16.2

Table A
EMPLOYEE GENERATION BY LODGING TYPE

Land Use District	Permitted Lodging Type (1999 Specific Plan, Page 28)	Similar Lodging Type (AHMR, Table 2-1)	FTEE Factor (Per Room) (AHMR, Table 2-1)
Plaza Resort	Resort Condominium	Condominium	0.20
Plaza Resort	Timeshare Units	Commercial Lodging	0.50
Plaza Resort	Full-Service Hotel	Hotel	0.50
		Average	**0.40**
		Highest	**0.50**
Resort General	Inns	Commercial Lodging Ltd.	0.20
Resort General	Resort Condominium	Condominium	0.20
Resort General	Timeshare Units	Commercial Lodging	0.50
Resort General	Speciality Hotel (European)	Commercial Lodging Ltd.	0.20
		Average	**0.28**
		Highest	**0.50**
Speciality Lodging	Resort Condominium	Condominium	0.20
Speciality Lodging	Timeshare Units	Commercial Lodging	0.50
Speciality Lodging	Inns	Commercial Lodging Ltd.	0.20
Speciality Lodging	Speciality Hotel (European)	Commercial Lodging Ltd.	0.20
		Average	**0.28**
		Highest	**0.50**

16.3

INTRAWEST MASTER PLAN
TRAFFIC IMPACT ANALYSIS

September 22, 1998

Amended: *November 9, 1999*
December 9, 1999
June 22, 2000
July 25, 2000

Prepared for:

Intrawest Mammoth Corporation
P.O. Box 2789
Mammoth Lakes, California 93546

Prepared by:

LSA Associates, Inc.
One Park Plaza, Suite 500
Irvine, California 92614
(949) 553-0666
LSA Project #INT732

TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

PAGE

LIST OF TABLES

PAGE

INTRAWEST MASTER PLAN TRAFFIC IMPACT ANALYSIS

INTRODUCTION

The purpose of this traffic impact analysis is to assess the potential circulation impacts associated with the build out of the Intrawest Master Plan (Gondola Village, Sierra Star and Juniper Springs). The Town of Mammoth Lakes approved a Redevelopment Plan in 1997 that analyzed build out of the Town's General Plan, including several specific plans for these areas. This Intrawest Master Plan includes refinements to the proposed land uses in the Specific Plans analyzed in the Redevelopment Plan. Among these refinements are changes to the land uses proposed for the three Intrawest development areas: Gondola Village, Sierra Star, and Juniper Springs. This analysis will provide a comparison of the land use changes and potential traffic impacts between the approved 1997 Redevelopment Plan and the proposed Intrawest Master Plan.

This analysis provides an assessment of traffic impacts and the determination of traffic mitigation as required for California Environmental Quality Act (CEQA) compliance.

Project Description

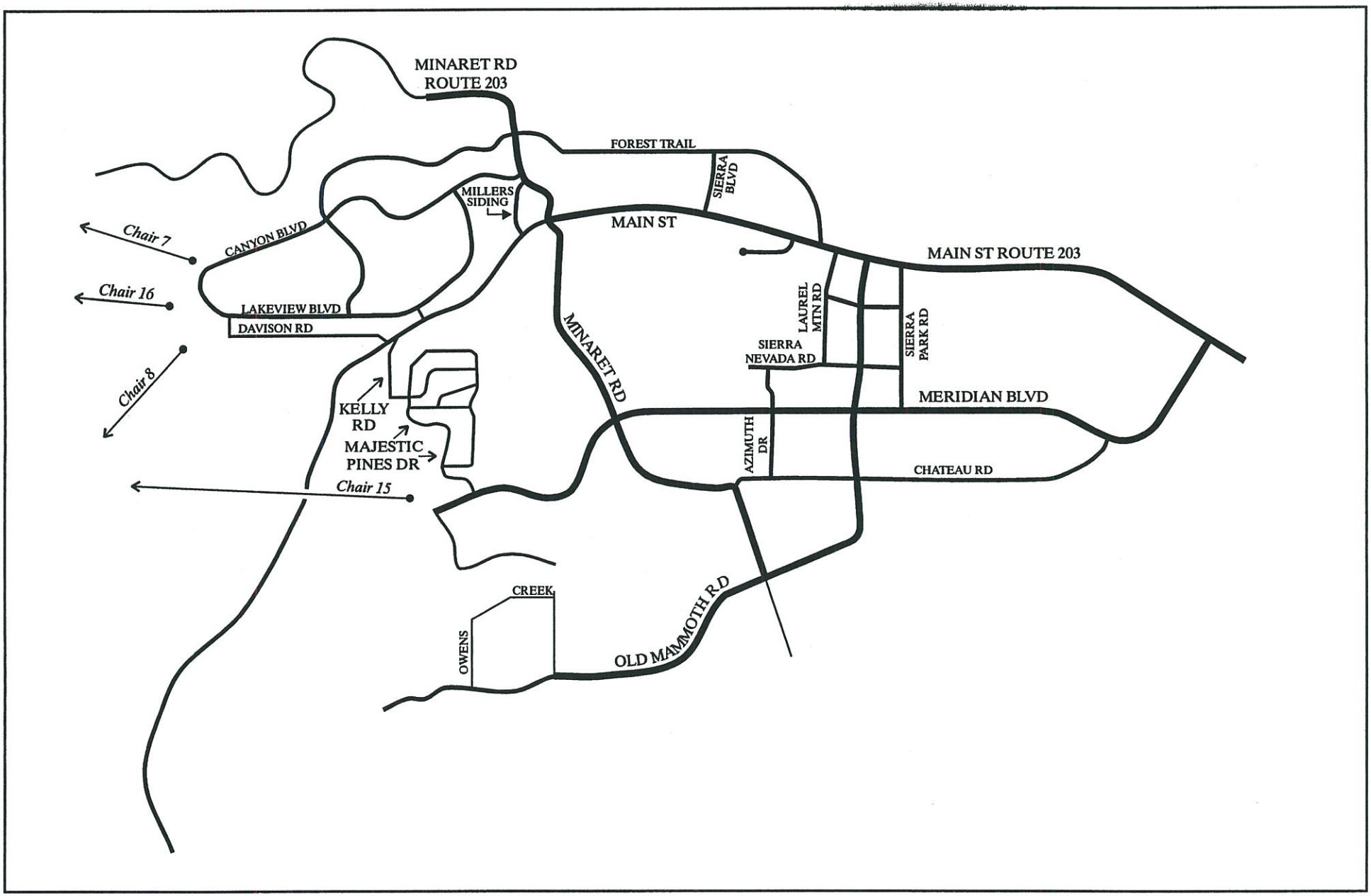
The project site includes the Town of Mammoth Lakes and surrounding recreational/development areas. Figure 1 illustrates the project study area. The land uses in the proposed Intrawest Master Plan include changes to the uses in the proposed developments: Gondola Village, Sierra Star, and Juniper Springs. Figure 2 shows the locations of these Intrawest developments. The changes in the proposed land uses are based on ongoing refinements to development plans for the three Intrawest project areas. The recent refinements are generally less intensive land uses than originally approved from a traffic generation perspective. There have also been refinements to the assumptions in the Town of Mammoth Lakes' Transportation Model (MTM) land use database for the General Plan conditions, provided at the direction of Town staff.

Project Design Features

The following traffic monitoring plans for Forest Trail and Minaret Road have been included in the project's design to ensure adequate and efficient traffic flow in specific areas adjacent to the North Village Specific Plan area. With the initiation of these monitoring plans, and the implementation of their proposed measures (if needed), the residential areas along Forest Trail would not be significantly impacted by traffic generated by MMSA and/or the proposed Gondola Village development.

Forest Trail Neighborhood Traffic Plan

Issues concerning the potential of non-residential traffic along the whole length of Forest Trail have been raised. Two neighborhood specific monitoring plans are recommended to evaluate



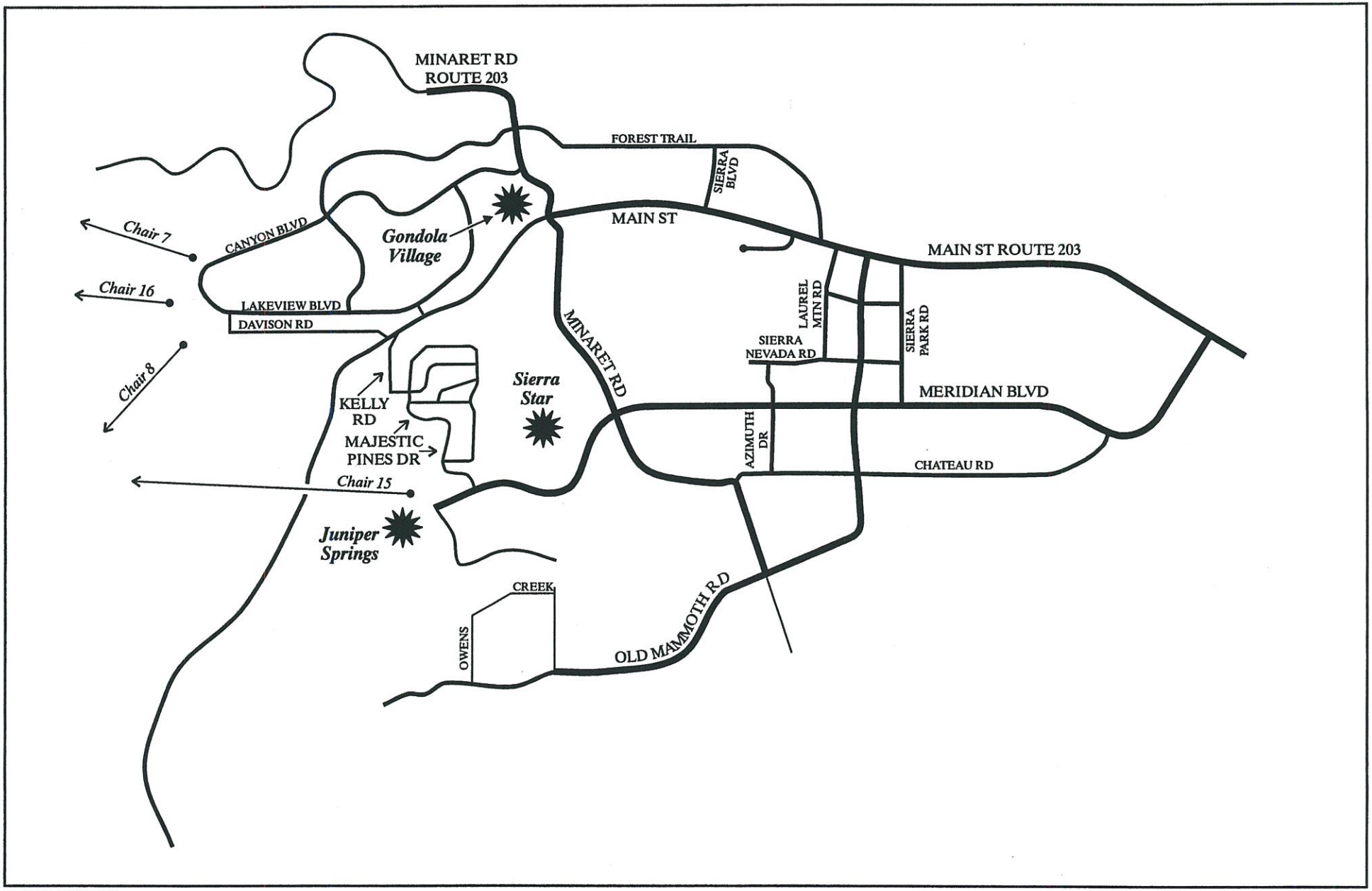
12/3/99(INT732)

Figure 1

N

LSA Not to Scale

Intrawest Master Plan
Study Area



12/3/99(INT732)

Figure 2

N

LSA Not to Scale

Intrawest Development Areas

conditions, document changes, and implement diversion measures. One plan is for Forest Trail east of Minaret and the other for west of Minaret.

East of Minaret. The issue of nonresidential traffic using Forest Trail between Main Street and Minaret during the winter as a shortcut from the Main Lodge was raised during the North Village Specific Plan process in 1994.

There is no specific mitigation measure to address the issue, and there is no quantifiable documentation of the problem. The specific plan text (page 65) does contain a restriction of "No Right Turns" from northbound on Berner to eastbound on Forest Trail. In the accompanying traffic study (page 13 and 14), there is a discussion of the issue and a recommendation that southbound left turns at Forest Trail/Minaret intersection be restricted between 3:00 p.m. and 5:00 p.m. from November 1 through April 1. This recommendation does not appear as a mitigation measure.

With the proposed design of a roundabout in lieu of a traffic signal at the Forest Trail/Minaret intersection, the recommended turn restriction is not viable. Therefore, the following neighborhood traffic management plan is recommended to address the perceived issue:

1. Establish the baseline condition of cut-through non-residential traffic on a typical winter weekday and on a typical winter Saturday. This would be accomplished by a winter mid-week and Saturday license plate survey taken at each end of Forest Trail (i.e., Main at Forest Trail and Sierra, and Forest Trail at Minaret) during the afternoon peak period (2:00 p.m.-5:00 p.m.) Survey personnel would record the last four digits of all eastbound vehicles on Forest Trail just to the east of Gondola Village, as well as the time the vehicle was observed. A similar survey would be made of all southbound vehicles on both Forest Trail and Sierra approaching Main Street. These data would be matched to identify vehicles exiting Sierra or Forest Trail within a few minutes of entrance. The matched vehicles would be cut-through traffic.

2. Conduct annual monitoring of these license plate surveys during the build out of Intrawest Gondola Village Master Plan. After Gondola Village build out, annual monitoring would be suspended if cut-through traffic is less than the criteria established for diversion measures.

3. If an increase of 25 or more through vehicles per hour in one direction during a typical winter weekday or 50 or more through vehicles per hour in one direction during a typical winter Saturday occurs once development of the initial phase of Gondola Village is complete, implement a program of neighborhood traffic diversion measures sufficient to reduce cut-through traffic to base level conditions.

The following measures shall be instituted when development is initiated on the east side of Minaret Road:

4. Prohibit right turns from northbound Berner to eastbound Forest Trail.

5. Prohibit left turns from the parking lot exits (on the north side of Forest Trail) onto eastbound Forest Trail.

6. Install signage stating "Residential Area - No Through Traffic" at both ends of the residential section of Forest Trail.

Potential additional neighborhood traffic diversion measures include the following:

- Ample capacity (i.e., duration) of southbound left and westbound right phases at Main Street and Minaret signal. Ample capacity means that the demand for each of these movements is satisfied within one signal cycle.
- Stop signs along Forest Trail at Sierra Boulevard, Pinecrest, Grindelwald, and Berner.
- No left turns from southbound Forest Trail or southbound Sierra Boulevard to Main Street during winter months; possibly limited to afternoon peak hours only.
- Other turn restrictions such as no eastbound through movements at the Forest Trail/Berner intersection would address the issue but also restrict residences in the immediate area.

The proposal for any neighborhood traffic control program would be reviewed with the affected area residents. The alternatives would be discussed and evaluated to arrive at an acceptable set of measures to implement and monitor the results.

West of Minaret. A similar neighborhood traffic management plan is recommended for Forest Trail west of Minaret, between Hillside and Canyon Boulevard. This issue concerns morning traffic using Forest Trail instead of Canyon Boulevard to access Canyon Lodge.

A license plate survey would be undertaken on Forest Trail east of Hillside and on Canyon west of Forest Trail. The same criteria for triggering traffic diversion measures would apply.

We would conduct annual monitoring during the build out of Intrawest Gondola Village. After Gondola Village build out, annual monitoring would be suspended if cut-through traffic is less than the criteria established for diversion measures.

A signage program would be implemented with the first phase of Gondola Village to direct Canyon Lodge traffic to use Main Street to the realigned Millers Siding and Canyon Boulevard.

Potential additional neighborhood traffic diversion measures include the following:

- Stop signs along Forest Trail at Crest and Hillside Drive (west).
- No right turns from Forest Trail to Canyon Boulevard during winter months; possibly limited to morning peak hours only.

The proposal for any neighborhood traffic control program would be reviewed with the affected area residents.

North Village Pedestrian Management Plan for Minaret Road

To provide an additional level of assurance that the design objectives will be achieved, a traffic control officer, coupled with a traffic volume monitoring program, is also recommended. The traffic control officer would be stationed at the main pedestrian crossing, nearest the Gondola station, and would have authority to regularly stop traffic in both directions to allow protected crossing of pedestrians. The frequency of traffic stops could be once every 90 seconds for an interval of up to 20 seconds, which will still allow for efficient movement of vehicular traffic.

A criterion for the utilization of this traffic control officer requires definition. As such, it is recommended that, subsequent to the initial development of retail uses fronting both sides of Minaret, annual monitoring be initiated and a report submitted to the Town Engineer addressing the following issues:

- Hourly pedestrian crossing volumes at all designated crossing locations along Minaret within Gondola Village between 8:00 a.m. and 5:00 p.m. over a typical winter Saturday, along with directional traffic volumes over the same period. (It will be important to consider pedestrian conditions in periods other than the period of peak traffic conditions.)

- Average and maximum pedestrian delay to cross Minaret Road during the morning and afternoon peak hours on a typical winter Saturday.

- Average and maximum vehicular delay generated by pedestrian crossing activity during the afternoon peak hour on a typical winter Saturday, along with the number of vehicles observed in the maximum traffic queue generated by pedestrian activity.

- Traffic accident history for the previous 12 months on Minaret Road between Forest Trail and Main Street.

If the average delay exceeds 30 seconds or a maximum delay exceeds 60 seconds during the typical winter Saturday conditions and/or the accident history indicates a pattern of pedestrian involved accidents correctable by a traffic control officer, implementation of the traffic control officer should be considered. In addition, a traffic control officer should be considered if traffic queues are observed to form back into adjacent intersections on a consistent basis.

These conditions may be met at more than one pedestrian crossing location. In particular, crossing protection at a second location may be necessary during peak traffic periods in order to encourage window shopping activity on the east side of Minaret Road.

In addition to an annual report, the Town Engineer may initiate pedestrian, traffic, and delay counts if a problem is perceived.

During the first winter in which development has occurred on both sides of Minaret, a special report should be prepared regarding conditions during the Christmas peak period, and presented to the Town Engineer by January 7th. If this report indicates that thresholds are being met, it will be necessary to quickly implement a traffic control officer program.

In addition, the daily and afternoon peak hour traffic volumes for a typical winter Saturday would be monitored against the projections developed in support of the Intrawest Master Plan (Intrawest Master Plan Traffic Impact, amended December 17, 1998). The objective of the monitoring effort is to ensure the continued effective operation of Minaret Road, south of Forest Trail, as a two lane roadway.

Annual monitoring reports shall continue until one year after build out of Intrawest's Gondola Village Master Plan.

STUDY AREA METHODOLOGY

The basic methodology and requirements for the transportation impact analysis have been established through discussions with Town staff. Analysis conducted as part of this study effort includes evaluation of daily roadway traffic conditions, peak hour intersection movement, and various other transportation measures of effectiveness (MOEs) designed to assess the impacts of the project on the overall transportation system.

Town of Mammoth Lakes Transportation Model

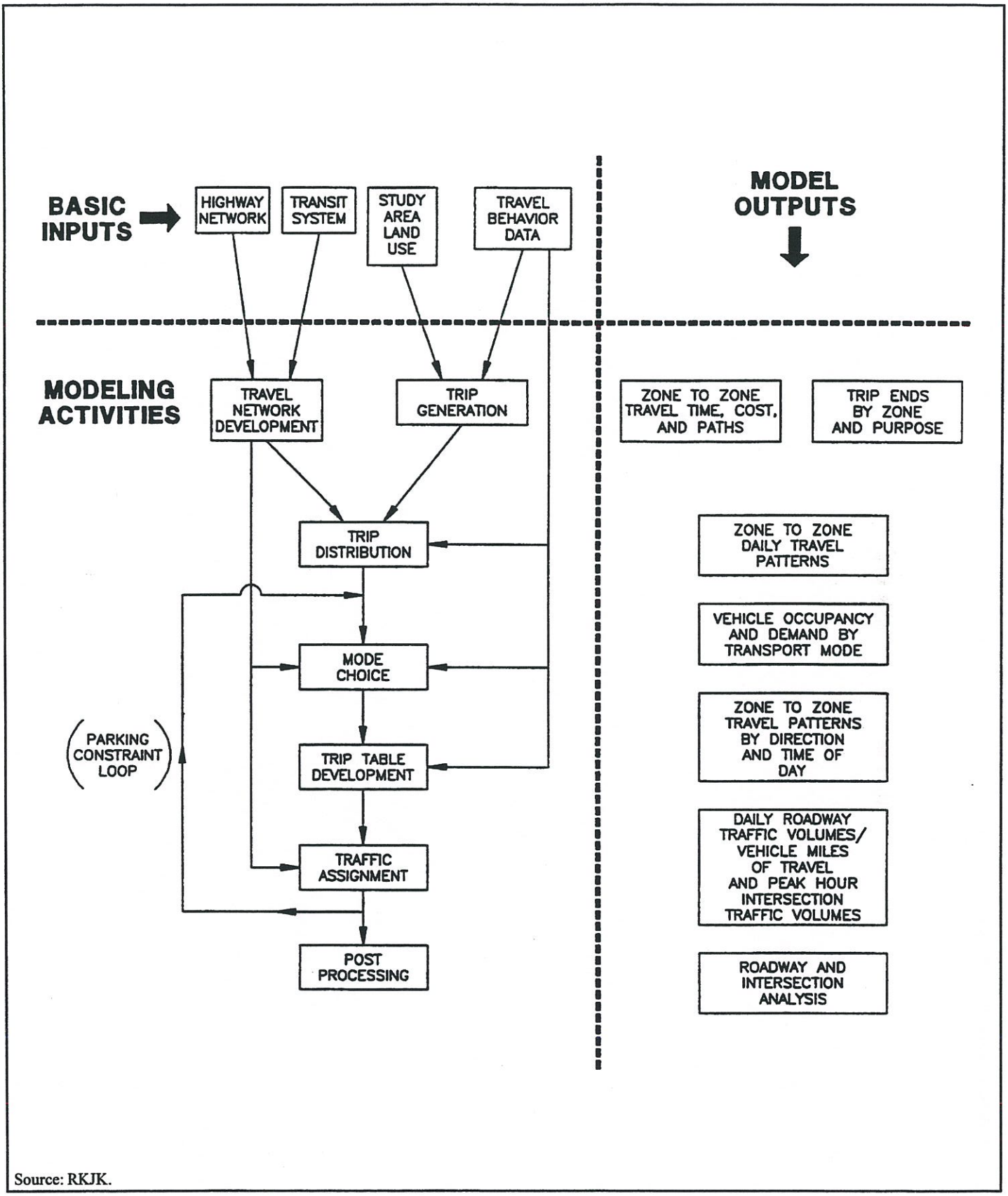
As mentioned previously, the MTM has been used to perform this analysis. To aid the reader, an overview of the MTM process is provided in this section. The overall modeling process is summarized in Figure 3. A brief discussion of each of the model inputs, modeling steps, and resulting outputs follows.

Model Inputs

The four basic data inputs for the MTM model, described in detail, include the following:

- *Roadway Network.* The roadway network consists of State highways and arterial roadways in, and around, the Town of Mammoth Lakes. In addition, many of the local streets in the Town are also included in the MTM.

- *Transit System.* The transit system consists of fixed route shuttles, which currently provide service within the Town of Mammoth Lakes during the winter months, as well as the proposed overhead lifts from the North Village area and the Lodestar Specific Plan, and pedestrian access to ski areas and the various specific plan areas.



Source: RKJK.

11/5/99(INT732)

Figure 3

LSA

MTM Modeling Process

- *Study Area Land Use.* Land use refers to the dwelling units, commercial areas, industrial areas, and other uses such as schools, churches, etc. The existing and proposed land uses within and around the Town of Mammoth Lakes have been reviewed and summarized in a data format suitable for use with the MTM. Although the development of an existing conditions land use database is not officially part of the model development work effort, an existing conditions database has been developed to help calibrate the MTM. The future conditions database corresponds to the projected Town of Mammoth Lakes General Plan condition.

  Land use is typically aggregated from individual units, such as a single family dwelling unit, condominium, or retail/commercial center. These aggregations are referred to as traffic analysis zones (TAZs). A TAZ can include a variety of different land uses, although it is generally desirable to develop a TAZ structure that includes fairly uniform land uses.

- *Travel Behavior Data.* Travel behavior data refers to data that characterize the activities of people in terms of their travel. For example, a typical person makes a certain number of trips during the course of a day, for a wide variety of purposes. The types of travel behavior data used in the MTM development effort will be described for each individual step of the modeling process.

Trip Generation

Trip generation refers to the number of trips that enter or exit a particular unit of land use, such as a home. Each time a person enters or leaves a home, for example, is referred to as a single "trip end." The MTM uses person trip ends as the basic building block for describing trip generation. The number of trip ends generated will vary, depending on the type of land use. It is also important to understand the purpose associated with each trip end generated. The trip purposes included within the MTM are:

- Home - Recreation
- Home - Shop
- Home - Work
- Home - Other
- Other - Other

Travel behavior data identify the number and type of trip ends anticipated for each type of land use.

Trip Distribution

Trip distribution is the next step in the MTM modeling process. This step uses the trip ends described in the discussion of trip generation and "links" them together. Every trip always consists of two trip ends. Different types of trips experience different trip distribution characteristics. A home work trip is likely to be longer on average, for instance, than a home shop trip. Travel behavior data are used to quantify the variation in trip length by trip type.

Mode Choice

Mode choice refers to the decision by a traveler about how he/she is going to travel (e.g., automobile, bus, walking, etc.). This is one of the most complex steps in the MTM process. Mode choice is highly dependent on the convenience and accessibility of transit when compared to the automobile. The key factors that are considered in the MTM mode choice step include travel time and the availability of parking, particularly for trips to the ski area(s).

In addition to separating trips into transit (and pedestrian) and automobile trips, the mode choice process includes average vehicle occupancy (AVO) factors. The AVO factors account for the average number of people in each vehicle for each specific trip type (purpose).

Trip Table Development

Trip table development is the process of taking all trips that occur during the course of a day and applying factors to account for directionality and temporal (time of day) characteristics. These factors are part of the travel behavior data that are input into the modeling process.

Traffic Assignment

Traffic assignment refers to the process of determining the route that a traveler will take on each individual trip. Traffic assignment models have been constructed for both automobiles and the transit system. Automobile traffic is assigned to the roadway system, based on factors such as congestion and travel time.

In addition, the effect of parking constraints at the ski areas has been explicitly included in the traffic assignment algorithm. The end result of this process is model forecasts of daily traffic volumes, peak hour traffic volumes, transit patronage, and estimated vehicle miles of travel (VMT).

Transit users are assigned to the transit system based on the available transit modes and routes. For future conditions, both fixed route shuttles and direct overhead lift (express) services are planned. The MTM is capable of providing statistics regarding overall ridership, peak loadings, and individual station utilization.

Post Processing

Post processing refers to the additional data refinement steps that take place following completion of the MTM process. Additional reasonableness checks and smoothing procedures are employed to ensure that future traffic volume forecasts exhibit realistic trends in terms of growth and peak hour to daily traffic relationships. Every raw model turning movement forecast has been compared to existing traffic count data. Minimum growth of at least one percent has been assumed for movements where the raw model data indicated zero or negative growth.

The relationship between the future ADT volume forecasts and the peak hour turning movement forecasts on each intersection leg and for each overall intersection has also been reviewed and compared to existing data relationships. If the peak hour relationship to the ADT volume varied from the existing relationship by more than two percent, the individual intersection peak hour forecasts were reviewed to ensure that reasonable growth was exhibited.

The end result of the post processing step is traffic volumes that are suitable for detailed analysis, in accordance with the 1994 *Highway Capacity Manual* (HCM) or other analysis procedures.

Comparison of Traffic Impacts Between Master Plan and Redevelopment Plan

Issues addressed in this traffic impact analysis include a comparison of local intersection impacts between the previous 1997 Redevelopment Plan project and the proposed Intrawest Master Plan project. The analysis of traffic impacts examines the following conditions:

1. Existing (1995) conditions.
2. Future General Plan build out conditions with the previous approved 1997 Redevelopment Plan project.
3. Future General Plan build out conditions with the proposed Master Plan project.

Typical winter Saturday p.m. peak hour conditions were used to analyze traffic impacts for the General Plan conditions. This approach was established at the onset of this study by Town staff, and is documented in the June 26, 1998, letter included in Appendix A. Conditions that occur during the President's Day holiday weekend or other holiday weekends reflect the peak winter weekend conditions. It is prudent and consistent with engineering and planning practice to design projects and mitigate impacts for conditions that occur about 30 times a year. In this case, the maximum peak winter Saturday traffic condition occurs less than ten times a year. The "design" day used in this study is a "typical" winter Saturday (80 percent of the maximum), which occurs 15 to 20 times a year. In the context of standard engineering practice, even the typical winter Saturday represents a conservative approach toward traffic planning and mitigation.

Morning peak hour conditions are not analyzed because they are approximately ten percent less than afternoon peaks.

Existing (1995) traffic conditions were previously analyzed in the approved Mammoth Redevelopment Plan Transportation Impact Analysis.[1] This report provided the typical winter Saturday, a.m. and p.m. peak hour traffic volumes, and levels of service for the study area roadways and intersections.

Typical winter Saturday daily and p.m. peak hour trips were generated for the approved Redevelopment Plan and the proposed Master Plan by the Town of Mammoth Lakes Transportation Model (MTM). The MTM has been developed with the specific goal of providing analyses of the interrelated issues of land use, transportation demand, and air quality. The MTM provided maximum winter Saturday conditions. These conditions were reduced by 20 percent to reflect typical winter Saturday

---

1 Mammoth Redevelopment Plan Transportation Impact Analysis, RKJK, February, 1997.

conditions. Based on the output of the MTM, a comparison of potential impacts will be made between the Redevelopment Plan and the Intrawest Master Plan. Prior mitigation measures are evaluated as to need, and/or additional measures are recommended for significant circulation impacts as a result of the land use refinements.

The level of service (LOS) standard for roadway segments and intersections is LOS D, which corresponds to a volume to capacity ratio (v/c) of 0.90. Therefore, a roadway segment or intersection is considered satisfactory when operating at LOS A to LOS D (0.90 or better). When the LOS becomes LOS E or F (0.91 or worse), it is considered below the minimum threshold and mitigation should be evaluated. Levels of service for study area roadway segments are based on a segment v/c ratio. The next steps subsequent to the analysis of daily volumes on the study area roadway segments analysis are the assessment of peak hour intersection levels of service, followed by the provision of feasible mitigation measures (if necessary).

Levels of service for signalized study area intersections were calculated using the intersection capacity utilization (ICU) methodology, which defines LOS in accordance with a calculated v/c based on the "sum of the critical movements" method. Unsignalized intersections are analyzed based on the vehicle delay methodology presented in the current HCM, 1994 Update. Appendix C contains LOS calculations for each intersection.

Change in Analysis Criteria from 1991 and 1994 North Village Specific Plans and EIRs

This impact analysis and the resulting mitigation measures represent a substantial departure from the analysis conducted for the 1991 and 1994 North Village Specific Plans and EIRs, and the 1997 Redevelopment Plan traffic impact analysis. At the onset of the technical analysis, Town staff specifically outlined several analysis procedures and impact thresholds that differed from the earlier analyses. The specific procedures are summarized in a letter dated June 26, 1998, contained in Appendix A. The fundamental thrust of the changed procedures was to: 1) avoid substantial road widenings and intersection improvements to support peak winter weekend conditions only; 2) provide a LOS consistent with other rural areas; 3) encourage transit use; and 4) reduce physical environmental impacts.

The following is a summary of the changed conditions under which this impact analysis has been prepared compared to the analyses contained in the 1991 and 1994 EIRs, and the 1997 Redevelopment Plan Traffic Impact Analysis:

A. The multi-modal transportation model prepared by RKJK was used to generate vehicular trips. This model, using Town build out for all land uses according to the General Plan, incorporated existing parking constraints at the Main Lodge and other ski portals, as well as the basic transit system in use today. The skier attractions of 24,000 skiers at one time (SAOT) for Mammoth Mountain and 8,000 SAOT for Sherwin Mountain were also incorporated. Application of this model represents a substantial change from the earlier traffic studies that applied a manual process for traffic generation and assignments, an assumed transit mode split, and no constraint for ski portal parking.

B. A typical winter Saturday condition is used for impact analysis rather than the peak winter Saturday, which was used on all previous impact analyses. The typical winter Saturday is consistent with standard engineering practice, which would apply a criteria of the 30th to 50th highest hour for design purposes. The peak winter Saturday condition might occur up to 10 times annually, whereas the typical winter Saturday occurs about 10 to 20 times per year. Traffic volumes for a typical winter Saturday are 15 percent lower than a peak Saturday.

C. LOS criteria for intersections and roadways were changed from LOS C to LOS D. This reflects a v/c ratio increase from 0.80 (LOS C) to 0.90 (LOS D). These are standard criteria for most cities and counties in California.

D. Roadway LOS could exceed D if all intersections along such roadways are demonstrated to operate at an acceptable LOS.

E. The traffic generation for Intrawest areas of North Village was reduced substantially from previous Specific Plan intensities, due to the previous assumption of counting every bedroom as a lodging unit, for traffic generation purposes. This is not accurate for multi-bedroom units and, therefore, the trip generation was revised and lowered to reflect the actual number of lodging units, not bedrooms. This resulted in the reduction of several hundred units, for traffic generation purposes.

Application of these changed criteria eliminates the requirements for several roadway widenings and intersection improvements that were previously required as mitigation measures.

Roadway Analysis Criteria

As previously noted, the following analysis procedure for roadway segments has been indicated by Town staff in a June 26, 1998, memorandum from RKJK:

> *Worse than LOS D daily conditions will be deemed acceptable, if all intersections along such a roadway segment are demonstrated to operate at acceptable (LOS D or better) levels of service for typical winter Saturday p.m. peak hour conditions, or other time frames as deemed necessary by the Town.*

Therefore, when a roadway segment LOS becomes LOS E or F (0.91 or worse), all key mid-block intersections along the roadway segment should be analyzed for LOS conformance. If the adjacent intersections of the roadway segment are operating, or are forecast to operate with satisfactory levels of service (0.90 or better), roadway mitigation measures are not required. However, when an intersection's LOS becomes LOS E or F (0.91 or worse), it is considered below the minimum threshold and mitigation should be evaluated.

An adjusted lane capacity of 1,285 vehicles per lane per hour was utilized in the roadway and intersection analyses to account for the winter climate and roadway conditions relative to the Mammoth Lakes area. This capacity assumption is documented in the North Village Traffic Study (page 12), March, 1994, RKJK and Associates, Inc. The 1,285 vehicle per lane per hour capacity considers the

roadway conditions drivers experience during the winter months, rather than dry roadway conditions, which typically have a 1,600 to 1,700 vehicle per lane per hour capacity.

Intersection Analysis Criteria

Signalized Intersections

The analysis methodology required by the Town of Mammoth Lakes for analysis of signalized intersections is the ICU methodology. ICU is usually expressed as a decimal percent (e.g., 100 percent equals 1.00 ICU). The percent represents that portion of the peak hour required to provide sufficient capacity to accommodate all intersection traffic if all critical movements (i.e., conflicting movements that require the greatest overall amount of green time) operate at capacity. In addition to the critical movements, a small portion of intersection capacity is "lost" due to the less efficient movement of vehicles at the start and/or end of each green indication. A lost time factor of five percent (0.05 ICU) is applied to the calculations in this report. Right turn movements become critical when conflicting movements represent a sum of v/c ratios that are greater that the normal through/left turn critical movements. Right turn volumes have been reduced by 15 percent to account for right turns on red at the intersection.

Unsignalized Intersections

LOS for unsignalized intersections is determined through the 1994 HCM, where the calculation of LOS is dependent on the occurrence of gaps in the through traffic flow of the main street. Using data collected describing the intersection configuration and traffic volumes at the study area intersections, the delay (in seconds per vehicle) of each minor street or major street conflicting movement is estimated. These delays are used to calculate the intersection's average delay per vehicle, which is used to determine the intersection LOS.

In certain cases where a critical left turn movement at an unsignalized intersection is currently experiencing or is forecast to experience delays in the LOS E or LOS F ranges (i.e., delays of greater than 30 seconds per vehicle), the side street movement LOS can be reevaluated. The ability of the minor street left turn movement to utilize a center two-way turn lane on the major street for refuge (common for most driveway configurations) may reduce the overall delay of that movement, since drivers will be able to wait for available gaps in major street traffic one direction at a time. This results in two maneuvers of the minor street left turns: one left turn against one major street direction (e.g., westbound left turn against northbound through traffic, vehicle is stored in center lane), one left turn against the other directions (e.g., westbound left turn against southbound through traffic). If either, or both, movements result in LOS E or LOS F conditions, the intersection could be considered deficient, and mitigation measures must be provided.

Table A provides the parameters of the LOS criteria for roadway and intersection (signalized and unsignalized) locations analyzed in this report.

Table A - Level of Service Parameters

	Roadway Segments	Signalized Intersections	Unsignalized Intersections
Level of Service	V/C Ratio	ICU	Seconds of Delay
LOS A	0.00 - 0.60	0.00 - 0.60	0.00 - 5.00
LOS B	0.61 - 0.70	0.61 - 0.70	5.01 - 10.00
LOS C	0.71 - 0.80	0.71 - 0.80	10.01 - 20.00
LOS D	0.81 - 0.90	0.81 - 0.90	20.01 - 30.00
LOS E	0.91 - 1.00	0.91 - 1.00	30.01 - 45.00
LOS F	> 1.00	> 1.00	> 45.00

This analysis will focus on the 12 roadways and the 16 intersections listed below, which were analyzed in the 1997 traffic study. Intersections 1 through 10 are analyzed in the existing, Redevelopment Plan, and Master Plan scenarios. Intersections 11 through 16 are analyzed in the Redevelopment and Master Plan scenarios only. The intersections are as follows:

1. Minaret Road/Forest Trail
2. Kelly Road/Lake Mary Road
3. Lakeview Boulevard cut-off/Lake Mary Road
4. Millers Siding/Lake Mary Road
5. Minaret Road/Lake Mary Road-Main Street
6. Center Street/Main Street
7. Forest Trail/Main Street
8. Old Mammoth Road/Main Street
9. Minaret Road/Meridian Boulevard
10. Old Mammoth Road/Meridian Boulevard
11. Minaret Road/Old Mammoth Road
12. Meridian Boulevard/Majestic Pines Drive (*analyzed in Master Plan scenario*)
13. Old Mammoth Road/Chateau Road (*analyzed in Master Plan scenario*)
14. Berner Road/Forest Trail (*analyzed in Master Plan scenario*)
15. Azimuth Drive/Meridian Boulevard (*analyzed in Master Plan scenario*)
16. Sierra Park Road/Meridian Boulevard (*adjacent to school areas; not analyzed due to low traffic volumes during weekend peak hour*)

Figure 4 illustrates the location of the study area roadways and intersections to be analyzed in the report. Intersections 13 through 16 were not analyzed in the 1997 Redevelopment Plan traffic impact analysis. These four additional intersections were included in this traffic analysis at the request of Town staff based on a June, 1998, project team meeting. Intersection 16, Sierra Park Road/Meridian Boulevard, was evaluated separately for a.m. peak hour conditions due to school access issues.

Approved 1997 Redevelopment Plan

A traffic impact analysis was prepared for the Mammoth Redevelopment Plan in February, 1997, by Robert Kahn, John Kain and Associates, Inc. The goal of the Redevelopment Plan was to provide for redevelopment of the older commercial and residential areas near the center of the Town to occur in an orderly and planned manner. Redevelopment is anticipated as it has been determined that many older buildings do not meet current building codes, and/or are subject to deterioration and may need to be replaced with modern facilities. The redevelopment area consists of over 1,100 acres, of which 902 acres are within the primary redevelopment area and the remaining acres are within the vicinities of the Gateway Business Park area and the Mammoth Airport.

Based on the comparison of daily person trip generation estimates between the land uses in the Redevelopment Plan and the proposed Intrawest Master Plan, the proposed Intrawest Plan *is expected to generate approximately 25 percent less traffic than what was included in the Redevelopment Plan for the Intrawest Properties in the 1997 Redevelopment Plan traffic impact analysis.*

EXISTING SETTING

Existing (1995) Conditions

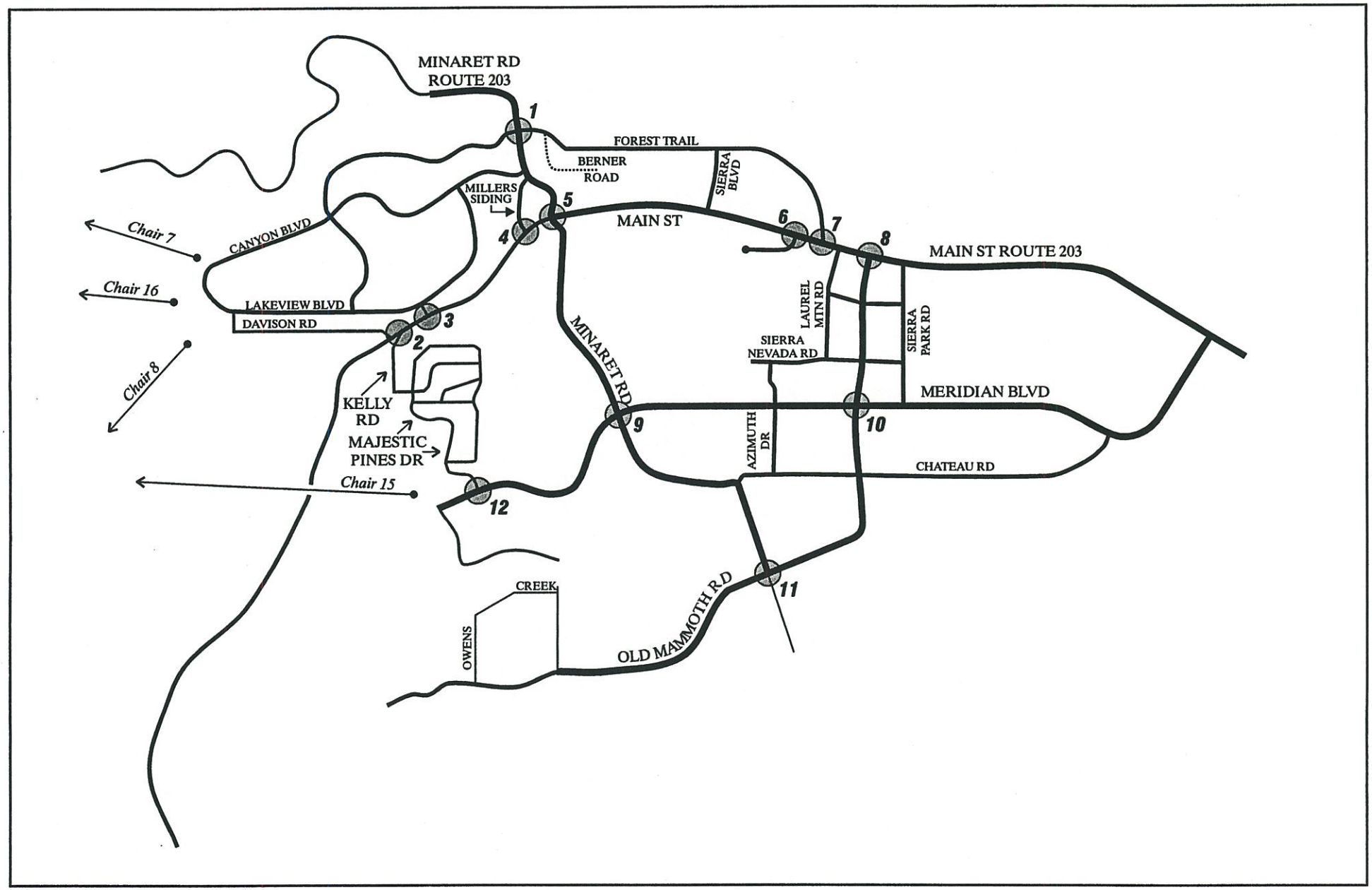
Traffic Volumes and Levels of Service

Figure 5 presents the existing number of through lanes and intersection control for the study area roadways and intersections. Figures 6 and 7 illustrate the existing daily arterial and p.m. peak hour intersection volumes for the study area for a typical winter Saturday, respectively. The existing daily and p.m. peak hour traffic count data sheets are provided in Appendix B.

