiking or biking, should the proponents be required to restore the existing recreational uses of the highway by a hiking or bike path along the lake front?
14. Are existing water, gas and electrical grids adequate? Will improving them disrupt further the level of service to others or the rural quality of nearby areas?
15. Will removing over 700 trees adversely affect roosting and feeding patterns of eagles and other raptors? Will it affect air circulation, habitat for smaller animals or water absorption?
16. Will creating a walled community establish barriers for wildlife access from the forest to the lake, or barriers to the migration of plant species, or divide existing habitat into non-sustainable parcels?
17. Will the grading and road re-location proposed affect the stability of adjacent slopes or increase rates of erosion?
18. Will dredging be required for the contemplated marina? Will this stir up sediments, and if so, what will be released? How will this impact water quality and aquatic plants or animals? Will periodic re-dredging be needed and what noise, air pollution and silt effect will result? What will the disposal of dredged material do to soil quality?
19. Will recreational use of the lake and Grout Bay be adversely impacted by increased boat traffic or by construction activities, including noise? Will long-term recreational use of the lake be negatively affected by displacing natural views with structures and by increased traffic and glare from residences?
20. Will the project require expansion of existing schools and what impact will this expansion have on traffic, the amount of open space, water and sewer systems and the like?

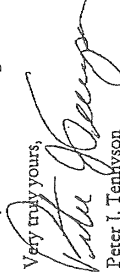
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Land Use Services Department
March 22, 2002
Page 4

21. Please have the report consider the cumulative effects on the factors described above of this project, the proposed zoo relocation, the proposed Cluster Pines development and other already-approved developments. I am concerned that the incremental effect of this project will magnify the effects of these other matters and dramatically affect the visual aspect of the lake's north shore.
22. Please have the report consider alternatives, including a less-dense project, a project without a marina or a walled community, a project which avoids lake-front development and leaves views from the road (Highway 38) unobstructed, a project that removes fewer trees and avoids the earth-moving involved in highway relocation, and other uses which minimize the degradation of recreational and wildlife uses. In doing so, please consider that recreational uses are a major economic activity of the entire valley, and that business and job opportunities for residents of the south shore will be adversely affected if recreational uses are curtailed, since there is little or no lake shore access on the south shore. Finally, please have the report reflect that existing recreational patterns have developed under a general plan and zoning scheme calling for rural residences on 40-acre parcels.

Thank you for considering this letter. I will be monitoring the progress of the study.

Very truly yours,



Peter J. Tenhyson
965 Deer Trail
Fawnskin, CA 92333

695 Town Center Drive, 17th Floor
Cosa Mesa, CA 92626-1924

CC/248376.1

March 22, 2002

RECEIVED

MAR 25 2002

VIA FACSIMILE 909 387-3223
ORIGINAL VIA U.S. MAIL

Land Use Services Department
Attention: Tracy Creason, Senior Associate Planner
385 North Arrowhead Avenue
San Bernardino, CA 92415-0182

Re: Notice of Preparation of Environmental Impact Report;
Application of RCK Properties, Inc. concerning Tentative Tract
Map 16136, Proposed General Plan Amendment, Land Use
District Change and Conditional Use Permit
(Fawnskin Community)

Ladies and Gentlemen:

I am writing to request that the environmental impact report concerning the project/application described above, and your department's consideration of both the report and the applications, take into consideration the factors discussed in this letter.

The proposed project contemplates converting a significant part of the private open lake-shore property from rural zoning and use to a densely populated use more typical of urban areas. How would this change affect the environment, not only of Fawnskin, but of the entire Big Bear Valley, in the areas discussed below? What actions should the proponents of the changes be required to take to mitigate or offset the impact of this change?

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5. Will the loss of trees from the proposal, from cutting them down to relocate the road and for construction, and from noise, air quality deterioration, traffic vibration, compaction of soil affecting root zones, withdrawal of water by the proposed wells and other factors affect the forest environment? Can the loss of mature trees be mitigated? Please consider increased soil-erosion and alteration of the habitat for smaller plant species.

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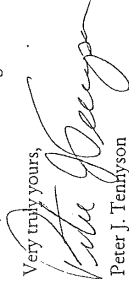
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OC/268378.1

21. Please have the report consider the cumulative effects on the factors described above of this project, the proposed zoo relocation, the proposed Cluster Pines development and other already-approved developments. I am concerned that the incremental effect of this project will magnify the effects of these other matters and dramatically affect the visual aspect of the lake's north shore.
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Thank you for considering this letter. I will be monitoring the progress of the study.

Very truly yours,



Peter J. Tenhyson
965 Deer Trail
Fawnskin, CA 92333

695 Town Center Drive, 17th Floor
Costa Mesa, CA 92626-1924

OC/268378.1



United States Department of Agriculture

Forest Service

San Bernardino National Forest
Mountain Top Ranger District

P.O. Box 290
Fawnskin, CA 92333
909-866-3437 (Voice)
909-866-2867 (FAX)
909-866-3233 (TTY)

Ms. Tracy Creason

wildlife, and habitats in the vicinity of this proposed project, and that of any other proposed project areas in Bear Valley.

File Code: 2670

Date: March 22, 2002

Tracy Creason, Senior Associate Planner
Advance Planning Division
San Bernardino County Land Use Services Department
385 N. Arrowhead Ave., First Floor
San Bernardino, California 92415-0182

Re: Notice of Preparation of Environmental Impact Report (NOP), RCK Properties dated February 20, 2002, and Initial Study (IS) completed September 5, 2001.

Sincerely,

ALLISON STEWART
District Ranger

Attachment

Cc: Kate Kramer, California Department of Fish and Game
Jeff Newman, US Fish and Wildlife Service
Antal Szjji, Army Corps of Engineers

Dear Ms. Creason:

We are in receipt of the above referenced NOP and IS regarding a development proposal in Bear Valley (Fawnskin), San Bernardino County, California. The property at issue is the approximately 62 acre parcel historically known as Moon Camp. The proposal, as noticed, involves a general plan/land use district amendment (rezoning) from RL-40 (rural living, 40 acre minimum lot size) to RS (residential, 7200 square feet minimum lot size). It also involves a 92-lot subdivision, Tentative Tract Map 16136. The proposed development also includes construction of a marina and realignment of State Route 38.

Some of these project components may require federal permits and trigger requirements for consultation under Section 7 of the federal Endangered Species Act. If so, we are willing to share documentation of recent consultations we have completed that address effects to listed species that may also be affected by the proposed development.

Please find attached our letter, dated August 1, 2001, submitted to your office in response to the Project Notice for this proposed development. The issues raised in this attached letter should be addressed in the Draft Environmental Impact Report.

In particular, the following issues should be fully analyzed, and alternatives developed as appropriate, to address the following:

1. Public access through the property and/or to the shore of Big Bear Lake.
2. Direct and Indirect effects to sensitive resources on adjacent San Bernardino National Forest lands
3. Full analysis of impacts to biological resources, including all special status species and habitats that may be affected.

We appreciate the opportunity to review this project notice, and all information in this letter is provided in the spirit of interagency coordination. We would be happy to share with the Planning Division any records and information we have regarding the plants,



Caring for the Land and Serving People

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United States
Department of
Agriculture

Forest Service
San Bernardino National Forest
Mountain Top Ranger District

P.O. Box 290
Fawnskin, CA 92333
909-866-3437 (Voice)
909-866-2867 (FAX)
909-866-3233 (TTY)

File Code: 2670

Date: August 1, 2001

Mike Williams
San Bernardino County Land Use Services Department/Planning Division
385 N. Arrowhead Ave., First Floor
San Bernardino, California 92415-0182

Re: PN: RCK Properties, File/Inch: GPA/TT/M331-8N/01/APN:0304-091-12*

Dear Mr. Williams:

We are in receipt of the above mentioned Project Notice regarding a development proposal in Bear Valley (Fawnskin), San Bernardino County, California. The property at issue is the 62.43 acre parcel historically known as Moon Camp. The proposal, as noticed, involves a general plan/land use district amendment (rezoning) from RL-40 (rural living, 40 acre minimum lot size) to RS (residential, 7200 square feet minimum lot size). It also involves a 92-lot subdivision of the 62.43 acre Moon Camp parcel. Although not specified in the Project Notice, the proposed development may also include construction of a manna and realignment of State Route 38; both of these project components would likely trigger federal nexus. As a point of correction, the property is east of Canyon Rd., not Oriole Lane, as indicated.

Development of Moon Camp as proposed would preclude future public access to an attractive stretch of lakeshore and forest. The San Bernardino National Forest has been in discussions to acquire this parcel over the past several years, and Moon Camp continues to be a SBNF acquisition goal. This open space has very high potential and desirability for public access, recreation, and interpretation.

Moon Camp provides an effective natural buffer for sensitive habitat areas on adjacent National Forest Lands to the north of the parcel. Pebble plain habitat supporting numerous threatened/endangered and sensitive species on adjacent National Forest has been protected and is recovering from previous road damage. These pebble plains are considered essential to the recovery of the federally listed pebble plain plant species, and Forest Service conservation of these habitat areas is required under the Endangered Species Act, as specified through recent consultation with Fish and Wildlife Service.

The proposed development, and resulting local population increase would be expected to have adverse effects on these adjacent sensitive Forest Service lands. Development of these 92 parcels would significantly affect our ability to protect the adjacent pebble plain habitat as directed under the Endangered Species Act. Increased presence and use would be expected to result in the formation of new roads and trails through this sensitive habitat area, and would be expected to cause increased levels of disturbance to wildlife



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Mr. Mike Williams

species including California spotted owls, flying squirrel, deer, quail, and many other species. We would consider all of these direct and indirect biological impacts to National Forest Lands to be significant, and potentially unmitigable.

Should this development proposal go forward, we would recommend that thorough biological resource analysis be performed, including analysis of impacts to adjacent National Forest Lands, protocol surveys for southwest willow flycatcher, bald eagle use analysis, and complete and accurate wildlife and botanical assessments. We would also request that all significant impacts to biological resources be fully mitigated in close coordination with the San Bernardino National Forest.

We appreciate the opportunity to review this project notice, and all information in this letter is provided in the spirit of interagency coordination. We would be happy to share with the Planning Division any records and information we have regarding the plants, wildlife, and habitats in the vicinity of this proposed project, and any other proposed project areas in Bear Valley. With any questions or for additional information, please contact Scott Eliason, botanist at the Big Bear Ranger Station (909-866-3437 x3904).

Sincerely,

/s/ Allison Stewart

ALLISON STEWART
District Ranger

Cc: Kate Kramer, California Department of Fish and Game
Jeff Newman, US Fish and Wildlife Service
Antal Szijj, Army Corps of Engineers
Mary Ann Rondinella, Federal Highways Administration
Kelly Cohen, California Department of Transportation

March 22, 2002

Advanced Planning Division
County of San Bernardino
385 N. Arrowhead Ave., Third Floor
San Bernardino, CA. 92415-0182
Attn: Tracy Creason

RECEIVED
MAR 26 2002

Reference: Environmental Impact Report for Moon Camp TT #16136

As a resident of Fawnskin, I am very concerned about the impact of the proposed new Moon Camp development in Fawnskin and wish to assure the EIR addresses the following issues:

1) Increased Road Traffic and Congestion
The 2-lane road running thru Fawnskin is very windy and cannot support additional traffic from a 90 home development. The air quality and increased noise must definitely be addressed in the EIR.

2) Water and Sewage-
Our well-derived water system is already taxed with the drought conditions in Big Bear and we are already paying an assessment thru CSA-53B for sewage. Construction of multiple homes would require new sewer systems and should be included in the study.

3) Wildlife and Trees-
The proposed development would require cutting over 700 trees and this would effect the protected Eagle habitat which also contains coyote and deer populations. Any EIR must show how these birds and animals will be lost by elimination of their nesting and denning sites.

Also, the quality of life here would be decreased as residents would have more noise, traffic and automobile pollution to contend with. I am very much against this development and I want the Impact Report to reflect these considerations.
Thank You.

Robert Hartunian
P.O. Box 25
Fawnskin, CA. 92333

TO: COUNTY OF SAN BERNARDINO
ADVANCE PLANNING DIVISION
385 N. ARROWHEAD AVE. THIRD FLOOR
SAN BERNARDINO, CA 92415-0182

ATTENTION: TRACY CREASON, SENIOR ASSOCIATE PLANNER

FROM: RON AND BETTY MOSLEY
P.O. BOX 475
1040 FAWNSKIN DR.
FAWNSKIN, CA 92333
909 866-5008

RE: ENVIRONMENTAL IMPACT REPORT FOR MOON CAMP TT #16136

WE ARE EXTREMELY CONCERNED WITH THE LOSS OF EAGLE HABITAT. WHY IS IT SO IMPORTANT TO MAINTAIN THE HABITAT TODAY AND NOT TOMORROW. WE STILL HAVE AMPLE EAGLES FREQUENTING OUR AREA EACH WINTER TO MERIT THIS HABITAT. SO WHY IS IT NOT IMPORTANT TO PROVIDE THIS HABITAT ANY LONGER?


WE ARE CONCERNED WITH THE PART OF HIGHWAY 38 THAT IS INDICATED ON MAPS AS A SCENIC ROUTE. AND THE SCENIC ROUTE SIGNS WERE TAKEN DOWN THIS WINTER, IS THIS DUE TO THE PROPOSED DEVELOPMENTS THAT WE ARE ADDRESSING?

THE ISSUE OF WATER IS OF GREAT CONCERN TO ALL OF US. WE ARE MANDATED TO CONSERVE WATER DUE TO WATER SHORTAGE. ... IF ALL THE PROPOSED DEVELOPMENTS INCLUDING THE NEW ZOO, BROOKSIDE ROAD DEVELOPMENT, CLUSTER PINES AND MOON CAMP DEVELOPMENTS TAKE PLACE WHERE WILL THE EXTRA WATER TO MEET THE NEEDS OF ALL COME FROM?

WILL THE PROPOSED PRIVATE MARINAS BE THE FIRST STEP TOWARDS PRIVATIZING BIG BEAR LAKE? LAKE ARROWHEAD IS PRIVATE, AND IT IS SHAMEFUL TO BE SHUTTING OUT THE GENERAL PUBLIC TO LAKE ACCESS.

THANK YOU FOR TAKING THE TIME TO ADDRESS OUR CONCERNS.

SINCERELY,



BETTY & RON MOSLEY

RECEIVED

MAR 25 2002

15.3 Traffic Data

KUNZMAN ASSOCIATES

TRANSPORTATION PLANNING - TRAFFIC ENGINEERING

1111 TOWN & COUNTRY ROAD, SUITE 34
ORANGE, CA 92868-4667
(714) 973-8383
FAX: (714) 973-8821
E-MAIL: MAIL @ TRAFFIC-ENGINEER.COM

September 30, 2003

Mathew W. Slowik
San Bernardino County Government Center
385 North Arrowhead Avenue, 1st Floor
San Bernardino, CA 92415-0182

Dear Mr. Slowik:

We are pleased to present this traffic impact analysis of the proposed approximately 92 single family dwellings east of Fawnskin on the north side of State Route 38 in the Big Bear Lake Area.

This report summarizes our methodology, analysis, findings, and recommended mitigation measures. We trust that the findings, which are summarized in the front of the report and include the mitigation measures, will be of immediate as well as continuing value to you and the County of San Bernardino in evaluating the project's traffic impacts.

It has been a pleasure to serve your needs on this project. Should you have any questions, or if we can be of further assistance, please do not hesitate to call.