It should be noted that a change in analysis criteria and mitigation thresholds has occurred from the previous Redevelopment Plan traffic analysis and North Village Specific Plan. These changes include the following:

- Peak winter Saturday conditions were evaluated and mitigation was considered.
- Typical winter Saturday LOS standard was LOS C, instead of LOS D.
- Road segment mitigation was recommended without consideration of adjacent intersection performance.

Based on the above changes in analysis criteria and mitigation thresholds, and overall reduced traffic generation, significant revisions to previously adopted mitigation measures have occurred and are reflected in this analysis.



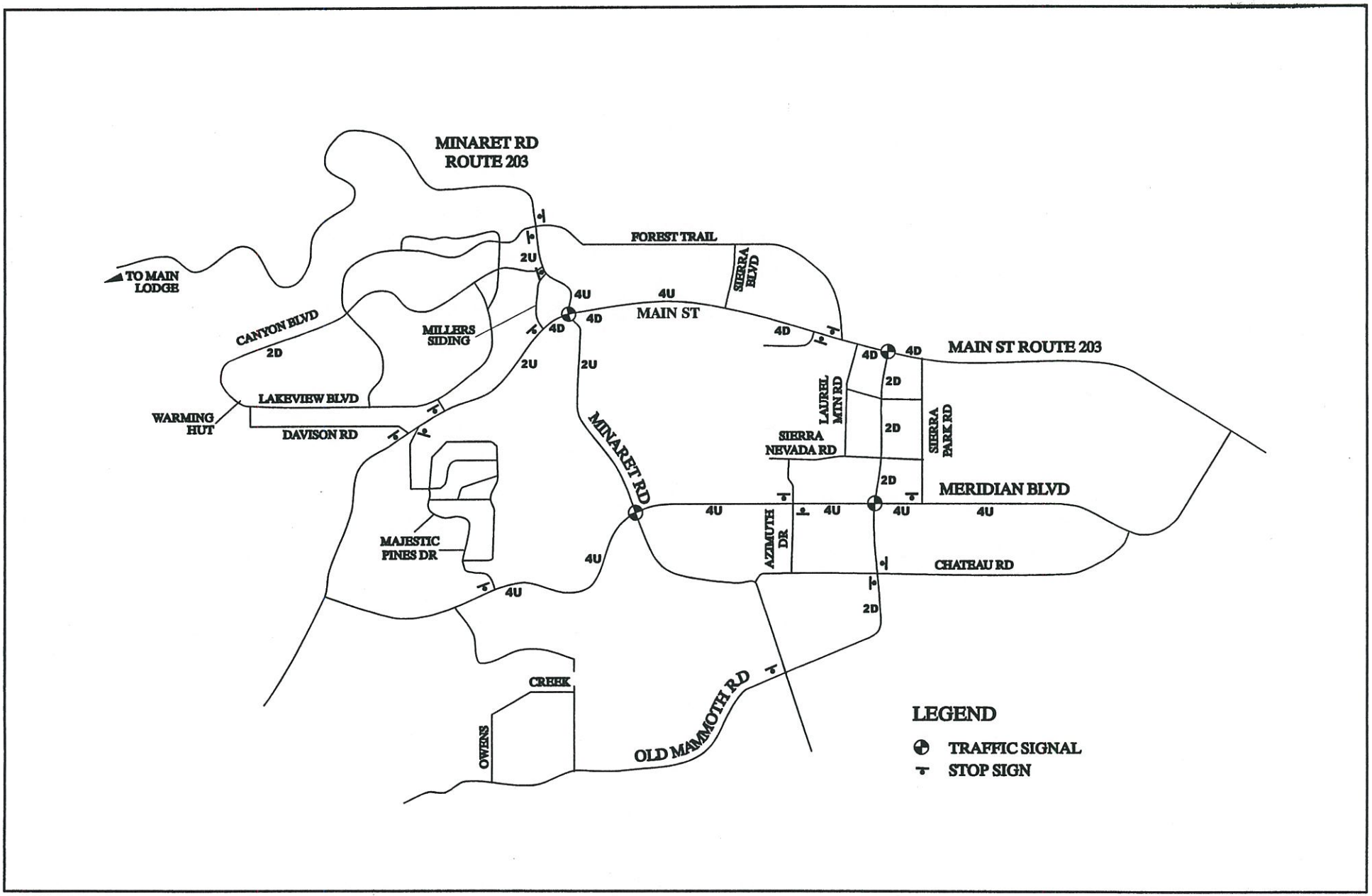
12/3/99(INT732)

Figure 4

N

LSA Not to Scale

Study Area
Roadway and Intersection Locations



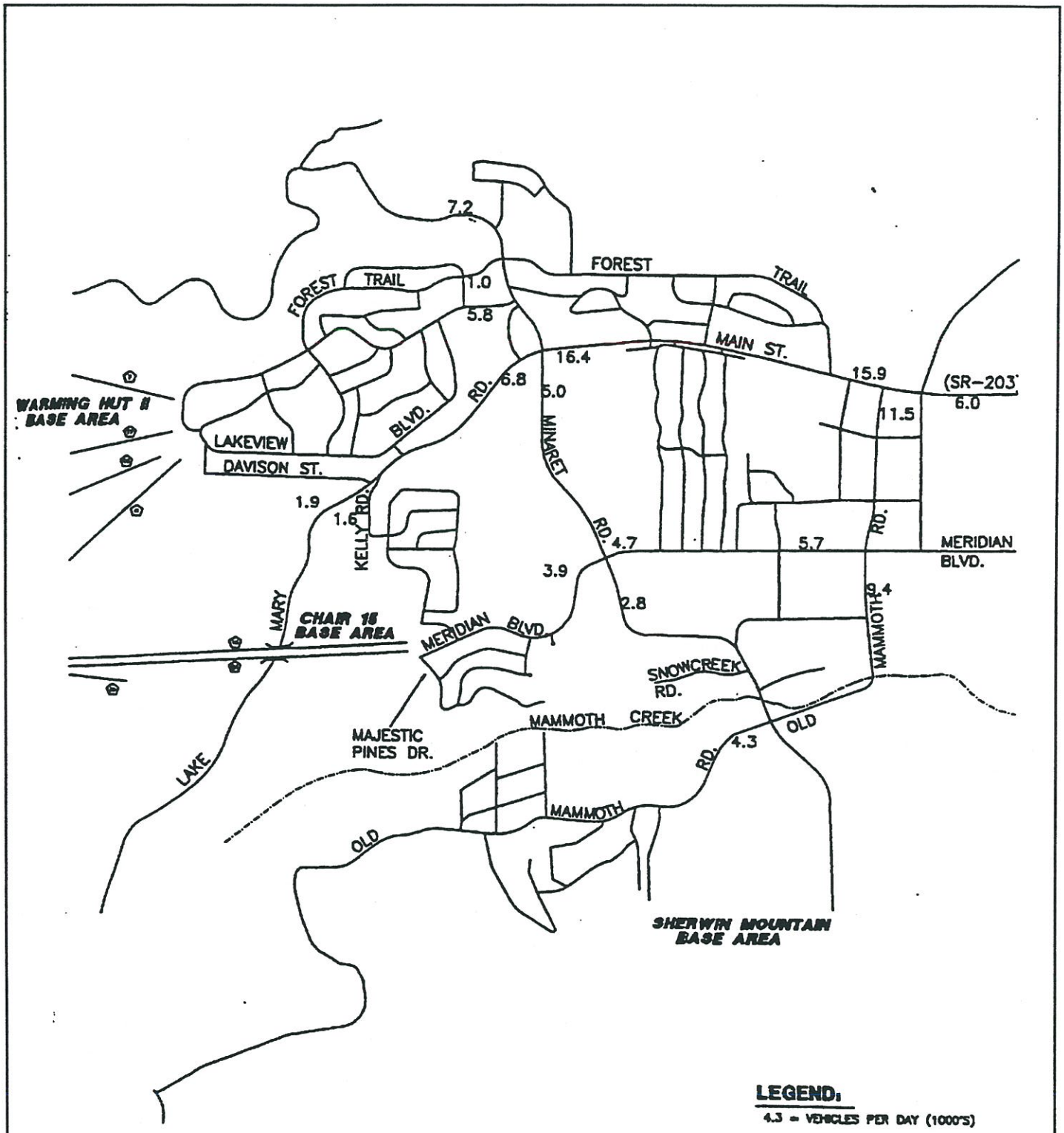
12/3/99(INT732)

Figure 5

N

LSA Not to Scale

Existing Number of Through Lanes and Intersection Control Devices



* To determine precise location of count locations, see Appendix B.

Source: RKJK

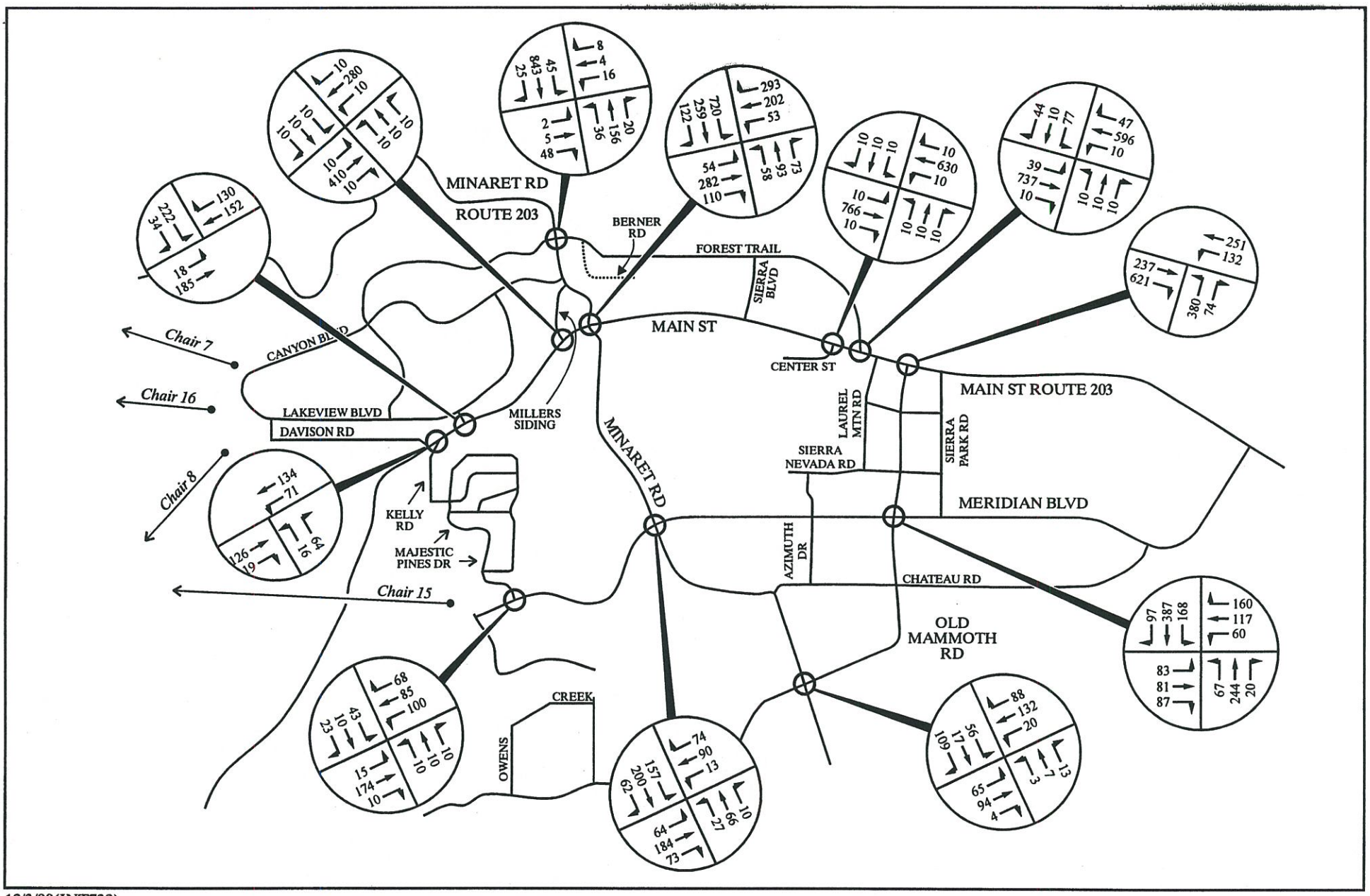
12/3/99(INT732)

Figure 6

N

LSA No Scale

Existing Conditions Typical Winter Saturday Daily Traffic Volumes



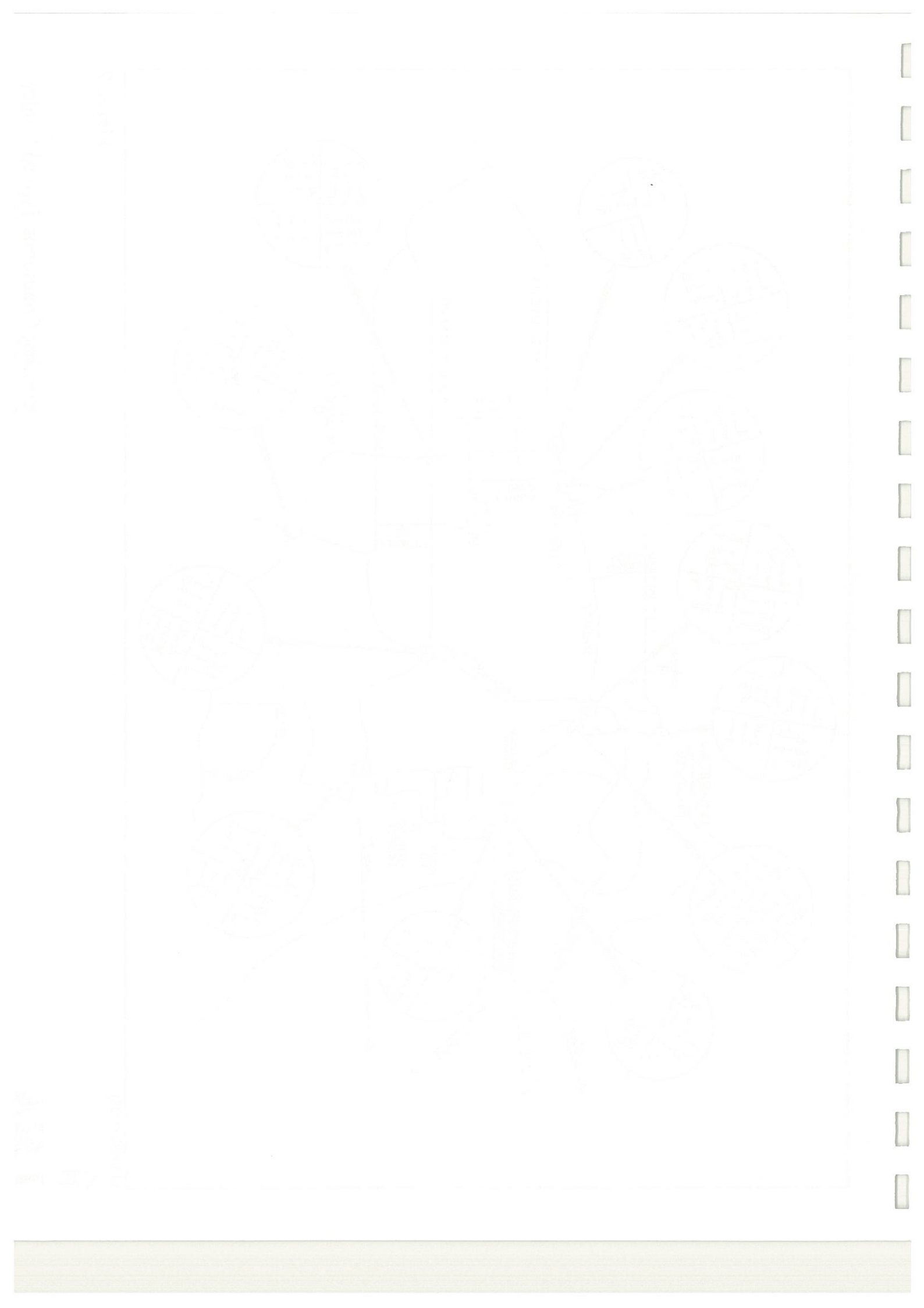
12/3/99(INT732)

Figure 7

N

LSA Not to Scale

Existing Conditions Typical Winter Saturday Peak Hour Traffic Volumes



The primary objective in these criteria and threshold changes is to reinforce the Town's objectives in encouraging transit ridership, and to avoid environmental impacts of roadway improvements that are potentially needed only a few days per year.

The existing LOS analysis for the study area roadway segments and intersections is presented in Tables B and C, respectively. As Table B indicates, all study area roadway segments currently operate at satisfactory levels of service, with v/c ratios ranging from 0.09 v/c to 0.73 v/c (LOS A to LOS C) on a typical winter weekend. As Table C indicates, all study area intersections are operating at acceptable levels of service (LOS A to LOS D) under existing typical winter Saturday p.m. peak hour conditions.

Winter Transit Service. Scheduled interregional and regional bus service is provided to and from the study area between Los Angeles, California, and Reno, Nevada. Interregional service is minimal. Non-scheduled service is provided by private charter bus lines. This service is most popular during the peak winter ski season, corresponding to the analysis time frame of this study. Over 100 charter buses may serve the study area under peak winter weekend conditions.

Local transit service is currently provided during the winter months by Mammoth Mountain Ski Area (MMSA). A total of four routes serve most areas of the Town. The emphasis of the service is on providing convenient access to MMSA; however, local residents can and do use the service to commute to work, shopping centers, etc. Figure 8 illustrates the bus routes for the local transit service.

Most of the study area is served by at least one of the local transit lines. The lack of parking at the MMSA is a key factor that affects transit ridership. It is estimated that skiers riding the Mammoth Area Shuttle (MAS) to MMSA constitute approximately 50 percent of the number of Alpine skiing lift tickets sold during the peak winter months of operation[1].

The peak hour service on each line during the winter months is based on approximately by 15 minute headways (i.e., one bus every 15 minutes). During the off-peak period, the system buses operate half as frequently (i.e., 30 minute headways).

GENERAL PLAN BUILD OUT CONDITIONS

Circulation System

Figure 9 shows the Town's General Plan roadway system and its classifications. Based on the General Plan and various Specific Plans that have been adopted, the roadway system within the study area is expected to change in only a few locations.

---

1 Mammoth Multi-Modal Transportation Plan Study Report, RKJK, May, 1995.

Table B - Existing Typical Winter Saturday Roadway Segment Level of Service Analysis

Roadway Segment	# Lanes	Capacity	Volume	V/C	LOS
Forest Trail w/o Minaret Road	2U	11,700	1,000	0.09	A
Canyon Boulevard e/o Lakeview Drive	2U	11,700	5,800	0.50	A
Lake Mary Road w/o Davison Street	2U	11,700	1,900	0.16	A
Lake Mary Road w/o Miller Siding	2U	11,700	6,800	0.58	A
Main Street e/o Minaret Road	4U	22,500	16,400	0.73	C
Main Street w/o Old Mammoth Road	4D	33,800	15,900	0.47	A
Main Street e/o Sierra Park Road	4D	33,800	6,000	0.18	A
Meridian Boulevard w/o Minaret Road	4U	22,500	3,900	0.17	A
Meridian Boulevard e/o Minaret Road	4U	22,500	4,700	0.21	A
Meridian Boulevard w/o Old Mammoth Road	4U	22,500	5,700	0.25	A
Old Mammoth Road w/o Minaret Road	2U	11,700	4,300	0.37	A
Kelly Road s/o Lake Mary Road	2U	11,700	1,600	0.14	A
Minaret Road n/o Mammoth Knolls Drive	2U	11,700	7,200	0.62	B
Minaret Road s/o Lake Mary Road/Main Street	2U	11,700	5,000	0.43	A
Minaret Road s/o Meridian Boulevard	2U	11,700	2,800	0.24	A
Old Mammoth Road s/o Main Street	2D	16,200	11,500	0.71	C
Old Mammoth Road s/o Meridian Boulevard	2D	16,200	9,400	0.58	A

Notes:

Source: *Mammoth Redevelopment Plan Transportation Impact Analysis*, RKJK, February, 1997.

Lanes refers total number roadway segment lanes regardless of direction.

Capacity = Number of vehicles on all lanes, both directions, per average day.

V/C = Volume-to-Capacity ratio.

Table C - Existing Typical Winter Saturday Intersection Level of Service Summary

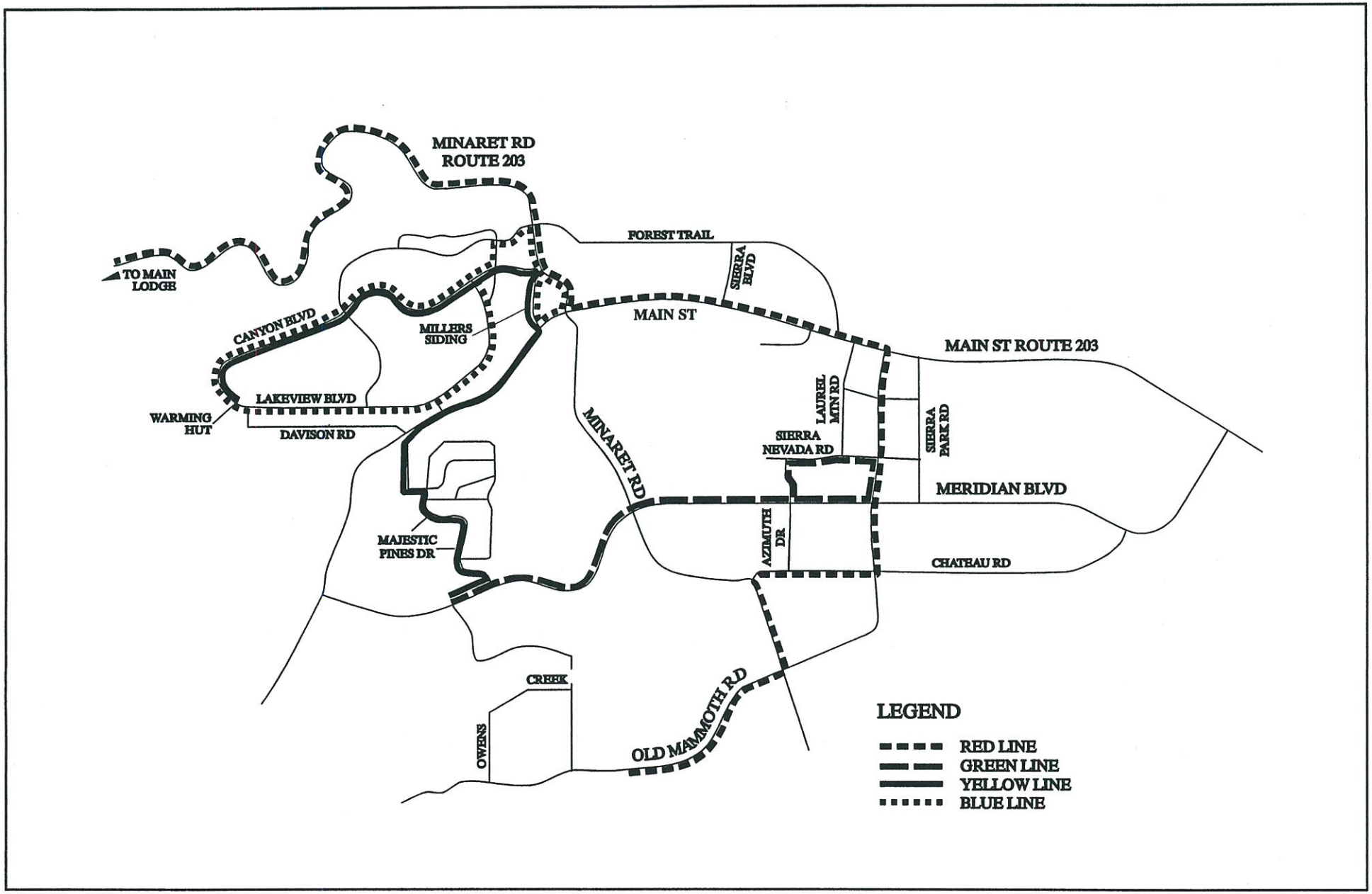
Intersection	Traffic Control	ICU[1]	Average Delay[2]	LOS
1 . Minaret Road/Forest Trail	2-way Stop	--	1.1 sec.	A
2 . Kelly Road/Lake Mary Road	1-way Stop	--	1.2 sec.	A
3 . Lakeview Boulevard Cut-Off/Lake Mary Road	1-way Stop	--	3.7 sec.	A
4 . Millers Siding/Lake Mary Road	1-way Stop	--	0.7 sec.	A
5 . Minaret Road/Lake Mary Road-Main Street	Signal	0.69	--	B
6 . Center Street/Main Street	2-way Stop	--	1.0 sec.	A
7 . Forest Trail/Main Street	2-way Stop	--	7.1 sec.	B
8 . Old Mammoth Road/Main Street	Signal	0.86	--	D
9 . Minaret Road/Meridian Boulevard	Signal	0.38	--	A
10 . Old Mammoth Road/Meridian Boulevard	Signal	0.58	--	A
11 . Minaret Road/Old Mammoth Road	2-way Stop	--	2.0 sec.	A
12 . Meridian Road/Majestic Pines Drive East	1-way Stop	--	1.3 sec.	A

Notes:

Source: *Mammoth Redevelopment Plan Transportation Impact Analysis*, RKJK, February, 1997.

[1] Level of service for signalized intersections calculated through Intersection Capacity Utilization (ICU) methodology and expressed through volume-to-capacity ratio.

[2] Level of service for unsignalized intersections calculated through Highway Capacity Manual (HCM) methodology and expressed through average delay per vehicle at intersection.



12/3/99(INT732)

Figure 8

N

LSA Not to Scale

Existing Winter Transit System

The roadway system changes adopted in the North Village Specific Plan (i.e., Gondola Village) are of greater importance to the overall roadway system within the Town of Mammoth Lakes. As the main focal point of the village, a gondola will be constructed to provide direct skier access to Canyon Lodge, thereby reducing traffic and parking congestion at the MMSA Main Lodge and other ski portals. Canyon Boulevard will be realigned to connect to Miller Siding, which would relieve potential congestion along Minaret Road. Berner Street will also be realigned to connect to Forest Trail with development of the Specific Plan. In addition, as a component of the Gondola Village development, a modern roundabout will replace the unsignalized intersection of Minaret Road/Forest Trail intersection; and the intersection of Millers Siding/Lake Mary road will be improved to include a traffic signal, dual southbound left turn lanes, and a dedicated westbound right turn lane.

1997 Approved Redevelopment Plan

Daily Person Trip Generation (Intrawest Areas)

To provide a comparison of daily person trip generation between the Intrawest Master Plan project and the 1997 Redevelopment project (i.e., original Specific Plans), Table D presents the daily person trip generation of the Intrawest land uses approved in 1997 for the project area. The trip generation rates were based on approved generation rates coded in the MTM trip tables. As shown on Table D, approximately 67,000 daily person trips were forecast for the three Specific Plan developments compared to approximately 50,000 daily person trips for the proposed Master Plan.

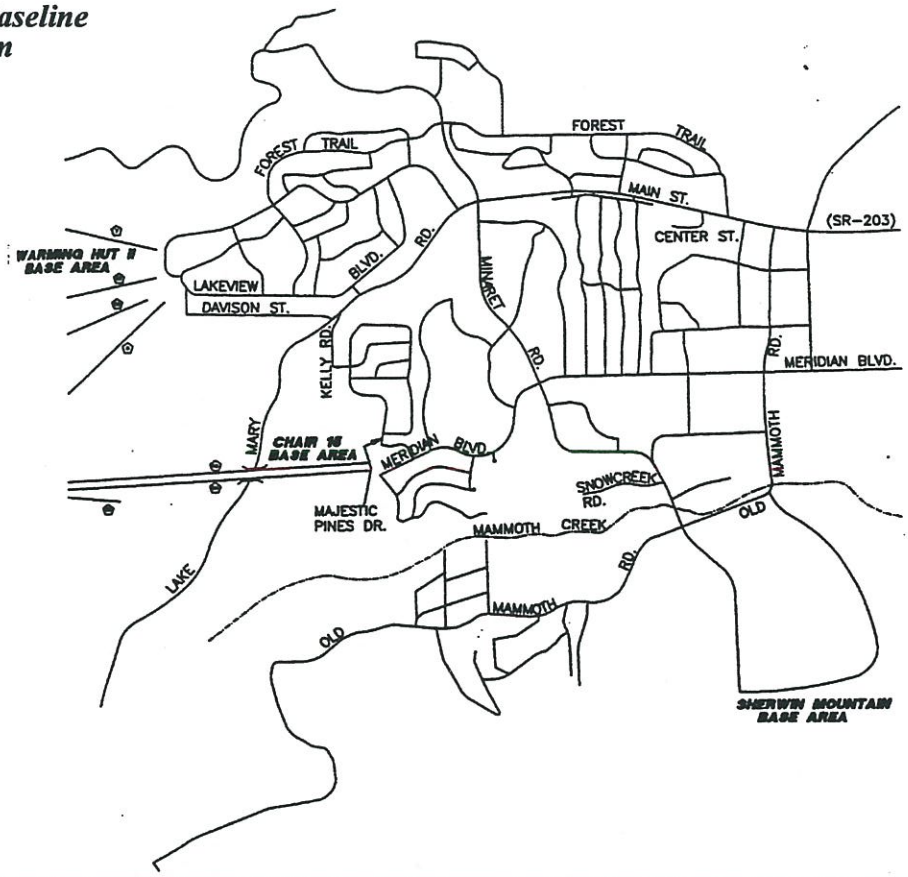
When compared to the overall existing daily person trip generation volume of approximately 125,000 trips (250,000 two-way trips), build out of the Town, including the Intrawest Master Plan, generates approximately 128,300 more trips, which equals a total daily person trip generation of approximately 253,300 trips (506,600 two-way trips).

Traffic Volumes and Level of Service

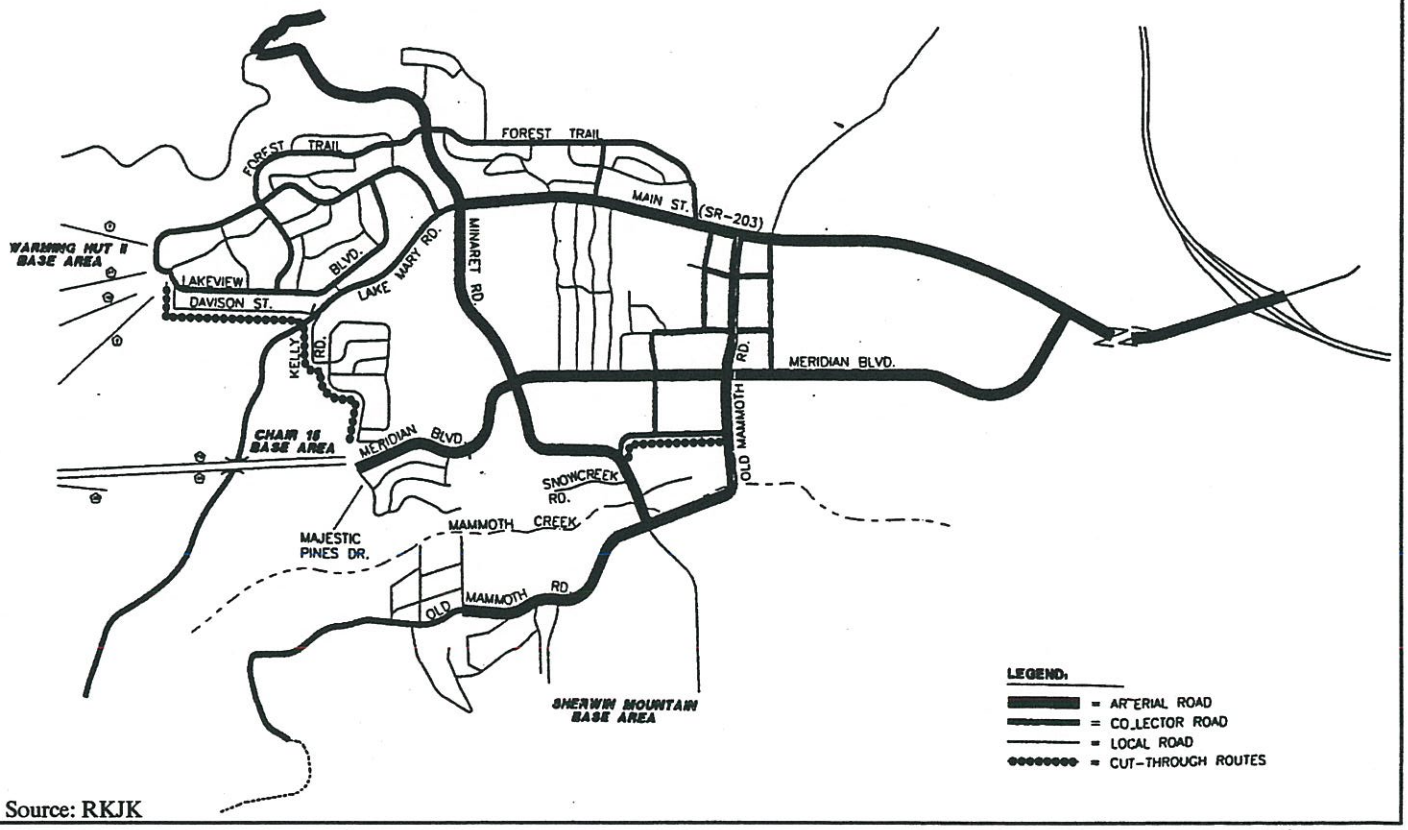
Figure 10 illustrates the Redevelopment Plan and Master Plan roadway segment average daily traffic volumes (ADT). Figures 11 and 12 present the Redevelopment Plan and Master Plan intersection peak hour traffic volumes. Tables E and F present the results of the Redevelopment Plan roadway segment and intersection LOS analysis for typical winter Saturday conditions. The v/c ratios and LOS values are based on the existing geometrics at each location. The LOS worksheets from the previous study are provided in Appendix C, and the Redevelopment Plan volumes are presented in Appendix D; they represent maximum, not typical, winter Saturday conditions.

As shown in Table E, all of the study area roadway segments are forecast to operate at satisfactory levels of service (LOS A to LOS D) with existing geometrics. As indicated in Table F, 6 of the 12 study area intersections are forecast to operate at unsatisfactory levels of service with existing geometrics. Of the six impacted intersections, five are unsignalized intersections in which implementation of the Redevelopment Plan would cause delays greater than 45 seconds (LOS F) on the minor street. The signalized intersection of Minaret Road/Lake Mary Road-Main Street is forecast to operate at LOS E (0.97 v/c) in the p.m. peak hour during a typical winter Saturday.

General Plan Baseline Roadway System



General Plan Roadway Classifications



Source: RKJK

12/3/99(INT732)

Figure 9

N

LSA No Scale

General Plan Roadway System and Roadway Classifications

Table D - 1998 Master Plan Daily Person Trip Generation Comparison

Land Use	MTM Code	Size	Units	Daily Person Trip Rate	Total Trips
APPROVED 1997 REDEVELOPMENT PLAN LAND USES (INTRAWEST AREAS ONLY)					
Residential Medium Density (SF) Year Round	2	6.0	DUs	16.00	96
Residential High Density (MF) Year Round	3	2.0	DUs	12.00	24
Residential Medium Density (SF) Seasonal	6	54.0	DUs	19.00	1,026
Residential High Density (MF) Seasonal	7	4.0	DUs	17.00	68
Lodging (Hotel)	10	451.0	Rooms	16.00	7,216
Resort Hotel	11	2,897.0	Rooms	16.00	46,352
Retail/Commercial & Town Offices	12	10.3	Acres	1,220.00	12,566
Total Redevelopment Plan Daily Person Trips					**67,348**
PROPOSED 1998 MASTER PLAN LAND USES (INTRAWEST AREAS ONLY)					
Residential High Density (MF) Year Round	3	144.0	DUs	12.00	1,728
Residential Low Density (SF) Seasonal	5	20.0	DUs	21.00	420
Residential Medium Density (SF) Seasonal	6	59.0	DUs	19.00	1,121
Residential High Density (MF) Seasonal	7	1,949.0	DUs	17.00	33,133
Resort Hotel	11	242.0	Rooms	16.00	3,872
Retail/Commercial	13	137.5	TSF	70.71	9,723
Cross-Country Skiing/Snowmobiling	41	150.0	SPD	2.50	375
Total Master Plan Daily Person Trips					**50,372**

Total Redevelopment Plan Trips	**67,348**
Total Master Plan Trips	**50,372**
Difference (Proposed Master Plan - Approved Redevelopment Plan)	*(16,976)*
Percent Change from Redevelopment Plan	***-25%***

Notes:

Source: *Mammoth Master Transportation Plan Modeling Support*, RKJK, August, 1998.