Sincerely,

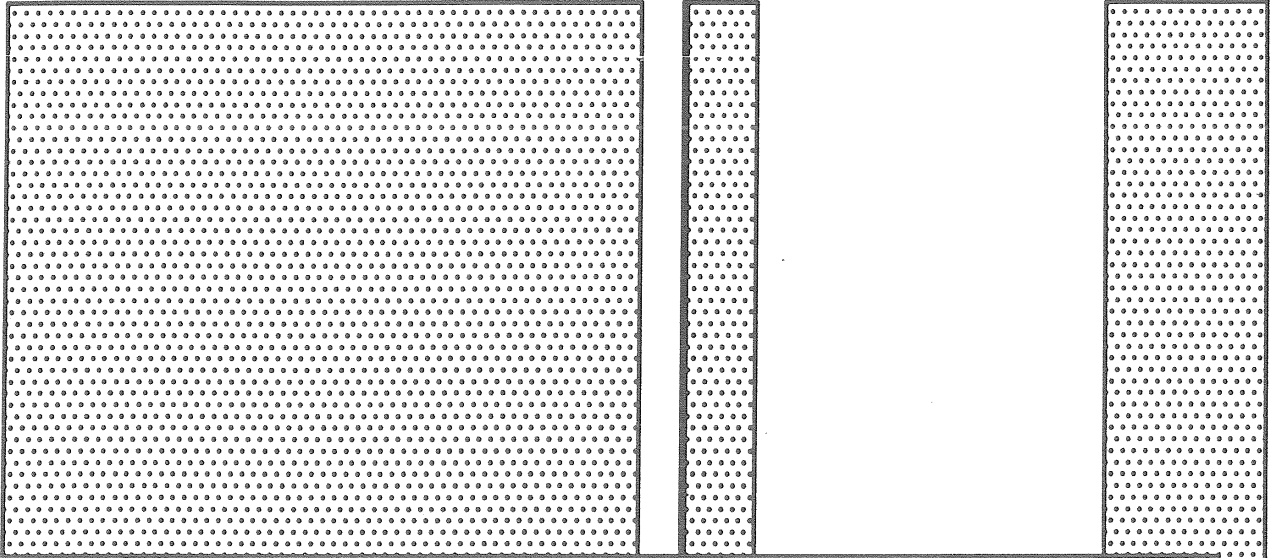
KUNZMAN ASSOCIATES



William Kunzman, P.E.
Registration Expiration
Date: 3-31-2004

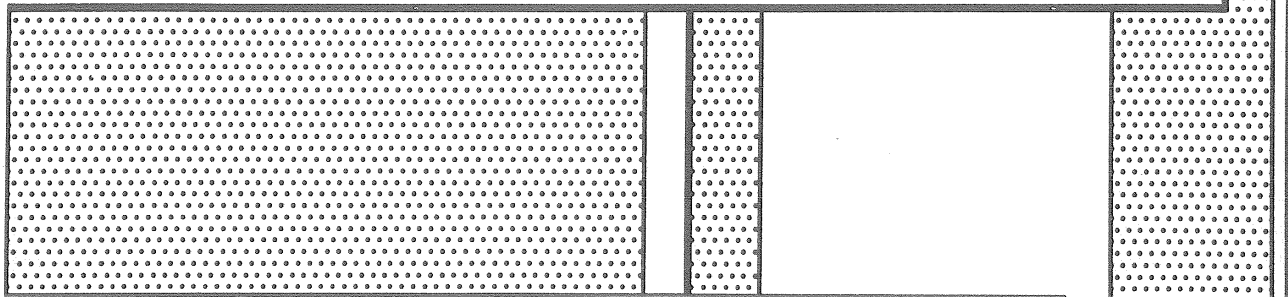
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FAWNSKIN 92 DWELLINGS

TRAFFIC ANALYSIS



KUNZMAN ASSOCIATES
TRANSPORTATION PLANNING - TRAFFIC ENGINEERING

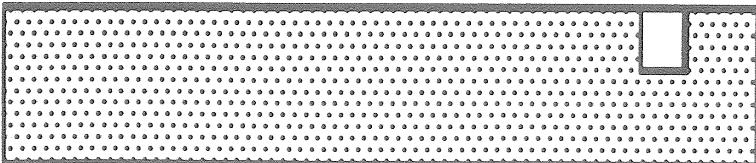


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Fawnskin 92 Dwellings

Traffic Analysis

This report contains the traffic impact analysis for the proposed approximately 92 single family dwellings east of Fawnskin and on the north side of State Route 38 in the vicinity of Big Bear Lake.

The traffic report contains documentation of existing traffic conditions, traffic generated by the project, distribution of the project traffic to roads outside the project, and an analysis of future traffic conditions. Each of these topics is contained in a separate section of the report. The first section is "Findings", and subsequent sections expand upon the findings. In this way, information on any particular aspect of the study can be easily located by the reader.

Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with those terms unique to transportation engineering, a glossary of terms is provided in Appendix A.

1. Findings

This section summarizes the existing traffic conditions, project traffic impacts, and the proposed mitigation measures.

Existing Traffic Conditions

- a. Table 1 shows the existing Intersection Delay Values and Level of Service (LOS).
- b. For existing traffic conditions, the intersection of Stanfield Cutoff and North Shore operates at Level of Service A capacity based on delay. The intersection of Stanfield Cutoff and Big Bear Boulevard operates at Level of Service E based on Delay, which is unacceptable. The solution is to convert the eastbound right turn lane to an eastbound through lane through the intersection. This may involve widening of the intersection and may involve the taking of right of way.
- c. The project site is generally vacant at present, and does not generate traffic.
- d. The proposed project will have access to State Route 38.

Traffic Impacts

- e. Table 1 shows the existing plus project Intersection Delay values and Level of Service (LOS).
- f. For existing plus project traffic conditions, the intersection of Stanfield Cutoff and North Shore operates at Level of Service B capacity based on delay. The intersection of Stanfield Cutoff and Big Bear Boulevard with the recommended mitigation measure operates at Level of Service D based on Delay, which is acceptable for a State Highway. Based on established threshold of significance criteria (Discussed in Section 2), the project has an insignificant traffic impact on Stanfield Cutoff and Big Bear Boulevard.
- g. After project completion and in the year 2006, the intersection of Stanfield Cutoff and North Shore operates at Level of Service B capacity based on delay. The intersection of Stanfield Cutoff and Big Bear Boulevard with the recommended mitigation measure operates at Level of Service D based on Delay, which is acceptable for a State Highway. Based on established threshold of significance criteria (Discussed in Section 2), the project has an insignificant traffic impact on Stanfield Cutoff and Big Bear Boulevard.
- h. Although the project does not have a significant impact on the intersection of Stanfield Cutoff and North Shore, this

intersection will require a traffic signal by 2025 because of background traffic growth.

- i. Proposed land uses for the site is approximately 92 single family residential dwellings.
- j. The project will generate 880 daily vehicle trips, 69 of which will occur during the morning peak hour, and 93 of which will occur during the evening peak hour.
- k. Project-related traffic will not warrant the installation of a traffic signal at any location.

Mitigation Measures

The following measures are recommended to mitigate the impact of the existing, background growth, and project traffic:

- l. Maintain a high level of service along North Shore by restricting parking.
- m. A 150 foot eastbound left turn pocket should be striped for traffic on North Shore desiring to turn left into project access points. The County of San Bernardino recommends a continuous left turn lane, and Caltrans will make decision.

This is a Caltrans decision subject to agreement by the County of San Bernardino.

- n. For future traffic conditions, the intersection of Stanfield Cutoff and North Shore will need a traffic signal. The project's pro rata share of the signal is \$56,523.
- o. For existing traffic conditions the intersection of Stanfield Cutoff and Big Bear Boulevard currently needs to have the eastbound right turn lane converted to an eastbound through lane through the intersection. The project's pro rata share of this off site road improvements is estimated to be \$7,098. The eastbound right turn lane is restriped to an eastbound through lane, and involves roadway widening.

The eastbound right turn lane needs to be converted to a through lane, and this will require widening and may require additional right of way. The widening and additional right of way may be needed before or after the intersection, or both. And whether widening and a take of right of way is required at all depends on lane widths and taper lengths required by Caltrans.

The available right of way in the mountains is restricted, the topography is difficult, and in many situations there are large pine trees in a location that may preclude the use of

typical design criteria. There needs to be flexibility in design requirements in the mountains. Whatever design is accepted needs to meet minimum acceptable criteria which may be less than normal criteria.

The geometrics required is a Caltrans decision, and is subject to agreement by the County of San Bernardino. The traffic study documents the need for the lane and the possible need for widening and right of way. Whether widening and right of way is needed is a function of the design criteria that Caltrans requires. This traffic study is not a design study, and this mitigation measure is not needed by this project. The project has no significant impact on this intersection, and the traffic study merely points out that it is needed to accommodate existing and future traffic volumes.

Any design that does not meet Caltrans minimum Design Standards will need an "Exception to Design Standard" fact sheet.

The estimated pro rata share of the cost of the widening is \$17,748.

- p. Construct all streets internal to the project to full ultimate cross-sections as adjacent development occurs.
- q. Construct all streets bordering the project to ultimate half-section widths in conjunction with development.
- r. Landscape plantings and signs should be limited to 36 inches in height within 25 feet of project access points to assure good visibility.
- s. Install a STOP sign on site egress roadways to North Shore.

Table 1a

SUMMARY OF INTERSECTION DELAY FOR THE UNSIGNALIZED INTERSECTION OF STANFIELD CUTOFF AND NORTH SHORE

Intersection	Land Use Scenario	Peak Hour	Lanes	Intersection Control	Two Way Stop Worst Level of Service (LOS)	
					Movement(s)	Level of Service
1. Stanfield Cutoff and North Shore - Average Month 1. Stanfield Cutoff and North Shore - Average Month 1. Stanfield Cutoff and North Shore - Average Month	Year 2001 Without Project	AM	Existing	2 Way Stop	ALL	A
	Year 2001 Without Project	PM	Existing	2 Way Stop	ALL	A
	Year 2001 With Project	PM	Existing	2 Way Stop	ALL	A
1. Stanfield Cutoff and North Shore - Peak Month 1. Stanfield Cutoff and North Shore - Peak Month 1. Stanfield Cutoff and North Shore - Peak Month	Year 2001 Without Project	AM	Existing	2 Way Stop	ALL	A
	Year 2001 Without Project	PM	Existing	2 Way Stop	ALL	A
	Year 2001 With Project	PM	Existing	2 Way Stop	NL, SL	B
1. Stanfield Cutoff and North Shore - Peak Month	Year 2001 With Project	PM	Existing	2 Way Stop	NL, SL	B
	Year 2006 Without Project	AM	Existing	2 Way Stop	ALL	A
	Year 2006 Without Project	PM	Existing	2 Way Stop	ALL	A
1. Stanfield Cutoff and North Shore - Average Month 1. Stanfield Cutoff and North Shore - Average Month 1. Stanfield Cutoff and North Shore - Average Month	Year 2006 With Project	AM	Existing	2 Way Stop	ALL	A
	Year 2006 With Project	AM	Existing	2 Way Stop	ALL	A
	Year 2006 With Project	PM	Existing	2 Way Stop	ALL	A
1. Stanfield Cutoff and North Shore - Peak Month 1. Stanfield Cutoff and North Shore - Peak Month 1. Stanfield Cutoff and North Shore - Peak Month	Year 2006 Without Project	AM	Existing	2 Way Stop	SL	B
	Year 2006 Without Project	PM	Existing	2 Way Stop	SL	B
	Year 2006 With Project	PM	Existing	2 Way Stop	NL, SL	B

Movement: MT = Northbound Through, MR = Northbound Right, NL = Northbound Left
 ST = Southbound Through, SR = Southbound Right, SL = Southbound Left
 ET = Eastbound Through, ER = Eastbound Right, EL = Eastbound Left
 WT = Westbound Through, WR = Westbound Right, WL = Westbound Left

Table 1b

SUMMARY OF SIGNALIZED INTERSECTION DELAY AND LEVEL OF SERVICE (LOS)

Intersection	Land Use Scenario	Peak Hour	Lanes												Delay in Seconds and Level of Service (LOS)	Inter-section Capacity Utilization (IOU) and LOS	Lanes		
			Northbound			Southbound			Eastbound			Westbound							
			Thr	Rt	Lt	Thr	Rt	Lt	Thr	Rt	Lt	Thr	Rt	Lt					
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	35.2 D+	0.813 D+	Existing
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	38.6 D+	0.913 E+	Existing
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	36.5 D+	0.822 D+	Existing
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	39.9 D+	0.916 E+	Existing
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	28.3 C	0.643 B	Widen
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	26.8 C	0.669 B	Widen
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	27.5 C	0.654 B	Widen
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	27.5 C	0.675 B	Widen
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	49.3 D-	0.942 E	Existing
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	64.3 E	1.067 F	Existing
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	51.7 D-	0.951 E	Existing
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	66.1 E	1.072 F	Existing
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	AM	0.3	0.3	1	1	0	1	1	1	1	1	1	1	1	1	31.7 C-	0.729 C+	Widen
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	PM	0.3	0.3	1	1	0	1	1	1	1	1	1	1	1	1	30.2 C-	0.762 C	Widen
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	32.7 C-	0.741 C-	Widen
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	31.0 C-	0.768 C	Widen
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	37.0 D+	0.839 D	Existing
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	42.0 D	0.943 E	Existing
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	36.4 D+	0.847 D	Existing
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	43.8 D	0.949 E	Existing
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	28.8 C	0.660 B	Widen
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	27.3 C	0.687 B-	Widen
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	29.9 C	0.671 B	Widen
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	28.1 C	0.693 B-	Widen
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	55.3 E+	0.975 E-	Existing
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	73.6 E-	1.104 F-	Existing
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	57.8 E+	0.987 E-	Existing
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	75.5 E-	1.110 F-	Existing
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	32.7 C-	0.752 C	Widen
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	31.1 C-	0.784 C	Widen
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	33.8 C-	0.766 C	Widen
2-	Stanfield Cutoff (NS) and Big Bear Blvd. (EM)	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	31.9 C-	0.790 C-	Widen

NOTES

The Level of Service (LOS) for the Delay Method and Intersection Capacity Utilization Method differ because they are calculated entirely differently and LOS is defined differently. See Appendices for further discussion.

Table 1b continued

SUMMARY OF SIGNALIZED INTERSECTION DELAY AND LEVEL OF SERVICE (LOS)

Intersection	Land Use Scenario	Peak Hour	Lanes												Delay in Seconds and Level of Service (LOS)	Inter-section Capacity Utilization (LCU) and LOS	Lanes			
			Northbound			Southbound			Eastbound			Westbound								
			Thr	Rt	Lt	Thr	Rt	Lt	Thr	Rt	Lt	Thr	Rt	Lt						
1: Stanfield Cutoff (NS) and North Shore (EW)	2025 Peak Month Without Project	AM	1	1	0	1	1	0	1	1	0	1	1	0	0	0	0	12.0 B+	0.456 A+	Existing
1: Stanfield Cutoff (NS) and North Shore (EW)	2025 Peak Month With Project	PM	1	1	0	1	1	0	1	1	0	1	1	0	0	0	0	17.8 B-	0.320 A+	Existing
1: Stanfield Cutoff (NS) and North Shore (EW)	2025 Average Month Without Project	AM	1	1	0	1	1	0	1	1	0	1	1	0	0	0	0	12.2 B+	0.356 A+	Existing
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Average Month With Project	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	19.3 B-	0.359 A+	Existing
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Average Month Without Project	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	48.4 D-	0.937 E	Existing
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Average Month With Project	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	62.5 E+	1.050 F	Existing
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Average Month Without Project	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	50.8 D-	0.946 E	Existing
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Average Month With Project	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	64.3 E	1.065 F	Existing
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Average Month Without Project	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	51.5 C-	0.726 C+	Widen
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Average Month With Project	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	30.0 C	0.737 C	Widen
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Average Month Without Project	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	32.6 C-	0.737 C	Widen
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Average Month With Project	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	30.7 C-	0.763 C	Widen
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Peak Month Without Project	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	86.9 F+	1.110 F-	Existing
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Peak Month With Project	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	119.0 F-	1.250 F-	Existing
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Average Month Without Project	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	90.4 F	1.122 F-	Existing
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Average Month With Project	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	121.1 F-	1.253 F-	Existing
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Average Month Without Project	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	57.9 D+	0.846 D	Widen
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Average Month With Project	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	36.1 D+	0.872 D	Widen
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Average Month Without Project	AM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	39.4 D+	0.860 D	Widen
2: Stanfield Cutoff (NS) and Big Bear Blvd. (EW)	2025 Average Month With Project	PM	0.5	0.5	1	1	0	1	1	1	1	1	1	1	1	1	1	37.1 D+	0.877 D-	Widen

NOTES

The Level of Service (LOS) for the Delay Method and Intersection Capacity Utilization Method differ because they are calculated entirely differently and LOS is defined differently. See Appendices for further discussion.

2. Congestion Management Program (CMP) Methodology

This section discusses the County Congestion Management Program (CMP). The purpose, prescribed methodology, and definition of a significant traffic impact are discussed.

County Congestion Management Program (CMP)

The CMP is a result of Proposition 111 which was a statewide initiative approved by the voters in June, 1990. The proposition allowed for a nine cent per gallon state gasoline tax increase over a five year period.

Proposition 111 explicitly stated that the new gas tax revenues were to be used to fix existing traffic problems and was not to be used to promote future development. For a city to get its share of the Proposition 111 gas tax, it has to follow certain procedures specified by the State Legislature. The legislation requires that a Traffic Impact Analysis (TIA) be prepared for new development. The TIA is prepared to monitor and fix traffic problems caused by new development.

The Legislature requires that adjacent jurisdictions use a standard methodology for conducting a TIA. To assure that adjacent jurisdictions use a standard methodology in preparing TIA's, one common procedure is that all cities within a county, and the county agency itself, adopt and use one standard methodology for conducting TIA's.

Although each county has developed standards for preparing TIA's, TIA requirements do vary in detail from one county to another, but not in overall intent or concept. The general approach selected by each county for conducting TIA's has common elements.

The general approach for conducting a TIA is that existing weekday peak hour traffic is counted and the percent of roadway capacity currently used is determined. Then growth in traffic is accounted for and added to existing traffic and the percent of roadway capacity used is again determined. Then the project traffic is added and the percent of roadway capacity used is again determined. If the new project adds traffic to an overcrowded facility, then the new project has to mitigate the traffic impact so that the facility operates at a level which is no worse than before the project traffic was added.

If the project size is below a certain minimum threshold level, then a project does not have to have a TIA prepared, once it is shown or agreed that the project is below the minimum threshold.

In San Bernardino County a project needs a TIA if it generates more than 250 new peak hour trips. This project will generate 93 new peak hour trips (approximately). Although this project does not generate 250 new peak hour trips, nonetheless the County of San Bernardino has requested that the SanBag TIA requirements be met, with one exception. That exception is that engineering judgment can be used for determining the project's peak hour traffic distribution rather than determining the traffic distribution using the East Valley Traffic Model.

If a project is bigger than the minimum threshold size, then a TIA is required.

Prescribed Methodology for A Traffic Impact Analysis (TIA)

The TIA must include all monitored intersections to which the project adds traffic above a certain minimum amount.

In San Bernardino County, the monitored intersections are all arterial to arterial intersections.

In San Bernardino County, the CMP requires that all arterial links and their CMP intersections be included in the analysis when the anticipated project volume equals or exceeds 80 two-way trips in one peak hour. For freeways, it is 100 two-way trips in the peak hour. Based on this requirement and the distribution of project-generated trips, the project-generated arterial link volumes are less than 80 trips on all roadway links and their intersections.

In this case, the intersections of Stanfield Cutoff and North Shore Drive, and Stanfield Cutoff and Big Bear Boulevard are not CMP intersections.

If a project adds more traffic than the minimum threshold amount to an intersection, then that intersection has to be analyzed for deficiencies.