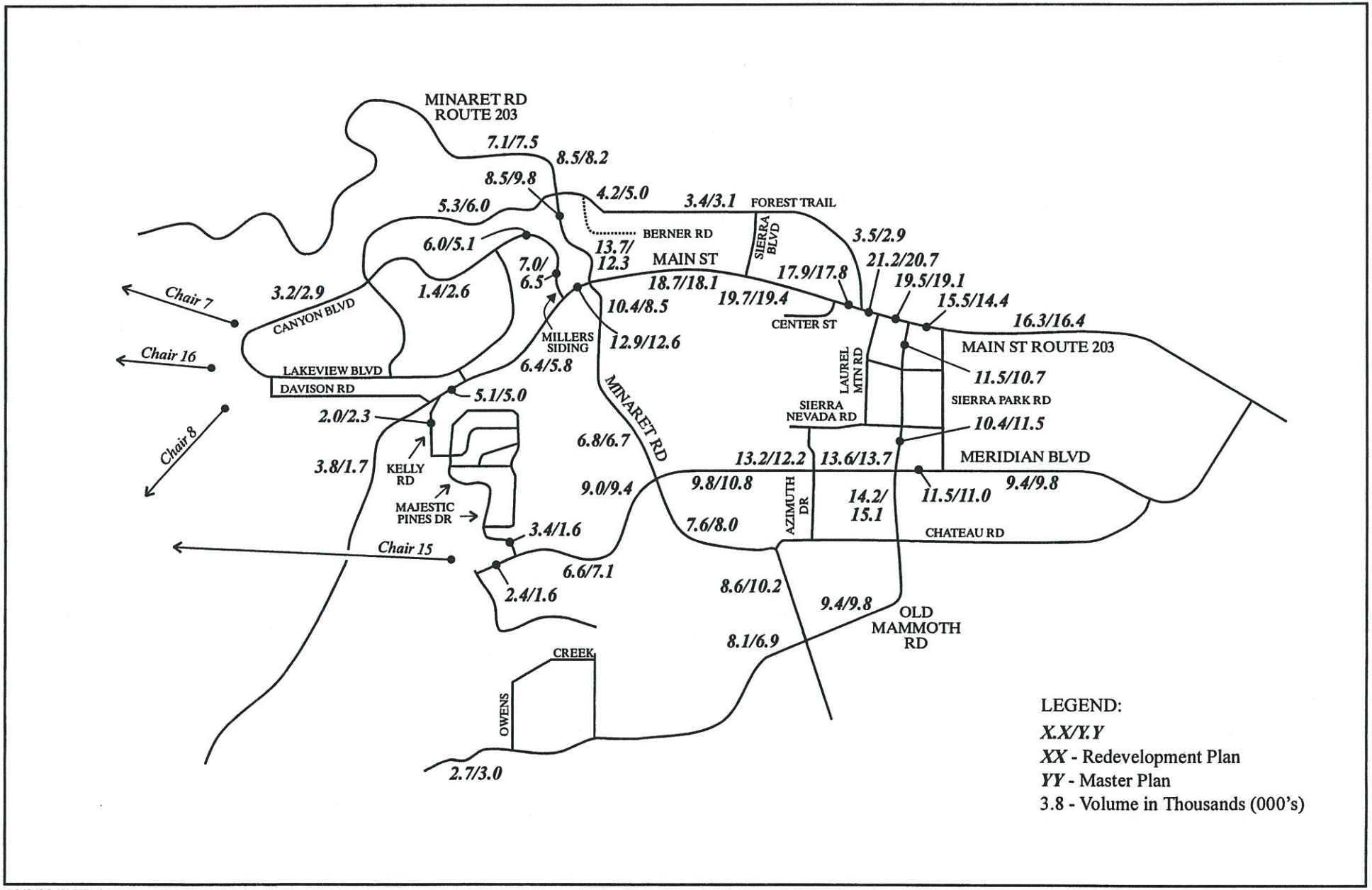
SF = Single Family

MF = Multi-Family

DU = Dwelling Unit

TSF = Thousand Square Feet

SPD = Skiers per Day



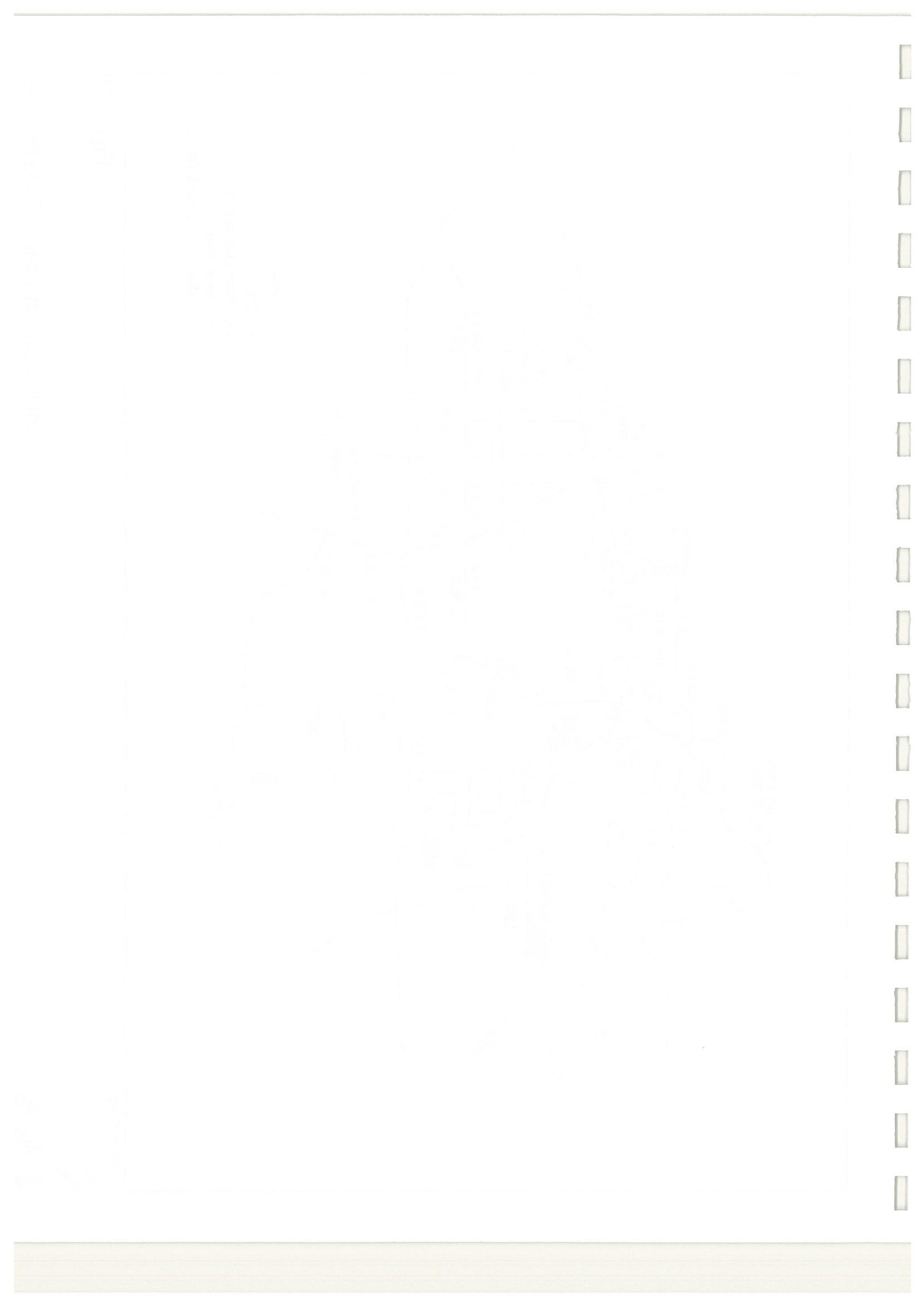
12/3/99(INT732)

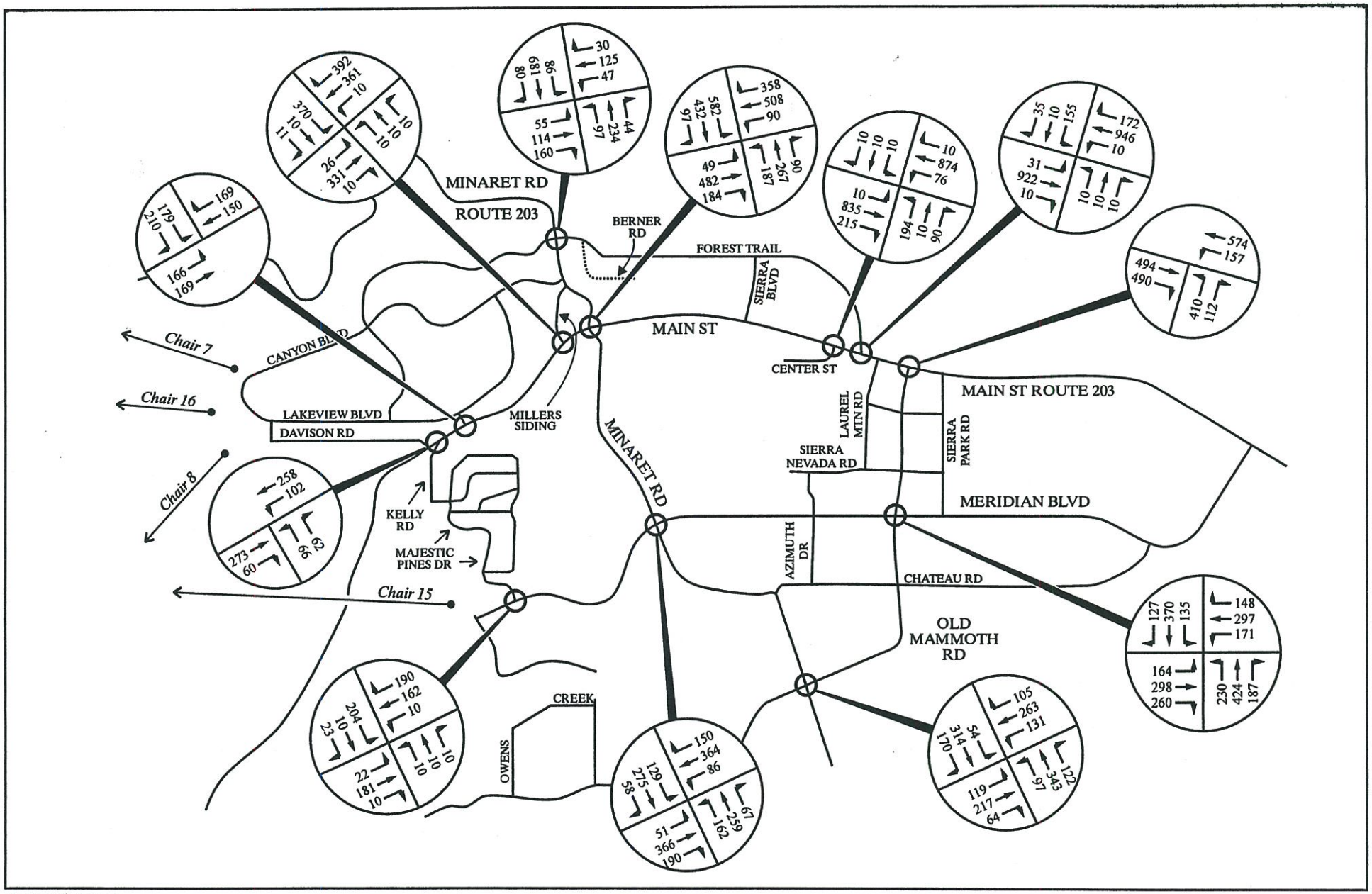
Figure 10

N

LSA Not to Scale

Redevelopment Plan and Master Plan
Roadway Segment Traffic Volumes





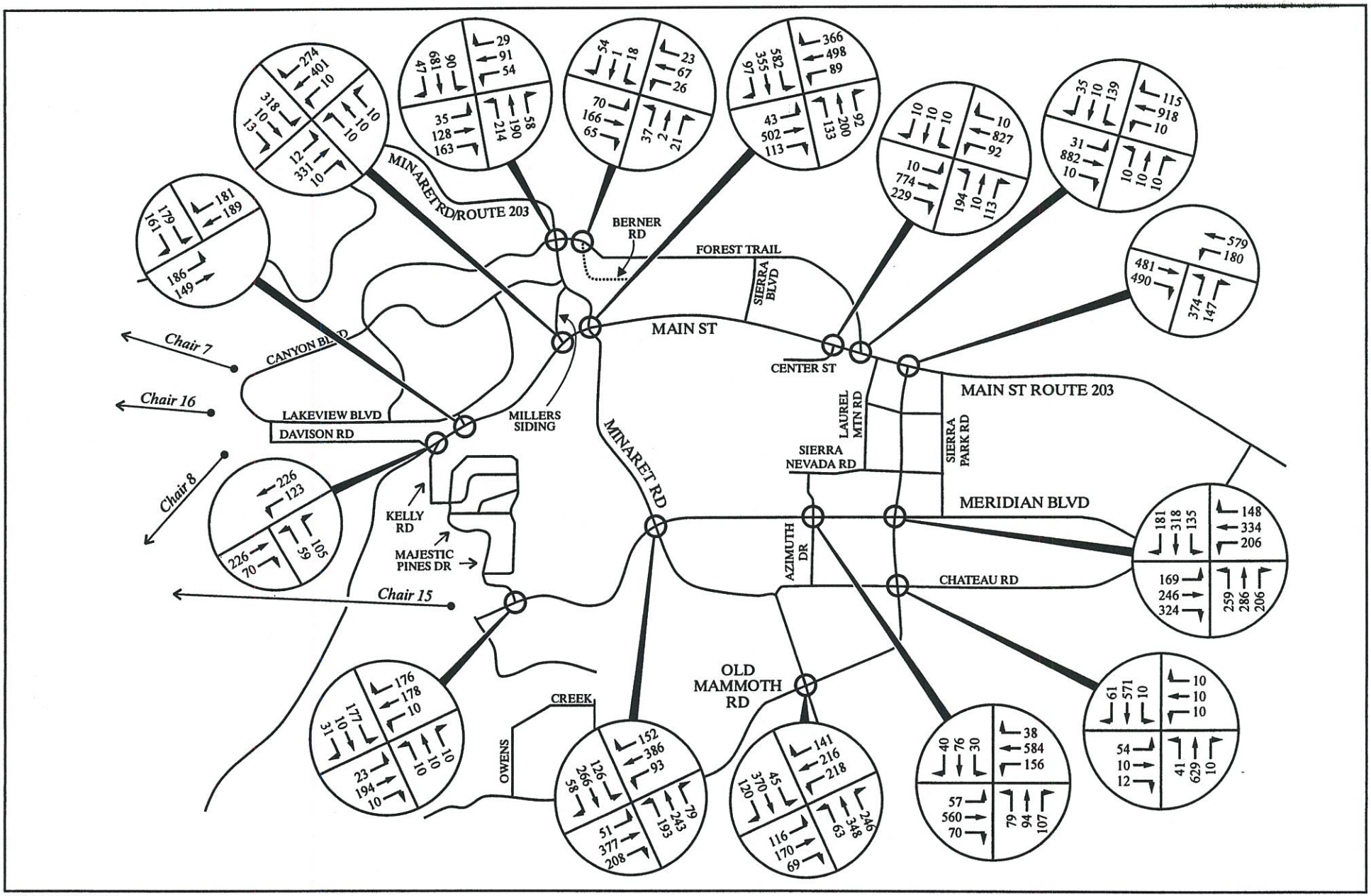
3/27/00(INT732)

Figure 11

N

LSA Not to Scale

Redevelopment Plan Typical Winter Saturday Peak Hour Traffic Volumes



3/27/00(INT732)

Figure 12

N

LSA Not to Scale

Proposed Master Plan Typical Winter Saturday Peak Hour Traffic Volumes

Table E - Forecast Typical Winter Saturday Roadway Segment Level of Service Analysis and Comparison with Existing Roadway Geometrics

Roadway Segment	No. of Lanes	Capacity	1997 Redevelopment Plan[1] Volume	V/C	LOS	1998 Master Plan[2] Volume	V/C	LOS
Forest Trail w/o Minaret Road	2U	11,700	5,300	0.45	A	6,000	0.51	A
Forest Trail e/o Minaret Road	2U	11,700	4,200	0.36	A	5,000	0.43	A
Forest Trail e/o Holiday Drive	2U	11,700	3,400	0.29	A	3,100	0.26	A
Forest Trail n/o Main Street	2U	11,700	3,500	0.30	A	2,900	0.25	A
Canyon Boulevard w/o Forest Trail	2U	11,700	3,200	0.27	A	2,900	0.25	A
Canyon Boulevard e/o Forest Trail	2U	11,700	1,400	0.12	A	2,600	0.22	A
Canyon Boulevard e/o Lakeview Drive	2U	11,700	6,000	0.51	A	5,100	0.44	A
Miller Siding n/o Lake Mary Road	2U	11,700	7,000	0.60	A	6,500	0.56	A
Lake Mary Road w/o Davison Street	2U	11,700	3,800	0.32	A	1,700	0.15	A
Lake Mary Road e/o Kelly Road	2U	11,700	5,100	0.44	A	5,000	0.43	A
Lake Mary Road w/o Miller Siding	2U	11,700	6,400	0.55	A	5,800	0.50	A
Lake Mary Road w/o Minaret Road	4U	22,500	12,900	0.57	A	12,600	0.56	A
Main Street e/o Minaret Road	4U	22,500	18,700	0.83	D	18,100	0.80	D
Main Street w/o Center Street	4D	33,800	19,700	0.58	A	19,400	0.57	A
Main Street e/o Center Street	4D	33,800	17,900	0.53	A	17,800	0.53	A
Main Street e/o Forest Trail	4D	33,800	21,200	0.63	B	20,700	0.61	B
Main Street w/o Old Mammoth Road	4D	33,800	19,500	0.58	A	19,100	0.57	A
Main Street e/o Old Mammoth Road	4D	33,800	15,500	0.46	A	14,400	0.43	A
Main Street e/o Sierra Park Road	4D	33,800	16,300	0.48	A	16,400	0.49	A
Meridian Blvd btwn Majestic Pines Dr	4U	22,500	2,400	0.11	A	1,600	0.07	A
Meridian Blvd e/of Villa Vista Drive	4U	22,500	6,600	0.29	A	7,100	0.32	A
Meridian Blvd w/o Minaret Road	4U	22,500	9,000	0.40	A	9,400	0.42	A
Meridian Blvd e/o Minaret Road	4U	22,500	9,800	0.44	A	10,800	0.48	A
Meridian Blvd w/o Azimuth Drive	4U	22,500	13,200	0.59	A	12,200	0.54	A
Meridian Blvd w/o Old Mammoth Road	4U	22,500	13,600	0.60	B	13,700	0.61	B
Meridian Blvd e/o Old Mammoth Road	4U	22,500	11,500	0.51	A	11,000	0.49	A
Meridian Boulevard e/o Sierra Park Road	2U	11,700	9,400	0.80	D	9,400	0.80	D
Old Mammoth Road w/o Tamarack Street	2U	11,700	2,700	0.23	A	3,000	0.26	A
Old Mammoth Road w/o Minaret Road	2U	11,700	8,100	0.69	B	6,900	0.59	A
Old Mammoth Road e/o Minaret Road	2U	11,700	9,400	0.80	D	9,800	0.84	D
Kelly Road s/o Lake Mary Road	2U	11,700	2,000	0.17	A	2,300	0.20	A
Majestic Pines Drive n/o Meridian Blvd	2U	11,700	3,400	0.29	A	1,600	0.14	A
Minaret Road n/o Mammoth Knolls Drive	2U	11,700	7,100	0.61	B	7,500	0.64	B
Minaret Road n/o Forest Trail	2U	11,700	8,500	0.73	C	8,200	0.70	C
Minaret Road s/o Forest Trail	2D	16,200	8,500	0.52	A	9,800	0.60	B
Minaret Road n/o Lake Mary Rd-Main St	4U	22,500	13,700	0.61	B	12,300	0.55	A
Minaret Road s/o Lake Mary Rd-Main St	2U	11,700	10,400	0.89	D	8,500	0.73	C
Minaret Road n/o Meridian Boulevard	2U	11,700	6,800	0.58	A	6,700	0.57	A
Minaret Road s/o Meridian Boulevard	2U	11,700	7,600	0.65	B	8,000	0.68	B
Minaret Road n/o Old Mammoth Road	2U	11,700	8,600	0.74	C	10,200	0.87	D
Fairway Drive s/o Old Mammoth Road	2U	11,700	8,200	0.70	C	10,300	0.88	D
Old Mammoth Road s/o Main Street	2D	16,200	11,500	0.71	C	10,700	0.66	B
Old Mammoth Road n/o Meridian Blvd	2D	16,200	10,400	0.64	B	11,500	0.71	C
Old Mammoth Road s/o Meridian Blvd	2D	16,200	14,200	0.88	D	15,100	0.93	E

Notes:

[1] - Source: *Mammoth Redevelopment Plan Transportation Impact Analysis*, RKJK, February, 1997.

[2] - Source: *Mammoth Master Transportation Plan Modeling Support*, RKJK, August, 1998.

Lanes refers total number roadway segment lanes regardless of direction.

Capacity = Number of vehicles on all lanes, both directions, per average day.

V/C = Volume-to-Capacity ratio.

Table F - Forecast Typical Winter Saturday Intersection Level of Service Summary and Comparison with Existing Intersection Geometrics

Intersection	1997 Redevelopment Plan[1]				1998 Master Plan[2]			
	Traffic Control	Average ICU[3]	Average Delay[4]	LOS	Traffic Control	Average ICU[3]	Average Delay[4]	LOS
1 . Minaret Road/Forest Trail	2-way Stop	--	*>45 sec.*	*F*	Roundabout[5]	--	14.9 sec.	B
2 . Kelly Road/Lake Mary Road	1-way Stop	--	1.9 sec.	A	1-way Stop	--	2.1 sec.	A
3 . Lakeview Blvd. Cut-Off/Lake Mary Rd.	1-way Stop	--	9.0 sec.	B	1-way Stop	--	9.8 sec.	B
4 . Millers Siding/Lake Mary Road	1-way Stop	--	*>45 sec.*	*F*	Signal[5]	0.49	--	A
5 . Minaret Rd./Lake Mary Rd.-Main St.	Signal	*0.97*	--	*E*	Signal	0.87	--	D
6 . Center Street/Main Street	2-way Stop	--	*>45 sec.*	*F*	2-way Stop	--	*>45 sec.*	*F*
7 . Forest Trail/Main Street	2-way Stop	--	*>45 sec.*	*F*	2-way Stop	--	*>45 sec.*	*F*
8 . Old Mammoth Road/Main Street	Signal	0.82	--	D	Signal	0.81	--	D
9 . Minaret Road/Meridian Boulevard	Signal	0.71	--	C	Signal	0.74	--	C
10 . Old Mammoth Rd./Meridian Blvd.	Signal	0.85	--	D	Signal	0.87	--	D
11 . Minaret Road/Old Mammoth Road	2-way Stop	--	*>45 sec.*	*F*	2-way Stop	--	*>45 sec.*	*F*
12 . Meridian Road/Majestic Pines Drive East	1-way Stop	--	4.6 sec.	A	2-way Stop	--	4.0 sec.	A
13 . Old Mammoth Road/Chateau Road	2-way Stop		N/A		2-way Stop	--	1.6 sec.	A
14 . Berner Road/Forest Trail	2-way Stop		N/A		2-way Stop	--	1.7 sec.	A
15 . Azimuth Drive/Meridian Boulevard	2-way Stop		N/A		2-way Stop	--	*>45 sec.*	*F*
16 . Sierra Park Road/Meridian Boulevard	1-way Stop		N/A		1-way Stop		N/A[6]	

Notes:

[1] Source: *Mammoth Redevelopment Plan Transportation Impact Analysis*, RKJK, February, 1997.

[2] Source: *Mammoth Master Transportation Plan Modeling Support,* RKJK, August, 1998.

[3] Level of service for signalized intersections calculated through Intersection Capacity Utilization (ICU) methodology and expressed through volume-to-capacity ratio.

[4] Level of service for unsignalized intersections calculated through Highway Capacity Manual (HCM) methodology and expressed through average delay per vehicle at intersection.

[5] A modern roundabout will replace the unsignalized intersection as part of the (Intrawest) Gondola Village development. A traffic signal and other geometric improvements will be installed as part of the (Intrawest) Gondola Village development.

[6] No future traffic data available. Peak hour data at these locations have not been extracted from the MTM. All of the other intersections shown in the table are explicitly represented in the MTM. In addition, data was not extracted from the MTM due to the lack of available traffic count data at the time the forecasts were prepared.

Proposed Master Transportation Plan

Daily Person Trip Generation (Intrawest Areas)

Table D also presents the daily person trip generation for the Intrawest Master Plan project. The trip generation rates were based on trip table developed for the MTM. Based on the trip rates in the MTM, build out of the Intrawest Master Plan areas is estimated to generate approximately 50,000 daily person trips. This represents a 25 percent reduction in person trip generation from the Intrawest areas.

In addition to the land use refinements to the MTM as a result of separating the Intrawest land uses from other land uses within a MTM TAZ, Town staff has also performed a detailed review of other land uses not directly related to the Intrawest projects. Table G summarizes these changes to the land uses not directly related to the Intrawest projects.

Traffic Volumes and Level of Service

As previously mentioned, Figures 10 and 12 illustrate the Master Plan's daily and peak hour traffic volumes, respectively. Tables E and F present the results of the Intrawest Master Plan roadway segment and intersection LOS analysis for typical winter Saturday conditions. The v/c ratios and LOS values are based on the existing geometrics at each location. The LOS worksheets are provided in Appendix C, and the Master Plan volumes are presented in Appendix D which represent maximum, not typical, winter Saturday conditions.

Review of the volumes indicates that no Master Plan project traffic has been assigned to Forest Trail, west of Hillside Drive and east of Berner Road. This is due in part to the traffic monitoring plans developed for Forest Trail and Minaret Road, which to have been included in the project's design to ensure adequate and efficient traffic flow on Forest Trail, adjacent to the Specific Plan area. With the initiation of these monitoring plans, and the implementation of their proposed measures (if needed), the residential areas along Forest Trail would not be significantly impacted by traffic generated by MMSA and/or the proposed Gondola Village development.

Table F also indicates the levels of service for the four additional study area intersections (intersections 13 through 16) requested to be analyzed by Town staff. Because these intersections were not analyzed in the Redevelopment Plan, impacts to these intersections associated with the change in Intrawest land uses cannot be compared. Two of the intersections, Old Mammoth Road/Chateau Road and Berner Road/Forest Trail, will not require any mitigation.

The Azimuth Drive/Meridian Boulevard intersection analysis suggests that the minor street (Azimuth) will have excessive delays. Alternate routes are available in the immediate area for delayed vehicle traffic on Azimuth Drive. These routes consist of Sierra Nevada Road to the north, with connections to Laurel Mountain Road and Old Mammoth Road; and Chateau road to the south, with connections to Minaret Road and Old Mammoth Road. Based on review of the forecast delayed vehicles on Azimuth Drive and the peak hour volumes of adjacent study area intersections, a 40

Table G - Other MTM Land Use Database Refinements

TAZ	Code	Description	Quantity	Units	Comment
109	32	High School	2.40	Acres	Town Staff Review
115	1	Residential Low Density (SF) -Year Round	40.00	DU	Town Staff Review
115	5	Residential Low Density (SF) - Seasonal	15.00	DU	Town Staff Review
115	11	Resort Hotel	-27.00	Rooms	Town Staff Review
116	2	Residential Medium Density (SF) - Year Round	52.00	DU	Town Staff Review
116	6	Residential Medium Density (SF) - Seasonal	211.00	DU	Town Staff Review
116	11	Resort Hotel	-111.00	Rooms	Town Staff Review
117	11	Resort Hotel	231.00	Rooms	Town Staff Review
118	1	Residential Low Density (SF) -Year Round	-116.00	DU	Town Staff Review
118	5	Residential Low Density (SF) - Seasonal	-2.00	DU	Town Staff Review
118	7	Residential High Density (MF) - Seasonal	-130.00	DU	Town Staff Review
118	11	Resort Hotel	-231.00	Rooms	Town Staff Review
120	23	Public Utility	0.91	Acres	Town Staff Review
121	2	Residential Medium Density (SF) - Year Round	35.00	DU	Town Staff Review
121	6	Residential Medium Density (SF) - Seasonal	105.00	DU	Town Staff Review
121	11	Resort Hotel	-140.00	Rooms	Town Staff Review
122	1	Residential Low Density (SF) -Year Round	-52.00	DU	Town Staff Review
122	2	Residential Medium Density (SF) - Year Round	22.00	DU	Town Staff Review
122	5	Residential Low Density (SF) - Seasonal	-1.00	DU	Town Staff Review
122	6	Residential Medium Density (SF) - Seasonal	63.00	DU	Town Staff Review
122	11	Resort Hotel	-21.00	Rooms	Town Staff Review
123	1	Residential Low Density (SF) -Year Round	-45.00	DU	Town Staff Review
123	5	Residential Low Density (SF) - Seasonal	-2.00	DU	Town Staff Review
123	11	Resort Hotel	-189.00	Rooms	Town Staff Review
124	2	Residential Medium Density (SF) - Year Round	70.00	DU	Town Staff Review
124	6	Residential Medium Density (SF) - Seasonal	352.00	DU	Town Staff Review
124	11	Resort Hotel	-316.00	Rooms	Town Staff Review
125	2	Residential Medium Density (SF) - Year Round	-15.00	DU	Town Staff Review
125	3	Residential High Density (MF) - Year Round	-37.00	DU	Town Staff Review
125	6	Residential Medium Density (SF) - Seasonal	17.00	DU	Town Staff Review
125	7	Residential High Density (MF) - Seasonal	-14.00	DU	Town Staff Review
129	1	Residential Low Density (SF) -Year Round	-19.00	DU	Town Staff Review
129	5	Residential Low Density (SF) - Seasonal	43.00	DU	Town Staff Review
139	11	Resort Hotel	-1.00	Rooms	Town Staff Review
139	21	Light Industrial	-0.13	Acres	Town Staff Review
141	3	Residential High Density (MF) - Year Round	-5.00	DU	Town Staff Review
141	6	Residential Medium Density (SF) - Seasonal	7.00	DU	Town Staff Review
141	7	Residential High Density (MF) - Seasonal	4.00	DU	Town Staff Review
141	2	Residential Medium Density (SF) - Year Round	20.00	DU	Town Staff Review
144	6	Residential Medium Density (SF) - Seasonal	20.00	DU	Town Staff Review
144	11	Resort Hotel	-139.00	Rooms	Town Staff Review
145	1	Residential Low Density (SF) -Year Round	-1.00	DU	Town Staff Review
145	3	Residential High Density (MF) - Year Round	1.00	DU	Town Staff Review
145	7	Residential High Density (MF) - Seasonal	98.00	DU	Town Staff Review

Table G (continued) - Other MTM Land Use Database Refinements

TAZ	Code	Description	Quantity	Units	Comment
145	11	Resort Hotel	-98.00	Rooms	Town Staff Review
146	7	Residential High Density (MF) - Seasonal	105.00	DU	Town Staff Review
146	11	Resort Hotel	-105.00	Rooms	Town Staff Review
147	12	Retail/Commercial & Town Offices	-3.65	Acres	Town Staff Review
153	3	Residential High Density (MF) - Year Round	-1.00	DU	Town Staff Review
153	7	Residential High Density (MF) - Seasonal	-2.00	DU	Town Staff Review
164	7	Residential High Density (MF) - Seasonal	104.00	DU	Town Staff Review
164	11	Resort Hotel	-104.00	Rooms	Town Staff Review
165	3	Residential High Density (MF) - Year Round	2.00	DU	Added per Existing
165	7	Residential High Density (MF) - Seasonal	10.00	DU	Added per Existing
166	3	Residential High Density (MF) - Year Round	170.00	DU	Town Staff Review
166	7	Residential High Density (MF) - Seasonal	170.00	DU	Town Staff Review
168	3	Residential High Density (MF) - Year Round	35.00	DU	Town Staff Review
168	7	Residential High Density (MF) - Seasonal	35.00	DU	Town Staff Review
172	3	Residential High Density (MF) - Year Round	14.00	DU	Town Staff Review
175	3	Residential High Density (MF) - Year Round	97.00	DU	Town Staff Review
175	10	Lodging (Hotel)	-97.00	Rooms	Town Staff Review
178	3	Residential High Density (MF) - Year Round	202.00	DU	Town Staff Review
178	12	Retail/Commercial & Town Offices	-8.36	Acres	Town Staff Review
179	10	Lodging (Hotel)	120.00	Rooms	Town Staff Review
180	3	Residential High Density (MF) - Year Round	115.00	DU	Town Staff Review
180	12	Retail/Commercial & Town Offices	-9.29	Acres	Town Staff Review
181	3	Residential High Density (MF) - Year Round	20.00	DU	Town Staff Review
182	10	Lodging (Hotel)	75.00	Rooms	Town Staff Review
183	1	Residential Low Density (SF) -Year Round	-1.00	DU	Town Staff Review
183	3	Residential High Density (MF) - Year Round	29.00	DU	Town Staff Review
193	21	Light Industrial	-0.44	Acres	Town Staff Review
193	23	Public Utility	0.44	Acres	Town Staff Review
195	3	Residential High Density (MF) - Year Round	50.00	DU	Town Staff Review
195	12	Retail/Commercial & Town Offices	2.00	Acres	Town Staff Review
196	12	Retail/Commercial & Town Offices	1.00	Acres	Town Staff Review
197	3	Residential High Density (MF) - Year Round	16.00	DU	Town Staff Review
197	7	Residential High Density (MF) - Seasonal	40.00	DU	Town Staff Review
230	11	Resort Hotel	-11.00	Rooms	Town Staff Review
231	10	Lodging (Hotel)	-183.00	Rooms	Removed Intrawest
231	11	Resort Hotel	-757.00	Rooms	Removed Intrawest
231	12	Retail/Commercial & Town Offices	-0.49	Acres	Removed Intrawest
235	10	Lodging (Hotel)	43.00	Rooms	Added per Existing
235	11	Resort Hotel	-343.00	Rooms	Removed Intrawest
235	12	Retail/Commercial & Town Offices	-1.79	Acres	Removed Intrawest
236	10	Lodging (Hotel)	-97.00	Rooms	Removed Intrawest
236	11	Resort Hotel	-30.00	Rooms	Removed Intrawest
236	37	Church, Community Center, Library	6.00	Acres	Town Staff Review
236	37	Church, Community Center, Library	2.00	Acres	Town Staff Review

percent diversion in total north-south (Azimuth Drive) peak hour traffic volumes was assumed to occur. The peak hour trips on Azimuth Drive (58 vehicles north of Meridian Boulevard, and 112 vehicles south of Meridian Drive) were diverted north to Sierra Nevada Road and south to Chateau Road. These trips would utilize these routes, through unsignalized intersections, to access the major Town thoroughfares such as Minaret Road, Old Mammoth Road, and Main Street.

With the potential for traffic diversion on Azimuth Drive, the peak hour LOS at its intersection with Meridian Boulevard would be a satisfactory LOS D (22.9 seconds/vehicle). With Azimuth traffic diverted to the adjacent study area intersection of Old Mammoth Road/Chateau Road (62 vehicles), the intersection would continue to operate with satisfactory levels of service (from LOS A, at 1.6 seconds delay per vehicle, to LOS C, at 18.8 seconds delay per vehicle). The LOS worksheets are contained in Appendix C. The three other unsignalized intersections that diverted Azimuth Drive traffic would utilize to access major thoroughfares would be Laurel Mountain Road/Main Street, Old Mammoth Road/Sierra Nevada Road, and Minaret Road/Chateau Road. These non-study area intersections were not modeled in the Master Plan traffic analysis, and therefore no quantifiable intersection impact analysis could be completed.

Based on a diversion analysis conducted by LSA, approximately 16 vehicles would be diverted to Laurel Mountain Drive/Main Street; 42 vehicles would be diverted to Old Mammoth Road/Sierra Nevada Road; and 50 vehicles would be diverted to Minaret Road/Chateau Road. These diverted traffic volumes are relatively low when compared to the overall traffic volumes at the intersection's major roadways (i.e., an average of less than one vehicle per minute in the peak hour). In addition, all 50 vehicles diverted to Minaret Road/Chateau Road would be non-critical, westbound right turning vehicles.

The last intersection is Sierra Park Road/Meridian Boulevard, which was not modeled in the traffic impact analysis. This location will not experience Saturday peak hour deficiencies because the primary traffic generators in the vicinity are schools. A traffic signal for this location is included in the Development Impact Fee program.

As shown in Table E, all of the study area roadway segments are forecast to operate at satisfactory levels of service (LOS A to LOS D) with existing geometrics, with the exception of Old Mammoth Road south of Meridian Boulevard. This roadway segment is forecast to operate at LOS E (0.93 v/c). However, the following analysis procedure has been indicated by Town staff in a June 26, 1998, memorandum from RKJK:

> *Worse than LOS D daily conditions will be deemed acceptable, if all intersections along such a roadway segment are demonstrated to operate at acceptable (LOS D or better) levels of service for typical winter Saturday p.m. peak hour conditions, or other time frames as deemed necessary by the Town.*

According to this procedure, the roadway segment LOS on Old Mammoth Road south of Meridian Boulevard would be considered acceptable. The intersections of Old Mammoth Road/Meridian Boulevard, Old Mammoth Road/Chateau Road, and a typical driveway in between are forecast to operate at LOS D or better. LSA conducted an analysis of Old Mammoth Road/Chateau Road and a typical driveway along Old Mammoth Road, between Meridian Boulevard and Chateau Road. This

analysis is summarized in Appendix E. Based on the results of this analysis, both Old Mammoth Road/Chateau Road and the typical driveway on Old Mammoth Road will operate with satisfactory levels of service in the General Plan with Intrawest Master Plan conditions with a two lane divided Old Mammoth Road cross section.

As indicated in Table F, 3 of the 12 original study area intersections are forecast to operate at unsatisfactory levels of service with existing geometrics. As previously discussed, Azimuth Drive/Meridian Boulevard is forecast to operate at LOS D (22.9 seconds/vehicle) when delayed traffic is diverted to adjacent streets. All three of the impacted study area intersections are unsignalized intersections, which would cause delays much greater than 45 seconds (LOS F) for the intersection as a whole, with implementation of the proposed Master Plan. With the implementation of either the 1997 Approved Redevelopment Plan or the proposed Master Transportation Plan, the unsignalized intersections of Minaret Road/Forest Trail and Millers Siding/Lake Mary Road are forecast to operate at LOS F with their current geometrics. However, the proposed Master Transportation Plan will construct a modern roundabout at Minaret Road/Forest Trail that would improve the LOS to LOS B (14.9 seconds of delay). The proposed Master Transportation Plan would also improve the Millers Siding/Lake Mary Road intersection to include a traffic signal, dual southbound left turn lanes, and a dedicated westbound right turn lane. These improvements would cause the intersection to operate at LOS A (0.49 v/c) in the forecast Master Plan traffic conditions.

Based on the ICU analysis of Minaret Road/Lake Mary Road-Main Street, the intersection is at the upper limits of its acceptable threshold capacity (0.87 v/c LOS D). As part of a separate, focused operational traffic analysis of the Minaret Road corridor, where the Minaret Road/Lake Mary Road-Main Street intersection was also analyzed using the HCM (1994 Update) operational LOS methodology, a second (dual) southbound left turn lane was recommended to improve overall intersection operations. This intersection improvement also improves vehicular and pedestrian operations along the Minaret Road corridor, between Forest Trail and Lake Mary Road-Main Street.

Winter Transit Service

The Town of Mammoth Lakes has been refining its long-range planning regarding the local area transit system. The most recent effort has been the preparation of a Multi-Modal Transportation Plan.[1] In addition to the existing transit routes, the Multi-Modal Transportation Plan recommends an additional route running north-south along Minaret Road. An overhead lift station serving MMSA from the Gondola Village is also included in the recommended Multi-Modal Transportation Plan, and is part of the improvements required in conjunction with this development.

The Town of Mammoth Lakes' current policy is to encourage transit, pedestrian, and bicycle transportation, and to discourage vehicular transportation. Transportation Demand Management (TDM) requirements, including participation in developing and maintaining a transit system, have been assumed as an integral component of the Specific Plan, to mitigate vehicular impacts that lead to street improvements and signalization and reduce PM_{10} particulate matter in the Town. The Regional

---

1 Mammoth Multi-Modal Transportation Plan Study Report, RKJK, 1995.

Transportation Plan (December, 1992) adopted by the Local Transportation Commission, the Mammoth Lakes Trail System Plan (May, 1991) adopted by the Town Council, the Transit Design Study (June, 1993) adopted by the Town Council, and the Main Street Promenade and Transportation forecasting Model/Multi-modal Transportation Plan approved by the Town of Mammoth Lakes support the goal of the Town to concentrate efforts on non-vehicular oriented transportation modes. To this end, a mitigation measure for all new development is to participate, on a fair share basis, in the development and operation of a communitywide transit system accomplishing the ridership levels incorporated in the MTM.

MITIGATION MEASURES

As previously discussed, this impact analysis and the resulting mitigation measures represent a substantial departure from the analysis conducted for the 1991 and 1994 North Village Specific Plans and EIRs, and the 1997 Redevelopment Plan traffic impact analysis. At the onset of the technical analysis, Town staff specifically outlined several analysis procedures and impact thresholds that differed from the earlier analyses. The specific procedures are summarized in a letter dated June 26, 1998, contained in Appendix A.

The following analysis evaluates the need of the mitigation measures adopted in the original Specific Plans, and recommends specific measures as a result of implementation of the Intrawest Master Plan. The measures recommended for the Intrawest Master Plan would provide for the minimum LOS D (0.90 v/c) traffic conditions. Table H provides the levels of service with implementation of mitigation measures for the three impacted study area intersections, plus the Azimuth Drive/Meridian Boulevard intersection, in the proposed Master Plan.

In the following discussion of mitigation measures, there are numerous cases where no mitigation is recommended. This is a direct result of applying the new traffic model that gives different traffic data, using a typical winter Saturday in lieu of a maximum peak winter Saturday, changing the LOS threshold from C to D, and the reduced development intensity.

Roadways

Old Mammoth Road - Main Street to Chateau Road

Specific Plan: Widen roadway from two lanes to four lanes (Sierra Star Specific Plan).

Master Plan: No improvements required.

Old Mammoth Road - Meridian Boulevard to Chateau Road

Specific Plan: Widen roadway from two lanes to four lanes with a continuous left turn lane (Gondola Village Specific Plan).

Table H - Proposed Master Plan Forecast Typical Winter Saturday
Intersection Level of Service Summary with Mitigation

Intersection	1998 Master Plan[1]				1998 Master Plan w/ Mitigation			
	Traffic Control	Average ICU[2]	Average Delay[3]	LOS	Traffic Control	Average ICU[2]	Average Delay[3]	LOS
1 . Minaret Road/Forest Trail	Roundabout	--	14.9 sec.	B				
2 . Kelly Road/Lake Mary Road	1-way Stop	--	2.1 sec.	A				
3 . Lakeview Boulevard Cut-Off/Lake Mary Road	1-way Stop	--	9.8 sec.	B				
4 . Millers Siding/Lake Mary Road	Signal	0.49	--	A				
5 . Minaret Road/Lake Mary Road-Main Street	Signal	0.87	--	D				
6 . Center Street/Main Street	2-way Stop	--	*>45 sec.*	*F*	*Signal*	*0.75*	--	*C*
7 . Forest Trail/Main Street	2-way Stop	--	*>45 sec.*	*F*	--[4]		*see footnote[4]*	
8 . Old Mammoth Road/Main Street	Signal	0.81	--	D				
9 . Minaret Road/Meridian Boulevard	Signal	0.74	--	C				
10 . Old Mammoth Road/Meridian Boulevard	Signal	0.87	--	D				
11 . Minaret Road/Old Mammoth Road	2-way Stop	--	*>45 sec.*	*F*	*Signal*	*0.90*	--	*D*
12 . Meridian Road/Majestic Pine Drive	2-way Stop	--	4.0 sec.	A				
13 . Old Mammoth Road/Chateau Road	2-way Stop	--	1.6 sec.	A				
14 . Berner Road/Forest Trail	2-way Stop	--	1.7 sec.	A				
15 . Azimuth Drive/Meridian Boulevard	2-way Stop	--	*>45 sec.*	*F*	--[5]		*see footnote[5]*	
16 . Sierra Park Road/Meridian Boulevard	1-way Stop	N/A						

Notes:

[1] Source: *Mammoth Master Transportation Plan Modeling Support,* RKJK, August, 1998.

[2] Level of service for signalized intersections calculated through Intersection Capacity Utilization (ICU) methodology and expressed through volume-to-capacity ratio.

[3] Level of service for roundabout and unsignalized intersections calculated through Highway Capacity Manual (HCM) methodology and expressed through average delay per vehicle at intersection.

[4] Mitigation for minor street delay is not recommended due to potential increase in neighborhood cut-through traffic.

[5] Mitigation for minor street delay is not recommended because there are alternate routes available for delayed traffic.

Master Plan: No improvements required.

Meridian Boulevard - Majestic Pines Road to Old Mammoth Road

Specific Plan: Widen roadway to include a continuous left turn lane (Sierra Star Specific Plan).

Master Plan: Restripe roadway to include two travel lanes and a continuous left turn lane (Sierra Star Specific Plan).

Minaret Road - Forest Trail to Main Street

Specific Plan: Widen roadway from two lanes to four lanes (Gondola Village Specific Plan).

Master Plan: Four lanes not required; intersection improvement as a roundabout is adequate.

Minaret Road - Main Street to South of Old Mammoth Road

Specific Plan: Widen roadway from two lanes to four lanes (Sierra Star and Gondola Village Specific Plans).

Master Plan: No improvements required.

Main Street - Sierra Boulevard to Minaret Road

Specific Plan: Widen and restripe roadway to provide a continuous left turn lane, and maintain four lane configuration (Gondola Village and Sierra Star Specific Plans).

Master Plan: No improvements required.

Lake Mary Road - Main Street to Lakeview Road

Specific Plan: Widen roadway from two lanes to four lanes (Gondola Village and Sierra Star Specific Plans).

Master Plan: No improvements required.

Intersections

Minaret Road/Forest Trail

Specific Plan: Install traffic signal; provide a southbound left turn lane; provide eastbound right turn lane with protected phasing; and restripe westbound approach to include a left turn lane and a shared through right turn lane (Gondola Village and Sierra Star Specific Plans).

Master Plan: A modern roundabout as part of the Specific Plan improvements (North Village and Gondola Village Specific Plans). Appendix F contains a series of reports completed by Ourston and Doctors regarding the analysis and design of the proposed modern roundabout.

Lakeview Boulevard Cut-off/Lake Mary Road

Specific Plan: Install traffic signal; restripe eastbound approach to include an exclusive left turn land and through lane; widen westbound approach to provide one through lane and a dedicated right turn lane; restripe southbound approach to include an exclusive left turn lane and a shared left-right turn lane (Gondola Village and Sierra Star Specific Plans).

Master Plan: No improvements required.

Millers Siding/Lake Mary Road

Specific Plan: Install traffic signal; provide dual southbound left turn lanes; westbound, provide one through lane and a dedicated right turn lane (Gondola Village and Sierra Star Specific Plans).

Master Plan: Same improvements required with Master Plan (North Village and Gondola Village Specific Plans).

Minaret Road/Lake Mary Road-main Street

Specific Plan: Modify existing signal phasing to eight phase signal; provide a dedicated northbound right turn lane; restripe southbound approach to include dual left turn lanes, one through lane and a shared through right turn lane; and provide a westbound dual left turn lane (Gondola Village and Sierra Star Specific Plans).

Master Plan: Add second southbound left turn lane (dual left turn lanes), and install an eight phase traffic signal (North Village and Gondola Village Specific Plans).

Center Street/Main Street

Specific Plan: No improvements reported previously.

Master Plan: Allow minor street traffic to be delayed so that cut through traffic along Forest Trail is discouraged. Although improvements for the Center Street/Main Street intersection are not recommended at this time, installation of a traffic signal as a potential mitigation measure is consistent with the Town of Mammoth Lakes' Developer Impact Fee (DIF) program, Project #TC-05.

Forest Trail/Main Street

Specific Plan: No improvements reported previously.

Master Plan: Allow minor street traffic to be delayed so that cut through traffic along Forest Trail is discouraged. Although improvements for the Forest Trail/Main Street intersection are not recommended at this time, installation of a traffic signal as a potential mitigation measure is consistent with the Town of Mammoth Lakes' Developer Impact Fee (DIF) program, Project #TC-05.

Old Mammoth Road/Main Street

Specific Plan: Restripe northbound approaches to include an exclusive left turn lane, and a shared left-right turn lane; and restripe eastbound approach to include one through lane, a shared through right turn lane and a dedicated right turn lane (Gondola Village and Sierra Star Specific Plans).

Master Plan: No improvements are required.

Minaret Road/Meridian Boulevard

Specific Plan: Widen the northbound and southbound approaches to include an exclusive left turn lane, one through lane, and a shared through right turn lane on each approach (Gondola Village and Sierra Star Specific Plans).

Master Plan: No improvements are required.

Old Mammoth Road/Meridian Boulevard

Specific Plan: Widen the northbound approach to provide a dual left turn lane, one through lane, and a shared through right turn lane; restripe the southbound approach to include a shared through right turn lane (Sierra Star Specific Plan).

Master Plan: No improvements are required.

Minaret Road/Old Mammoth Road

Specific Plan: Install eight phase traffic signal; widen northbound and southbound approaches to provide an exclusive left turn lane, two through lanes and a dedicated right turn lane for each approach; widen the eastbound approach to provide an exclusive left turn lane, one through lane and a dedicated right turn lane; and widen the westbound approach to provide a dual left turn lane, one through lane and a dedicated right turn lane (Sierra Star Specific Plan).

Master Plan: Install eight phase traffic signal; and widen northbound approach to include an exclusive northbound left turn lane and a shared through-right turn lane (DIF improvement).

Meridian Road/Majestic Pine Drive

Specific Plan: No improvements reported previously.

Master Plan: No improvements are required.

Azimuth Drive/Meridian Boulevard

Specific Plan: No improvements reported previously.

Master Plan: No improvements are required. Alternate routes are available in the immediate area for delayed vehicle traffic on Azimuth Drive. These trips would utilize these routes to access the major Town thoroughfares such as Minaret Road, Old Mammoth Road, and Main Street. With the potential for traffic diversion on Azimuth Drive, the peak hour LOS at its intersection with Meridian Boulevard would be a satisfactory LOS D (22.9 seconds/vehicle). With Azimuth traffic diverted to the adjacent study area intersection of Old Mammoth Road/Chateau Road, the intersection would continue to operate with satisfactory levels of service.

Minaret Road/Chateau Road

Specific Plan: Stripe the northbound Minaret approach to provide one through lane and one shared through right turn lane; widen the southbound Minaret approach to provide one exclusive left turn lane and two through lanes; restripe the westbound Chateau approach to provide an exclusive left turn lane and a shared left and right turn lane; and install a two phase traffic signal (Sierra Star Specific Plan).

Master Plan: This intersection was not modeled and therefore no analysis is available. This is a "T" intersection, and therefore conflicts are minimized and signal warrants are unlikely.

Old Mammoth Road/Chateau Road

Specific Plan: Restripe the southbound Old Mammoth Road approach to provide one exclusive left turn lane, one through lane, and one shared through right turn lane; widen the northbound Old Mammoth Road approach to provide one exclusive left turn lane, one through lane, and one shared through right turn lane; and install a two phase traffic signal (Sierra Star Specific Plan).

Master Plan: No improvements required.

Sierra Boulevard/Main Street

Specific Plan: Restripe the southbound approach to provide a left turn lane and a right turn lane. This would reduce the delay to right turning traffic caused by vehicles waiting to turn left from a single approach lane. The intersection comes very close to meeting signal warrants with the project traffic, and should be monitored periodically to determine whether the actual future volumes or accident incidences warrant the installation of a signal.

Master Plan: This intersection was not modeled, and therefore no analysis is available. However, the same improvements reported in the Specific Plan (above) will be required.

Winter Transit

The Town of Mammoth Lakes' current policy is to encourage transit, pedestrian, and bicycle transportation, and to discourage vehicular transportation. To this end, a mitigation measure for all new development is to participate, on a fair share basis, in the development and operation of a communitywide transit system accomplishing the ridership levels incorporated in the MTM.

NORTH VILLAGE SPECIFIC PLAN
EXISTING PLUS PROJECT TRAFFIC IMPACT ANALYSIS

December 9, 1999
March 2, 2000
June 22, 2000
Revised July 25, 2000

Prepared for:

Intrawest Mammoth Corporation
587 Old Mammoth Road
P.O. Box 2789
Mammoth Lakes, California 93546-2789

Prepared by:

LSA Associates, Inc.
One Park Plaza, Suite 500
Irvine, California 92614
(949) 553-0666
LSA Project #INT732

TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

PAGE

LIST OF TABLES

PAGE

NORTH VILLAGE SPECIFIC PLAN
EXISTING PLUS PROJECT TRAFFIC IMPACT ANALYSIS

INTRODUCTION

The purpose of this traffic impact analysis (TIA) is to assess the potential circulation impacts associated with the development of the North Village Specific Plan on the Town of Mammoth Lakes' existing circulation system. In May, 1999, LSA Associates, Inc. (LSA) completed an existing plus project traffic impact analysis for the overall Intrawest Master Plan, which includes the Gondola Village, Juniper Springs, and Sierra Star developments. The May, 1999, report analyzed the potential traffic impacts associated with the development of the Intrawest Master Plan on the Town's existing circulation system.

This report will focus on the impacts of the North Village Specific Plan only. The existing (1995) condition reported in the May, 1999, report will be utilized as part of this TIA. This analysis provides an assessment of the North Village Specific Plan traffic impacts and the determination of traffic mitigation as required for California Environmental Quality Act (CEQA) compliance.

An Intrawest Master Plan and Town Buildout traffic analysis (September 22, 1998, and amended December 17, 1998) has also been prepared. That analysis examined the impacts of the overall Intrawest Master Plan (Gondola Village, Sierra Star and Juniper Springs) in the context of the Town General Plan build out. Previously adopted mitigation measures were reevaluated, and many measures are no longer required. The Mitigation Measures Section of the revised Intrawest Master Plan Traffic Impact Analysis provides a full discussion of previously adopted mitigation measures.

Change in Analysis Criteria from 1991 and 1994 North Village Specific Plans and EIRs

This impact analysis and the resulting mitigation measures represent a substantial departure from the analysis conducted for the 1991 and 1994 North Village Specific Plans and EIRs, and the 1997 Redevelopment Plan traffic impact analysis. At the onset of the technical analysis, Town staff specifically outlined several analysis procedures and impact thresholds that differed from the earlier analyses. The specific procedures are summarized in a letter dated June 26, 1998, contained in Appendix C. The fundamental thrust of the changed procedures was to: 1) avoid substantial road widenings and intersection improvements to support peak winter weekend conditions only; 2) provide a level of service (LOS) consistent with other rural areas; 3) encourage transit use; and 4) reduce physical environmental impacts.

The following is a summary of the changed conditions under which this impact analysis has been prepared compared to the analyses contained in the 1991 and 1994 EIRs, and the 1997 Redevelopment Plan traffic impact analysis.

A. The multimodal transportation model prepared by RKJK was used to generate vehicular trips. This model, using Town build out for all land uses according to the General Plan, incorporated existing parking constraints at the Main Lodge and other ski portals, as well as the basic transit system in use today. The skier attraction of 24,000 Skiers At One Time (SAOT) for

Mammoth Mountain and 8,000 SAOT for Sherwin Mountain were also incorporated. Application of this model represents a substantial change from the earlier traffic studies that applied a manual process for traffic generation and assignments, an assumed transit mode split, and no constraint for ski portal parking.

B. A typical winter Saturday condition is used for impact analysis rather than the peak winter Saturday, which was used on all previous impact analyses. The typical winter Saturday is consistent with standard engineering practice, which would apply a criterion of the 30th to 50th highest hour for design purposes. The peak winter Saturday condition might occur up to 10 times annually, whereas the typical winter Saturday occurs about 10 to 20 times per year. Traffic volumes for a typical winter Saturday are 15 percent lower than a peak Saturday.

C. LOS criteria for intersections and roadways were changed from LOS C to LOS D. This reflects a volume to capacity (v/c) ratio increase from 0.80 (LOS C) to 0.90 (LOS D). These are standard criteria for most cities and counties in California.

D. Roadway LOS could exceed D if all intersections along such roadways are demonstrated to operate at an acceptable LOS.

E. The traffic generation for Intrawest areas of North Village was reduced substantially from previous Specific Plan intensities due to the previous assumption of counting every bedroom as a lodging unit for traffic generation purposes. This is not accurate for multi-bedroom units and, therefore, the trip generation was revised and lowered to reflect the actual number of lodging units, not bedrooms. This resulted in the reduction of several hundred units, for traffic generation.

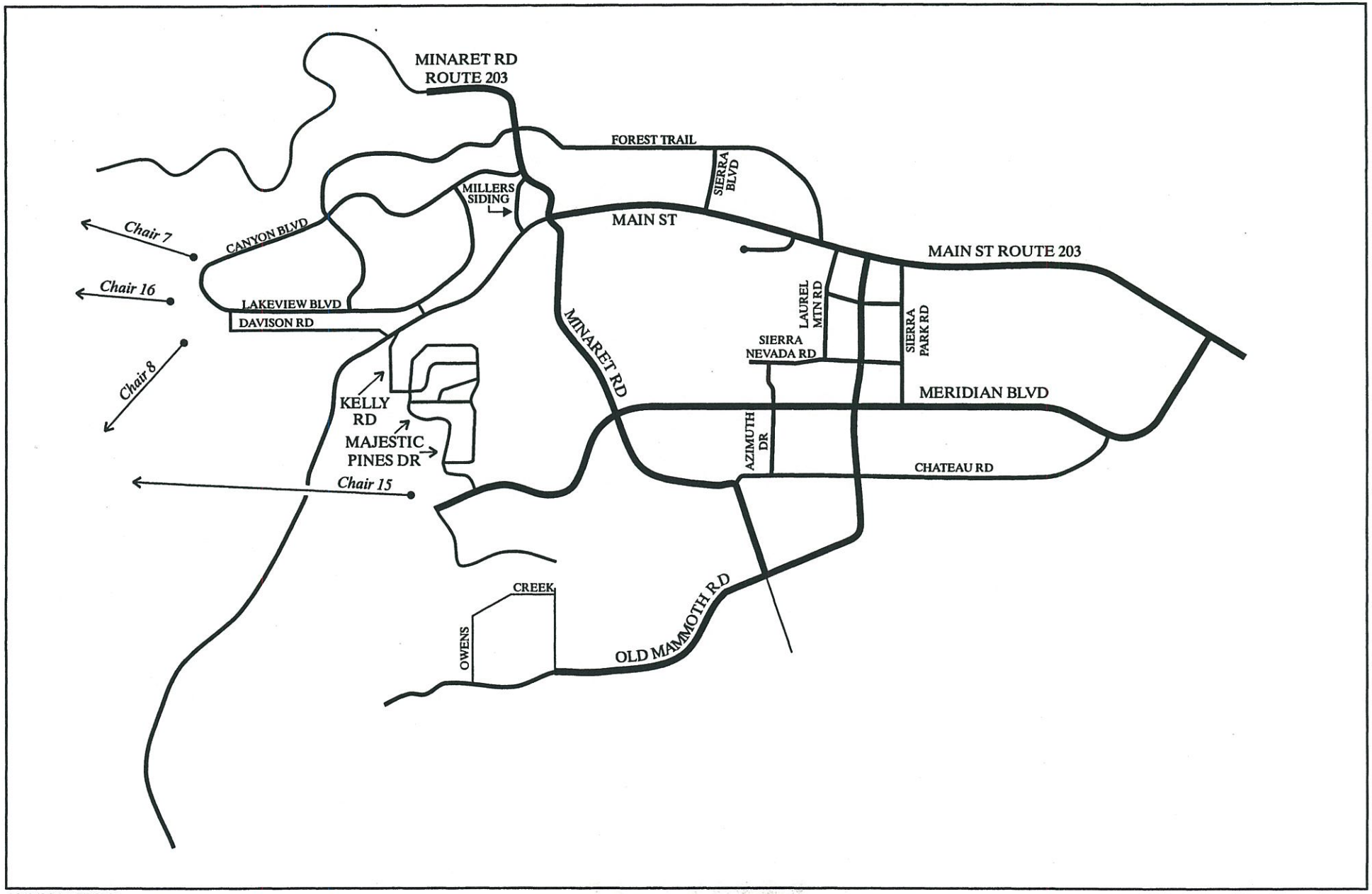
Application of these changed criteria eliminates the requirements for several roadway widenings and intersection improvements that were previously required as mitigation measures.

Project Description

The project site is the North Village Specific Plan area located in the Town of Mammoth Lakes. Figure 1 illustrates the project study area. Figure 2 shows the location of the North Village Specific Plan (NVSP) area.

The circulation improvements adopted in the North Village Specific Plan are significant to the overall roadway system within the Town of Mammoth Lakes. Canyon Boulevard will be realigned to connect to Miller Siding, which would relieve potential congestion along Minaret Road and provide the primary access to Canyon Lodge.

Berner Street will also be realigned to connect to Forest Trail with development of Gondola Village. In addition, as a component of the Gondola Village development, a modern roundabout will replace the unsignalized intersection of Minaret Road/Forest Trail intersection; and the intersection of Millers Siding/Lake Mary Road will be improved to include a traffic signal, dual southbound left turn lanes, and a dedicated westbound right turn lane.



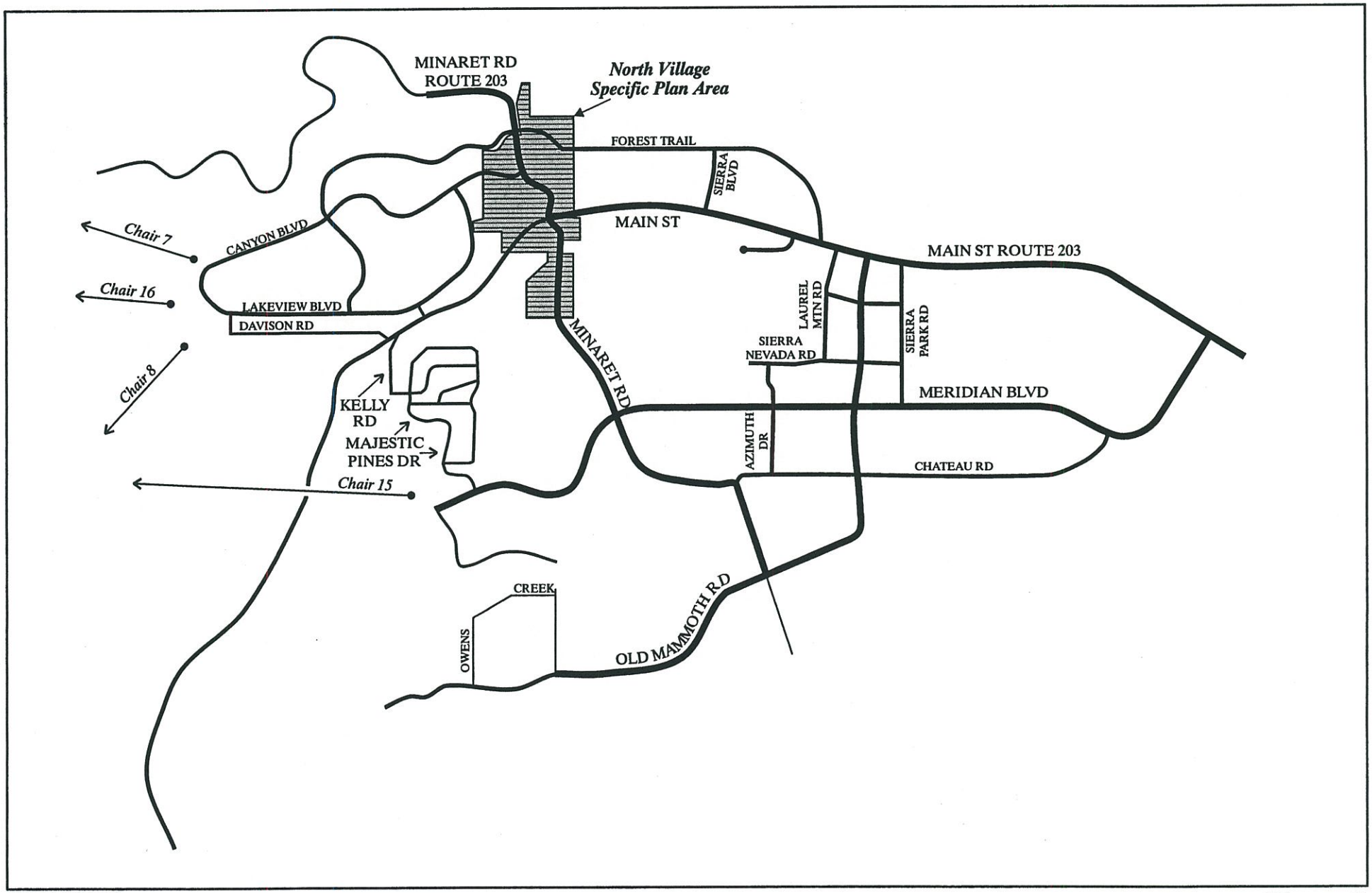
12/3/99(INT732)

Figure 1

N

LSA Not to Scale

Study Area and Circulation System



12/3/99(INT732)

Figure 2

N

LSA Not to Scale

North Village Specific Plan
Project Site Location

From a transportation perspective, the primary difference between the NVSP and the Intrawest proposal for Gondola Village is the intersection of Minaret Road and Forest Trail and Minaret Road between Forest Trail and the existing four lane section, north of Lake Mary Road/Main Street intersection. In the NVSP, the Minaret/Forest Trail intersection was required to be signalized and, for that reason, Minaret was required to be widened to four lanes from Forest Trail, south to the existing four lane improvement.

In the Intrawest proposal for Gondola Village, a modern roundabout design is incorporated for the Minaret/Forest Trail intersection, and a traffic signal with geometric improvements is planned for Millers Siding/Lake Mary Road. The roundabout at Minaret Road/Forest Trail will provide for adequate levels of service for both existing plus project and Town build out conditions (Feasibility Study Modern Roundabout, November 1, 1998; Ourston and Doctors and Mammoth Roundabout Capacity Analysis, July 1, 1999; Ourston and Doctors, located in Appendix A). Likewise, the installation of a traffic signal and other geometric improvements at the Millers Siding/Lake Mary Road intersection will provide for continued satisfactory levels of service for both existing plus project and Town build out conditions (as shown later in this analysis).

In contrast to the signalized intersection requirements, a single lane approach and exit can be maintained, thus eliminating the need to widen Minaret to four lanes south of Forest Trail, while maintaining adequate levels of service. The adequacy of the levels of service for the roadway segment is documented in Table E of the Intrawest Master Plan Traffic Impact Analysis.

Comparison to 1994 North Village Specific Plan Refinement Traffic Study

Review of the land uses analyzed in the 1994 analysis of the North Village Specific Plan (Table 3, page 25, North Village Specific Plan Refinement Traffic Study, RKJK, March, 1994) indicates that the entire North Village Specific Plan area would contain approximately 3,020 lodging rooms/units and 173,500 square feet of retail/commercial uses. The current (1999) North Village development plan (Appendix A, Mammoth Master Transportation Plan Modeling Support, RKJK, August, 1998) includes approximately 2,554 residential/lodging units and 125,460 square feet of retail/commercial uses. From a traffic generation perspective, when the 1994 and 1999 plans are compared, the current 1999 development plan contains 466 fewer residential/lodging units and 48,040 fewer square feet of retail/commercial uses. Therefore, based on this comparison, the 1999 North Village development plan will generate less traffic than the 1994 plan.

Project Design Features

The following traffic monitoring plans for Forest Trail and Minaret Road have been included in the project's design to ensure adequate and efficient traffic flow in specific areas adjacent to the North Village Specific Plan area.

Forest Trail Neighborhood Traffic Plan

Issues concerning the potential of non-residential traffic along the whole length of Forest Trail have been raised. Two neighborhood specific monitoring plans are recommended to evaluate conditions, document changes, and implement diversion measures. One plan is for Forest Trail east of Minaret and the other for west of Minaret.

East of Minaret. The issue of nonresidential traffic using Forest Trail between Main Street and Minaret during the winter as a shortcut from the Main Lodge was raised during the North Village Specific Plan process in 1994.

There is no specific mitigation measure to address the issue, and there is no quantifiable documentation of the problem. The specific plan text (page 65) does contain a restriction of "No Right Turns" from northbound on Berner to eastbound on Forest Trail. In the accompanying traffic study (page 13 and 14), there is a discussion of the issue and a recommendation that southbound left turns at Forest Trail/Minaret intersection be restricted between 3:00 p.m. and 5:00 p.m. from November 1 through April 1. This recommendation does not appear as a mitigation measure.

With the proposed design of a roundabout in lieu of a traffic signal at the Forest Trail/Minaret intersection, the recommended turn restriction is not viable. Therefore, the following neighborhood traffic management plan is recommended to address the perceived issue:

1. Establish the baseline condition of cut-through non-residential traffic on a typical winter weekday and on a typical winter Saturday. This would be accomplished by a winter mid-week and Saturday license plate survey taken at each end of Forest Trail (i.e., Main at Forest Trail and Sierra, and Forest Trail at Minaret) during the afternoon peak period (2:00 p.m.-5:00 p.m.) Survey personnel would record the last four digits of all eastbound vehicles on Forest Trail just to the east of Gondola Village, as well as the time the vehicle was observed. A similar survey would be made of all southbound vehicles on both Forest Trail and Sierra approaching Main Street. These data would be matched to identify vehicles exiting Sierra or Forest Trail within a few minutes of entrance. The matched vehicles would be cut-through traffic.

2. Conduct annual monitoring of these license plate surveys during the build out of Intrawest Gondola Village Master Plan. After Gondola Village build out, annual monitoring would be suspended if cut-through traffic is less than the criteria established for diversion measures.

3. If an increase of 25 or more through vehicles per hour in one direction during a typical winter weekday or 50 or more through vehicles per hour in one direction during a typical winter Saturday occurs once development of the initial phase of Gondola Village is complete, implement a program of neighborhood traffic diversion measures sufficient to reduce cut-through traffic to base level conditions.

The following measures shall be instituted when development is initiated on the east side of Minaret Road.

4. Prohibit right turns from northbound Berner to eastbound Forest Trail.

5. Prohibit left turns from the parking lot exits (on the north side of Forest Trail) onto eastbound Forest Trail.

6. Install signage stating "Residential Area - No Through Traffic" at both ends of the residential section of Forest Trail.

Potential additional neighborhood traffic diversion measures include the following:

- Ample capacity (i.e., duration) of southbound left and westbound right phases at Main Street and Minaret signal. Ample capacity means that the demand for each of these movements is satisfied within one signal cycle.

- Stop signs along Forest Trail at Sierra Boulevard, Pinecrest, Grindelwald, and Berner.

- No left turns from southbound Forest Trail or southbound Sierra Boulevard to Main Street during winter months; possibly limited to afternoon peak hours only.

- Other turn restrictions such as no eastbound through movements at the Forest Trail/Berner intersection would address the issue but also restrict residences in the immediate area.

The proposal for any neighborhood traffic control program would be reviewed with the affected area residents. The alternatives would be discussed and evaluated to arrive at an acceptable set of measures to implement and monitor the results.

West of Minaret. A similar neighborhood traffic management plan is recommended for Forest Trail west of Minaret, between Hillside and Canyon Boulevard. This issue concerns morning traffic using Forest Trail instead of Canyon Boulevard to access Canyon Lodge.

A license plate survey would be undertaken on Forest Trail east of Hillside and on Canyon west of Forest Trail. The same criteria for triggering traffic diversion measures would apply.

Conduct annual monitoring during the build out of Intrawest Gondola Village. After Gondola Village build out, annual monitoring would be suspended if cut-through traffic is less than the criteria established for diversion measures.

A signage program would be implemented with the first phase of Gondola Village to direct Canyon Lodge traffic to use Main Street to the realigned Millers Siding and Canyon Boulevard.
Potential additional neighborhood traffic diversion measures include the following:

- Stop signs along Forest Trail at Crest and Hillside Drive (west).

- No right turns from Forest Trail to Canyon Boulevard during winter months; possibly limited to morning peak hours only.

The proposal for any neighborhood traffic control program would be reviewed with the affected area residents.

North Village Pedestrian Management Plan for Minaret Road

To provide an additional level of assurance that the design objectives will be achieved, a traffic control officer, coupled with a traffic volume monitoring program, is also recommended. The traffic control officer would be stationed at the main pedestrian crossing, nearest the Gondola station, and would have authority to regularly stop traffic in both directions to allow protected crossing of pedestrians. The frequency of traffic stops could be once every 90 seconds for an interval of up to 20 seconds, which will still allow for efficient movement of vehicular traffic.

A criterion for the utilization of this traffic control officer requires definition. As such, it is recommended that, subsequent to the initial development of retail uses fronting both sides of Minaret, annual monitoring be initiated and a report submitted to the Town Engineer addressing the following issues:

- Hourly pedestrian crossing volumes at all designated crossing locations along Minaret within Gondola Village between 8:00 a.m. and 5:00 p.m. over a typical winter Saturday, along with directional traffic volumes over the same period. (It will be important to consider pedestrian conditions in periods other than the period of peak traffic conditions.)

- Average and maximum pedestrian delay to cross Minaret Road during the morning and afternoon peak hours on a typical winter Saturday.

- Average and maximum vehicular delay generated by pedestrian crossing activity during the afternoon peak hour on a typical winter Saturday, along with the number of vehicles observed in the maximum traffic queue generated by pedestrian activity.

- Traffic accident history for the previous 12 months on Minaret Road between Forest Trail and Main Street.

If the average delay exceeds 30 seconds or a maximum delay exceeds 60 seconds during the typical winter Saturday conditions and/or the accident history indicates a pattern of pedestrian involved accidents correctable by a traffic control officer, implementation of the traffic control officer should be considered. In addition, a traffic control officer should be considered if traffic queues are observed to form back into adjacent intersections on a consistent basis.

These conditions may be met at more than one pedestrian crossing location. In particular, crossing protection at a second location may be necessary during peak traffic periods in order to encourage window shopping activity on the east side of Minaret Road.

In addition to an annual report, the Town Engineer may initiate pedestrian, traffic, and delay counts if a problem is perceived.

During the first winter in which development has occurred on both sides of Minaret, a special report should be prepared regarding conditions during the Christmas peak period, and presented to the Town Engineer by January 7th. If this report indicates that thresholds are being met, it will be necessary to quickly implement a traffic control officer program.

In addition, the daily and afternoon peak hour traffic volumes for a typical winter Saturday would be monitored against the projections developed in support of the Intrawest Master Plan (Intrawest Master Plan Traffic Impact, amended December 17, 1998). The objective of the monitoring effort is to ensure the continued effective operation of Minaret Road, south of Forest Trail, as a two lane roadway.

Annual monitoring reports shall continue until one year after build out of Intrawest's Gondola Village Master Plan.

STUDY AREA METHODOLOGY

As previously discussed, this impact analysis and the resulting mitigation measures represent a substantial departure from the analysis conducted for the 1991 and 1994 North Village Specific Plans and EIRs, and the 1997 Redevelopment Plan traffic impact analysis. At the onset of the technical analysis, Town staff specifically outlined several analysis procedures and impact thresholds that differed from the earlier analyses. The specific procedures are summarized in a letter dated June 26, 1998, contained in Appendix C.

The analysis of traffic impacts examines the following conditions:

1. Existing (1995) conditions.
2. Existing plus approved projects (baseline) conditions.
3. Existing plus approved projects plus project conditions.

LSA utilized the existing database established on Saturday, February 25, 1995, for this existing plus project analysis. To verify that this February, 1995, condition still represents current (1999) conditions, manual traffic counts were taken at two key intersections over several weeks from December, 1998, to February, 1999. The key intersections are Minaret Road/Main Street and Minaret Road/Forest Trail. Appendix B contains the March 10, 1999, letter to City staff regarding the use of the 1995 existing database.

The closest comparable day was Saturday, February 13, 1999, which was President's Day weekend. That Saturday, with a higher volume of skiers than February 25, 1995, still resulted in traffic volumes slightly lower than recorded in February, 1995 (9 percent to 13 percent lower). All of the other counts are well below the February, 1995, counts. From these data, it appears that use of the February, 1995, traffic counts would represent a reasonable worst case existing condition on which to base an impact study today.

Typical winter Saturday p.m. peak hour baseline conditions were used to analyze traffic impacts for the existing plus project conditions. This approach was established at the onset of this study by Town staff, and is documented in the June 26, 1998, letter included in Appendix C. The "design" day used

in this study is a "typical" winter Saturday, which occurs 15 to 20 times a year. In the context of standard engineering practice, even the typical winter Saturday represents a conservative approach toward traffic planning and mitigation. Morning peak hour conditions are not analyzed because they are approximately ten percent less than afternoon peaks.

An existing plus approved projects scenario has been included in this analysis to account for traffic from approved development projects that would be added to the existing circulation system. A list of approved projects has been supplied by Town staff. Based on that list, three development projects have been approved by the Town, and are anticipated to be developed within the near future.

Peak winter Saturday daily and p.m. peak hour trips were generated for the proposed North Village Specific Plan Area, by the Town of Mammoth Lakes Transportation Model (MTM). The MTM has been developed with the specific goal of providing analyses of the interrelated issues of land use, transportation demand, and air quality. The MTM provided maximum winter Saturday conditions for project related peak hour trips. Based on the output of the MTM, trip generation estimates and distribution percentages were determined and "manually" assigned to the existing circulation network.

The LOS standard for roadway segments and intersections is LOS D, which corresponds to a v/c ratio of 0.90. Therefore, a roadway segment or intersection is considered satisfactory when operating at LOS A to LOS D (0.90 or better).

Levels of service for study area roadway segments are based on a segment v/c ratio. Levels of service for signalized study area intersections were calculated using the intersection capacity utilization (ICU) methodology, which defines LOS in accordance with a calculated v/c ratio based on the "sum of the critical movements" method. Unsignalized intersections are analyzed based on the vehicle delay methodology presented in the current *Highway Capacity Manual* (HCM), 1994 Update.

Roadway Analysis Criteria

In addition, the following analysis procedure for roadway segments has been indicated by Town staff in a June 26, 1998, memorandum from RKJK:

> *Worse than LOS D daily conditions will be deemed acceptable, if all intersections along such a roadway segment are demonstrated to operate at acceptable (LOS D or better) levels of service for typical winter Saturday p.m. peak hour conditions, or other time frames as deemed necessary by the Town.*

Therefore, when a roadway segment LOS becomes LOS E or F (0.91 or worse), all key mid-block intersections along the roadway segment should be analyzed for LOS conformance. In certain mid-block locations where a critical left turn movement is currently experiencing or is forecast to experience delays in the LOS E or LOS F ranges (i.e., delay of greater than 30 seconds per vehicle), the side street movement LOS can be reevaluated. The ability of the minor street left turn movement to utilize a center two-way turn lane on the major street for refuge (common for most driveway configurations) may reduce the overall delay of that movement since drivers will be able to wait for available gaps in major street traffic one direction at a time. This results in two maneuvers of the minor street

left turns: one left turn against one major street direction (e.g., westbound left turn against northbound through traffic, then vehicle is stored in center lane), one left turn against the other directions (e.g., westbound left turn against southbound through traffic). If either, or both, movements result in LOS E or LOS F conditions, the intersection could be considered deficient, and mitigation measures must be provided.

If the adjacent intersections of the roadway segment are operating, or are forecast to operate with satisfactory levels of service (0.90 or better), roadway mitigation measures are not required. However, when an intersection's LOS becomes LOS E or F (0.91 or worse), it is considered below the minimum threshold and mitigation should be evaluated.

An adjusted lane capacity of 1,285 vehicles per lane per hour was utilized in the roadway and intersection analyses to account for the winter climate and roadway conditions relative to the Mammoth Lakes area. This capacity assumption is documented in the North Village Traffic Study (page 12), March, 1994, RKJK and Associates, Inc. The 1,285 vehicle per lane per hour capacity considers the roadway conditions drivers experience during the winter months, rather than dry roadway conditions, which typically have a 1,600 to 1,700 vehicle per lane per hour capacity.

Intersection Analysis Criteria

Signalized Intersections

The analysis methodology required by the Town of Mammoth Lakes for analysis of signalized intersections is known as the ICU methodology. ICU is usually expressed as a decimal percent (e.g., 100 percent equals 1.00 ICU). The percent represents that portion of the peak hour required to provide sufficient capacity to accommodate all intersection traffic if all critical movements (i.e., conflicting movements that require the greatest overall amount of green time) operate at capacity. In addition to the critical movements, a small portion of intersection capacity is "lost" due to the less efficient movement of vehicles at the start and/or end of each green indication. A lost time factor of five percent (0.05 ICU) is applied to the calculations in this report. Right turn movements become critical when conflicting movements represent a sum of v/c ratios that are greater that the normal through/left turn critical movements. Right turn volumes have been reduced by 15 percent to account for right turns on red at the intersection.

Unsignalized Intersections

Levels of service (LOS) for unsignalized intersections are determined through the 1994 HCM, where the calculation of LOS is dependent on the occurrence of gaps in the through traffic flow of the main street. Using data collected describing the intersection configuration and traffic volumes at the study area intersections, the delay (in seconds per vehicle) of each minor street or major street conflicting movement is estimated. These delays are used to calculate the intersection's average delay per vehicle, which is used to determine the intersection LOS.

Table A provides the parameters of the LOS criteria for roadway and intersection (signalized and unsignalized) locations analyzed in this report.

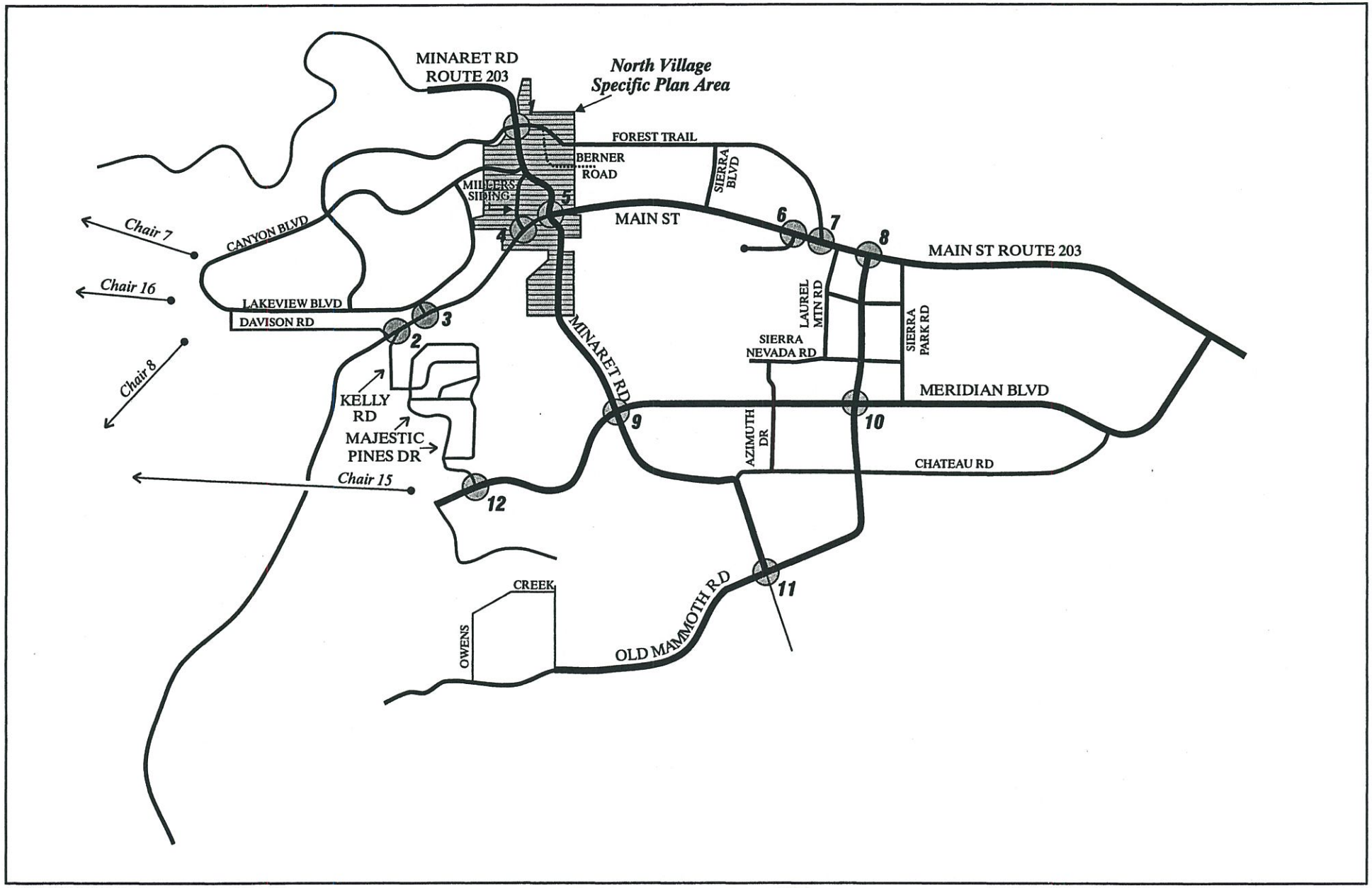
Table A - Level of Service Parameters

	Roadway Segments	Signalized Intersections	Unsignalized Intersections
Level of Service	**V/C Ratio**	**ICU**	**Seconds of Delay**
LOS A	0.00 - 0.60	0.00 - 0.60	0.00 - 5.00
LOS B	0.61 - 0.70	0.61 - 0.70	5.01 - 10.00
LOS C	0.71 - 0.80	0.71 - 0.80	10.01 - 20.00
LOS D	0.81 - 0.90	0.81 - 0.90	20.01 - 30.00
LOS E	0.91 - 1.00	0.91 - 1.00	30.01 - 45.00
LOS F	> 1.00	> 1.00	> 45.00

This analysis addresses 9 roadways and 12 intersections. The following intersections are analyzed:

1. Minaret Road/Forest Trail
2. Kelly Road/Lake Mary Road
3. Lakeview Boulevard Cut-Off/Lake Mary Road
4. Millers Siding/Lake Mary Road
5. Minaret Road/Lake Mary Road-Main Street
6. Center Street/Main Street
7. Forest Trail/Main Street
8. Old Mammoth Road/Main Street
9. Minaret Road/Meridian Boulevard
10. Old Mammoth Road/Meridian Boulevard
11. Minaret Road/Old Mammoth Road
12. Meridian Road/Majestic Pines Drive.

Figure 3 illustrates the location of the study area roadways and intersections to be analyzed in the report.



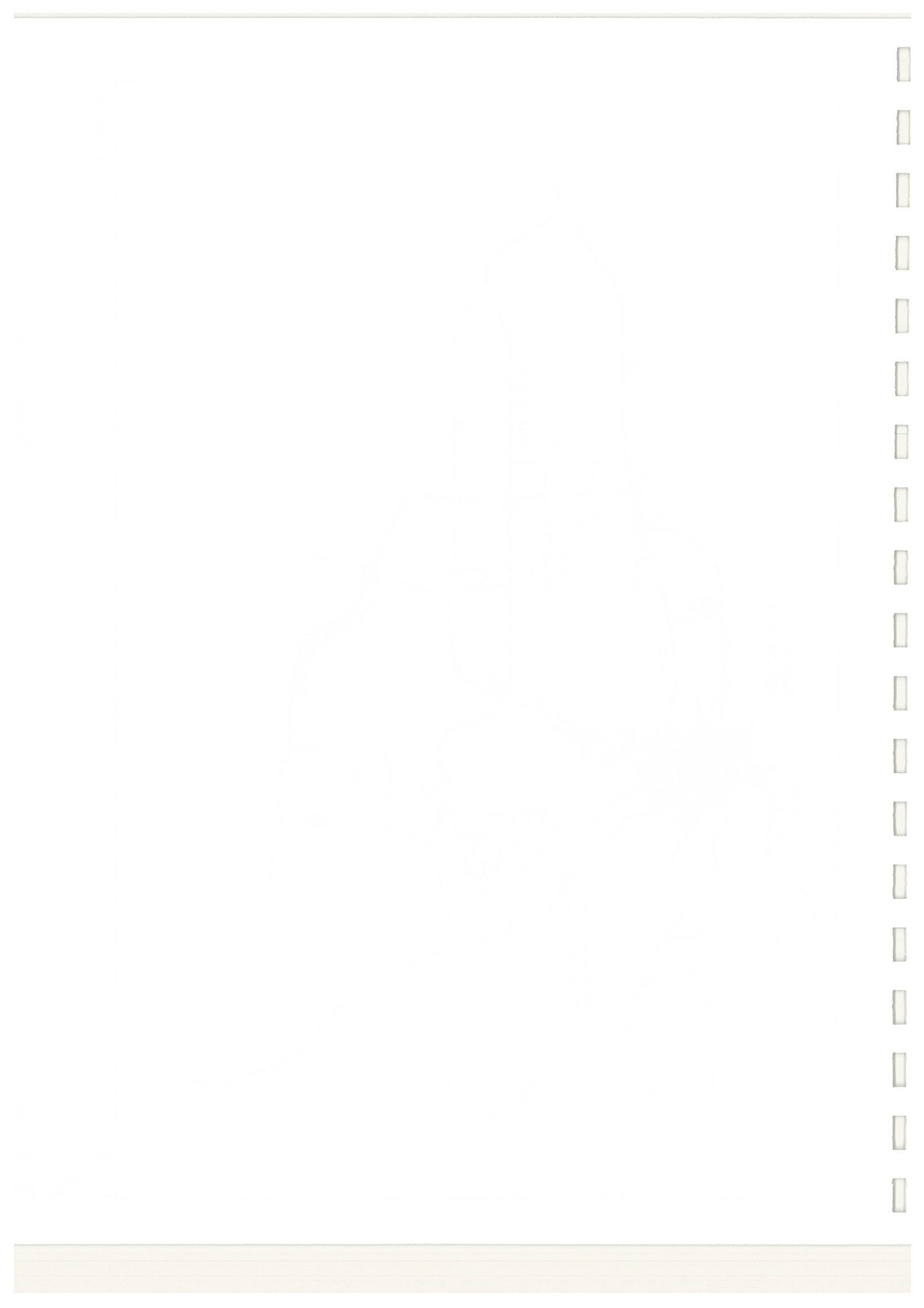
12/3/99(INT732)

Figure 3

N

LSA Not to Scale

Study Area
Roadway and Intersection Locations



EXISTING (1995) SETTING

Traffic Volumes and Levels of Service

Figure 4 presents the existing number of through lanes and intersection control for the study area roadways and intersections. Figures 5 and 6 illustrate the existing daily arterial and p.m. peak hour intersection volumes for the study area for a typical winter Saturday, respectively. As previously noted, February, 1995, existing traffic volumes were used as the existing traffic base. As described in the March 10, 1999, letter in Appendix B, the 1995 volumes present a conservative existing traffic base. The existing daily and p.m. peak hour traffic count data sheets are provided in Appendix D.

Appendix E contains LOS calculations for each intersection. The existing LOS analysis for the study area roadway segments and intersections is presented in Tables B and C, respectively.

Table B indicates that all study area roadway segments currently operate at satisfactory levels of service with v/c ratios ranging from 0.09 v/c to 0.73 v/c (LOS A to LOS C) on a typical winter week-end. As Table C indicates, all study area intersections are operating at acceptable levels of service (LOS A to LOS D) under existing typical winter Saturday p.m. peak hour conditions.