If the intersection has to be analyzed for deficiencies, then mitigation is required if the existing traffic plus anticipated traffic growth plus project traffic does cause the Intersection Delay to go above a certain point.

In San Bernardino County, mitigation is required if the intersection operates at worse than Level of Service C, ie Level of Service D, which corresponds to a maximum acceptable delay of 35 seconds for signalized intersections. The TIA guidelines require Level of Service E.

In San Bernardino County, impacted intersections are analyzed

using the Delay Methodology and the Intersection Capacity Utilization (ICU) Methodology. Although the Delay Method is required per TIA guidelines, the ICU Method is also used per TIA requirements to assure that there is no operational problems.

An intersection mitigation measure shall either fix the deficiency, or reduce both the delay and ICU so that they are below the level which occurs without the the project.

The following assumptions will be used:

Lane capacity:
1900 through
1900 right
1800 left
1700 double left
1600 triple left
2200 freeway lane

Lost time per phase: 2 seconds

Yellow time per phase: 3 seconds

Signal cycle length: 90 to 130 seconds and optimized to result in the lowest calculated delay

Random arrivals will be assumed for signal coordination, except where signal interconnection exists.

Minimum green plus yellow: 10 seconds

Peak hour factor: 0.95

Lane utilization factor: 1.00

Right turn lanes will be assumed if there is at least 10 feet of space for the right turns, whether striped or not

For freeways, a split of 55/45 percent will be assumed, and morning peak hour will be assumed to be 90 percent of evening peak hour, truck percentages will be per CalTrans, and a peak hour factor of 0.98 in congested areas and 0.95 for uncongested areas will be used.

Growth rates are calculated and applied on a simple growth rate basis rather than a compounded growth rate basis.

Project traffic is generated using rates and procedures contained in the Institute of Transportation Engineers, Trip

Generation manual. Project traffic distribution is provided by the reviewing agency or is agreed to in advance of the TIA being prepared. The TIA has to be prepared by a licensed Traffic Engineer.

This traffic analysis has been prepared in accordance with the TIA requirements except as noted. The TIA not only examined the CMP system of roads and intersections, but also other roads and intersections.

The project generated traffic was added to intersections, and a full intersection analysis was conducted, even when the project added traffic failed to meet the minimum thresholds that require an intersection analysis.

Mitigation Measures

If a project is large enough to require that a TIA be prepared, and if the project adds traffic to an intersection above a minimum threshold, and if the intersection is operating at above an acceptable level of operation, then the project must mitigate its traffic impact.

Traffic mitigation can be in many forms including adding lanes. Lanes can sometimes be obtained through restriping or elimination of parking, and sometimes require spot roadway widening.

3. Project Description

This section discusses the project's location, proposed development, and traffic characteristics of such a development. Figure 1 shows the project location. Figure 2 shows the project site plan.

Location

The project site is located east of Fawnskin on the north side of State Route 38 in the vicinity of Big Bear Lake. Access will be from North Shore.

Proposed Development

The project site is proposed to be developed with approximately 92 single family residential dwellings.

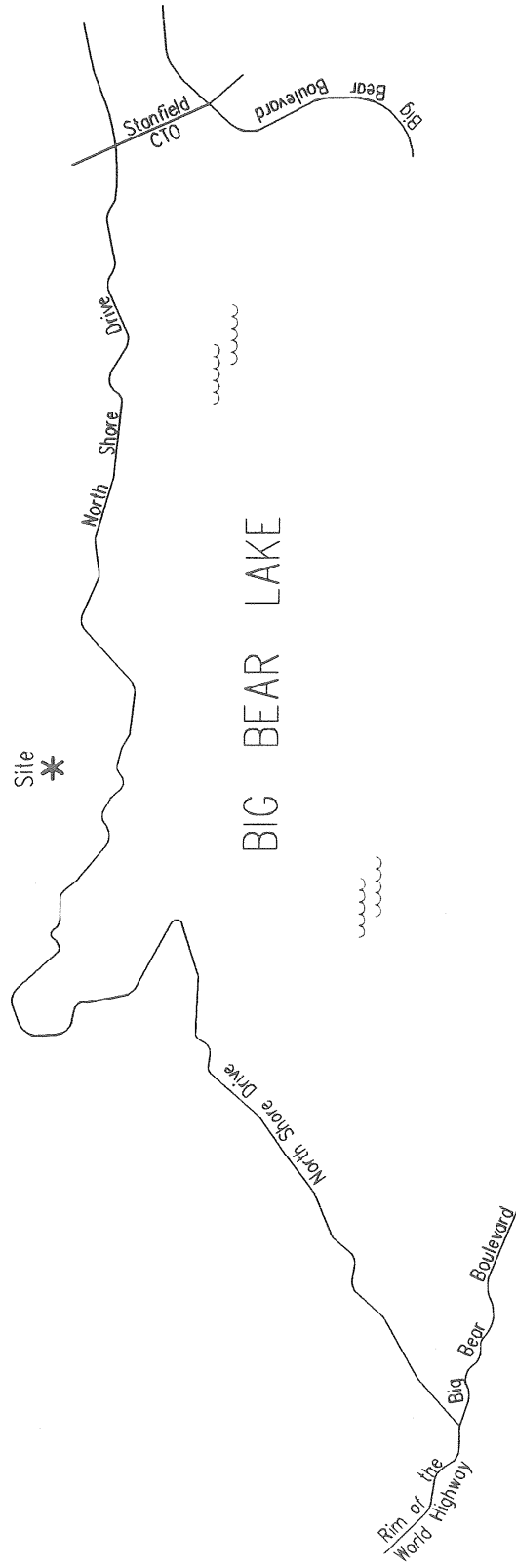
The following describes the proposed land uses from a traffic engineering viewpoint:

Single Family Detached Dwellings: The primary market for these units will be families with children. As a result, peak traffic volumes will occur during home-to-work and work-to-home trips. Child-related trips such as home-to-school or home-to-Little League are also a significant factor in the daily trip generation, but they have a smaller influence on peak hour volumes.

The project also includes 100 boat slips. The boat slips are to be used by residents who live there, and are not expected to generate additional external traffic.

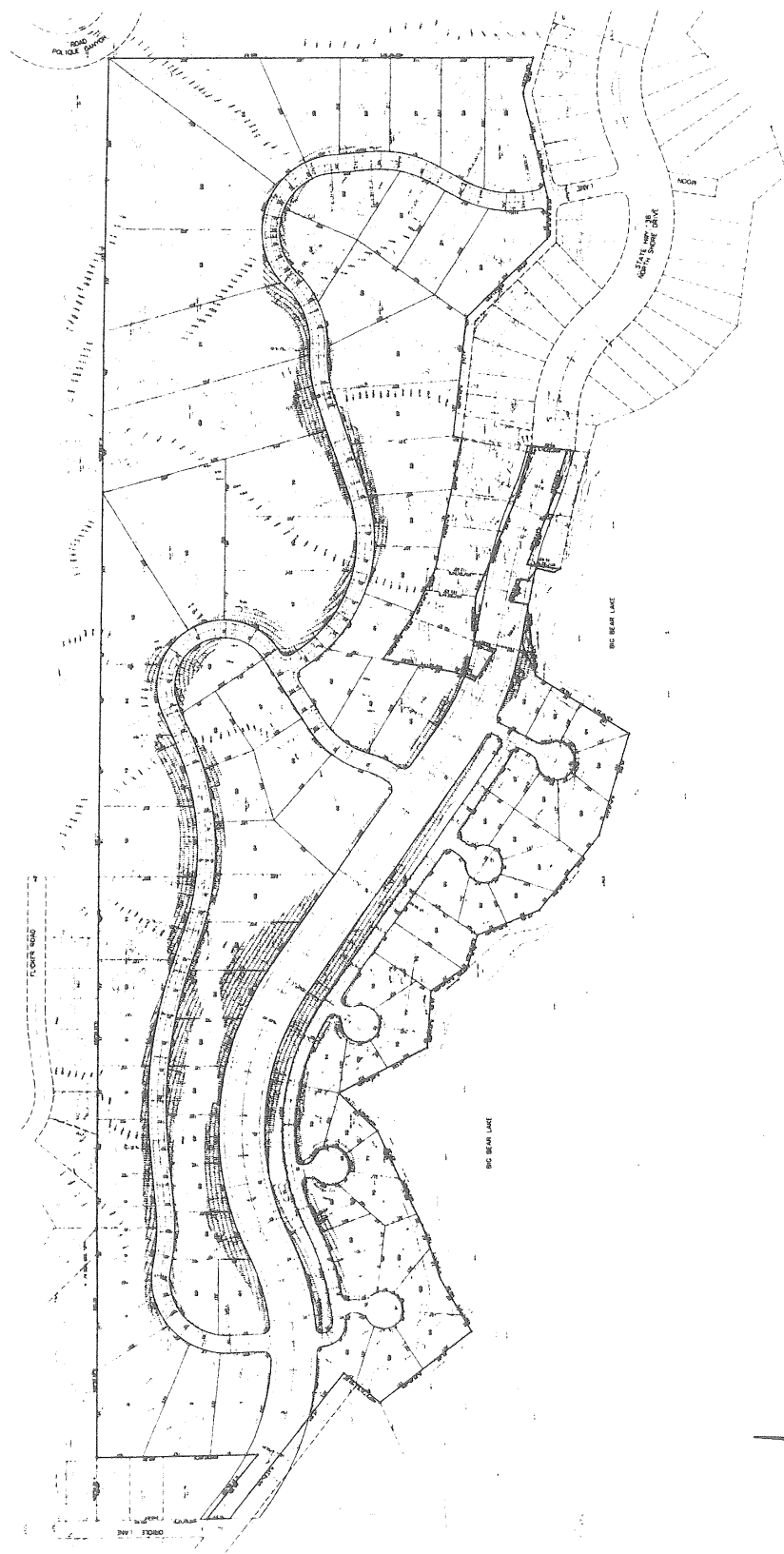
In this traffic analysis it has been assumed that the homes are lived in year round by persons who commute to work. This is a maximum likely scenario. It is likely that some homes will be second homes and that those who do live there will tend to be retired more than typically found in Southern California.