Winter Transit Service

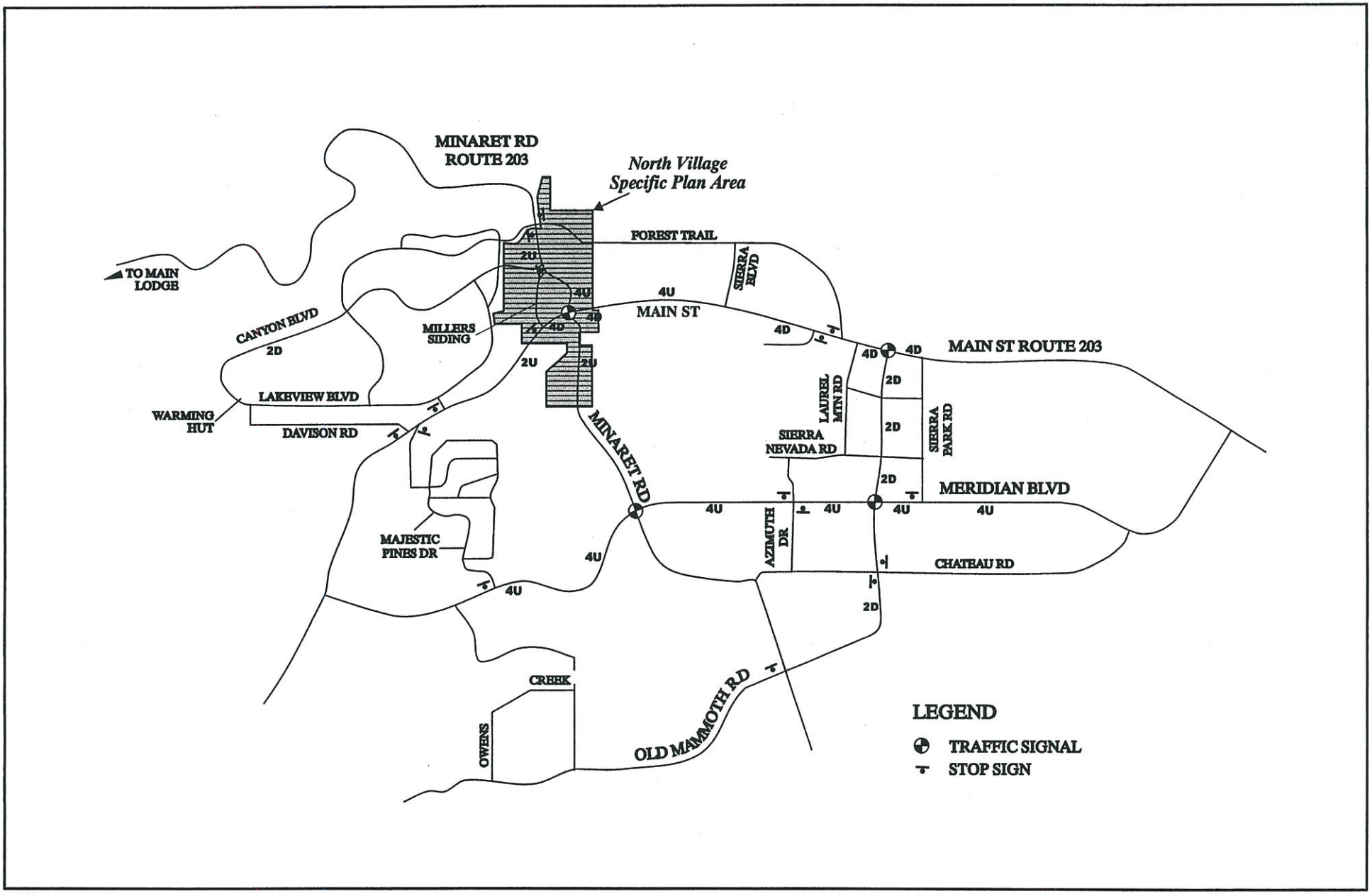
Scheduled interregional and regional bus service is provided to and from the study area between Los Angeles, California, and Reno, Nevada. Interregional service is minimal. Non-scheduled service is provided by private charter bus lines. This service is most popular during the peak winter ski season, corresponding to the analysis time frame of this study. Over 100 charter buses may serve the study area under peak winter weekend conditions.

Local transit service is currently provided during the winter months by Mammoth Mountain Ski Area (MMSA). A total of four routes serve most areas of the Town. The emphasis of the service is on providing convenient access to MMSA; however, local residents can and do use the service to commute to work, shopping centers, etc. Figure 7 illustrates the bus routes for the local transit service.

Most of the study area is served by at least one of the local transit lines. Limited parking at the MMSA is a key factor that affects transit ridership. It is estimated that skiers riding the Mammoth Area Shuttle (MAS) to MMSA constitute approximately 50 percent of the number of Alpine skiing lift tickets sold during the peak winter months of operation[1]. Factors such as weather also play an important role in day-to-day transit ridership. The peak hour service on each line during the winter months is based on approximately 15 minute headways (i.e., one bus every 15 minutes). During the off-peak period, the system buses operate half as frequently (i.e., 30 minute headways).

---

1 Mammoth Multi-Modal Transportation Plan Study Report, RKJK, May, 1995.



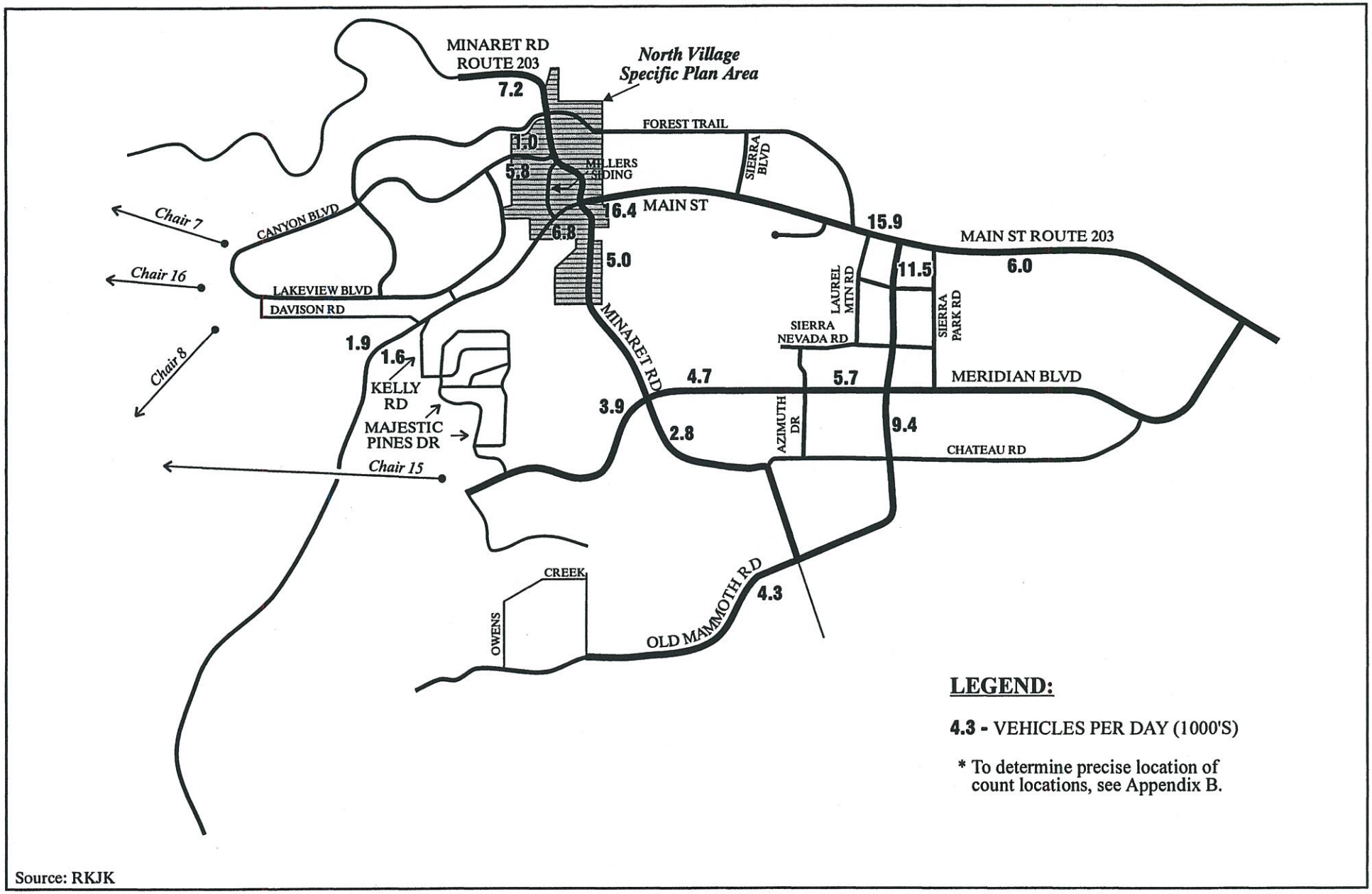
12/3/99(INT732)

Figure 4

N

LSA Not to Scale

Existing Number of Through Lanes and Intersection Control Devices



Source: RKJK

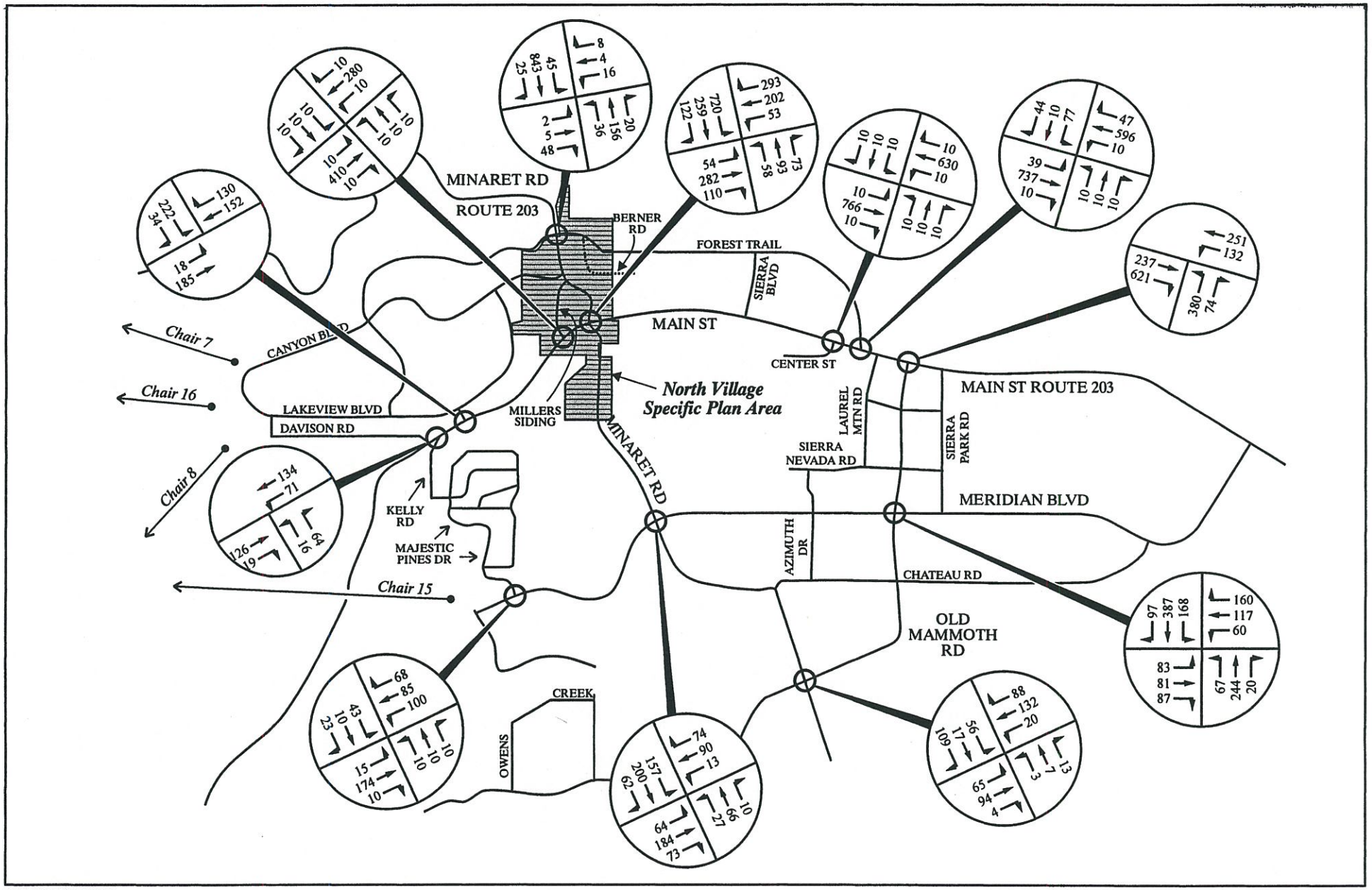
12/3/99(INT732)

Figure 5

N

LSA No Scale

Existing Typical Winter
Saturday Daily Traffic Volumes



12/3/99(INT732)

Figure 6

N

LSA Not to Scale

Existing Conditions Typical Winter Saturday Peak Hour Traffic Volumes

Table B - Typical Winter Saturday Existing Roadway Level of Service Analysis

Roadway Segment	# Lanes	Capacity	Existing[1] Volume	V/C	LOS
Forest Trail w/o Minaret Road	2U	11,700	1,000	0.09	A
Canyon Boulevard e/o Lakeview Drive	2U	11,700	5,800	0.50	A
Lake Mary Road w/o Davison Street	2U	11,700	1,900	0.16	A
Lake Mary Road w/o Miller Siding	2U	11,700	6,800	0.58	A
Main Street e/o Minaret Road	4U	22,500	16,400	0.73	C
Main Street w/o Old Mammoth Road	4D	33,800	15,900	0.47	A
Main Street e/o Sierra Park Road	4D	33,800	6,000	0.18	A
Meridian Boulevard w/o Minaret Road	4U	22,500	3,900	0.17	A
Meridian Boulevard e/o Minaret Road	4U	22,500	4,700	0.21	A
Meridian Boulevard w/o Old Mammoth Road	4U	22,500	5,700	0.25	A
Old Mammoth Road w/o Minaret Road	2U	11,700	4,300	0.37	A
Kelly Road s/o Lake Mary Road	2U	11,700	1,600	0.14	A
Minaret Road n/o Mammoth Knolls Drive	2U	11,700	7,200	0.62	B
Minaret Road s/o Lake Mary Road/Main Street	2U	11,700	5,000	0.43	A
Minaret Road s/o Meridian Boulevard	2U	11,700	2,800	0.24	A
Old Mammoth Road s/o Main Street	2D	16,200	11,500	0.71	C
Old Mammoth Road s/o Meridian Boulevard	2D	16,200	9,400	0.58	A

Notes:

Lanes refers total number roadway segment lanes regardless of direction.

Capacity = Number of vehicles on all lanes, both directions, per average day.

V/C = Volume-to-Capacity ratio.

[1] - Source: *Mammoth Redevelopment Plan Transportation Impact Analysis*, RKJK, February, 1997.

Table C - Existing Typical Winter Saturday Intersection Level of Service Summary

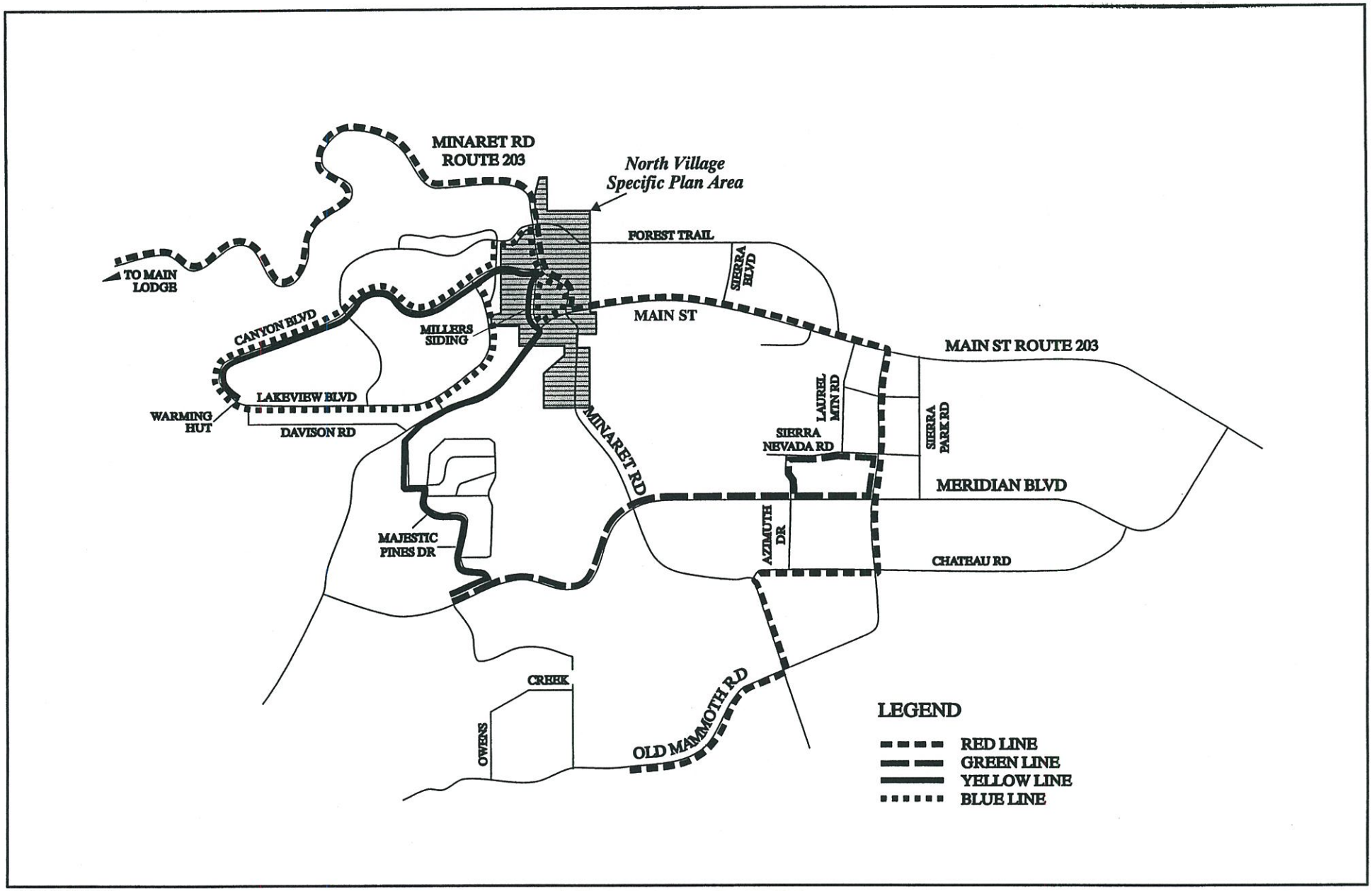
Intersection	Traffic Control	ICU[1]	Average Delay[2]	LOS
1 . Minaret Road/Forest Trail	2-way Stop	--	1.1 sec.	A
2 . Kelly Road/Lake Mary Road	1-way Stop	--	1.2 sec.	A
3 . Lakeview Boulevard Cut-Off/Lake Mary Road	1-way Stop	--	3.7 sec.	A
4 . Millers Siding/Lake Mary Road	1-way Stop	--	0.7 sec.	A
5 . Minaret Road/Lake Mary Road-Main Street	Signal	0.69	--	B
6 . Center Street/Main Street	2-way Stop	--	1.0 sec.	A
7 . Forest Trail/Main Street	2-way Stop	--	7.1 sec.	B
8 . Old Mammoth Road/Main Street	Signal	0.86	--	D
9 . Minaret Road/Meridian Boulevard	Signal	0.38	--	A
10 . Old Mammoth Road/Meridian Boulevard	Signal	0.58	--	A
11 . Minaret Road/Old Mammoth Road	2-way Stop	--	2.0 sec.	A
12 . Meridian Road/Majestic Pines Drive East	1-way Stop	--	1.3 sec.	A

Notes:

Source: *Mammoth Redevelopment Plan Transportation Impact Analysis*, RKJK, February, 1997.

[1] Level of service for signalized intersections calculated through Intersection Capacity Utilization (ICU) methodology and expressed through volume-to-capacity ratio.

[2] Level of service for unsignalized intersections calculated through Highway Capacity Manual (HCM) methodology and expressed through average delay per vehicle at intersection.



12/3/99(INT732)

Figure 7

N

LSA Not to Scale

Existing Winter Transit System

EXISTING PLUS APPROVED PROJECTS CONDITION

Approved Projects Trip Generation and Distribution

To present forecast background traffic conditions, traffic volumes from approved projects in the vicinity of the North Village Specific Plan area were added to the existing traffic volumes. The following are approved development projects in the vicinity:

1. *Grey Hawk Subdivision* - 27 low density dwelling units, and 44 high density seasonal units.

2. *Sunstone Lodge* - 77 high density seasonal units.

3. *Juniper Springs Lodge* - 175 high density seasonal units.

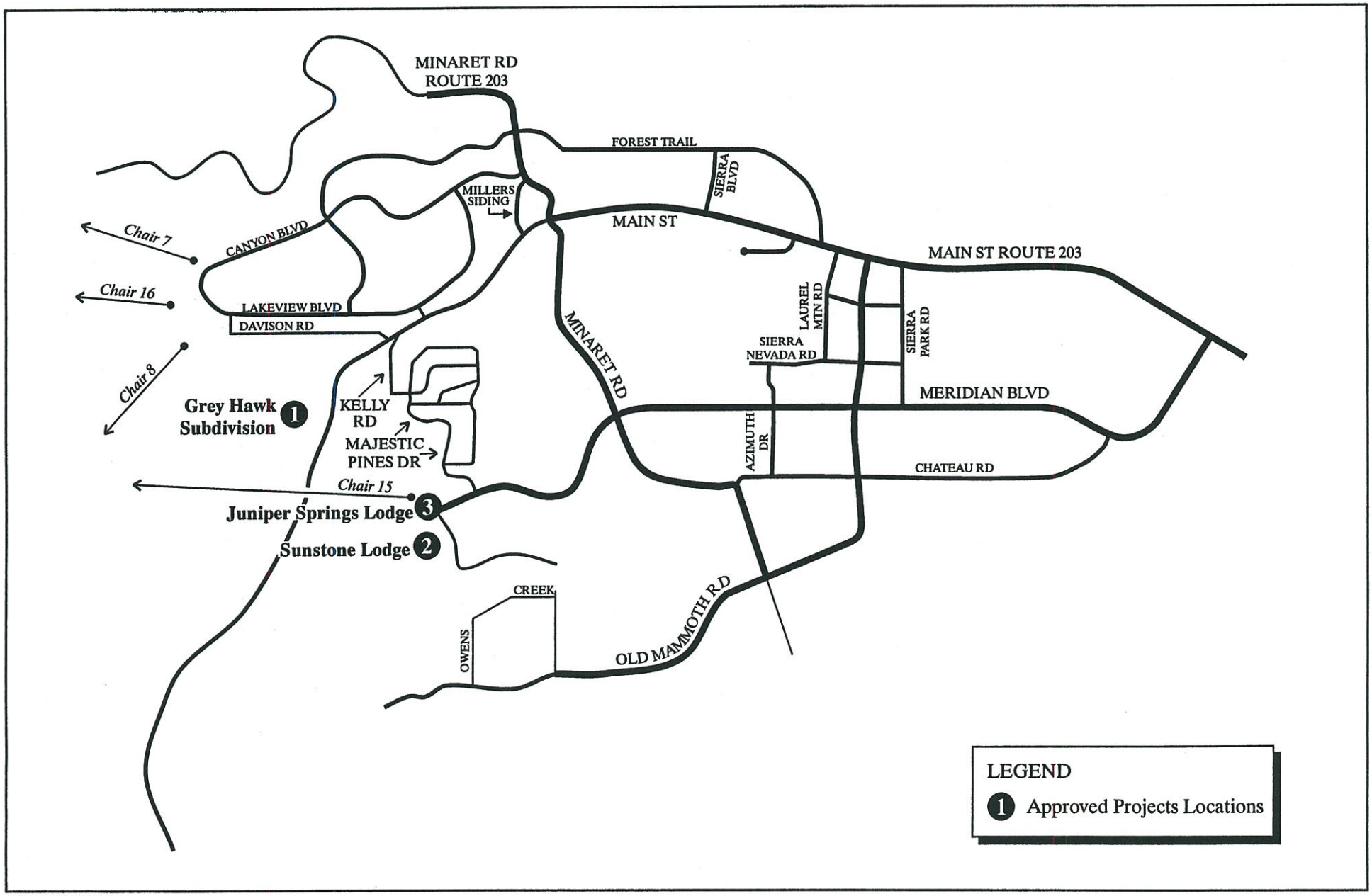
Figure 8 illustrates the locations of the approved development projects. Trip generation estimates for the approved projects are shown in Table D.

Peak winter Saturday daily and p.m. peak hour trips for the Grey Hawk subdivision project are reported in the Grey Hawk Planned Unit Development Traffic Impact Analysis (LSA, March 24, 1999). Trip rates for the proposed residential low and high density residential units were based on the MTM peak winter Saturday trip generation rates. The MTM rates were derived from the Institute of Transportation Engineers (ITE) *Trip Generation*, and modified to reflect anticipated winter resort usage in the Town. The p.m. peak hour rates for the project were developed based on the proportional relationship of the ITE daily and p.m. peak hour rates for the same land uses.

Trip generation estimates for the approved Sunstone Lodge and Juniper Springs Lodge projects were taken from the Deer Creek Traffic Impact Analysis prepared by LSA in September, 1999. It is anticipated that these lodging units will operate with similar characteristics of a hotel. Therefore, peak winter Saturday daily and p.m. peak hour rates were based on the ITE Hotel rates (Land Use Code 310) for a Saturday and Saturday peak hour of generator, respectively.

As summarized in Table D, the three approved projects in the vicinity of the North Village Specific Plan area are anticipated to generate approximately 2,740 daily and 250 p.m. peak hour trips on a peak winter Saturday.

The Saturday peak hour trips generated by the approved projects were assigned to the local street system based on their respective trip distribution percentages. Appendix F contains figures illustrating the distribution patterns of the Grey Hawk, Sunstone Lodge, and Juniper Springs Lodge projects from the respective traffic studies noted above. The trip distribution percentages were refined based on the locations of the Town's recreational and commercial areas to their corresponding travel corridors. The trip distribution patterns for the proposed Sunstone and Juniper Springs lodges are consistent with the distribution patterns of the approved Juniper Springs Lodge project.



12/3/99(INT732)

Figure 8

N

LSA Not to Scale

Approved Projects

Table D - Approved Projects Trip Generation

Land Use	Size/Units	ADT	Saturday Peak Hour In	Out	Total
TRIP RATES					
Grey Hawk[1]					
Residential Low Density (SF) Year Round	27 DU	12.00	0.81	0.46	1.27
Residential High Density (MF) Seasonal	44 DU	8.00	0.50	0.25	0.75
Sunstone[2]					
Residential High Density (MF) Seasonal	77 DU	8.19	0.40	0.32	0.72
Juniper Springs[2]					
Residential High Density (MF) Seasonal	175 DU	8.19	0.40	0.32	0.72
TRIP GENERATION					
Grey Hawk	71 DU	676	44	23	67
Sunstone	77 DU	631	31	25	55
Juniper Springs	175 DU	1,433	70	56	126
Total Approved Projects		***2,740***	***145***	***104***	***249***

Sources:

[1] *Grey Hawk Planned Unit Development Traffic Impact Analysis,* LSA Associates, March, 1999

[2] Trip Generation, Sixth Edition, Institute of Transportation Engineers, 1997.

- Grey Hawk daily trip generation rates based on MTM rates derived from ITE. The p.m. peak hour rates were developed based on the proportional relationship of the ITE daily and p.m. peak hour rates for the respective land uses.
- Sunstone and Juniper Springs trip generation rates based on ITE Hotel rates (Land Use Code 310).

Approved Projects Trip Assignment and Levels of Service

Existing plus approved projects typical winter Saturday daily and peak hour turn volumes are illustrated in Figures 9 and 10, respectively. Levels of service at study area roadways and intersections were calculated for the existing plus approved projects typical winter Saturday peak hour conditions. The levels of service for the study area roadways and intersections are shown in Tables E and F, respectively.

Table E indicates that all study area roadway segments currently operate at satisfactory levels of service with v/c ratios ranging from 0.17 v/c to 0.75 v/c (LOS A to LOS C) on a typical winter Saturday.

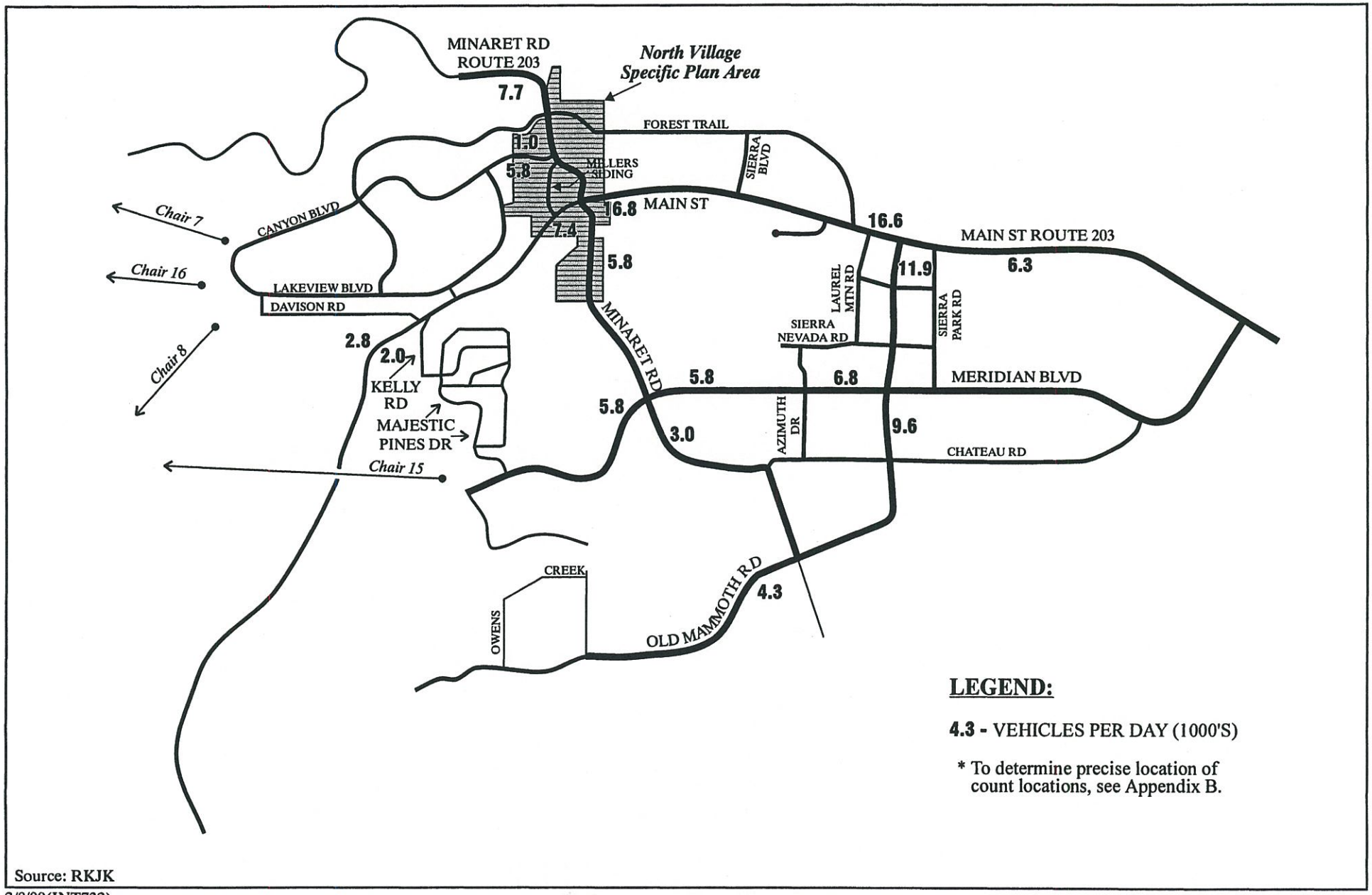
As shown in Table F, all of the study area intersections will operate with satisfactory levels of service, ranging from LOS A to LOS C, in the existing plus approved projects winter Saturday peak hour condition.

EXISTING PLUS APPROVED PROJECTS PLUS PROJECT CONDITION

Circulation System

The circulation improvements and/or design features included in the Gondola Village development are significant to the overall roadway system within the Town of Mammoth Lakes. As the main focal point of the village, a gondola will be constructed to provide direct skier access to MMSA (Canyon Lodge), thereby reducing traffic and parking at all MMSA portals. Canyon Boulevard will be realigned to connect to Miller Siding, which would relieve potential congestion along Minaret Road and provide the primary access to Canyon Lodge. Berner Street will also be realigned to connect to Forest Trail with development of the Specific Plan. To provide satisfactory intersection levels of service with the development of Gondola Village, a roundabout will replace the previously adopted traffic signal control at the Minaret Road/Forest Trail intersection, and a second southbound left turn lane will be provided at the Minaret Road/Main Street-Lake Mary Road intersection. In addition, the intersection of Millers Siding/Lake Mary Road will be improved to include a traffic signal, dual southbound left turn lanes, and a dedicated westbound right turn lane.

As part of the Juniper Springs development approval, the installation and fair share of the protected right turn phase for eastbound right turning vehicles at the Old Mammoth Road/Main Street intersection is required. This traffic signal improvement is to be installed in the summer of 2000. Since North Village traffic also contributes to this need, a fair share contribution is appropriate. The Gondola Village portion of this fair share is approximately 35 percent of the total mitigation cost ($9,735) or $3,407.



Source: RKJK

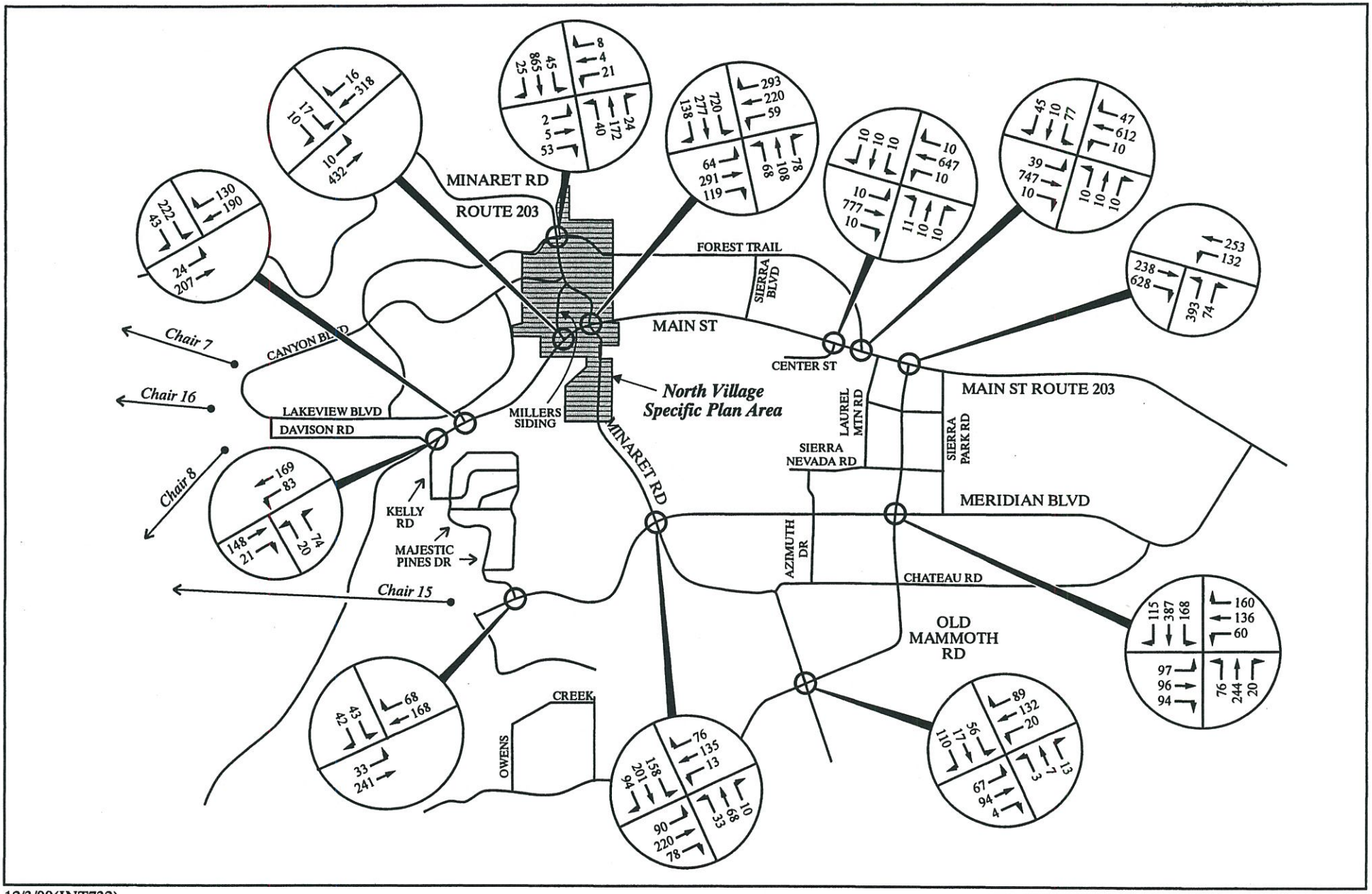
2/8/00(INT732)

Figure 9

N

LSA No Scale

Existing Plus Approved Projects Typical Winter Saturday Roadway Segment Traffic Volumes



12/3/99(INT732)

Figure 10

N

LSA Not to Scale

Existing Plus Approved Projects Typical Winter Saturday Peak Hour Traffic Volumes

Table E - Typical Winter Saturday Existing Plus Approved Projects
Roadway Level of Service Analysis

Roadway Segment	# Lanes	Capacity	Existing Plus Approved Projects Volume	V/C	LOS
Forest Trail w/o Minaret Road	2U	11,700	1,000	0.09	A
Canyon Boulevard e/o Lakeview Drive	2U	11,700	5,800	0.50	A
Lake Mary Road w/o Davison Street	2U	11,700	2,800	0.24	A
Lake Mary Road w/o Miller Siding	2U	11,700	7,400	0.63	B
Main Street e/o Minaret Road	4U	22,500	16,800	0.75	C
Main Street w/o Old Mammoth Road	4D	33,800	16,600	0.49	A
Main Street e/o Sierra Park Road	4D	33,800	6,300	0.19	A
Meridian Boulevard w/o Minaret Road	4U	22,500	5,800	0.26	A
Meridian Boulevard e/o Minaret Road	4U	22,500	5,800	0.26	A
Meridian Boulevard w/o Old Mammoth Road	4U	22,500	6,800	0.30	A
Old Mammoth Road w/o Minaret Road	2U	11,700	4,300	0.37	A
Kelly Road s/o Lake Mary Road	2U	11,700	2,000	0.17	A
Minaret Road n/o Mammoth Knolls Drive	2U	11,700	7,700	0.66	B
Minaret Road s/o Lake Mary Road/Main Street	2U	11,700	5,800	0.50	A
Minaret Road s/o Meridian Boulevard	2U	11,700	3,000	0.26	A
Old Mammoth Road s/o Main Street	2D	16,200	11,900	0.73	C
Old Mammoth Road s/o Meridian Boulevard	2D	16,200	9,600	0.59	A

Notes:
# Lanes refers total number roadway segment lanes regardless of direction.
Capacity = Number of vehicles on all lanes, both directions, per average day.
V/C = Volume-to-Capacity ratio.

Table F - Existing Plus Approved Projects Typical Winter Saturday Intersection Level of Service Summary

Intersection	Traffic Control	ICU[1]	Average Delay[2]	LOS
1 . Minaret Road/Forest Trail	2-way Stop	--	1.4 sec.	A
2 . Kelly Road/Lake Mary Road	1-way Stop	--	1.2 sec.	A
3 . Lakeview Boulevard Cut-Off/Lake Mary Road	1-way Stop	--	4.5 sec.	A
4 . Millers Siding/Lake Mary Road	1-way Stop	--	0.4 sec.	A
5 . Minaret Road/Lake Mary Road-Main Street	Signal	0.72	--	C
6 . Center Street/Main Street	2-way Stop	--	1.3 sec.	A
7 . Forest Trail/Main Street	2-way Stop	--	7.1 sec.	B
8 . Old Mammoth Road/Main Street	Signal	0.57	--	A
9 . Minaret Road/Meridian Boulevard	Signal	0.46	--	A
10 . Old Mammoth Road/Meridian Boulevard	Signal	0.61	--	B
11 . Minaret Road/Old Mammoth Road	2-way Stop	--	3.8 sec.	A
12 . Meridian Road/Majestic Pines Drive East	1-way Stop	--	1.0 sec.	A

Notes:

[1] Level of service for signalized intersections calculated through Intersection Capacity Utilization (ICU) methodology and expressed through volume-to-capacity ratio.

[2] Level of service for unsignalized intersections calculated through Highway Capacity Manual (HCM) methodology and expressed through average delay per vehicle at intersection.

Vehicle Trip Generation

Project traffic volumes were extracted from MTM loaded network plots for the daily and peak hour scenarios provided in the Mammoth Master Transportation Plan Modeling Support document prepared by RKJK & Associates, Inc., in August, 1998. Based on the MTM modeling process, the vehicular traffic volumes reported in the loaded network plots originated from the estimation of person trips on the Town's circulation network.

Table G presents the MTM future peak winter Saturday person trip generation rates. As previously mentioned, the MTM uses person trip ends as the basic building block for determining trip generation. The number of trip ends generated will vary, depending on the type of land use. Table H outlines Intrawest land uses by the MTM's Transportation Analysis Zones (TAZs) structures.

Person trips are then segregated into different travel modes (automobile, transit, pedestrian, bicycle, etc.). Mode choice is highly dependent on the convenience and accessibility of transit when compared to the automobile. The key factors that are considered in the MTM mode choice step include travel time and the availability of parking, particularly for trips to the ski area(s).

In addition to separating trips into transit (and pedestrian) and automobile trips, the mode choice process includes average vehicle occupancy (AVO) factors. AVO factors account for the average number of people in each vehicle for each specific trip type (purpose). Transit users are assigned to the transit system based on available transit modes and routes. For future conditions, both fixed route shuttles and direct overhead lift (express) services are planned. For purposes of MTM modeling process, the trip generation estimates for the North Village and Gondola Village areas were developed assuming that an additional transit line would be operating along Minaret Road. The transit system's headways were also assumed to be consistent with existing headways and service frequencies.

Table I presents the North Village peak winter Saturday daily and afternoon peak hour vehicle trips. To represent a conservative trip generation analysis and to be consistent with CEQA guidelines, 100 percent occupancy of the lodging and residential land uses has been assumed. Based on review of the North Village traffic analysis zones (TAZ) and the volume loading of the TAZ centroids, the proposed North Village Specific Plan area will generate a total of approximately 20,200 daily and 2,285 p.m. peak hour typical winter Saturday vehicle trips.