Figure 1
Project Location



Kunzman Associates

Figure 2
Site Plan



Kunzman Associates

4. Existing Traffic Conditions

The traffic conditions as they exist today are discussed below and illustrated in Figures 3 to 6.

Surrounding Street System

Because the roadway system is part of the State Highway System most people know the streets by their name rather than their State Highway number. Figure 3 was prepared to show the common name as well as State Highway number for each.

Roadways that will be utilized by the development include North Shore, Stanfield Cutoff and Big Bear Boulevard. In the vicinity of the project site, the following roadway conditions exist.

North Shore Drive:

This east-west two lane road is State Highway 38 and does not have left turn lanes at intersections. It currently has a peak month volume of 2,700 vehicle per day.

Stanfield Cutoff:

This north-south two lane road not have left turn lanes at intersections. It currently has a peak month volume of 6,000 vehicles per day.

Big Bear Boulevard:

This east-west road is four lanes west of Stanfield Cutoff and two lanes east of Stanfield Cutoff. It has a peak month volume of 21,100 vehicles per day west of Stanfield Cutoff.

Existing Travel Lanes and Intersection Controls

Figure 4 identifies the existing roadway conditions for highways near the site. The number of through lanes for existing roadways and the existing intersection controls are identified.

Existing Daily Traffic Volumes

Figures 5 and 6 depict the average and peak month daily two-way traffic volumes. Traffic volumes were obtained from the weekday peak hour intersection turning movement counts made by Kunzman Associates in March, 2001.

Table 3 shows daily traffic volumes as reported by CalTrans in Traffic Volumes for State Highways in 1989 and 1999. From this data it can be seen that a reasonable factor to convert typical month volumes to peak month volumes is 1.25.

The County of San Bernardino recommends a growth rate of 1.0 percent per year for the Big Bear area based on a recent analysis by the County. Typically an annual growth rate approach is better than a cumulative projects approach because the cumulative projects approach typically leads to double counted trips and everything gets worst cased so that there is a compounding of errors consideration also. The double counting occurs for instance when homes are proposed and the cumulative projects list includes a retail commercial center. The trip added from the home that goes to the store is the same trip added a second time from the store to the home. The compounding of errors leads to erroneous results when for instance in the case of residential the density is over estimated, then the trip generation is overestimated (this is particularly problematic in Big Bear where most houses are not inhabited full time, and then the trip distribution is overestimated in that the local trips are under reported and the longer trips are over reported. The County of Los Angeles uses the compounded growth rate approach. Also, it should be noted that the County of Riverside formerly used the compounded growth rate approach, then switched to the cumulative projects approach, and is now reconsidering going back to the compounded growth rate approach.

Year 2001 traffic volume estimates where not available from Caltrans "Traffic Volume, 2001" were obtained by factoring the sum of the morning and evening peak hour volumes. A factor of 5.5 was used. This method of estimating daily traffic volumes produces reasonable results. See Appendix B for more details.

Existing Peak Hour Turning Movement Volumes

Existing manual peak hour turning movement counts were made by Kunzman Associates in March, 2001.

Appendix C contains plots of the peak hour intersection turning movement volumes. Additionally, the same plots show the peak hour leg approach volumes and two-way peak hour leg volumes.

There are two peak hours in a weekday. The morning peak hour is between 7 and 9 A.M., and the evening peak hour is between 4 and 6 P.M. The actual peak hour within the two hour interval is the four consecutive 15 minute periods with the highest total volume when all movements are added together. Thus, the evening peak hour at one intersection may be 4:45 to 5:45 P.M. if those four

consecutive 15 minute periods have the highest combined volume.

Existing Intersection Lanes

The Appendix C plots of peak hour turning movement volumes for each intersection also show the number of existing intersection through and turning movement lanes. The lanes are also listed in Table 1.

Existing Intersection Delay

The technique used to assess the operation of an intersection is known as the Intersection Delay Method. To calculate the Intersection Delay value the volume of traffic using the intersection is compared with the capacity of the intersection. The Intersection Delay value is usually expressed as the average seconds of delay per vehicle using the intersection.

The Intersection Delay for the existing traffic conditions have been calculated and are shown in Table 1.

Existing Intersection Delay values are based upon manual peak hour turning movement counts, factored up to represent peak month counts.

Appendix B contains the Intersection Delay calculations. An explanation of Intersection Delay and how it is calculated is also included in Appendix B.

Existing Level of Service

From the Intersection Delay analysis, the intersection Level of Service (LOS) can be determined. LOS is directly related to Intersection Delay. Table 2 shows how LOS is related to Intersection Delay, and describes LOS. However, it should be noted that the intersection of Stanfield Cutoff and Big Bear Boulevard currently operates at an intersection capacity utilization greater than 100 percent in the peak month weekday evening peak hour. The solution is to convert the eastbound right turn lane to an eastbound through lane through the intersection. This will involve widening of the intersection and may involve the taking of right of way.

Table 2

LEVEL OF SERVICE DESCRIPTION
FOR DELAY METHOD (1997 METHODOLOGY)

Level of Service	Description	Stopped Delay Per Vehicle (Seconds)
A	Level of Service 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 to 10.0
B	Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	10.1 to 20.0
C	Level of Service generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	20.1 to 35.0
D	Level of Service 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.	35.1 to 55.0
E	Level of Service E is 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.	55.1 to 80.0
F	Level of Service F is considered to be unacceptable to most drivers. This condition often occurs with over-saturation, i.e., when arrival 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.	80.1 +
<p>Source: HIGHWAY CAPACITY MANUAL, Special Report 209, Transportation Research Board, National Research Council, Washington, D.C., 1997, Pages 9-6 to 9-7.</p>		

Table 3

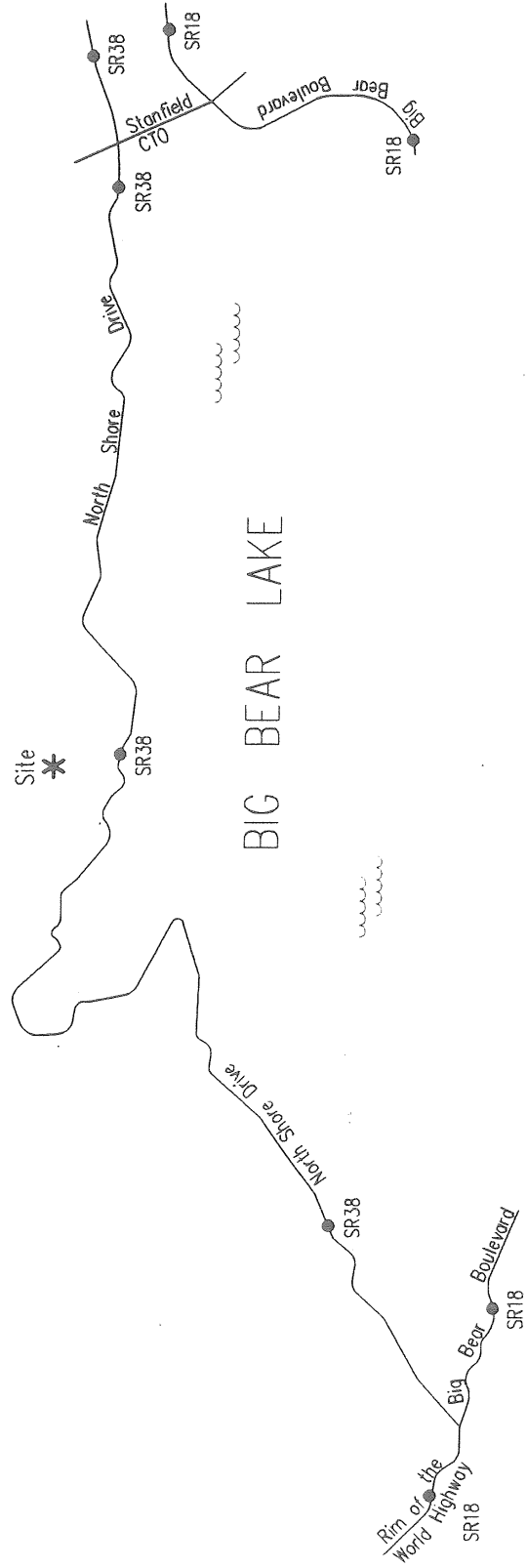
DETERMINING ANNUAL GROWTH RATES AND PEAK MONTH FACTORS

Road Location (See Figure 3 for Location References)	Year 1991			Year 2001			Growth Ratio	
	Annual Daily Traffic Volume	Peak Month Daily Traffic Volume	Peak Month Divided by Annual Daily Traffic Volume	Annual Daily Traffic Volume	Peak Month Daily Traffic Volume	Peak Month Divided by Annual Daily Traffic Volume	2001 Annual Volume Divided by 1991 Annual Volume	Annual Growth Rate (Percent)
	1. Rim of the World Highway (SR18) west of Northshore Drive (SR38)	5,200	6,000	1.15	6,100	7,100	1.16	1.173
2. Big Bear Boulevard (SR18) East of North Shore Drive (SR38)	6,900	8,000	1.16	6,300	7,300	1.16	0.913	-0.87%
3. Big Bear Boulevard (SR18) West of Stanfield Cutoff	16,000	19,100	1.19	18,000	20,500	1.14	1.125	1.25%
4. Big Bear Boulevard (SR18) East of Stanfield Cutoff	13,000	15,300	1.18	16,000	18,100	1.13	1.231	2.31%
5. North Shore Drive (SR38) North of Big Bear Boulevard (SR18) and Dam	2,000	2,350	1.18	1,600	2,300	1.44	0.800	-2.00%
6. North Shore Drive (SR38) West of Stanfield Cutoff	3,000	3,450	1.15	3,400	4,750	1.40	1.133	1.33%
7. North Shore Drive (SR38) East of Stanfield Cutoff	3,300	3,750	1.14	5,000	6,900	1.38	1.515	5.15%
Average			1.16			1.26		
Value Which Will Be Used for Traffic Study			1.25			1.25		

NOTE: SR = State Route

The peak month conditions are for a typical day in a peak month and do not necessarily include peak weekend conditions such as the Fourth of July.

Figure 3
State Highway Designations



SR = State Route



Figure 4
Existing Through Travel Lanes and Intersection Control

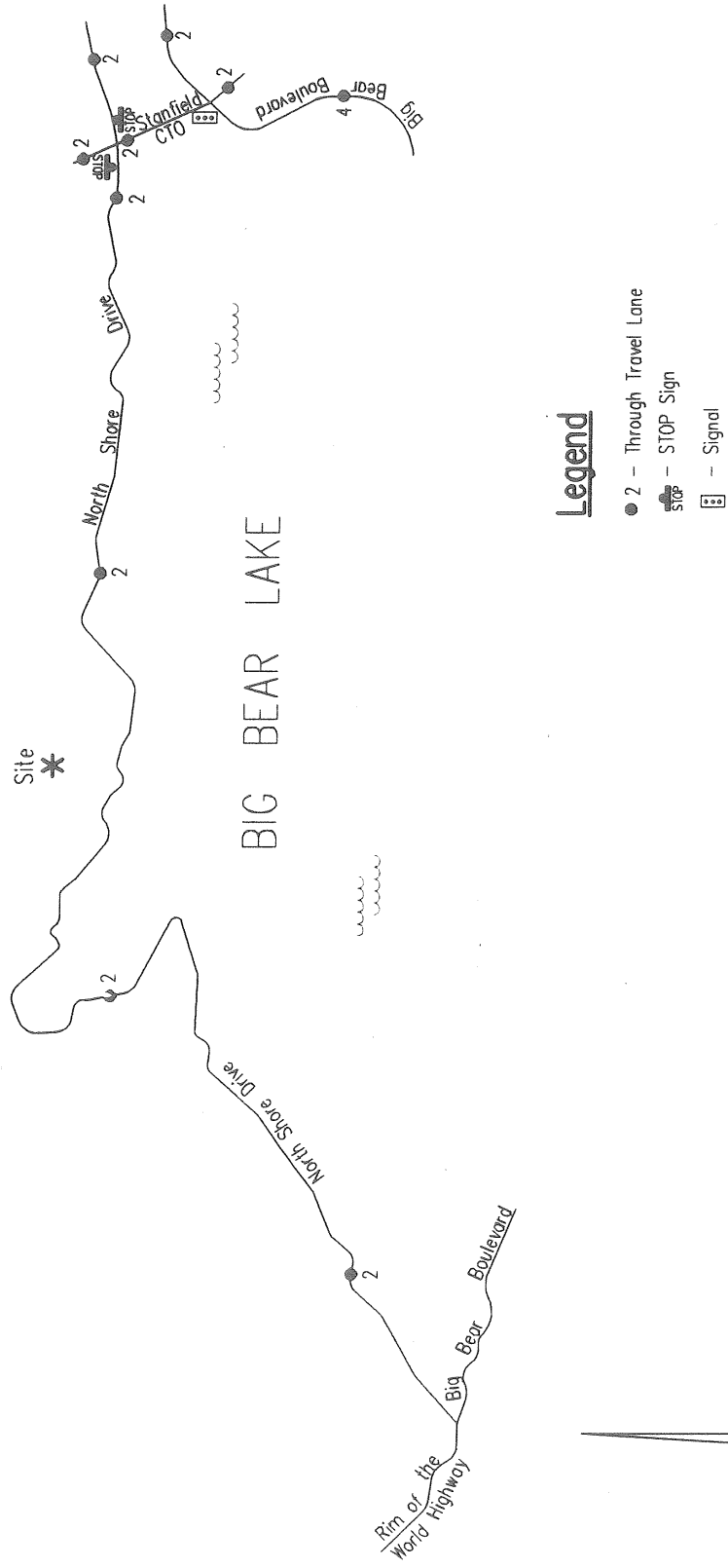
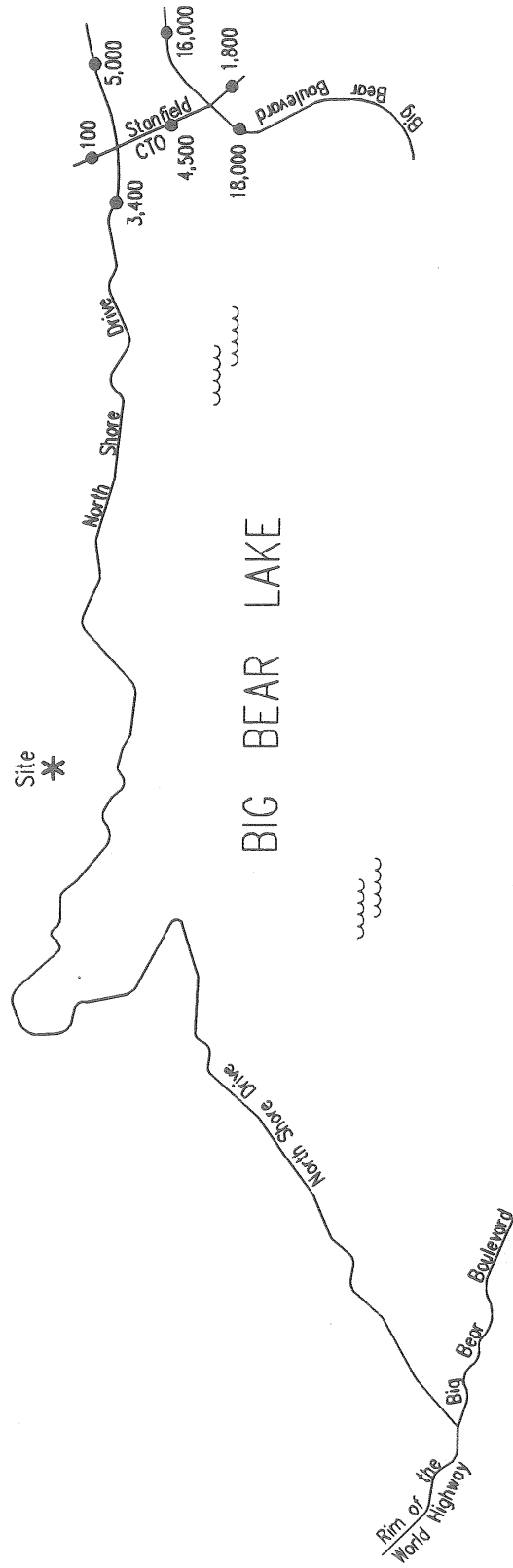
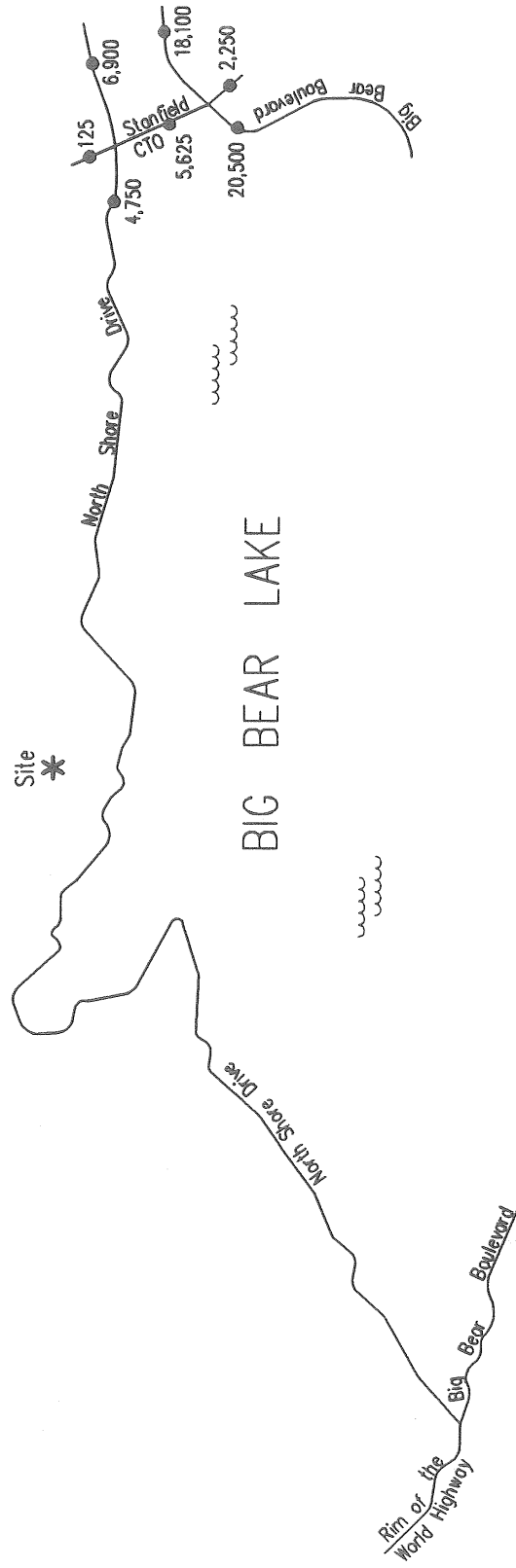