There are existing land uses within the North Village Specific Plan area that generate traffic on the existing circulation network. The refined MTM network with the North Village TAZs would replace these existing trips from the circulation network. Therefore, the existing trips within the North Village TAZs are subtracted from the total trip generation of the Master Plan.

To determine the existing peak hour trips that would be replaced due to the refinement of the MTM, the existing land use trip tables reported in the MTM were utilized. First, the TAZs within the North Village Specific Plan area were segregated. Based on land use and daily trip rate data provided in the existing land use trip tables, the existing peak Saturday daily trip generation is determined for those TAZs. Since the MTM rates are derived from the ITE *Trip Generation* manual, peak hour trip rates for the relative land uses in the North Village Specific Plan area were used to derive the peak hour

Table G - MTM Future Peak Winter Saturday Person Trip Generation Rates

Land Use	Units[1]	MTM Land Use Code	Daily Person Trips	Trip Type Proportions										
				Productions					Attractions					
				H-REC	H-S	H-W	H-O	O-O	H-REC	H-S	H-W	H-O	O-O	TOTAL
Residential Low Density (SF) Year Round	DU	1	19	0.086	0.143	0.180	0.317	0.123	0.000	0.012	0.015	0.068	0.056	1.000
Residential Medium Density (SF) Year Round	DU	2	16	0.097	0.142	0.180	0.315	0.090	0.000	0.012	0.015	0.068	0.081	1.000
Residential High Density (MF) Year Round	DU	3	12	0.103	0.180	0.189	0.310	0.090	0.000	0.013	0.016	0.070	0.029	1.000
Mobile Home Park (Year Round)	DU	4	7	0.111	0.166	0.203	0.286	0.065	0.000	0.014	0.017	0.076	0.062	1.000
Residential Low Density (SF) Seasonal	DU	5	21	0.323	0.234	0.000	0.214	0.117	0.000	0.009	0.011	0.031	0.061	1.000
Residential Medium Density (SF) Seasonal	DU	6	19	0.323	0.224	0.000	0.214	0.117	0.000	0.009	0.011	0.041	0.061	1.000
Residential High Density (MF) Seasonal	DU	7	17	0.332	0.218	0.000	0.209	0.104	0.000	0.009	0.012	0.042	0.074	1.000
Lodging (Hotel)	Room	10	16	0.351	0.205	0.000	0.197	0.080	0.000	0.010	0.012	0.045	0.100	1.000
Resort Hotel	Room	11	16	0.352	0.205	0.000	0.197	0.080	0.000	0.020	0.012	0.045	0.089	1.000
Retail/Commercial & Town Offices	Acres	12	1,220	0.000	0.000	0.000	0.000	0.243	0.000	0.320	0.030	0.100	0.307	1.000
Retail/Commercial	TSF	13	70.71	0.000	0.000	0.000	0.000	0.243	0.000	0.320	0.030	0.100	0.307	1.000
Light Industrial	Acres	21	14.6	0.000	0.000	0.000	0.000	0.253	0.000	0.000	0.232	0.109	0.406	1.000
Public Utility	Acres	23												
Public School	Acres	31	71	0.000	0.000	0.000	0.000	0.074	0.000	0.000	0.023	0.831	0.072	1.000
College	Students	33	76	0.000	0.000	0.000	0.000	0.116	0.000	0.000	0.071	0.784	0.029	1.000
Hospital	Beds	34	18	0.000	0.000	0.000	0.000	0.230	0.000	0.000	0.104	0.444	0.222	1.000
Post Office	PRS	36	0.5	0.000	0.000	0.000	0.000	0.286	0.000	0.000	0.030	0.390	0.296	1.000
Church/Library/Community Center	Acres	37	182	0.000	0.000	0.000	0.000	0.211	0.000	0.000	0.000	0.438	0.351	1.000
Downhill Skiing - Employees	EMP	39	6.1	0.000	0.000	0.000	0.000	0.310	0.000	0.000	0.300	0.080	0.310	1.000
Downhill Skiing -Skiers	SAOT	40	2.3	0.000	0.000	0.000	0.000	0.130	0.750	0.000	0.000	0.020	0.100	1.000
Cross-Country Skiing/Snowmobiling	SAOT	41	2.5	0.000	0.000	0.000	0.000	0.140	0.730	0.000	0.040	0.010	0.080	1.000

Notes:

[1] DU = Dwelling Units
PRS = Permanent Residents Served
EMP = Employees
SAOT = Skier (Snowmobiler) at one time

Table H - Intrawest Land Use By TAZ Summary

Proposed Use	Quantity	Units	MTM Use Description	Code	TAZ
Gondola Village					
Lodge H-1 Residential Units	44	Dwelling Units	Residential High Density (MF) - Seasonal	7	95
Lodge H-2 Residential Units	166	Dwelling Units	Residential High Density (MF) - Seasonal	7	95
Lodge H-3 Residential Units	110	Dwelling Units	Residential High Density (MF) - Seasonal	7	96
Lodge W-1 Residential Units	40	Dwelling Units	Residential High Density (MF) - Seasonal	7	94
Lodge W-1 Commercial Use	6.2	SF x 10^3	Retail/Commercial	13	93
Lodge W-2 Residential Units	66	Dwelling Units	Residential High Density (MF) - Seasonal	7	234
Lodge W-2 Commercial Use	41.66	SF x 10^3	Retail/Commercial	13	93
Lodge W-3 Residential Units	79	Dwelling Units	Residential High Density (MF) - Seasonal	7	234
Lodge W-3 Commercial Use	21.5	SF x 10^3	Retail/Commercial	13	93
Lodge W-4 Residential Units	100	Dwelling Units	Residential High Density (MF) - Seasonal	7	237
Lodge W-4 Commercial Use	3.9	SF x 10^3	Retail/Commercial	13	93
Lodge E-1 Residential Units	78	Dwelling Units	Residential High Density (MF) - Seasonal	7	90
Lodge E-1 Commercial Use	16.7	SF x 10^3	Retail/Commercial	13	91
Lodge E-3 Residential Units	123	Dwelling Units	Residential High Density (MF) - Seasonal	7	92
Lodge E-3 Commercial Use	14	SF x 10^3	Retail/Commercial	13	91
Forest Trail Condos	10	Dwelling Units	Residential High Density (MF) - Seasonal	7	90
Stand-alone Retail	15.555	SF x 10^3	Retail/Commercial	13	91

Note:

SPD = Skiers per day

Table I - North Village Project Trip Generation for Peak Winter Saturday Conditions

Land Use	ADT	Weekend Peak Hour In	Out	Total
MASTER PLAN TRIP GENERATION				
North Village (Excluding Gondola Village)	12,400	779	638	1,417
Gondola Village	7,800	480	388	868
Total Peak Winter Trip Generation	**20,200**	**1,259**	**1,026**	**2,285**
EXISTING TRIP GENERATION				
North Village (Excluding Gondola Village)	3,069	125	141	266
Gondola Village	1,712	53	90	143
Total Peak Winter Trip Generation	**4,781**	**178**	**231**	**409**
NEW VEHICLE TRIPS (PROPOSED - EXISTING)	**15,419**	**1,081**	**795**	**1,876**

Sources:

Town of Mammoth Lakes Transportation Model (MTM), Peak Winter Saturday Daily Vehicle Trip-end Generation Rates
Mammoth Transportation Model Final Report, April, 1995, RKJK & Associates.
Trip Generation, Sixth Edition, Institute of Transportation Engineers, 1997.

trip generation. Based on that methodology, approximately 4,781 daily and 409 peak hour trips are generated from the existing land uses within the North Village areas on a peak winter Saturday.

Therefore, the net new trips that will be generated by the current North Village Specific Plan (proposed North Village trips minus existing North Village trips) are approximately 15,419 daily and 1,876 peak hour vehicle trips for a peak winter Saturday condition.

Trip Distribution and Assignment

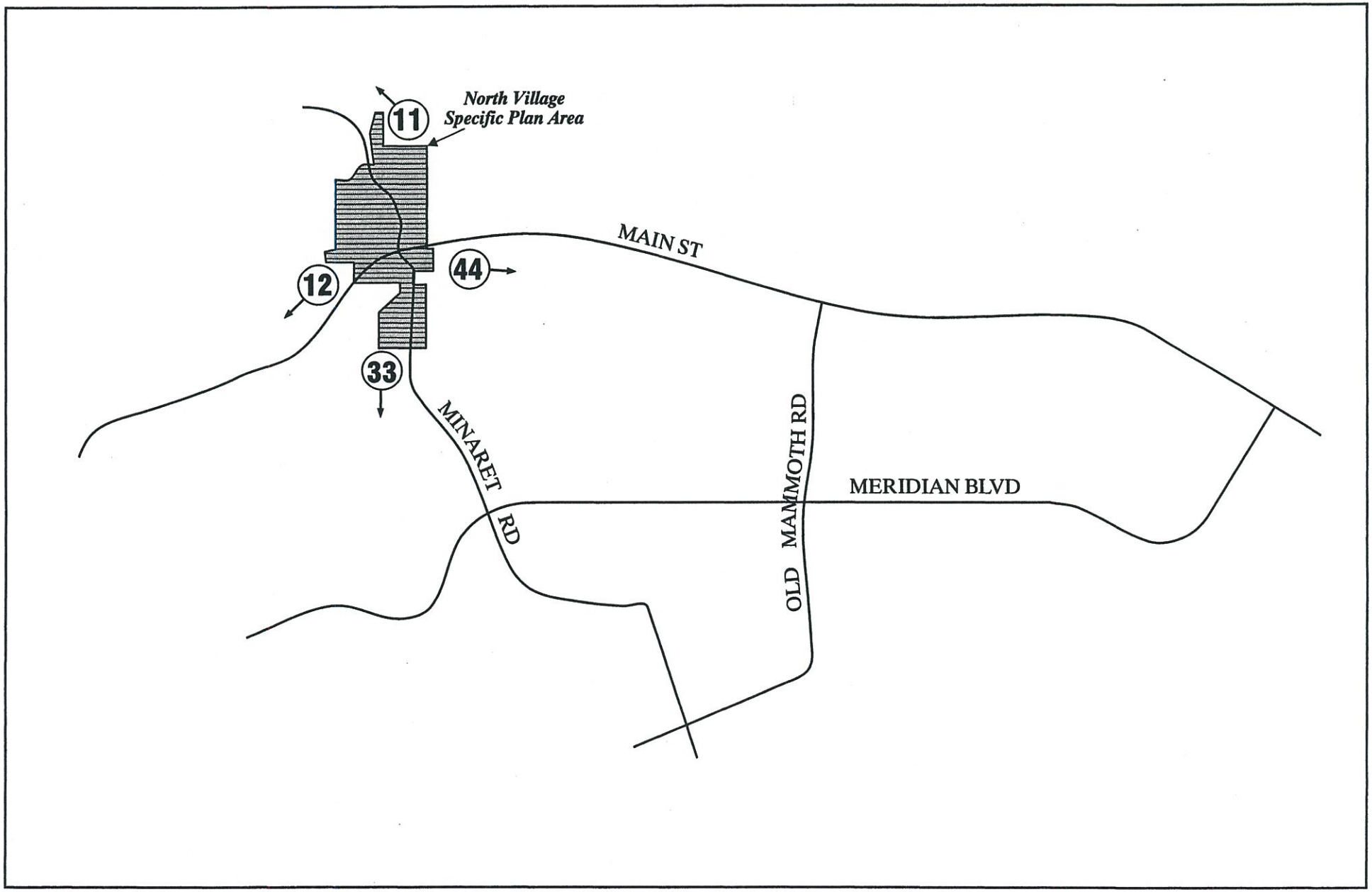
The North Village's net new vehicle trip generation estimates were distributed on the existing circulation network based on the trip distribution percentages provided in Figure 11. The trip distribution patterns for the proposed project are generally consistent with the distribution patterns of the MTM. The distribution patterns have been refined based on the locations of the Town's recreational and commercial areas to their corresponding travel corridors. Unlike the future Master Plan modeled traffic volumes, the distribution patterns for this existing plus project analysis have also been refined to reflect the absence of proposed future downhill skiing activity at Sherwin Mountain.

The trip generation estimates for the Specific Plan area were applied to their respective distribution percentages by the manual assignment method, and a total North Village Specific Plan project trip assignment developed. The project trip assignment was overlaid onto the existing traffic volumes and circulation system, and levels of service determined.

With development of Gondola Village, the following circulation improvements will occur: 1) a gondola will be constructed to provide direct skier access to Canyon Lodge; 2) Canyon Boulevard will be realigned to connect to Miller Siding; 3) Berner Street will also be realigned to connect to Forest Trail; 4) a roundabout will replace the previously adopted traffic signal control at the Minaret Road/Forest Trail intersection; and, 5) a second southbound left turn lane will be provided at the Minaret Road/Main Street-Lake Mary Road intersection. As part of the Juniper Springs development approval, a fair share of the protected right turn phase for eastbound right turning vehicles at the Old Mammoth Road/Main Street intersection is also required.

No additional traffic is expected along Forest Trail, west of Hillside, or east of Berner Road. As an additional precaution, two neighborhood specific monitoring plans are recommended to evaluate conditions, document changes, and implement diversion measures, if necessary. These plans are outlined in the mitigation measures.

Establishing and maintaining the pedestrian friendly character of North Village is a fundamental design objective. One key aspect of this objective is the ability of pedestrians to cross Minaret Road in a safe and efficient manner. Technical studies and simulations have been completed that reasonably demonstrate that pedestrians will be able to cross Minaret Road during a typical winter Saturday afternoon peak hour without traffic control protection. An additional level of assurance is recommended to ensure this design objective. This additional assurance is outlined in the mitigation measures.



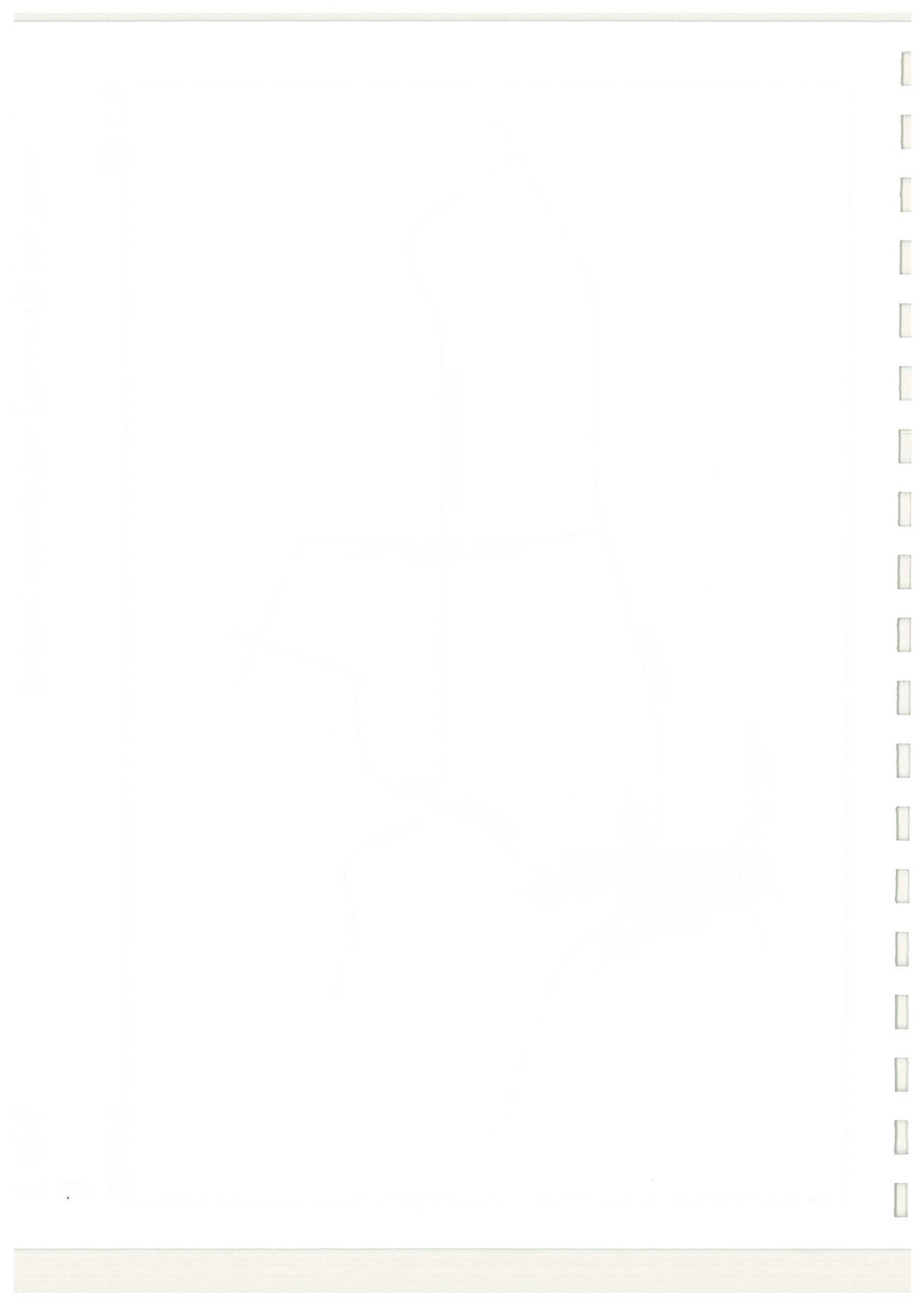
12/3/99(INT732)

Figure 11

N

LSA Not to Scale

North Village Specific Plan Vehicular Trip Distribution
for Typical Winter Saturday Afternoon Peak Hour Conditions



Figures 12 and 13 illustrate the existing plus project daily roadway and peak hour traffic volumes for typical winter Saturday conditions.

Traffic Volumes and Level of Service

Tables J and K present the results of the North Village Specific Plan roadway segment and intersection LOS analysis for typical winter Saturday conditions. The v/c ratios and LOS values are based on the existing geometrics at each location and the Specific Plan roadway improvements described earlier. The LOS worksheets are provided in Appendix E.

As shown in Table J, most of the study area roadway segments are forecast to operate with satisfactory levels of service (LOS A to LOS D) with existing geometrics, with the exception of Main Street east of Minaret Road. This roadway segment is forecast to operate at LOS E (0.97 v/c). However, the following analysis procedure was indicated by Town staff in a June 26, 1998, memorandum from RKJK:

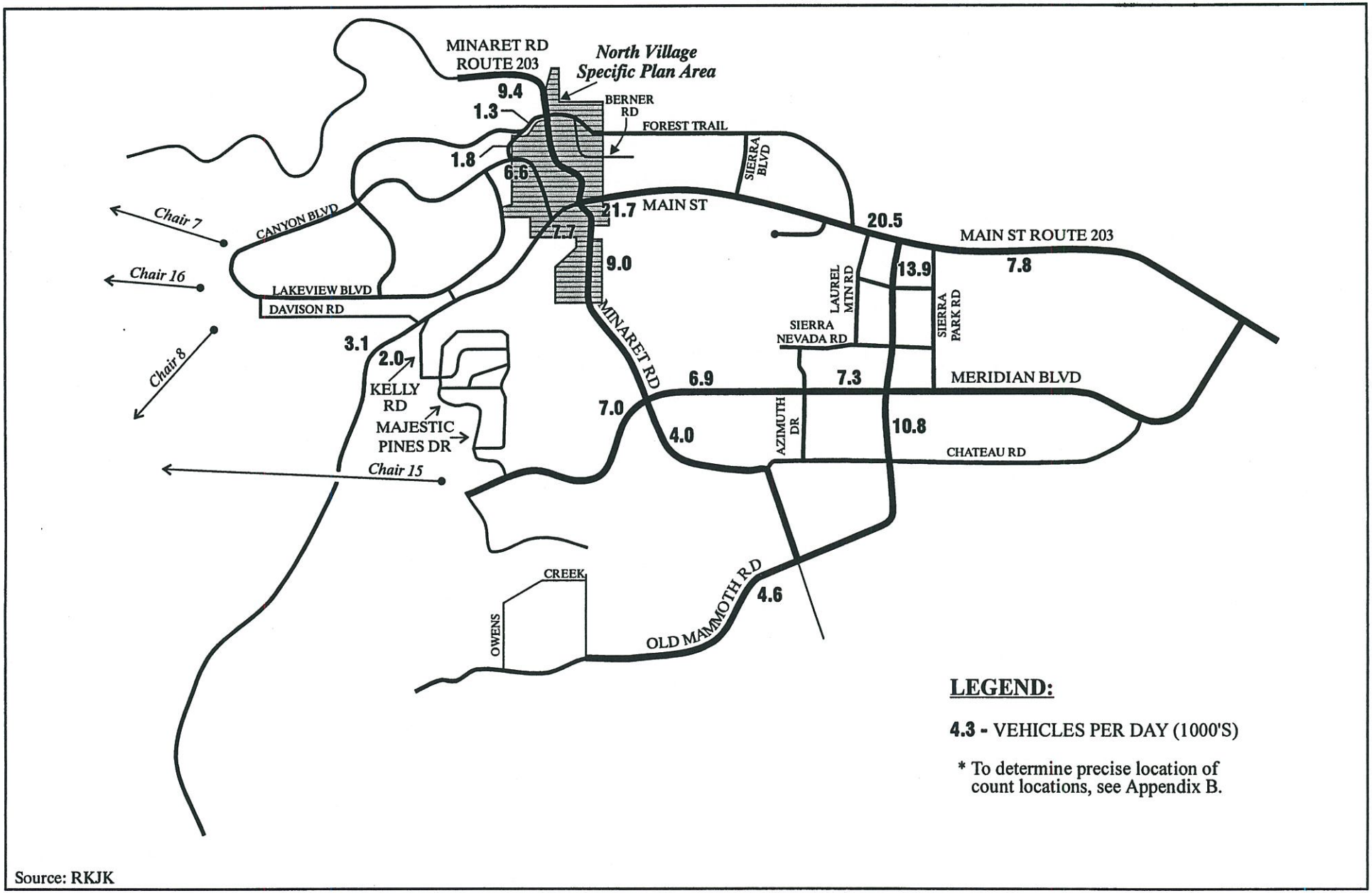
> *Worse than LOS D daily conditions will be deemed acceptable, if all intersections along such a roadway segment are demonstrated to operate at acceptable (LOS D or better) levels of service for typical winter Saturday p.m. peak hour conditions, or other time frames as deemed necessary by the Town.*

According to this procedure, the roadway segment LOS on Main Street east of Minaret Road would be considered acceptable. The intersections of Minaret Road/Lake Mary Road-Main Street and Center Street/Main Street are forecast to operate at LOS D or better when the project improvements at the Minaret Road/Lake Mary Road-Main Street intersection are constructed.

Although Minaret Road, south of Forest Trail, was not included in the original existing Saturday condition analysis, a roadway segment analysis was performed for the peak hour of a typical winter Saturday. As indicated in the existing plus approved projects plus project intersection volumes at Minaret Road/Forest Trail (Figure 13), the northbound volume for this segment is forecast to be 531 vehicles per hour; the southbound volume is forecast to be 1,213 vehicles per hour. Based on the winter condition lane capacity of 1,285 vehicles per hour per lane, the northbound segment of Minaret Road, south of Forest Trail, is forecast to operate with satisfactory levels of service at LOS A (0.41 v/c). The southbound segment of Minaret Road is forecast to operate with unsatisfactory levels of service at LOS E (0.94 v/c). However, according to the Town's roadway segment LOS criteria stated above, the segment LOS on Minaret Road south of Forest Trail would be considered acceptable. The intersections of Minaret Road/Forest Trail and Minaret Road/Lake Mary Road-Main Street are forecast to operate at LOS D or better when project improvements at both intersections are constructed.

Table K indicates that 2 of the 12 study area intersections are forecast to operate with unsatisfactory levels of service, with existing geometrics and the approved Juniper Springs development signal improvement at Old Mammoth Road/Main Street. The following study area intersections are forecast to operate with unsatisfactory levels of service.

- Minaret Road/Lake Mary Road-Main Street
- Forest Trail/Main Street.



Source: RKJK

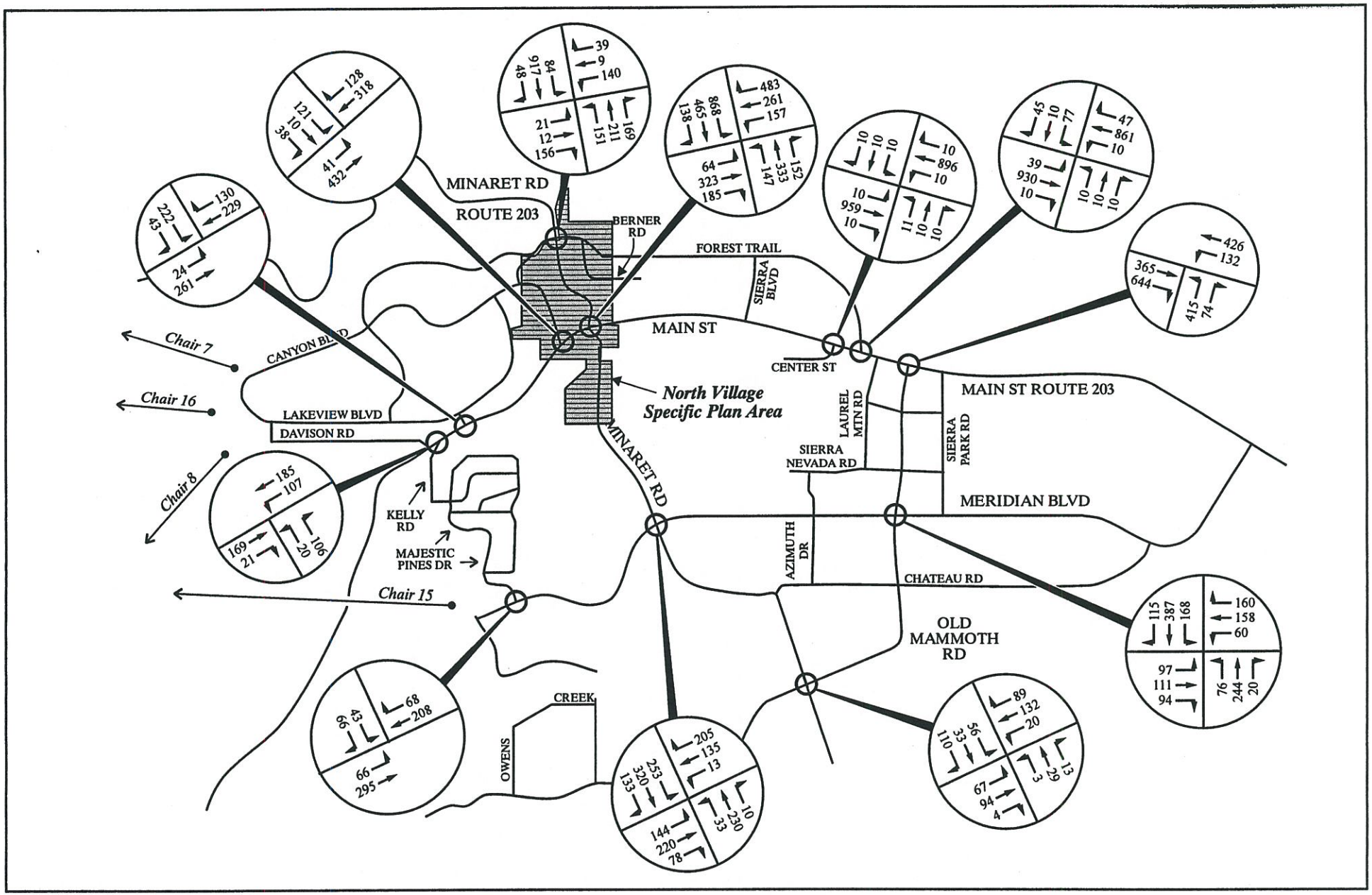
3/2/00(INT732)

Figure 12

N

LSA No Scale

Existing Plus Approved Projects Plus North Village
Typical Winter Saturday Roadway Segment Traffic Volumes



12/3/99(INT732)

Figure 13

N

LSA Not to Scale

Existing Plus Approved Projects Plus North Village
Typical Winter Saturday Peak Hour Traffic Volumes

Table J - Typical Winter Saturday Existing Plus Approved Projects Plus Project Roadway Level of Service Analysis

Roadway Segment	# Lanes	Capacity	Existing + Approved Projects Volume	V/C	LOS	Existing + Approved + Project Volume	V/C	LOS
Forest Trail w/o Minaret Road	2U	11,700	1,000	0.09	A	1,310	0.11	A
Canyon Boulevard e/o Lakeview Drive	2U	11,700	5,800	0.50	A	6,570	0.56	A
Lake Mary Road w/o Davison Street	2U	11,700	2,800	0.24	A	3,110	0.27	A
Lake Mary Road w/o Miller Siding	2U	11,700	7,400	0.63	B	7,710	0.66	B
Main Street e/o Minaret Road	4U	22,500	16,800	0.75	C	21,730	0.97	E
Main Street w/o Old Mammoth Road	4D	33,800	16,600	0.49	A	20,450	0.61	B
Main Street e/o Sierra Park Road	4D	33,800	6,300	0.19	A	7,840	0.23	A
Meridian Boulevard w/o Minaret Road	4U	22,500	5,800	0.26	A	7,030	0.31	A
Meridian Boulevard e/o Minaret Road	4U	22,500	5,800	0.26	A	6,880	0.31	A
Meridian Boulevard w/o Old Mammoth Road	4U	22,500	6,800	0.30	A	7,260	0.32	A
Old Mammoth Road w/o Minaret Road	2U	11,700	4,300	0.37	A	4,610	0.39	A
Kelly Road s/o Lake Mary Road	2U	11,700	2,000	0.17	A	2,000	0.17	A
Minaret Road n/o Mammoth Knolls Drive	2U	11,700	7,700	0.66	B	9,400	0.80	D
Minaret Road s/o Lake Mary Road/Main Street	2U	11,700	5,800	0.50	A	9,040	0.77	C
Minaret Road s/o Meridian Boulevard	2U	11,700	3,000	0.26	A	4,080	0.35	A
Old Mammoth Road s/o Main Street	2D	16,200	11,900	0.73	C	13,900	0.86	D
Old Mammoth Road s/o Meridian Boulevard	2D	16,200	9,600	0.59	A	10,830	0.67	B
Hillside Drive n/o Canyon Boulevard	2U	11,700	500	0.04	A	1,800	0.15	A

Notes:

Lanes refers total number roadway segment lanes regardless of direction.

Capacity = Number of vehicles on all lanes, both directions, per average day.

V/C = Volume-to-Capacity ratio.

Table K - Existing Plus Approved Projects Plus Project
Typical Winter Saturday Intersection Level of Service Summary

Intersection	Exisitng + Approved Projects				Existing + Approved Proj. + Project				Exist. + Approved + Proj. w/ Mitigation			
	Control	ICU[1]	Delay[2]	LOS	Control	ICU[1]	Delay[2]	LOS	Control	ICU[1]	Delay[2]	LOS
1 . Minaret Road/Forest Trail	2-way Stop		1.4 sec.	A	Roundabout[3]	*No Critical Movements*						
2 . Kelly Road/Lake Mary Road	1-way Stop		1.2 sec.	A	1-way Stop		1.5 sec.	A				
3 . Lakeview Cut-Off/Lake Mary Rd	1-way Stop		4.5 sec.	A	1-way Stop		5.4 sec.	A				
4 . Miller's Siding/Lake Mary Road	1-way Stop		0.4 sec.	A	1-way Stop		3.6 sec.	A				
5 . Minaret Rd/Lake Mary Rd-Main	Signal	0.72		C	Signal	**1.14**		**F**		0.89		D
6 . Center Street/Main Street	2-way Stop		1.3 sec.	A	2-way Stop		2.6 sec.	A				
7 . Forest Trail/Main Street	2-way Stop		7.1 sec.	B	2-way Stop		**>45 sec.**	**F**		No Mitigation Proposed[4]		
8 . Old Mammoth Road/Main Street	Signal	0.57		A	Signal	0.65		B				
9 . Minaret Road/Meridian Boulevard	Signal	0.46		A	Signal	0.68		B				
10 . Old Mammoth Road/Meridian Blvd	Signal	0.61		B	Signal	0.61		B				
11 . Minaret Road/Old Mammoth Road	2-way Stop		3.8 sec.	A	2-way Stop		3.8 sec.	A				
12 . Meridian Road/Majestic Pines Drive East	1-way Stop		1.0 sec.	A	2-way Stop		1.2 sec.	A				

Notes:

[1] Level of service for signalized intersections calculated through Intersection Capacity Utilization (ICU) methodology and expressed through volume-to-capacity ratio.

[2] Level of service for unsignalized intersections calculated through Highway Capacity Manual (HCM) methodology and expressed through delay per vehicle at intersection.

[3] Roundabout at Minaret/Forest Trail intersection was previously recommended in the Intrawest Master Plan Traffic Study.

[4] Mitigation for minor street delay is not recommended due to potential increase in neighborhood cut-through traffic.

As part of the North Village Specific Plan, the Gondola Village development will construct a roundabout at the Minaret Road/Forest Trail intersection, which will result in LOS C (15.5 seconds delay) and LOS B (14.9 seconds delay) in the a.m. and p.m. peak hours, respectively (see Appendix A for roundabout levels of service calculations).

Winter Transit

The Town of Mammoth Lakes' current policy is to encourage transit, pedestrian, and bicycle transportation, and to discourage vehicular transportation. Transportation Demand Management (TDM) requirements, including participation in developing and maintaining a transit system, have been assumed as an integral component of the Specific Plan, to mitigate vehicular impacts that lead to street improvements and signalization, and reduce PM_{10} particulate matter in the Town. The Regional Transportation Plan (December, 1992) adopted by the Local Transportation Commission, the Mammoth Lakes Trail System Plan (May, 1991) adopted by the Town Council, the Transit Design Study (June, 1993) adopted by the Town Council, and the Main Street Promenade and Transportation forecasting Model/Multi-modal Transportation Plan approved by the Town of Mammoth Lakes, support the goal of the Town to concentrate efforts on non-vehicular oriented transportation modes. To this end, a mitigation measure for all new development is to participate, on a fair share basis, in the development and operation of a communitywide transit system accomplishing the ridership levels incorporated in the MTM.

MITIGATION MEASURES

Table K indicates that 2 of the 12 study area intersections are forecast to operate with unsatisfactory levels of service, with existing geometrics and the approved Juniper Springs development signal improvement at Old Mammoth Road/Main Street. The following discusses project impacts on the study area intersections, and the mitigation measures required to bring intersection operations to satisfactory levels of service. It should be noted that the following mitigation measures only reflect short-term circulation requirements. Circulation impacts for the Town's build out conditions are addressed in a separate traffic impact analysis (i.e., Intrawest Master Plan Traffic Impact Analysis, LSA, December, 1999).

- *Minaret Road/Lake Mary Road-Main Street.* This signalized intersection is forecast to operate at LOS F (1.14 v/c) with development of the North Village in the existing plus approved projects plus project condition. To improve intersection levels of service, the Gondola Village development will construct a second (dual) southbound left turn lane. Intersection levels of service with this improvement are forecast to improve to LOS D (0.89 v/c) in the p.m. peak hour.

- *Forest Trail/Main Street.* With development of the North Village, this unsignalized intersection is forecast to operate at LOS F (>45 second average vehicle delay) in the p.m. peak hour. A traffic signal could mitigate this impact, however it is not recommended since it has the potential to contribute to the increase of non-residential, cut-through traffic on Forest Trail. Although improvements for the Forest Trail/Main Street intersection are not recommended at

this time, installation of a traffic signal as a potential mitigation measure is consistent with the Town of Mammoth Lakes' Developer Impact Fee (DIF) program, Project #TC-05, and the payment of DIF fees is appropriate mitigation. It should be noted that the addition of Intrawest North Village traffic does not trigger this average delay impact.

- *Old Mammoth Road/Main Street.* As part of the Juniper Springs development approval, a fair share of the protected right turn phase for eastbound right turning vehicles at the Old Mammoth Road/Main Street intersection is required. This traffic signal improvement is to be installed in the summer of 2000. Since North Village traffic also contributes to this need, a fair share contribution is appropriate. The Gondola Village portion of this fair share is approximately 35 percent of the total mitigation cost ($9,735) or $3,407.

- *Winter Transit.* As previously discussed, the Town of Mammoth Lakes' current policy is to encourage transit, pedestrian, and bicycle transportation, and to discourage vehicular transportation. To this end, a mitigation measure for all new development is to participate, on a fair share basis, in the development and operation of a communitywide transit system accomplishing the ridership levels incorporated in the MTM.

16.4

ESTIMATE OF VEHICLE MILES TRAVELED IN MAMMOTH LAKES
FOR 1990 TO 2005

Reference: The Town of Mammoth Lakes General Plan, 1987; with modifications to projections for 2005 based on correspondence with Bill Taylor, 12/8/89.

EXISTING TRAFFIC VOLUME AND VMT - Estimate for 1990

ROAD	AVG DAILY TRAFFIC	DISTANCE MILES	VEH MILES TRAVELED
MAIN ST 1	11.50	0.75	8625.00
MAIN ST 2	16.00	0.50	8000.00
MAIN ST 3	17.50	0.40	7000.00
MAIN ST 4	8.00	0.50	4000.00
LAKE MARY RD	1.70	1.00	1700.00
MERIDIAN 1	3.00	0.50	1500.00
MERIDIAN 2	5.00	0.75	3750.00
MERIDIAN 3	2.00	0.70	1400.00
OLD MMT RD 1	9.00	0.40	3600.00
OLD MMT RD 2	4.50	0.60	2700.00
OLD MMT RD 3	14.00	0.40	5600.00
FOREST TRAIL	1.50	1.00	1500.00
CANYON	4.00	0.60	2400.00
CANYON/LKVIEW	5.00	1.00	5000.00
KELLY/MJPINE	1.50	0.50	750.00
SR 203 1	5.00	1.00	5000.00
SR 203 2	12.50	0.30	3750.00
		TOTAL VMT =	66,275

FUTURE TRAFFIC VOLUME AND VMT - Estimate for 2005

ROAD	AVG DAILY TRAFFIC	DISTANCE MILES	VEH MILES TRAVELED
MAIN ST 1	8.60	0.75	6450.00
MAIN ST 2	14.10	0.10	1410.00
MAIN ST 3	20.90	0.50	10450.00
MAIN ST 4	23.70	0.40	9480.00
MAIN ST 5	9.40	0.60	5640.00
LAKE MARY 1	7.10	0.50	3550.00
LAKE MARY 2	2.70	0.75	2025.00
MERIDIAN 1	6.40	0.90	5760.00
MERIDIAN 2	7.00	0.15	1050.00
MERIDIAN 3	15.10	0.70	10570.00
MERIDIAN 4	11.10	0.70	7770.00
MERIDIAN 5	0.00	0.40	0.00
OLD MMT RD 1	16.10	0.40	6440.00
OLD MMT RD 2	11.20	0.30	3360.00
OLD MMT RD 3	8.10	0.30	2430.00
OLD MMT RD 4	7.40	0.25	1850.00
OLD MMT RD 5	6.10	0.30	1830.00
OLD MMT RD 6	6.30	0.75	4725.00
OLD MMT EXT	3.50	0.10	350.00
FOREST TRAIL	1.50	1.00	1500.00
CANYON	8.30	0.60	4980.00
CANYON/LKVIEW	7.10	1.00	7100.00
KELLY/MTPINE	5.60	0.50	2800.00
MAJ PINE EXT	3.00	1.00	3000.00
SR 203 1	9.30	1.00	9300.00
SR 203 2	13.70	0.20	2740.00
SR 203 3	20.60	0.20	4120.00
MINARET 1	25.70	0.60	15420.00
MINARET 2	16.70	0.50	8350.00
MINARET 3	7.30	0.25	1825.00
MINARET 4	6.40	0.10	640.00
		TOTAL VMT =	146,915

Interpolation of the data over the 15 year period:

YEAR	TOTAL VMT
1990	66,275
1993	82,403
1995	93,155
2000	120,035
2005	146,915

Exhibit 3
Estimate of Vehicle Miles Traveled in Mammoth Lakes for 2005 and Town Buildout

Location	Distance in Miles	2005[1]		Town Buildout[2]	
		ADT[3]	VMT[4]	ADT	VMT
Main Street 1	0.75	8.60	6,450	8.60	6,450
Main Street 2	0.10	14.10	1,410	16.40	1,640
Main Street 3	0.50	20.90	10,450	20.70	10,350
Main Street 4	0.40	23.70	9,480	18.10	7,240
Main Street 5	0.60	9.40	5,640	5.80	3,480
Lake Mary Road 1	0.50	7.10	3,550	5.00	2,500
Lake Mary Road 2	0.75	2.70	2,025	1.70	1,275
Meridian Boulevard 1	0.90	6.40	5,760	9.80	8,820
Meridian Boulevard 2	0.15	7.00	1,050	11.00	1,650
Meridian Boulevard 3	0.70	15.10	10,570	12.20	8,540
Meridian Boulevard 4	0.70	11.10	7,770	7.10	4,970
Meridian Boulevard 5	0.40	0.00	0	0.00	0
Old Mammoth Road 1	0.40	16.10	6,440	11.10	4,440
Old Mammoth Road 2	0.30	11.20	3,360	15.10	4,530
Old Mammoth Road 3	0.30	8.10	2,430	9.80	2,940
Old Mammoth Road 4	0.25	7.40	1,850	6.90	1,725
Old Mammoth Road 5	0.30	6.10	1,830	6.90	2,070
Old Mammoth Road 6	0.75	6.30	4,725	3.00	2,250
Old Mammoth Road Extension	0.10	3.50	350	3.50	350
Forest Trail	1.00	1.50	1,500	3.10	3,100
Canyon Boulevard	0.60	8.30	4,980	6.50	3,900
Canyon Blvd/Lakeview Blvd	1.00	7.10	7,100	2.90	2,900
Kelly Rd/Majestic Pines Dr	0.50	5.60	2,800	2.30	1,150
Majestic Pines Drive Extension	1.00	3.00	3,000	0.00	0
SR-203 1	1.00	9.30	9,300	7.30	7,300
SR-203 2	0.20	13.70	2,740	9.80	1,960
SR-203 3	0.20	20.60	4,120	12.30	2,460
Minaret Road 1	0.60	25.70	15,420	6.70	4,020
Minaret Road 2	0.50	16.70	8,350	8.00	4,000
Minaret Road 3	0.25	7.30	1,825	10.20	2,550
Minaret Road 4	0.10	6.40	640	6.40	640
Total Vehicle Miles Traveled (VMT)			**146,915**		**109,400**

Notes:

[1] Source: The Town of Mammoth Lakes General Plan, 1987; with modifications to projections for 2005 based on correspondence with Bill Taylor, December, 8, 1989.

[2] Source: Mammoth Master Transportation Plan Modeling Support, RKJK, August, 1998 (Maximum ADTs reduced 15% to reflect typical winter Saturday).

[3] ADT - Average Daily Traffic.

[4] VMT - Vehicle Miles Traveled.

Exhibit 4
Estimate of Vehicle Miles Traveled in Mammoth Lakes for 1990 and 1995

Location	Distance in Miles	1990[1]		1995[2]	
		ADT[3]	VMT[4]	ADT	VMT
Main Street 1	0.75	11.50	8,625	6.00	4,500
Main Street 2	0.50	16.00	8,000	15.90	7,950
Main Street 3	0.40	17.50	7,000	16.40	6,560
Main Street 4	0.50	8.00	4,000	6.80	3,400
Lake Mary Road	1.00	1.70	1,700	1.90	1,900
Meridian Boulevard 1	0.50	3.00	1,500	3.00	1,500
Meridian Boulevard 2	0.75	5.00	3,750	4.70	3,525
Meridian Boulevard 3	0.70	2.00	1,400	3.90	2,730
Old Mammoth Road 1	0.40	9.00	3,600	9.40	3,760
Old Mammoth Road 2	0.60	4.50	2,700	4.30	2,580
Old Mammoth Road 3	0.40	14.00	5,600	11.50	4,600
Forest Trail	1.00	1.50	1,500	1.50	1,500
Canyon Boulevard	0.60	4.00	2,400	5.80	3,480
Canyon Blvd/Lakeview Blvd	1.00	5.00	5,000	5.00	5,000
Kelly Rd/Majestic Pines Dr	0.50	1.50	750	1.60	800
SR-203 1	1.00	5.00	5,000	7.20	7,200
SR-203 2	0.30	12.50	3,750	12.50	3,750
Minaret Road 1	0.60	n/a	0	5.00	3,000
Minaret Road 2	0.50	n/a	0	2.80	1,400
Minaret Road 3	0.25	n/a	0	3.60	900
Minaret Road 4	0.10	n/a	0	0.70	70
Total Vehicle Miles Traveled (VMT)			**66,275**		**70,105**

Notes:

[1] Source: The Town of Mammoth Lakes General Plan, 1987.

[2] Source: Mammoth Transportation Model Final Report, RKJK, 1995

[3] ADT - Average Daily Traffic.

[4] VMT - Vehicle Miles Traveled.

URBEMIS 7G: Version 3.2

File Name: Mammexi.URB
Project Name: North Village Existing Conditions
Project Location: Mountain Counties and Rural Counties

SUMMARY REPORT
(Pounds/Day - Summer)

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	PM10
TOTALS (ppd, unmitigated)	57.24	96.98	405.10	30.89
TOTALS (ppd, mitigated)	57.24	96.98	405.10	30.89

URBEMIS 7G: Version 3.2

File Name: Mammexi.URB
Project Name: North Village Existing Conditions
Project Location: Mountain Counties and Rural Counties

DETAILED REPORT
(Pounds/Day - Summer)

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2000 Temperature (F): 75 Season: Summer

EMFAC Version: EMFAC7G (10/96)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
NV Existing Uses-All)	10.00 trips / 64.1 acres	478.10	4,781.00

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	75.00	1.16	98.58	0.26
Light Duty Trucks	10.00	0.13	99.54	0.33
Medium Duty Trucks	3.00	1.44	98.56	
Lite-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Med.-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Heavy-Heavy Trucks	5.00			100.00
Urban Buses	2.00			100.00
Motorcycles	3.00	100.00 % all fuels		

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Custome
Urban Trip Length (miles)	12.0	5.0	5.0	12.0	5.0	5.0
Rural Trip Length (miles)	18.0	7.0	8.0	18.0	12.0	12.0
Trip Speeds (mph)	35	35	35	35	35	35
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
NV Existing Uses-All)				2.0	1.0	97.

UNMITIGATED EMISSIONS

	ROG	NOx	CO	PM10
NV Existing Uses-All)	57.24	96.98	405.10	30.89

	ROG	NOx	CO	PM10
TOTAL EMISSIONS (lbs/day)	57.24	96.98	405.10	30.89

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

MITIGATED EMISSIONS

	ROG	NOx	CO	PM10
NV Existing Uses-All)	57.24	96.98	405.10	30.89

	ROG	NOx	CO	PM10
TOTAL EMISSIONS (lbs/day)	57.24	96.98	405.10	30.89

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

ENVIRONMENTAL FACTORS APPLICABLE TO THE PROJECT

Pedestrian Environment

) Side Walks/Paths: No Sidewalks
) Street Trees Provide Shade: No Coverage
) Pedestrian Circulation Access: No Destinations
) Visually Interesting Uses: No Uses Within Walking Distance
) Street System Enhances Safety: No Streets
) Pedestrian Safety from Crime: No Degree of Safety
) Visually Interesting Walking Routes: No Visual Interest

0.0 <- Pedestrian Environmental Credit
0.0 /19 = 0.00 <- Pedestrian Effectiveness Factor

Transit Service

) Transit Service: Dial-A-Ride or No Transit Service

0.0 <- Transit Effectiveness
0.0 <- Pedestrian Factor
0.0 <-Total
0.0 /110 = 0.00 <-Transit Effectiveness Factor

Bicycle Environment

) Interconnected Bikeways: No Bikeway Coverage
) Bike Routes Provide Paved Shoulders: No Routes
).0 Safe Vehicle Speed Limits: No Routes Provided
) Safe School Routes: No Schools
) Uses w/in Cycling Distance: No Uses w/in Cycling Distance
) Bike Parking Ordinance: No Ordinance or Unenforceable

0.0 <- Bike Environmental Credit
0.0 /20 = 0.00 <- Bike Effectiveness Factor

MITIGATION MEASURES SELECTED FOR THIS PROJECT
(All mitigation measures are printed, even if
the selected land uses do not constitute a mixed use.)

Transit Infrastructure Measures

% Trips Reduced	Measure
15	Credit for Existing or Planned Community Transit Service
15	<- Totals

Pedestrian Enhancing Infrastructure Measures (Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
2	<- Totals

Pedestrian Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
2	<- Totals

Bicycle Enhancing Infratructure Measures (Residential)

% Trips Reduced	Measure
7	Credit for Surrounding Bicycle Environment
7	<- Totals

Bike Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
5	Credit for Surrounding Area Bike Environment
5	<- Totals

Operational Measures (Applying to Commute Trips)

% Trips Reduced	Measure
0	<- Totals

Operational Measures (Applying to Employee Non-Commute Trips)

% Trips Reduced	Measure
0	<- Totals

Operational Measures (Applying to Customer Trips)

% Trips Reduced	Measure
0	<- Totals

Measures Reducing VMT (Non-Residential)

VMT Reduced	Measure
0	<- Totals

Measures Reducing VMT (Residential)

VMT Reduced	Measure
0	<- Totals

Total Percentage Trip Reduction

with Environmental Factors and Mitigation Measures

Travel Mode	Home-Work Trips	Home-Shop Trips	Home-Other Trips
Pedestrian	0.00	0.00	0.00
Transit	0.00	0.00	0.00
Bicycle	0.00	0.00	0.00
Totals	0.00	0.00	0.00

Travel Mode	Work Trips	Employee Trips	Customer Trips
Pedestrian	0.00	0.00	0.00
Transit	0.00	0.00	0.00
Bicycle	0.00	0.00	0.00
Other	0.00	0.00	0.00
Totals	0.00	0.00	0.00

Changes made to the default values

The user has turned off the construction emissions default switch.
The user has turned off the area source emissions default switch.
The passby option switch has been changed
The default winter temperature has been modified
The default summer temperature has been modified

URBEMIS 7G: Version 3.2

File Name: Mammexi.URB
Project Name: North Village Existing Conditions
Project Location: Mountain Counties and Rural Counties

SUMMARY REPORT
(Tons/Year)

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	PM10
TOTALS (tpy, unmitigated)	12.95	18.87	101.88	5.64
TOTALS (tpy, mitigated)	12.95	18.87	101.88	5.64

URBEMIS 7G: Version 3.2

File Name: Mammexi.URB
Project Name: North Village Existing Conditions
Project Location: Mountain Counties and Rural Counties

DETAILED REPORT
(Tons/Year)

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2000 Temperature (F): 75 Season: Annual

EMFAC Version: EMFAC7G (10/96)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
NV Existing Uses-All)	10.00 trips / 64.1 acres	478.10	4,781.00

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	75.00	1.16	98.58	0.26
Light Duty Trucks	10.00	0.13	99.54	0.33
Medium Duty Trucks	3.00	1.44	98.56	
Lite-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Med.-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Heavy-Heavy Trucks	5.00			100.00
Urban Buses	2.00			100.00
Motorcycles	3.00	100.00 % all fuels		

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Custome
Urban Trip Length (miles)	12.0	5.0	5.0	12.0	5.0	5.0
Rural Trip Length (miles)	18.0	7.0	8.0	18.0	12.0	12.0
Trip Speeds (mph)	35	35	35	35	35	35
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
NV Existing Uses-All)				2.0	1.0	97.0

UNMITIGATED EMISSIONS

	ROG	NOx	CO	PM10
NV Existing Uses-All)	12.95	18.87	101.88	5.64
TOTAL EMISSIONS (tons/year)	12.95	18.87	101.88	5.64

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

MITIGATED EMISSIONS

	ROG	NOx	CO	PM10
NV Existing Uses-All)	12.95	18.87	101.88	5.64
TOTAL EMISSIONS (tons/year)	12.95	18.87	101.88	5.64

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

ENVIRONMENTAL FACTORS APPLICABLE TO THE PROJECT

Pedestrian Environment

0 Side Walks/Paths: No Sidewalks
0 Street Trees Provide Shade: No Coverage
0 Pedestrian Circulation Access: No Destinations
0 Visually Interesting Uses: No Uses Within Walking Distance
0 Street System Enhances Safety: No Streets
0 Pedestrian Safety from Crime: No Degree of Safety
0 Visually Interesting Walking Routes: No Visual Interest

0.0 <- Pedestrian Environmental Credit
0.0 /19 = 0.00 <- Pedestrian Effectiveness Factor

Transit Service

0 Transit Service: Dial-A-Ride or No Transit Service

0.0 <- Transit Effectiveness
0.0 <- Pedestrian Factor
0.0 <-Total
0.0 /110 = 0.00 <-Transit Effectiveness Factor

Bicycle Environment

0 Interconnected Bikeways: No Bikeway Coverage
0 Bike Routes Provide Paved Shoulders: No Routes
0.0 Safe Vehicle Speed Limits: No Routes Provided
0 Safe School Routes: No Schools
0 Uses w/in Cycling Distance: No Uses w/in Cycling Distance
0 Bike Parking Ordinance: No Ordinance or Unenforceable

0.0 <- Bike Environmental Credit
0.0 /20 = 0.00 <- Bike Effectiveness Factor

MITIGATION MEASURES SELECTED FOR THIS PROJECT
(All mitigation measures are printed, even if
the selected land uses do not constitute a mixed use.)

Transit Infrastructure Measures

% Trips Reduced	Measure
15	Credit for Existing or Planned Community Transit Service
15	<- Totals

Pedestrian Enhancing Infrastructure Measures (Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
2	<- Totals

Pedestrian Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
2	<- Totals

Bicycle Enhancing Infratructure Measures (Residential)

% Trips Reduced	Measure
7	Credit for Surrounding Bicycle Environment
7	<- Totals

Bike Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
5	Credit for Surrounding Area Bike Environment
5	<- Totals

Operational Measures (Applying to Commute Trips)

% Trips Reduced	Measure
0	<- Totals

Operational Measures (Applying to Employee Non-Commute Trips)

% Trips Reduced	Measure
0	<- Totals

Operational Measures (Applying to Customer Trips)

% Trips Reduced	Measure
0	<- Totals

Measures Reducing VMT (Non-Residential)

VMT Reduced	Measure
0	<- Totals

Measures Reducing VMT (Residential)

VMT Reduced	Measure
0	<- Totals

Total Percentage Trip Reduction

with Environmental Factors and Mitigation Measures

'ravel Mode	Home-Work Trips	Home-Shop Trips	Home-Other Trips
Pedestrian	0.00	0.00	0.00
Transit	0.00	0.00	0.00
Bicycle	0.00	0.00	0.00
Totals	0.00	0.00	0.00

'ravel Mode	Work Trips	Employee Trips	Customer Trips
Pedestrian	0.00	0.00	0.00
Transit	0.00	0.00	0.00
Bicycle	0.00	0.00	0.00
Other	0.00	0.00	0.00
Totals	0.00	0.00	0.00

Changes made to the default values

The user has turned off the construction emissions default switch.
The user has turned off the area source emissions default switch.
The passby option switch has been changed
The default winter temperature has been modified
The default summer temperature has been modified

URBEMIS 7G: Version 3.2

File Name: Mammexi.URB
Project Name: North Village Existing Conditions
Project Location: Mountain Counties and Rural Counties

SUMMARY REPORT
(Pounds/Day - Winter)

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	PM10
TOTALS (ppd, unmitigated)	98.48	116.24	864.59	30.89
TOTALS (ppd, mitigated)	98.48	116.24	864.59	30.89

URBEMIS 7G: Version 3.2

File Name: Mammexi.URB
Project Name: North Village Existing Conditions
Project Location: Mountain Counties and Rural Counties

DETAILED REPORT
(Pounds/Day - Winter)

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2000 Temperature (F): 30 Season: Winter

EMFAC Version: EMFAC7G (10/96)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
NV Existing Uses-All)	10.00 trips / 64.1 acres	478.10	4,781.00

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	75.00	1.16	98.58	0.26
Light Duty Trucks	10.00	0.13	99.54	0.33
Medium Duty Trucks	3.00	1.44	98.56	
Lite-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Med.-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Heavy-Heavy Trucks	5.00			100.00
Urban Buses	2.00			100.00
Motorcycles	3.00	100.00 % all fuels		

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Custome
Urban Trip Length (miles)	12.0	5.0	5.0	12.0	5.0	5.0
Rural Trip Length (miles)	18.0	7.0	8.0	18.0	12.0	12.0
Trip Speeds (mph)	35	35	35	35	35	35
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
NV Existing Uses-All)				2.0	1.0	97.0

UNMITIGATED EMISSIONS

	ROG	NOx	CO	PM10
NV Existing Uses-All)	98.48	116.24	864.59	30.89

	ROG	NOX	CO	PM10
TOTAL EMISSIONS (lbs/day)	98.48	116.24	864.59	30.89

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

MITIGATED EMISSIONS

	ROG	NOx	CO	PM10
NV Existing Uses-All)	98.48	116.24	864.59	30.89

	ROG	NOX	CO	PM10
TOTAL EMISSIONS (lbs/day)	98.48	116.24	864.59	30.89

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

ENVIRONMENTAL FACTORS APPLICABLE TO THE PROJECT

Pedestrian Environment

0 Side Walks/Paths: No Sidewalks
0 Street Trees Provide Shade: No Coverage
0 Pedestrian Circulation Access: No Destinations
0 Visually Interesting Uses: No Uses Within Walking Distance
0 Street System Enhances Safety: No Streets
0 Pedestrian Safety from Crime: No Degree of Safety
0 Visually Interesting Walking Routes: No Visual Interest

0.0 <- Pedestrian Environmental Credit
0.0 /19 = 0.00 <- Pedestrian Effectiveness Factor

Transit Service

0 Transit Service: Dial-A-Ride or No Transit Service

0.0 <- Transit Effectiveness
0.0 <- Pedestrian Factor
0.0 <-Total
0.0 /110 = 0.00 <-Transit Effectiveness Factor

Bicycle Environment

0 Interconnected Bikeways: No Bikeway Coverage
0 Bike Routes Provide Paved Shoulders: No Routes
0.0 Safe Vehicle Speed Limits: No Routes Provided
0 Safe School Routes: No Schools
0 Uses w/in Cycling Distance: No Uses w/in Cycling Distance
0 Bike Parking Ordinance: No Ordinance or Unenforceable

0.0 <- Bike Environmental Credit
0.0 /20 = 0.00 <- Bike Effectiveness Factor

MITIGATION MEASURES SELECTED FOR THIS PROJECT
(All mitigation measures are printed, even if
the selected land uses do not constitute a mixed use.)

Transit Infrastructure Measures

% Trips Reduced	Measure
15	Credit for Existing or Planned Community Transit Service
15	<- Totals

Pedestrian Enhancing Infrastructure Measures (Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
2	<- Totals

Pedestrian Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
2	<- Totals

Bicycle Enhancing Infratructure Measures (Residential)

% Trips Reduced	Measure
7	Credit for Surrounding Bicycle Environment
7	<- Totals

Bike Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
5	Credit for Surrounding Area Bike Environment
5	<- Totals

Operational Measures (Applying to Commute Trips)

% Trips Reduced	Measure
0	<- Totals

Operational Measures (Applying to Employee Non-Commute Trips)

% Trips Reduced	Measure
0	<- Totals

Operational Measures (Applying to Customer Trips)

% Trips Reduced	Measure
0	<- Totals

Measures Reducing VMT (Non-Residential)

VMT Reduced	Measure
0	<- Totals

Measures Reducing VMT (Residential)

VMT Reduced	Measure
0	<- Totals

Total Percentage Trip Reduction

with Environmental Factors and Mitigation Measures

Travel Mode	Home-Work Trips	Home-Shop Trips	Home-Other Trips
Pedestrian	0.00	0.00	0.00
Transit	0.00	0.00	0.00
Bicycle	0.00	0.00	0.00
Totals	0.00	0.00	0.00

Travel Mode	Work Trips	Employee Trips	Customer Trips
Pedestrian	0.00	0.00	0.00
Transit	0.00	0.00	0.00
Bicycle	0.00	0.00	0.00
Other	0.00	0.00	0.00
Totals	0.00	0.00	0.00

Changes made to the default values

The user has turned off the construction emissions default switch.
The user has turned off the area source emissions default switch.
The passby option switch has been changed
The default winter temperature has been modified
The default summer temperature has been modified

URBEMIS 7G: Version 3.2

File Name: Mammoth.URB
Project Name: North Village Plan Biuldout
Project Location: Mountain Counties and Rural Counties

DETAILED REPORT
(Tons/Year)

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2000 Temperature (F): 75 Season: Annual

EMFAC Version: EMFAC7G (10/96)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
North Village Bldout-A	10.00 trips /	2020.00	20,200.00

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	75.00	1.16	98.58	0.26
Light Duty Trucks	10.00	0.13	99.54	0.33
Medium Duty Trucks	3.00	1.44	98.56	
Lite-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Med.-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Heavy-Heavy Trucks	5.00			100.00
Urban Buses	2.00			100.00
Motorcycles	3.00	100.00 % all fuels		

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.0	5.0	5.0	12.0	5.0	5.0
Rural Trip Length (miles)	18.0	7.0	8.0	18.0	12.0	12.0
Trip Speeds (mph)	35	35	35	35	35	35
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
North Village Bldout-All				2.0	1.0	97.0

UNMITIGATED EMISSIONS

	ROG	NOx	CO	PM10
North Village Bldout-Al	54.73	79.73	430.46	23.82
TOTAL EMISSIONS (tons/year)	54.73	79.73	430.46	23.82

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

MITIGATED EMISSIONS

	ROG	NOx	CO	PM10
North Village Bldout-Al	51.66	74.46	402.04	22.25
TOTAL EMISSIONS (tons/year)	51.66	74.46	402.04	22.25

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

ENVIRONMENTAL FACTORS APPLICABLE TO THE PROJECT

Pedestrian Environment

)	Side Walks/Paths: No Sidewalks
)	Street Trees Provide Shade: No Coverage
2	Pedestrian Circulation Access: Some Destinations
3	Visually Interesting Uses: Moderate Number and Variety
1	Street System Enhances Safety: Some Streets
).5	Pedestrian Safety from Crime: Some Degree of Safety
1	Visually Interesting Walking Routes: Moderate Level

7.5 <- Pedestrian Environmental Credit
7.5 /19 = 0.39 <- Pedestrian Effectiveness Factor

Transit Service

20	Transit Service: 15-30 Minute Bus within 1/4 Mile

20.0 <- Transit Effectiveness
7.5 <- Pedestrian Factor
27.5 <-Total
27.5 /110 = 0.25 <-Transit Effectiveness Factor

Bicycle Environment

)	Interconnected Bikeways: No Bikeway Coverage
)	Bike Routes Provide Paved Shoulders: No Routes
).0	Safe Vehicle Speed Limits: No Routes Provided
)	Safe School Routes: No Schools
1	Uses w/in Cycling Distance: Some Uses
)	Bike Parking Ordinance: No Ordinance or Unenforceable

1.0 <- Bike Environmental Credit
1.0 /20 = 0.05 <- Bike Effectiveness Factor

MITIGATION MEASURES SELECTED FOR THIS PROJECT
(All mitigation measures are printed, even if
the selected land uses do not constitute a mixed use.)

Transit Infrastructure Measures

% Trips Reduced	Measure
15	Credit for Existing or Planned Community Transit Service
2	Provide Transit Shelters Benches
0.5	Provide Street Lighting
0.5	Provide Route Signs and Displays
18	<- Totals

Pedestrian Enhancing Infrastructure Measures (Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
1	Provide Sidewalks and/or Pedestrian Paths
1	Provide Direct Pedestrian Connections
0.5	Provide Pedestrian Safety
0.5	Provide Street Lighting
0.5	Provide Pedestrian Signalization and Signage
5.5	<- Totals

Pedestrian Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
1	Mixed Use Project (Commercial Oriented)
1	Project Uses Parking Structures/Small Dispersed Lots
0.5	Provide Street Lighting
0.5	Provide Pedestrian Safety Designs/Infrastructure at Crossings
5	<- Totals

Bicycle Enhancing Infratructure Measures (Residential)

% Trips Reduced	Measure
7	Credit for Surrounding Bicycle Environment
7	<- Totals

Bike Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
5	Credit for Surrounding Area Bike Environment
5	<- Totals

Operational Measures (Applying to Commute Trips)

% Trips Reduced	Measure
2	Shuttle Bus Service to Transit/Multi-Modal Center
1	Parking Limited (below minimum)
3	<- Totals

Operational Measures (Applying to Employee Non-Commute Trips)

% Trips Reduced	Measure
0	<- Totals

Operational Measures (Applying to Customer Trips)

Trips Reduced	Measure
0	<- Totals

Measures Reducing VMT (Non-Residential)

VMT Reduced	Measure
0	<- Totals

Measures Reducing VMT (Residential)

VMT Reduced	Measure
0	<- Totals

Total Percentage Trip Reduction
with Environmental Factors and Mitigation Measures

Travel Mode	Home-Work Trips	Home-Shop Trips	Home-Other Trips
Pedestrian	0.24	0.96	0.96
Transit	4.50	0.99	1.22
Bicycle	0.35	0.35	0.35
Totals	5.09	2.30	2.52

Travel Mode	Work Trips	Employee Trips	Customer Trips
Pedestrian	0.22	1.97	1.97
Transit	4.50	0.09	4.50
Bicycle	0.25	0.25	0.25
Other	0.06	0.00	0.00
Totals	5.03	2.31	6.72

Changes made to the default values

The user has turned off the construction emissions default switch.
The user has turned off the area source emissions default switch.
The passby option switch has been changed
The default winter temperature has been modified
The default summer temperature has been modified

URBEMIS 7G: Version 3.2

File Name: Mammoth.URB
Project Name: North Village Plan Biuldout
Project Location: Mountain Counties and Rural Counties

SUMMARY REPORT
(Tons/Year)

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	PM10
TOTALS (tpy, unmitigated)	54.73	79.73	430.46	23.82
TOTALS (tpy, mitigated)	51.66	74.46	402.04	22.25

URBEMIS 7G: Version 3.2

File Name: Mammexi.URB
Project Name: North Village Existing Conditions
Project Location: Mountain Counties and Rural Counties

SUMMARY REPORT
(Pounds/Day - Winter)

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	PM10
TOTALS (ppd, unmitigated)	196.54	231.99	1725.55	61.66
TOTALS (ppd, mitigated)	196.12	231.44	1721.48	61.51

URBEMIS 7G: Version 3.2

File Name: Mammexi.URB
Project Name: North Village Existing Conditions
Project Location: Mountain Counties and Rural Counties

DETAILED REPORT
(Pounds/Day - Winter)

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2000 Temperature (F): 30 Season: Winter

EMFAC Version: EMFAC7G (10/96)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
N.V. Existing Uses-All	10.00 trips / 64.1 acres	954.00	9,541.91

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	75.00	1.16	98.58	0.26
Light Duty Trucks	10.00	0.13	99.54	0.33
Medium Duty Trucks	3.00	1.44	98.56	
Lite-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Med.-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Heavy-Heavy Trucks	5.00			100.00
Urban Buses	2.00			100.00
Motorcycles	3.00	100.00 % all fuels		

ravel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
rban Trip Length (miles)	12.0	5.0	5.0	12.0	5.0	5.0
ural Trip Length (miles)	18.0	7.0	8.0	18.0	12.0	12.0
rip Speeds (mph)	35	35	35	35	35	35
of Trips - Residential	27.3	21.2	51.5			
of Trips - Commercial (by land use)						
.V. Existing Uses-All)				2.0	1.0	97.0

UNMITIGATED EMISSIONS

	ROG	NOx	CO	PM10
N.V. Existing Uses-All)	196.54	231.99	1725.55	61.66

	ROG	NOX	CO	PM10
TOTAL EMISSIONS (lbs/day)	196.54	231.99	1725.55	61.66

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

MITIGATED EMISSIONS

	ROG	NOx	CO	PM10
N.V. Existing Uses-All)	196.12	231.44	1721.48	61.51

	ROG	NOX	CO	PM10
TOTAL EMISSIONS (lbs/day)	196.12	231.44	1721.48	61.51

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

ENVIRONMENTAL FACTORS APPLICABLE TO THE PROJECT

Pedestrian Environment

```
0              Side Walks/Paths: No Sidewalks
0              Street Trees Provide Shade: No Coverage
0              Pedestrian Circulation Access: No Destinations
1              Visually Interesting Uses: Some Uses within Walking Distance
0              Street System Enhances Safety: No Streets
0              Pedestrian Safety from Crime: No Degree of Safety
0              Visually Interesting Walking Routes: No Visual Interest

 1.0   <- Pedestrian Environmental Credit
 1.0  /19 = 0.05    <- Pedestrian Effectiveness Factor
```

Transit Service

```
0              Transit Service: Dial-A-Ride or No Transit Service

 0.0  <- Transit Effectiveness
 1.0  <- Pedestrian Factor
 1.0  <-Total
 1.0  /110 =    0.01   <-Transit Effectiveness Factor
```

Bicycle Environment

```
0              Interconnected Bikeways: No Bikeway Coverage
0              Bike Routes Provide Paved Shoulders: No Routes
0.0            Safe Vehicle Speed Limits: No Routes Provided
0              Safe School Routes: No Schools
0              Uses w/in Cycling Distance: No Uses w/in Cycling Distance
0              Bike Parking Ordinance: No Ordinance or Unenforceable

 0.0  <- Bike Environmental Credit
 0.0 /20 =      0.00  <- Bike Effectiveness Factor
```

MITIGATION MEASURES SELECTED FOR THIS PROJECT
(All mitigation measures are printed, even if
the selected land uses do not constitute a mixed use.)

Transit Infrastructure Measures

% Trips Reduced	Measure
15	Credit for Existing or Planned Community Transit Service
15	<- Totals

Pedestrian Enhancing Infrastructure Measures (Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
2	<- Totals

Pedestrian Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
2	<- Totals

Bicycle Enhancing Infratructure Measures (Residential)

% Trips Reduced	Measure
7	Credit for Surrounding Bicycle Environment
7	<- Totals

Bike Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
5	Credit for Surrounding Area Bike Environment
5	<- Totals

Operational Measures (Applying to Commute Trips)

% Trips Reduced	Measure
0	<- Totals

Operational Measures (Applying to Employee Non-Commute Trips)

% Trips Reduced	Measure
0	<- Totals

Operational Measures (Applying to Customer Trips)

% Trips Reduced	Measure
0	<- Totals

Measures Reducing VMT (Non-Residential)

VMT Reduced	Measure
0	<- Totals

Measures Reducing VMT (Residential)

VMT Reduced	Measure
0	<- Totals

Total Percentage Trip Reduction

with Environmental Factors and Mitigation Measures

Travel Mode	Home-Work Trips	Home-Shop Trips	Home-Other Trips
Pedestrian	0.01	0.05	0.05
Transit	0.14	0.03	0.04
Bicycle	0.00	0.00	0.00
Totals	0.15	0.08	0.08

Travel Mode	Work Trips	Employee Trips	Customer Trips
Pedestrian	0.01	0.11	0.11
Transit	0.14	0.00	0.14
Bicycle	0.00	0.00	0.00
Other	0.00	0.00	0.00
Totals	0.15	0.11	0.24

Changes made to the default values

The user has turned off the construction emissions default switch.
The user has turned off the area source emissions default switch.
The passby option switch has been changed
The default winter temperature has been modified
The default summer temperature has been modified

URBEMIS 7G: Version 3.2

File Name: Mammoth.URB
Project Name: North Village Plan Biuldout
Project Location: Mountain Counties and Rural Counties

SUMMARY REPORT
(Pounds/Day - Summer)

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	PM10
TOTALS (ppd, unmitigated)	241.83	409.76	1711.56	130.53
TOTALS (ppd, mitigated)	228.89	382.70	1598.55	121.91

URBEMIS 7G: Version 3.2

File Name: Mammoth.URB
Project Name: North Village Plan Biuldout
Project Location: Mountain Counties and Rural Counties

DETAILED REPORT
(Pounds/Day - Summer)

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2000 Temperature (F): 75 Season: Summer

EMFAC Version: EMFAC7G (10/96)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
North Village Bldout-A	10.00 trips /	2020.00	20,200.00

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	75.00	1.16	98.58	0.26
Light Duty Trucks	10.00	0.13	99.54	0.33
Medium Duty Trucks	3.00	1.44	98.56	
Lite-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Med.-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Heavy-Heavy Trucks	5.00			100.00
Urban Buses	2.00			100.00
Motorcycles	3.00	100.00 % all fuels		

ravel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
rban Trip Length (miles)	12.0	5.0	5.0	12.0	5.0	5.0
ural Trip Length (miles)	18.0	7.0	8.0	18.0	12.0	12.0
rip Speeds (mph)	35	35	35	35	35	35
of Trips - Residential	27.3	21.2	51.5			
of Trips - Commercial (by land use)						
orth Village Bldout-All				2.0	1.0	97.0

UNMITIGATED EMISSIONS

	ROG	NOx	CO	PM10
North Village Bldout-All	241.83	409.76	1711.56	130.53

	ROG	NOx	CO	PM10
TOTAL EMISSIONS (lbs/day)	241.83	409.76	1711.56	130.53

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

MITIGATED EMISSIONS

	ROG	NOx	CO	PM10
North Village Bldout-All	228.89	382.70	1598.55	121.91

	ROG	NOx	CO	PM10
TOTAL EMISSIONS (lbs/day)	228.89	382.70	1598.55	121.91

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

ENVIRONMENTAL FACTORS APPLICABLE TO THE PROJECT

Pedestrian Environment

0	Side Walks/Paths: No Sidewalks
0	Street Trees Provide Shade: No Coverage
2	Pedestrian Circulation Access: Some Destinations
3	Visually Interesting Uses: Moderate Number and Variety
1	Street System Enhances Safety: Some Streets
0.5	Pedestrian Safety from Crime: Some Degree of Safety
1	Visually Interesting Walking Routes: Moderate Level

7.5 <- Pedestrian Environmental Credit
7.5 /19 = 0.39 <- Pedestrian Effectiveness Factor

Transit Service

20	Transit Service: 15-30 Minute Bus within 1/4 Mile

20.0 <- Transit Effectiveness
7.5 <- Pedestrian Factor
27.5 <-Total
27.5 /110 = 0.25 <-Transit Effectiveness Factor

Bicycle Environment

0	Interconnected Bikeways: No Bikeway Coverage
0	Bike Routes Provide Paved Shoulders: No Routes
0.0	Safe Vehicle Speed Limits: No Routes Provided
0	Safe School Routes: No Schools
1	Uses w/in Cycling Distance: Some Uses
0	Bike Parking Ordinance: No Ordinance or Unenforceable

1.0 <- Bike Environmental Credit
1.0 /20 = 0.05 <- Bike Effectiveness Factor

MITIGATION MEASURES SELECTED FOR THIS PROJECT
(All mitigation measures are printed, even if
the selected land uses do not constitute a mixed use.)

Transit Infrastructure Measures

% Trips Reduced	Measure
15	Credit for Existing or Planned Community Transit Service
2	Provide Transit Shelters Benches
0.5	Provide Street Lighting
0.5	Provide Route Signs and Displays
18	<- Totals

Pedestrian Enhancing Infrastructure Measures (Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
1	Provide Sidewalks and/or Pedestrian Paths
1	Provide Direct Pedestrian Connections
0.5	Provide Pedestrian Safety
0.5	Provide Street Lighting
0.5	Provide Pedestrian Signalization and Signage
5.5	<- Totals

Pedestrian Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
1	Mixed Use Project (Commercial Oriented)
1	Project Uses Parking Structures/Small Dispersed Lots
0.5	Provide Street Lighting
0.5	Provide Pedestrian Safety Designs/Infrastructure at Crossings
5	<- Totals

Bicycle Enhancing Infratructure Measures (Residential)

% Trips Reduced	Measure
7	Credit for Surrounding Bicycle Environment
7	<- Totals

Bike Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
5	Credit for Surrounding Area Bike Environment
5	<- Totals

Operational Measures (Applying to Commute Trips)

% Trips Reduced	Measure
2	Shuttle Bus Service to Transit/Multi-Modal Center
1	Parking Limited (below minimum)
3	<- Totals

Operational Measures (Applying to Employee Non-Commute Trips)

% Trips Reduced	Measure
0	<- Totals

Operational Measures (Applying to Customer Trips)

% Trips Reduced	Measure
0	<- Totals

Measures Reducing VMT (Non-Residential)

VMT Reduced	Measure
0	<- Totals

Measures Reducing VMT (Residential)

VMT Reduced	Measure
0	<- Totals

Total Percentage Trip Reduction with Environmental Factors and Mitigation Measures

Travel Mode	Home-Work Trips	Home-Shop Trips	Home-Other Trips
Pedestrian	0.24	0.96	0.96
Transit	4.50	0.99	1.22
Bicycle	0.35	0.35	0.35
Totals	5.09	2.30	2.52

Travel Mode	Work Trips	Employee Trips	Customer Trips
Pedestrian	0.22	1.97	1.97
Transit	4.50	0.09	4.50
Bicycle	0.25	0.25	0.25
Other	0.06	0.00	0.00
Totals	5.03	2.31	6.72

Changes made to the default values

The user has turned off the construction emissions default switch.
The user has turned off the area source emissions default switch.
The passby option switch has been changed
The default winter temperature has been modified
The default summer temperature has been modified

URBEMIS 7G: Version 3.2

File Name: Mammoth.URB
Project Name: North Village Plan Biuldout
Project Location: Mountain Counties and Rural Counties

SUMMARY REPORT
(Pounds/Day - Winter)

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	PM10
TOTALS (ppd, unmitigated)	416.08	491.11	3652.96	130.53
TOTALS (ppd, mitigated)	391.39	458.67	3411.74	121.91

URBEMIS 7G: Version 3.2

File Name: Mammoth.URB
Project Name: North Village Plan Biuldout
Project Location: Mountain Counties and Rural Counties

DETAILED REPORT
(Pounds/Day - Winter)

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2000 Temperature (F): 30 Season: Winter

EMFAC Version: EMFAC7G (10/96)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
North Village Bldout-A	10.00 trips /	2020.00	20,200.00

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	75.00	1.16	98.58	0.26
Light Duty Trucks	10.00	0.13	99.54	0.33
Medium Duty Trucks	3.00	1.44	98.56	
Lite-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Med.-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Heavy-Heavy Trucks	5.00			100.00
Urban Buses	2.00			100.00
Motorcycles	3.00	100.00 % all fuels		

ravel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
rban Trip Length (miles)	12.0	5.0	5.0	12.0	5.0	5.0
ural Trip Length (miles)	18.0	7.0	8.0	18.0	12.0	12.0
rip Speeds (mph)	35	35	35	35	35	35
of Trips - Residential	27.3	21.2	51.5			
of Trips - Commercial (by land use)						
orth Village Bldout-All				2.0	1.0	97.0

UNMITIGATED EMISSIONS

	ROG	NOx	CO	PM10
North Village Bldout-All	416.08	491.11	3652.96	130.53

	ROG	NOX	CO	PM10
TOTAL EMISSIONS (lbs/day)	416.08	491.11	3652.96	130.53

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

MITIGATED EMISSIONS

	ROG	NOx	CO	PM10
North Village Bldout-All	391.39	458.67	3411.74	121.91

	ROG	NOX	CO	PM10
TOTAL EMISSIONS (lbs/day)	391.39	458.67	3411.74	121.91

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

ENVIRONMENTAL FACTORS APPLICABLE TO THE PROJECT

Pedestrian Environment

0	Side Walks/Paths: No Sidewalks
0	Street Trees Provide Shade: No Coverage
2	Pedestrian Circulation Access: Some Destinations
3	Visually Interesting Uses: Moderate Number and Variety
1	Street System Enhances Safety: Some Streets
0.5	Pedestrian Safety from Crime: Some Degree of Safety
1	Visually Interesting Walking Routes: Moderate Level

7.5 <- Pedestrian Environmental Credit
7.5 /19 = 0.39 <- Pedestrian Effectiveness Factor

Transit Service

20	Transit Service: 15-30 Minute Bus within 1/4 Mile

20.0 <- Transit Effectiveness
7.5 <- Pedestrian Factor
27.5 <-Total
27.5 /110 = 0.25 <-Transit Effectiveness Factor

Bicycle Environment

0	Interconnected Bikeways: No Bikeway Coverage
0	Bike Routes Provide Paved Shoulders: No Routes
0.0	Safe Vehicle Speed Limits: No Routes Provided
0	Safe School Routes: No Schools
1	Uses w/in Cycling Distance: Some Uses
0	Bike Parking Ordinance: No Ordinance or Unenforceable

1.0 <- Bike Environmental Credit
1.0 /20 = 0.05 <- Bike Effectiveness Factor

MITIGATION MEASURES SELECTED FOR THIS PROJECT
(All mitigation measures are printed, even if
the selected land uses do not constitute a mixed use.)

Transit Infrastructure Measures

% Trips Reduced	Measure
15	Credit for Existing or Planned Community Transit Service
2	Provide Transit Shelters Benches
0.5	Provide Street Lighting
0.5	Provide Route Signs and Displays
18	<- Totals

Pedestrian Enhancing Infrastructure Measures (Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
1	Provide Sidewalks and/or Pedestrian Paths
1	Provide Direct Pedestrian Connections
0.5	Provide Pedestrian Safety
0.5	Provide Street Lighting
0.5	Provide Pedestrian Signalization and Signage
5.5	<- Totals

Pedestrian Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
1	Mixed Use Project (Commercial Oriented)
1	Project Uses Parking Structures/Small Dispersed Lots
0.5	Provide Street Lighting
0.5	Provide Pedestrian Safety Designs/Infrastructure at Crossings
5	<- Totals

Bicycle Enhancing Infratructure Measures (Residential)

% Trips Reduced	Measure
7	Credit for Surrounding Bicycle Environment
7	<- Totals

Bike Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
5	Credit for Surrounding Area Bike Environment
5	<- Totals

Operational Measures (Applying to Commute Trips)

% Trips Reduced	Measure
2	Shuttle Bus Service to Transit/Multi-Modal Center
1	Parking Limited (below minimum)
3	<- Totals

Operational Measures (Applying to Employee Non-Commute Trips)

% Trips Reduced	Measure
0	<- Totals

Operational Measures (Applying to Customer Trips)

% Trips Reduced	Measure
0	<- Totals

Measures Reducing VMT (Non-Residential)

VMT Reduced	Measure
0	<- Totals

Measures Reducing VMT (Residential)

VMT Reduced	Measure
0	<- Totals

Total Percentage Trip Reduction with Environmental Factors and Mitigation Measures

Travel Mode	Home-Work Trips	Home-Shop Trips	Home-Other Trips
Pedestrian	0.24	0.96	0.96
Transit	4.50	0.99	1.22
Bicycle	0.35	0.35	0.35
Totals	5.09	2.30	2.52

Travel Mode	Work Trips	Employee Trips	Customer Trips
Pedestrian	0.22	1.97	1.97
Transit	4.50	0.09	4.50
Bicycle	0.25	0.25	0.25
Other	0.06	0.00	0.00
Totals	5.03	2.31	6.72

Changes made to the default values

The user has turned off the construction emissions default switch.
The user has turned off the area source emissions default switch.
The passby option switch has been changed
The default winter temperature has been modified
The default summer temperature has been modified

16.6

ASSUMPTIONS USED IN NOISE ANALYSIS

Roadway Segment	ADT	Lanes	ROW	CLS	NLCL/ ROW	Speed (MPH)
Existing Conditions						
Forest Trail west of Minaret Road	1,000	2U	60	15	22.5	35
Canyon Boulevard east of Lakeview Drive	5,800	2U	60	15	22.5	25
Lake Mary Road west of Miller Siding	6,800	2U	60	15	22.5	35
Main Street east of Minaret Road	16,400	4U	70	24	23	35
Main Street west of Old Mammoth Road	15,900	4D	70	29	18	35
Minaret Road north of Mammoth Knolls Drive	7,200	2U	60	15	22.5	35
Minaret Road south of Lake Mary Road/Main Street	5,000	2U	60	15	22.5	35
Hillside Drive-Forest Trail to Canyon Boulevard	500	2U	60	15	22.5	35
Existing Plus Approved Projects Plus Specific Plan						
Forest Trail west of Minaret Road	1,310	2U	60	15	22.5	35
Canyon Boulevard east of Lakeview Drive	6,570	2U	60	15	22.5	25
Lake Mary Road west of Miller Siding	7,710	2U	60	15	22.5	35
Main Street east of Minaret Road	21,730	4U	70	24	23	35
Main Street west of Old Mammoth Road	20,450	4D	70	29	18	35
Minaret Road north of Mammoth Knolls Drive	9,400	2U	60	15	22.5	35
Minaret Road south of Lake Mary Road/Main Street	9,040	2U	60	15	22.5	35
Hillside Drive-Forest Trail to Canyon Boulevard	1,800	2U	60	15	22.5	35

U = Undivided
D = Divided
ROW = Right-of-Way
CLS = Centerline Separation
NLCL = Nearest Lane Centerline
MPH = Miles Per Hour
ADT = Average Daily Traffic

June 13, 2000

VARIABLE INPUT (as desired)

//	Speed		Vehicle Speed (mph, 0 to 100)	**35**	//
//	Grad		Road Gradient (%, 0 to 6)	0	//
//	Sep1		Centerline Separation (feet)	**15**	//
//	with	>>	(Usually 23' for 2-lane, 38'		//
//	median	>>	for 4-lane, 50' for 6-lane)		//
//	Dist1		Distance from observer to the	100	//
//			nearest lane centerline (>50')		//
//			(used in calculations)		//
//	Dist2		Dist. from ROW to NLC	**22.5**	**HARD**
//			*** Ldn @ 100' (soft)	**50.58**	**53.43**
//	VOL		TOTAL Vehicle Volume (two-w	**1000**	//
//	ALPHA		Hard site=0, Soft site=0.5	0.5	//

//	DISTANCE FROM		R E S U L T S		DISTANCE FROM	
//	Cntrline	ROW			**Centerline**	**ROW**
//	24	-6	**<-- hard**	**60 Ldn soft --->**	**25**	**-4**
//	7	-22		**65 Ldn**	**12**	**-18**
//	2	-27		**70 Ldn**	**5**	**-24**

//	View	View Angle of Observer (180)	180	//
//		SHIELDING (adjust output by hand)		//
//		~~~~~~~~~		//
//	Woods	Thickness of woodland betwee	0	//
//		observer and road (feet)		//
//	Cover	Percent view coverage betwee	0	//
//		observer and road (0-100)		//
//	Rows	Building rows between observe	0	//
//		and roadway (0-4).		//

Existing Conditions: Canyon Boulevard East of Lakeview Drive

A S S U M P T I O N S

(Based on the Federal Highway Administration Traffic Noise Prediction Model)

VARIABLE NAME			DESCRIPTION	VALUE	
			VARIABLE INPUT (as desired)		
Speed			Vehicle Speed (mph, 0 to 100)	**25**	
Grad			Road Gradient (%, 0 to 6)	0	
Sep1			Centerline Separation (feet)	**15**	
	with	>>	(Usually 23' for 2-lane, 38'		
	median	>>	for 4-lane, 50' for 6-lane)		
Dist1			Distance from observer to the	100	
			nearest lane centerline (>50')		
			(used in calculations)		
Dist2			Dist. from ROW to NLC	**22.5**	**HARD**
			*** Ldn @ 100' (soft)	**54.95**	**57.8**
VOL			TOTAL Vehicle Volume (two-w	**5,800**	
ALPHA			Hard site=0, Soft site=0.5	0.5	

DISTANCE FROM Cntrline	DISTANCE FROM ROW	R E S U L T S	DISTANCE FROM **Centerline**	DISTANCE FROM **ROW**
65	35	**<-- hard 60 Ldn soft --->**	**49**	**20**
20	-9	**65 Ldn**	**23**	**-7**
6	-23	**70 Ldn**	**11**	**-19**

View		View Angle of Observer (180)	180	
		SHIELDING (adjust output by hand)		
		~~		
Woods		Thickness of woodland betwee	0	
		observer and road (feet)		
Cover		Percent view coverage betwee	0	
		observer and road (0-100)		
Rows		Building rows between observe	0	
		and roadway (0-4).		