Figure 5
Existing Daily Traffic Volumes – Average Month



Source: Caltrans 2001 "Traffic Volumes" on Highways 18 and 38, and estimated for Stanfield Cutoff

Figure 6
Existing Daily Traffic Volumes – Peak Month*



Source: Caltrans 2001 "Traffic Volumes" for Highways 18 and 38, and Stanfield volume was assumed to be 25 percent higher than the average month.



5. Project Traffic

To estimate project-related traffic volumes at various points on the street network, a three step process is utilized. First, the traffic that will be generated by the proposed development is determined. Second, the traffic volumes are geographically distributed to major attractions of trips, such as employment centers, commercial centers, recreational areas or residential areas. Finally, the trips are assigned to specific roadways and the project-related traffic volumes are determined on a route-by-route basis.

Traffic Generation

The traffic generated by the project is determined by multiplying an appropriate trip generation rate by the quantity of land use. Trip generation rates are expressed in terms of trip ends per person, trip ends per employee, trip ends per acre, trip ends per dwelling, or trip ends per thousand square feet of floor space. For instance, if a particular land use generates six outbound trips per acre in the morning peak hour, then six vehicles are expected to leave the site in the morning peak hour for each acre of development.

Significant research efforts have been made by the Institute of Transportation Engineers and others to establish the correlation between trips and land use. From this body of information, trip generation rates can be estimated with reasonable accuracy for various land uses.

Trip generation rates are predicated on the assumption that energy costs, the availability of roadway capacity, the availability of vehicles to drive, and our life styles remain similar to what we know today. A major change in these variables may affect trip generation rates.

Trip generation rates were determined for daily traffic, morning peak hour inbound and outbound traffic, and evening peak hour inbound and outbound traffic for the proposed land uses. The trip generation rates are from Trip Generation, Sixth Edition, Institute of Transportation Engineers, 1997.

By multiplying the traffic generation rates by the land use quantities, the traffic volumes are determined. Table 4 exhibits the traffic generation rates and exhibits the peak hour and daily traffic volumes.

The project also includes 100 boat slips. The boat slips are to be used by residents who live there, and are not expected to

generate additional external traffic.

In this traffic analysis it has been assumed that the homes are lived in year round by persons who commute to work. This is a maximum likely scenario. It is likely that some homes will be second homes and that those who do live there will tend to be retired more than typically found in Southern California.

Traffic Distribution and Assignment

Traffic distribution is the determination of the directional orientation of traffic. It is based on the geographical location of employment centers, commercial centers, recreational areas, or residential area concentrations.

Traffic assignment is the determination of which specific route development traffic will use, once the generalized traffic distribution is determined. The basic factors affecting route selection are minimum time path and minimum distance path.

Figure 7 contains the directional distribution and assignment of the project traffic for the proposed land uses.

The County of San Bernardino requested that the following intersections be analyzed:

1. Stanfield Cutoff and North Shore Drive
2. Stanfield Cutoff and Big Bear Boulevard

Project-Related Traffic

Based on the identified traffic generation and distributions, project related daily traffic volumes are shown in Figure 8.

Table 4

PROJECT TRAFFIC GENERATION

Descriptor	Trip Generatio Rate	Trips Generated by 92 Dwellings
Units	Dwellings	Dwellings
Daily	9.57	880
Morning Peak Hour - In Morning Peak Hour - Out	0.19 0.56	17 52
Total	0.75	69
Evening Peak Hour - In Evening Peak Hour - Out	0.65 0.36	60 33
Total	1.01	93
SOURCE: Trip Generation, 6th Edition, Institute of Transportation Engineers, 1997, Category 210.		

— Kunzman Associates —

Figure 7
Project Traffic Distribution (Weekday Peak Hours)

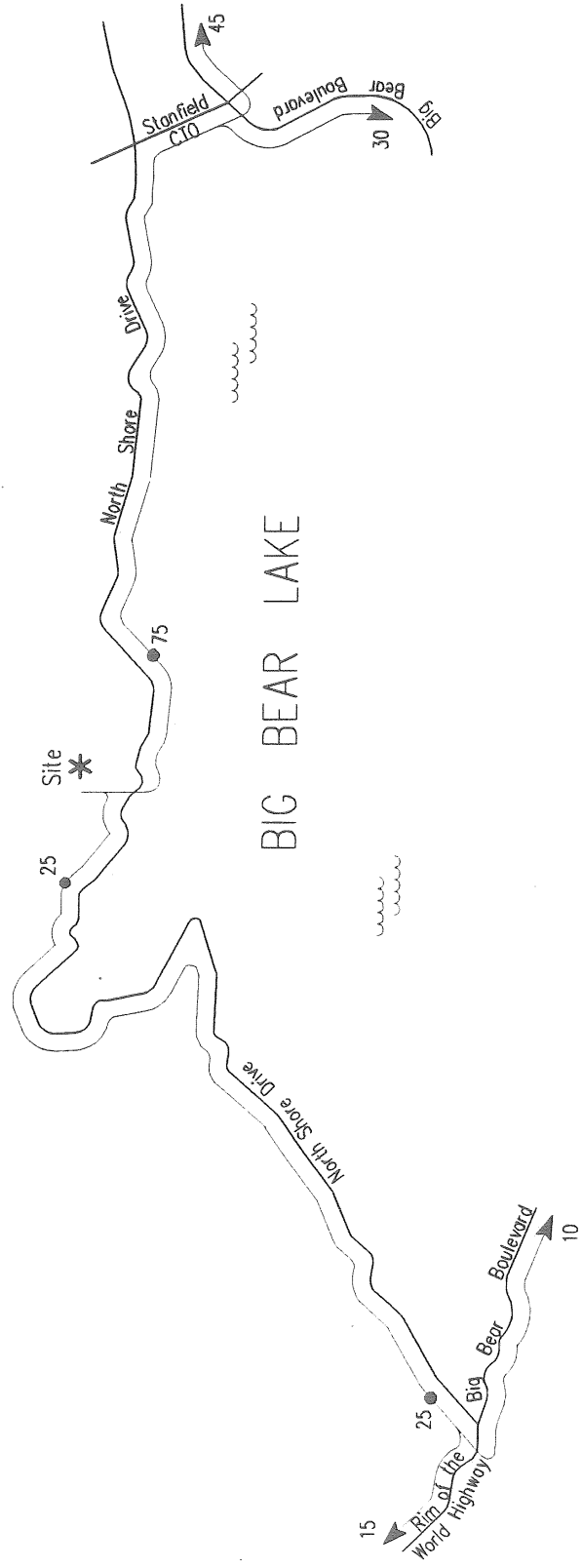


Figure 8
Project Generated Daily Traffic Volumes