Existing Conditions: Lake Mary Road west of Miller Siding

VARIABLE INPUT (as desired)

Speed			Vehicle Speed (mph, 0 to 100)	**35**	
Grad			Road Gradient (%, 0 to 6)	0	
Sep1			Centerline Separation (feet)	**15**	
	with	>>	(Usually 23' for 2-lane, 38'		
	median	>>	for 4-lane, 50' for 6-lane)		
Dist1			Distance from observer to the	100	
			nearest lane centerline (>50')		
			(used in calculations)		
Dist2			Dist. from ROW to NLC	**22.5**	**HARD**
			*** Ldn @ 100' (soft)	**58.9**	**61.75**
VOL			TOTAL Vehicle Volume (two-w	**6800**	
ALPHA			Hard site=0, Soft site=0.5	0.5	

DISTANCE FROM		RESULTS	DISTANCE FROM	
Cntrline	ROW		**Centerline**	**ROW**
160	131	**<-- hard 60 Ldn soft --->**	**91**	**61**
51	21	**65 Ldn**	**42**	**12**
16	-14	**70 Ldn**	**20**	**-10**

View	View Angle of Observer (180)	180	
	SHIELDING (adjust output by hand)		
	~~		
Woods	Thickness of woodland betwee	0	
	observer and road (feet)		
Cover	Percent view coverage betwee	0	
	observer and road (0-100)		
Rows	Building rows between observe	0	
	and roadway (0-4).		

Existing Conditions: Main Street east of Minaret Road

A S S U M P T I O N S

(Based on the Federal Highway Administration Traffic Noise Prediction Model)

VARIABLE NAME			DESCRIPTION	VALUE	
			VARIABLE INPUT (as desired)		
Speed			Vehicle Speed (mph, 0 to 100)	**35**	
Grad			Road Gradient (%, 0 to 6)	0	
Sep1			Centerline Separation (feet)	**24**	
	with	>>	(Usually 23' for 2-lane, 38'		
	median	>>	for 4-lane, 50' for 6-lane)		
Dist1			Distance from observer to the	100	
			nearest lane centerline (>50')		
			(used in calculations)		
Dist2			Dist. from ROW to NLC	**23**	**HARD**
			*** Ldn @ 100' (soft)	**62.48**	**65.41**
VOL			TOTAL Vehicle Volume (two-w	**16,400**	
ALPHA			Hard site=0, Soft site=0.5	0.5	

DISTANCE FROM Cntrline	DISTANCE FROM ROW	R E S U L T S	DISTANCE FROM **Centerline**	DISTANCE FROM **ROW**
387	353	**<-- hard 60 Ldn soft --->**	**163**	**129**
122	88	**65 Ldn**	**76**	**41**
39	4	**70 Ldn**	**35**	**1**

View	View Angle of Observer (180)	180	
	SHIELDING (adjust output by hand)		
	~~		
Woods	Thickness of woodland betwee	0	
	observer and road (feet)		
Cover	Percent view coverage betwee	0	
	observer and road (0-100)		
Rows	Building rows between observe	0	
	and roadway (0-4).		

Existing Conditions: Main Street west of Old Mammoth Road

A S S U M P T I O N S

(Based on the Federal Highway Administration Traffic Noise Prediction Model)

VARIABLE NAME			DESCRIPTION	VALUE	
			VARIABLE INPUT (as desired)		
Speed			Vehicle Speed (mph, 0 to 100)	**35**	
Grad			Road Gradient (%, 0 to 6)	0	
Sep1			Centerline Separation (feet)	**29**	
	with	>>	(Usually 23' for 2-lane, 38'		
	median	>>	for 4-lane, 50' for 6-lane)		
Dist1			Distance from observer to the	100	
			nearest lane centerline (>50')		
			(used in calculations)		
Dist2			Dist. from ROW to NLC	**18**	**HARD**
			*** Ldn @ 100' (soft)	**62.22**	**65.19**
VOL			TOTAL Vehicle Volume (two-w	**15,900**	
ALPHA			Hard site=0, Soft site=0.5	0.5	

DISTANCE FROM Cntrline	DISTANCE FROM ROW	R E S U L T S	DISTANCE FROM **Centerline**	DISTANCE FROM **ROW**
375	344	**<-- hard 60 Ldn soft --->**	**160**	**128**
119	87	**65 Ldn**	**74**	**43**
38	6	**70 Ldn**	**34**	**3**

View	View Angle of Observer (180)	180	
	SHIELDING (adjust output by hand)		
	~~		
Woods	Thickness of woodland betwee	0	
	observer and road (feet)		
Cover	Percent view coverage betwee	0	
	observer and road (0-100)		
Rows	Building rows between observe	0	
	and roadway (0-4).		

Existing Conditions: Minaret Road north of Mammoth Knolls Drive

A S S U M P T I O N S

(Based on the Federal Highway Administration Traffic Noise Prediction Model)

VARIABLE NAME			DESCRIPTION	VALUE	
			VARIABLE INPUT (as desired)		
Speed			Vehicle Speed (mph, 0 to 100)	**35**	
Grad			Road Gradient (%, 0 to 6)	0	
Sep1			Centerline Separation (feet)	**15**	
	with	>>	(Usually 23' for 2-lane, 38'		
	median	>>	for 4-lane, 50' for 6-lane)		
Dist1			Distance from observer to the	100	
			nearest lane centerline (>50')		
			(used in calculations)		
Dist2			Dist. from ROW to NLC	**22.5**	**HARD**
			*** Ldn @ 100' (soft)	**59.15**	**62**
VOL			TOTAL Vehicle Volume (two-w	**7,200**	
ALPHA			Hard site=0, Soft site=0.5	0.5	

DISTANCE FROM Cntrline	DISTANCE FROM ROW	R E S U L T S	DISTANCE FROM **Centerline**	DISTANCE FROM **ROW**
170	140	**<-- hard 60 Ldn soft --->**	**94**	**64**
54	24	**65 Ldn**	**44**	**14**
17	-13	**70 Ldn**	**20**	**-9**

View		View Angle of Observer (180)	180	
		SHIELDING (adjust output by hand)		
		~~		
Woods		Thickness of woodland betwee	0	
		observer and road (feet)		
Cover		Percent view coverage betwee	0	
		observer and road (0-100)		
Rows		Building rows between observe	0	
		and roadway (0-4).		

Existing Conditions: Minaret Road south of Lake Mary Road

ASSUMPTIONS

(Based on the Federal Highway Administration Traffic Noise Prediction Model)

VARIABLE NAME			DESCRIPTION	VALUE	
			VARIABLE INPUT (as desired)		
Speed			Vehicle Speed (mph, 0 to 100)	**35**	
Grad			Road Gradient (%, 0 to 6)	0	
Sep1			Centerline Separation (feet)	**15**	
	with	>>	(Usually 23' for 2-lane, 38'		
	median	>>	for 4-lane, 50' for 6-lane)		
Dist1			Distance from observer to the	100	
			nearest lane centerline (>50')		
			(used in calculations)		
Dist2			Dist. from ROW to NLC	**22.5**	**HARD**
			*** Ldn @ 100' (soft)	**57.57**	**60.42**
VOL			TOTAL Vehicle Volume (two-w	**5,000**	
ALPHA			Hard site=0, Soft site=0.5	0.5	

DISTANCE FROM Cntrline	DISTANCE FROM ROW	R E S U L T S	DISTANCE FROM **Centerline**	DISTANCE FROM **ROW**
118	88	**<-- hard 60 Ldn soft --->**	**74**	**44**
37	8	**65 Ldn**	**34**	**5**
12	-18	**70 Ldn**	**16**	**-14**

View		View Angle of Observer (180)	180	
		SHIELDING (adjust output by hand)		
		~~		
Woods		Thickness of woodland betwee	0	
		observer and road (feet)		
Cover		Percent view coverage betwee	0	
		observer and road (0-100)		
Rows		Building rows between observe	0	
		and roadway (0-4).		

Existing Conditions: Hillside Drive-Forest Trail to Canyon Boulevard

A S S U M P T I O N S

(Based on the Federal Highway Administration Traffic Noise Prediction Model)

VARIABLE NAME			DESCRIPTION	VALUE	
			VARIABLE INPUT (as desired)		
Speed			Vehicle Speed (mph, 0 to 100)	**35**	
Grad			Road Gradient (%, 0 to 6)	0	
Sep1			Centerline Separation (feet)	**15**	
	with	>>	(Usually 23' for 2-lane, 38'		
	median	>>	for 4-lane, 50' for 6-lane)		
Dist1			Distance from observer to the	100	
			nearest lane centerline (>50')		
			(used in calculations)		
Dist2			Dist. from ROW to NLC	**22.5**	**HARD**
			*** Ldn @ 100' (soft)	**47.57**	**50.42**
VOL			TOTAL Vehicle Volume (two-w	**500**	
ALPHA			Hard site=0, Soft site=0.5	0.5	

DISTANCE FROM Cntrline	DISTANCE FROM ROW	R E S U L T S	DISTANCE FROM **Centerline**	DISTANCE FROM **ROW**
12	-18	**<-- hard 60 Ldn soft --->**	**16**	**-14**
4	-26	**65 Ldn**	**7**	**-22**
1	-29	**70 Ldn**	**3**	**-26**

View		View Angle of Observer (180)	180	
		SHIELDING (adjust output by hand)		
		~~		
Woods		Thickness of woodland betwee	0	
		observer and road (feet)		
Cover		Percent view coverage betwee	0	
		observer and road (0-100)		
Rows		Building rows between observe	0	
		and roadway (0-4).		

Existing + Approved Projects + Specific Plan: Forest Trail west of Minaret Road

ASSUMPTIONS

(Based on the Federal Highway Administration Traffic Noise Prediction Model)

VARIABLE NAME			DESCRIPTION	VALUE	
			VARIABLE INPUT (as desired)		
Speed			Vehicle Speed (mph, 0 to 100)	**35**	
Grad			Road Gradient (%, 0 to 6)	0	
Sep1			Centerline Separation (feet)	**15**	
	with	>>	(Usually 23' for 2-lane, 38'		
	median	>>	for 4-lane, 50' for 6-lane)		
Dist1			Distance from observer to the	100	
			nearest lane centerline (>50')		
			(used in calculations)		
Dist2			Dist. from ROW to NLC	**22.5**	**HARD**
			*** Ldn @ 100' (soft)	**51.75**	**54.6**
VOL			TOTAL Vehicle Volume (two-w	**1,310**	
ALPHA			Hard site=0, Soft site=0.5	0.5	

DISTANCE FROM Cntrline	DISTANCE FROM ROW	R E S U L T S	DISTANCE FROM **Centerline**	DISTANCE FROM **ROW**
31	1	**<-- hard 60 Ldn soft --->**	**30**	**0**
10	-20	**65 Ldn**	**14**	**-16**
3	-27	**70 Ldn**	**6**	**-23**

View	View Angle of Observer (180)	180	
	SHIELDING (adjust output by hand)		
	~~		
Woods	Thickness of woodland betwee	0	
	observer and road (feet)		
Cover	Percent view coverage betwee	0	
	observer and road (0-100)		
Rows	Building rows between observe	0	
	and roadway (0-4).		

Existing + Approved Projects + Specific Plan: Canyon Boulevard East of Lakeview Drive

A S S U M P T I O N S

(Based on the Federal Highway Administration Traffic Noise Prediction Model)

VARIABLE NAME			DESCRIPTION	VALUE	
			VARIABLE INPUT (as desired)		
Speed			Vehicle Speed (mph, 0 to 100)	**25**	
Grad			Road Gradient (%, 0 to 6)	0	
Sep1			Centerline Separation (feet)	**15**	
	with	>>	(Usually 23' for 2-lane, 38'		
	median	>>	for 4-lane, 50' for 6-lane)		
Dist1			Distance from observer to the	100	
			nearest lane centerline (>50')		
			(used in calculations)		
Dist2			Dist. from ROW to NLC	**22.5**	**HARD**
			*** Ldn @ 100' (soft)	**55.49**	**58.34**
VOL			TOTAL Vehicle Volume (two-w	**6,570**	
ALPHA			Hard site=0, Soft site=0.5	0.5	

DISTANCE FROM Cntrline	DISTANCE FROM ROW	R E S U L T S	DISTANCE FROM **Centerline**	DISTANCE FROM **ROW**
73	43	**<-- hard 60 Ldn soft --->**	**54**	**24**
23	-7	**65 Ldn**	**25**	**-5**
7	-22	**70 Ldn**	**12**	**-18**

View		View Angle of Observer (180)	180	
		SHIELDING (adjust output by hand)		
		~~		
Woods		Thickness of woodland betwee	0	
		observer and road (feet)		
Cover		Percent view coverage betwee	0	
		observer and road (0-100)		
Rows		Building rows between observe	0	
		and roadway (0-4).		

Existing + Approved Projects + Specific Plan: Lake Mary Road west of Miller Siding

ASSUMPTIONS

(Based on the Federal Highway Administration Traffic Noise Prediction Model)

VARIABLE NAME			DESCRIPTION	VALUE	
			VARIABLE INPUT (as desired)		
Speed			Vehicle Speed (mph, 0 to 100)	**35**	
Grad			Road Gradient (%, 0 to 6)	0	
Sep1			Centerline Separation (feet)	**15**	
	with	>>	(Usually 23' for 2-lane, 38'		
	median	>>	for 4-lane, 50' for 6-lane)		
Dist1			Distance from observer to the	100	
			nearest lane centerline (>50')		
			(used in calculations)		
Dist2			Dist. from ROW to NLC	**22.5**	**HARD**
			*** Ldn @ 100' (soft)	**59.45**	**62.3**
VOL			TOTAL Vehicle Volume (two-w	**7,710**	
ALPHA			Hard site=0, Soft site=0.5	0.5	

DISTANCE FROM Cntrline	DISTANCE FROM ROW	R E S U L T S	DISTANCE FROM Centerline	DISTANCE FROM ROW
182	152	**<-- hard 60 Ldn soft --->**	**99**	**69**
58	28	**65 Ldn**	**46**	**16**
18	-12	**70 Ldn**	**21**	**-9**

View	View Angle of Observer (180)	180	
	SHIELDING (adjust output by hand)		
	~~		
Woods	Thickness of woodland betwee	0	
	observer and road (feet)		
Cover	Percent view coverage betwee	0	
	observer and road (0-100)		
Rows	Building rows between observe	0	
	and roadway (0-4).		

Existing + Approved Projects + Specific Plan: Main Street east of Minaret Road

A S S U M P T I O N S

(Based on the Federal Highway Administration Traffic Noise Prediction Model)

VARIABLE NAME			DESCRIPTION	VALUE	
			VARIABLE INPUT (as desired)		
Speed			Vehicle Speed (mph, 0 to 100)	**35**	
Grad			Road Gradient (%, 0 to 6)	0	
Sep1			Centerline Separation (feet)	**24**	
	with	>>	(Usually 23' for 2-lane, 38'		
	median	>>	for 4-lane, 50' for 6-lane)		
Dist1			Distance from observer to the	100	
			nearest lane centerline (>50')		
			(used in calculations)		
Dist2			Dist. from ROW to NLC	**23**	**HARD**
			*** Ldn @ 100' (soft)	**63.7**	**66.63**
VOL			TOTAL Vehicle Volume (two-w	**21,730**	
ALPHA			Hard site=0, Soft site=0.5	0.5	

DISTANCE FROM Cntrline	DISTANCE FROM ROW	R E S U L T S	DISTANCE FROM **Centerline**	DISTANCE FROM **ROW**
513	478	**<-- hard 60 Ldn soft --->**	**197**	**162**
162	128	**65 Ldn**	**91**	**57**
51	17	**70 Ldn**	**42**	**8**

View	View Angle of Observer (180)	180	
	SHIELDING (adjust output by hand)		
	~~		
Woods	Thickness of woodland betwee	0	
	observer and road (feet)		
Cover	Percent view coverage betwee	0	
	observer and road (0-100)		
Rows	Building rows between observe	0	
	and roadway (0-4).		

A S S U M P T I O N S

(Based on the Federal Highway Administration Traffic Noise Prediction Model)

VARIABLE NAME			DESCRIPTION	VALUE	
			VARIABLE INPUT (as desired)		
Speed			Vehicle Speed (mph, 0 to 100)	**35**	
Grad			Road Gradient (%, 0 to 6)	0	
Sep1			Centerline Separation (feet)	**29**	
	with	>>	(Usually 23' for 2-lane, 38'		
	median	>>	for 4-lane, 50' for 6-lane)		
Dist1			Distance from observer to the	100	
			nearest lane centerline (>50')		
			(used in calculations)		
Dist2			Dist. from ROW to NLC	**18**	**HARD**
			*** Ldn @ 100' (soft)	**63.31**	**66.29**
VOL			TOTAL Vehicle Volume (two-w	**20,450**	
ALPHA			Hard site=0, Soft site=0.5	0.5	

DISTANCE FROM Cntrline	DISTANCE FROM ROW	R E S U L T S	DISTANCE FROM **Centerline**	DISTANCE FROM **ROW**
483	452	**<-- hard 60 Ldn soft --->**	**189**	**157**
153	121	**65 Ldn**	**88**	**56**
48	17	**70 Ldn**	**41**	**9**

View	View Angle of Observer (180)	180	
	SHIELDING (adjust output by hand)		
	~~		
Woods	Thickness of woodland betwee	0	
	observer and road (feet)		
Cover	Percent view coverage betwee	0	
	observer and road (0-100)		
Rows	Building rows between observe	0	
	and roadway (0-4).		

Existing + Approved Projects + Specific Plan: Minaret Road north of Mammoth Knolls Drive

A S S U M P T I O N S

(Based on the Federal Highway Administration Traffic Noise Prediction Model)

VARIABLE NAME			DESCRIPTION	VALUE	
			VARIABLE INPUT (as desired)		
Speed			Vehicle Speed (mph, 0 to 100)	**35**	
Grad			Road Gradient (%, 0 to 6)	0	
Sep1			Centerline Separation (feet)	**15**	
	with	>>	(Usually 23' for 2-lane, 38'		
	median	>>	for 4-lane, 50' for 6-lane)		
Dist1			Distance from observer to the	100	
			nearest lane centerline (>50')		
			(used in calculations)		
Dist2			Dist. from ROW to NLC	**22.5**	**HARD**
			*** Ldn @ 100' (soft)	**60.31**	**63.16**
VOL			TOTAL Vehicle Volume (two-w	**9,400**	
ALPHA			Hard site=0, Soft site=0.5	0.5	

DISTANCE FROM Cntrline	DISTANCE FROM ROW	R E S U L T S	DISTANCE FROM **Centerline**	DISTANCE FROM **ROW**
222	192	**<-- hard 60 Ldn soft --->**	**112**	**83**
70	40	**65 Ldn**	**52**	**22**
22	-8	**70 Ldn**	**24**	**-5**

View		View Angle of Observer (180)	180	
		SHIELDING (adjust output by hand)		
		~~		
Woods		Thickness of woodland betwee	0	
		observer and road (feet)		
Cover		Percent view coverage betwee	0	
		observer and road (0-100)		
Rows		Building rows between observe	0	
		and roadway (0-4).		

Existing + Approved Projects + Specific Plan: Minaret Road south of Lake Mary Road

A S S U M P T I O N S

(Based on the Federal Highway Administration Traffic Noise Prediction Model)

VARIABLE NAME			DESCRIPTION	VALUE	
			VARIABLE INPUT (as desired)		
Speed			Vehicle Speed (mph, 0 to 100)	**35**	
Grad			Road Gradient (%, 0 to 6)	0	
Sep1			Centerline Separation (feet)	**15**	
	with	>>	(Usually 23' for 2-lane, 38'		
	median	>>	for 4-lane, 50' for 6-lane)		
Dist1			Distance from observer to the	100	
			nearest lane centerline (>50')		
			(used in calculations)		
Dist2			Dist. from ROW to NLC	**22.5**	**HARD**
			*** Ldn @ 100' (soft)	**60.14**	**62.99**
VOL			TOTAL Vehicle Volume (two-w	**9,040**	
ALPHA			Hard site=0, Soft site=0.5	0.5	

DISTANCE FROM Cntrline	DISTANCE FROM ROW	R E S U L T S	DISTANCE FROM **Centerline**	DISTANCE FROM **ROW**
213	184	**<-- hard 60 Ldn soft --->**	**110**	**80**
68	38	**65 Ldn**	**51**	**21**
21	-8	**70 Ldn**	**24**	**-6**

View	View Angle of Observer (180)	180	
	SHIELDING (adjust output by hand)		
	~~		
Woods	Thickness of woodland betwee	0	
	observer and road (feet)		
Cover	Percent view coverage betwee	0	
	observer and road (0-100)		
Rows	Building rows between observe	0	
	and roadway (0-4).		

Robert Bein, William Frost & Associates. 13-Jun-00 JN (NS)

Existing + Approved Projects + Specific Plan: Hillside Drive-Forest Trail to Canyon Boulevard

A S S U M P T I O N S

(Based on the Federal Highway Administration Traffic Noise Prediction Model)

VARIABLE NAME			DESCRIPTION	VALUE	
			VARIABLE INPUT (as desired)		
Speed			Vehicle Speed (mph, 0 to 100)	**35**	
Grad			Road Gradient (%, 0 to 6)	0	
Sep1			Centerline Separation (feet)	**15**	
	with	>>	(Usually 23' for 2-lane, 38'		
	median	>>	for 4-lane, 50' for 6-lane)		
Dist1			Distance from observer to the	100	
			nearest lane centerline (>50')		
			(used in calculations)		
Dist2			Dist. from ROW to NLC	**22.5**	**HARD**
			*** Ldn @ 100' (soft)	**53.13**	**55.98**
VOL			TOTAL Vehicle Volume (two-w	**1,800**	
ALPHA			Hard site=0, Soft site=0.5	0.5	

DISTANCE FROM Cntrline	DISTANCE FROM ROW	R E S U L T S	DISTANCE FROM **Centerline**	DISTANCE FROM **ROW**
42	13	**<-- hard 60 Ldn soft --->**	**37**	**8**
13	-16	**65 Ldn**	**17**	**-12**
4	-25	**70 Ldn**	**8**	**-22**

View		View Angle of Observer (180)	180	
		SHIELDING (adjust output by hand)		
		~~		
Woods		Thickness of woodland betwee	0	
		observer and road (feet)		
Cover		Percent view coverage betwee	0	
		observer and road (0-100)		
Rows		Building rows between observe	0	
		and roadway (0-4).		

16.7

PRELIMINARY SOILS REPORT

FOR

PHASE I OF GONDOLA VILLAGE
MAMMOTH LAKES, MONO COUNTY, CALIFORNIA

JUNE, 1999
W.O. 3.01769

Prepared By:

SIERRA GEOTECHNICAL SERVICES, INC.
P.O. Box 5024
Mammoth Lakes, California 93546
(760) 934-3992

Thomas A. Platz, Pres.
P.E. C-41039

TABLE OF CONTENTS

LIST OF ATTACHMENTS

SITE DESCRIPTION

The Gondola Village Phase I is located approximately four and one-half miles west of the intersection of State Highway 395 and State Route 203 in Mammoth Lakes, California (see Vicinity Map, Figure 1). More specifically, the site is situated on the west side of Minaret Road approximately one-quarter mile north of the intersection of Main Street and Minaret Road.

Numerous structures including theTravel Lodge Motel, two apartments and several cabins are presently located within the site area. The proposed Phase I Gondola Village area is bounded by Minaret Road on the east, Forest Trail on the north, Hillside Drive on the west and Canyon Boulevard on the south. The site slopes from north-northwest to south-southeast at grades ranging from 10% within the western portion of the site flattening to 2% within the eastern portion. The project area ranges in elevation from 8,085 to 8,045 feet above mean sea level.

Outside of the previously described structures moderate to dense forest consisting of Pine and Fir trees covers the site.

Overall site drainage is by sheetflow runoff of incident rainfall and snowmelt.

PROPOSED DEVELOPMENT

Phase I of The Gondola Village Plan will consist of a five story condominium complex with adjoining conference center, restaurant and retail stores. The proposed development area is shown on Plate A. The base garage floor elevation is expected to be set at an elevation of approximately 8,045.

Access to Phase I will be from Forest Trail and Minaret Roads. Maximum excavation depths will be on the order of 25 feet. A cross section through the project area is included herein as Plate B.

GEOLOGIC FEATURES AND SEISMICITY

The site is located approximately one mile southwest of the southwest rim of the Long Valley Caldera, which formed approximately 700,000 years ago. Volcanic activity has continued in and around the vicinity of Mammoth Lakes since the eruption that formed the Caldera with the last occurrence taking place within the last 700 years. The site is located within a potential volcanic hazard zone as is the entire Town of Mammoth Lakes.

The site is not located within a Alquist-Priolo Special Studies Fault Zone. The closest study zone is approximately one-half mile west of the site, where deformation was detected during the 1980 earthquake swarm in Mammoth Lakes. No faults have been mapped within the subject site. The site is situated within 2.5 miles of the Hartley-Springs fault, a level 'B' fault shown on the Near Source Fault Maps prepared by the USGS for the 1997 Uniform Building Code.

SURFICIAL EARTH MATERIALS

Six exploratory borings were drilled within the proposed Phase I Gondola Village Complex. Three additional borings were drilled south of the existing alignment of Canyon Blvd. and Phase 1 of Gondola Village. Locations of the borings are shown on Plate A. Detailed logs of the exploratory borings are contained herein in Appendix A.

Ancient landslide debris deposits underlie the fill and mantle the entire site to the depths explored in borings 4, 6, and 9. Underlying the ancient landslide debris deposits in borings 1, 2, 3, 5 and 7 are volcanic and pyroclastic debris deposits.

I. Fill

Fill was encountered in boring #2 to a depth of seven feet and consists of very fine to medium grained sand with gravels and asphalt fragments. The fill is mottled, brown in color, moderately loose to firm in consistency, and moist at the time of this investigation. The fill is unsuitable for foundation or pavement support and should be removed and recompacted within all structural areas.

II. Ancient Landslide Debris Deposits

Ancient landslide debris deposits underlie the fill and mantle the entire site. The upper five feet of the landslide debris deposits consist of very fine to medium grained sand with cobbles and boulders. Within forest areas the upper 2-3 feet of soil is highly rooted. The landslide debris soils are brown in color, firm in consistency and were moist at the time of this investigation. Underlying the upper landslide soil to the depths explored in borings 4, 6, 8 and 9 are fine to coarse grained sands and gravelly sands with lenses of very fine to fine sand. The lower landslide debris soils are rust and gray in color, medium dense to dense in consistency, and well indurated and partially cemented within some areas at depth. The upper 2 to 3 feet of the landslide debris deposits within forested areas should be removed, cleaned of organic matter and oversize rock, and recompacted in all structural areas where little or no excavation is expected where little or no excavation is expected. The landslide debris deposits encountered below five feet will provide excellent foundation support.

III. Volcanic and Pyroclastic Fill Deposit

Volcanic and pyroclastic fill deposits underlie the ancient landslide debris deposits in borings 1, 2, 3, 5 and 7. The deposits consist of weathered rhyolitic ash and very fine to medium grained ash with pebbles and cobbles. The deposits are maroon to tan in color and firm to medium dense in consistency. The deposits are suitable for foundation support provided the recommendations contained herein are adhered to during site development.

GROUNDWATER

Slight to moderate groundwater seepage was encountered in exploratory borings 3, 4, 5, 6, 8 and 9 at depths ranging from 9 to 24 feet at the time of this investigation. Heavy seepage was encountered in borings 1, 2, 4 and 8 at depths ranging from 37 to 44 feet. It should be noted that the level of groundwater observed in the tests pits reflect site conditions at the time of investigation and do not preclude changes in local groundwater conditions in the future.

Slight to moderate groundwater seepage may be anticipated where excavation will be greater than 8 feet. Therefore dewatering of areas during garage construction should be anticipated.

FIELD AND LABORATORY TESTING

Field sampling and testing consisted of seven borings drilled to a maximum depth of 50 feet. Standard penetration testing was performed in all borings and the results of the tests are presented on the boring loop.

The laboratory testing program consisted of shear testing moisture density calculations of undisturbed samples obtained during exploratory drilling investigation. In addition to sieve analysis, results of SGSI laboratory testing programs are attached herein in Appendix A.

CONCLUSIONS AND RECOMMENDATIONS

Based on our field sampling and laboratory testing of undisturbed samples, the proposed Phase I Gondola Village development is feasible from a geotechnical stand point. The recommendations contained herein should be adhered to during planning and development phases of the project.

I. Grading Specifications

Subgrade preparation for areas receiving fills and soil placement recommendations:

1. Prior to placement of compacted fill, the subject site shall be cleared of topsoil, existing fill and any other deliterious materials. The removal area shall extend five feet beyond the proposed structure or roadway.
2. The existing topsoil and fill on the site is suitable for placement as compacted fill provided organics, oversized rock (greater than three inches) and foreign debris are removed. Any import soils shall be tested for suitability in advance by the Geotechnical Engineer.
3. Surfaces receiving fill soils shall be scarified, aerated, or moistened to a moisture content acceptable to the Geotechnical Engineer and compacted to no less than 95 percent of the material's maximum density as determined by ASTM D-1557-78. The Geotechnical

Engineer shall approve and test all removed areas prior to placing compacted fill.

4. If the moisture content of the fill soils is below the limits specified by the Geotechnical Engineer, water shall be added until the moisture content is as required.
5. If the moisture content of the fill soils is above the limits specified by the Geotechnical Engineer, the fill shall be aerated by blading or other satisfactory methods until the moisture content is as required. The wet soils may be mixed with drier materials in order to achieve acceptable moisture content.
6. All fill soils shall be placed in lifts such that after compaction they do not exceed eight inches in thickness and compacted until field density tests indicate that a compaction of no less than 95 percent of the maximum density as determined by ASTM D-1557-90 has been obtained. Fill placed in non-structural areas shall be compacted to a minimum of 85 percent of the material's maximum density.
7. Field density tests shall be made in accordance with ASTM D-1556-82. Field density tests shall be made for every two-foot vertical interval and not less than one test shall be performed for every 500 cubic yards of fill placed.
8. All slopes shall be compacted in a single continuous operation upon completion of grading by means of sheepsfoot or other suitable equipment, or all loose soils remaining on the slopes shall be trimmed back until a firm compacted surface is exposed. Slope compaction tests shall be made within one foot of slope surface. At least one test

shall be made for each 1,000 square feet of slope surface and not less than one test per each ten feet of slope height.

9. Rocks greater than six inches and less than two feet in diameter can be placed in the bottom of deeper fills or approved areas provided they are selectively placed in such a manner that no large voids are created. All rocks shall be placed a minimum of four feet below finish grade elevation unless used for landscaping purposes.
10. Fills placed on slopes steeper than 5:1 horizontal to vertical shall be keyed into firm natural soils by a series of benches.
11. Cut and fill slopes shall be a maximum of 2:1 (horizontal to vertical unless approved by the Geotechnical Engineer.
12. No fill soils shall be placed during unfavorable weather conditions. When rains interrupt work, fill operations shall not be resumed until the field tests by the Geotechnical Engineer indicate that the moisture content and density of the fill area as previously specified.
13. Planting and irrigation of cut and fill slopes and installation of erosion control and drainage devices shall comply with the requirement of the Town of Mammoth Lakes Public Works Department.

II. Temporary Excavations

Temporary excavation slopes shall be made no steeper than ½:1 (horizontal to vertical). The recommended slope for temporary excavations does not preclude local raveling and sloughing. Where wet soils are exposed, flatter excavation slopes and dewatering may be necessary. In areas of insufficient space for slope cuts, or where soils with little or no binder are encountered, shoring shall be used.

All excavations shall be made in accordance with the requirements of the California Construction and General Industry Safety Orders and the Occupational Safety and Health Act and other public agencies having jurisdiction.

III. Observation

As a necessary requisite to subdrain installation and grading operations, representatives of this facility should observe the following:

1. Temporary excavations
2. Installation of subdrain systems
3. Grading and fill compaction
4. Foundation excavations

IV. Paving Recommendations

A design traffic index of five is anticipated for the proposed access drives within the development areas, and a traffic index of eight is anticipated for the Canyon Blvd. realignment. In this regard, the following recommendations should be adhered to during construction.

- The upper 12 inches of subgrade underlying the proposed street area shall be compacted to a minimum of 95 percent of the material's maximum density as determined by ASTM D-1557-78.
- The recommended street section for the access driveway shall consist of three inches of asphalt concrete underlain by four inches of Class 2 aggregate base compacted to 95 percent of the material's maximum density.

- The recommended street section for Canyon Blvd realignment shall consist of three inches of asphalt concrete underlain by six inches of Class 2 aggregate base compacted to 95 percent. Our experience with similar soils indicates that the above recommendations will be adequate for the proposed street and drives.

FOUNDATION RECOMMENDATIONS

I. Footings

The proposed structure can be supported on conventional spread or pad footings founded in competent native soils or compacted fill. Exterior foundations should be founded a minimum of 18 inches below the lowest adjacent grade. Interior foundations should be founded a minimum of 12 inches below the finish floor elevation.

Continuous and isolated column foundations should be sized according to the allowable soil bearing pressures shown in Table I. The pressures shown on Table I are for dead load plus long-term live load, including snow load, and may be increased by one-third for total load including wind and seismic forces. Passive soil resistance to lateral footing pressure may be calculated using an equivalent fluid weight or a base coefficient of friction as given in Table I. We recommend that the friction coefficient be reduced by one-half if both passive and frictional resistances are assumed to act simultaneously. All footings should be poured neat against undisturbed soil. If forms are used, the excavation adjacent to the footings should be backfilled with on-site soils compacted to at least 90 percent relative compaction.

Table I – Allowable Soil Bearing Pressures

Depth Below The Existing Ground Surface	Allowable Soil Bearing Pressure(psf)	Passive Soil Resistance Equivalent Fluid Weight(pcf)	Base Coefficient of Friction
Upper 5' Or compacted fill	3,000	350	0.35
5' – 10'	4,500	400	0.40
10' & Below	6,000	500	0.45

II. Retaining Wall Foundations

Continuous retaining wall footings should be founded in competent native soil or compacted fill. Footing should be founded a minimum of 24 inches below lowest adjacent grade. Footings conforming to the above recommendations may be designed using an allowable soil bearing pressure of 3,500 pounds per square foot. In areas where the lower side of the footing for retaining walls are located on a slope, an allowable soil bearing pressure of 2,500 P.S.F. should be used for design.

Resistance to lateral footing pressure may be calculated using the equivalent fluid unit weight or base coefficient of friction as contained in Table I for a horizontal surface. Footings for walls should be poured neat against undisturbed soils, if possible. If forms are used for footings, they should be backfilled with materials from the excavation and compacted to at least 90 percent relative compaction.

III. Dewatering

Excavations of 5 feet or greater in depth will require dewatering. Dewater pumps and piping should be sufficiently sized to remove all water within the excavation perimeter. Permanent dewatering facilities such as a subdrain should be sized to convey drainage to an approved outlet.

IV. Estimated Settlements

The total post construction settlements are estimated to be one-half or less if the foundation recommendations provided in this report are conformed to. Post-construction differential settlements should be one-quarter inch or less. Settlements for similarly loaded footings located on varying thickness' of fill may experience differential settlements on the order of 0.5 percent of the difference in fill thickness beneath the footings.

We recommend that the foundation plans be reviewed once detailed loading conditions are known to confirm the estimated settlements mentioned above.

V. Lateral Earth Pressures for Structures

Fully or partially earth sheltered walls will act as retaining structures. Such walls are typically restrained against rotation. For walls which are restrained at both the top and bottom, an at-rest earth pressure of 50 pounds per cubic foot equivalent fluid pressure should be used. Passive soil resistance to lateral movement may be calculated using an equivalent fluid pressure of 400 pounds per cubic foot for a horizontal surface. A triangular distribution should be used for the pressures

previously mentioned. These design pressures assume that the horizontal backfill permeable material and acceptable on-site soils compacted to at least 90 percent compaction. Overcompaction can result in greater loads on the wall than the design loads mentioned previously. Positive drainage away from the structure should be provided to minimize the infiltration of surface water. For cantilevered walls which are free to rotate about the base, an active pressure of 30 pounds p.c.f. should be used in the wall design.

VI. Lateral Earth Pressures for Free Standing Retaining Walls

Active and passive lateral earth pressures for use in cantilever retaining wall design are presented in Table II.

Table II – Lateral Earth Pressures

Slope of Backfill Behind Retaining Wall	Lateral Earth Pressure in Equivalent Fluid Weight(pcf)	
	Active Case	Passive Case
Horizontal	30	400
2:1 (H:V)	40	200

The earth pressures are given in terms of equivalent fluid pressures for walls having backfills of horizontal and 2 to 1 slopes. Additional surcharge loads due to adjacent parking areas or structures should be accounted for in the design of the retaining wall. Backfill behind all retaining walls should consist of free-draining materials approved by the Geotechnical Engineer prior to placement. Backfill within two feet of retaining walls should be compacted with hand-operated, light compaction equipment. The use of heavy compaction equipment could easily

exceed the design lateral pressures and overstress the retaining wall. All backfill should be compacted to at least 90% of the material's maximum dry density. Drainage may consist of weep holes through the wall or continuous drains installed along the base of the wall.

VII. Concrete Slab-on-Grade Floors

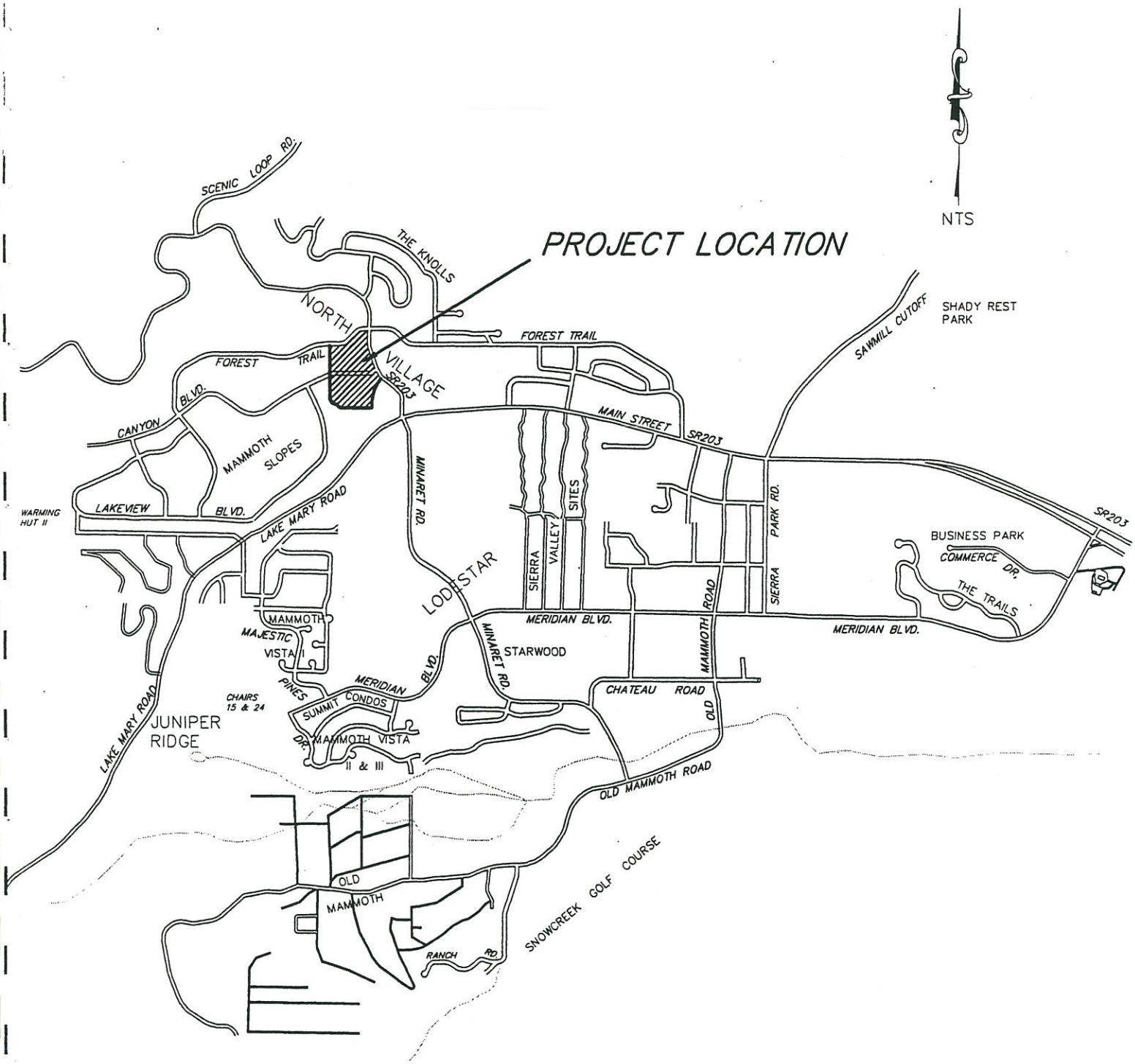
The native soils will provide adequate support for concrete slabs provided the on-site materials will be prepared per our grading recommendations prior to placement of the slab. Native or fill subgrade soils underlying concrete slabs shall be compacted to a minimum of 90 percent of the material's maximum dry density for the upper 12 inches. SGSI recommends that an impervious membrane be placed under the floor slab for protection of the slab from migrating soil moisture. The membrane should be protected with at least two inches of clean sand placed over the membrane. The sand should be kept moist until placement of the concrete to facilitate curing.

REVIEW

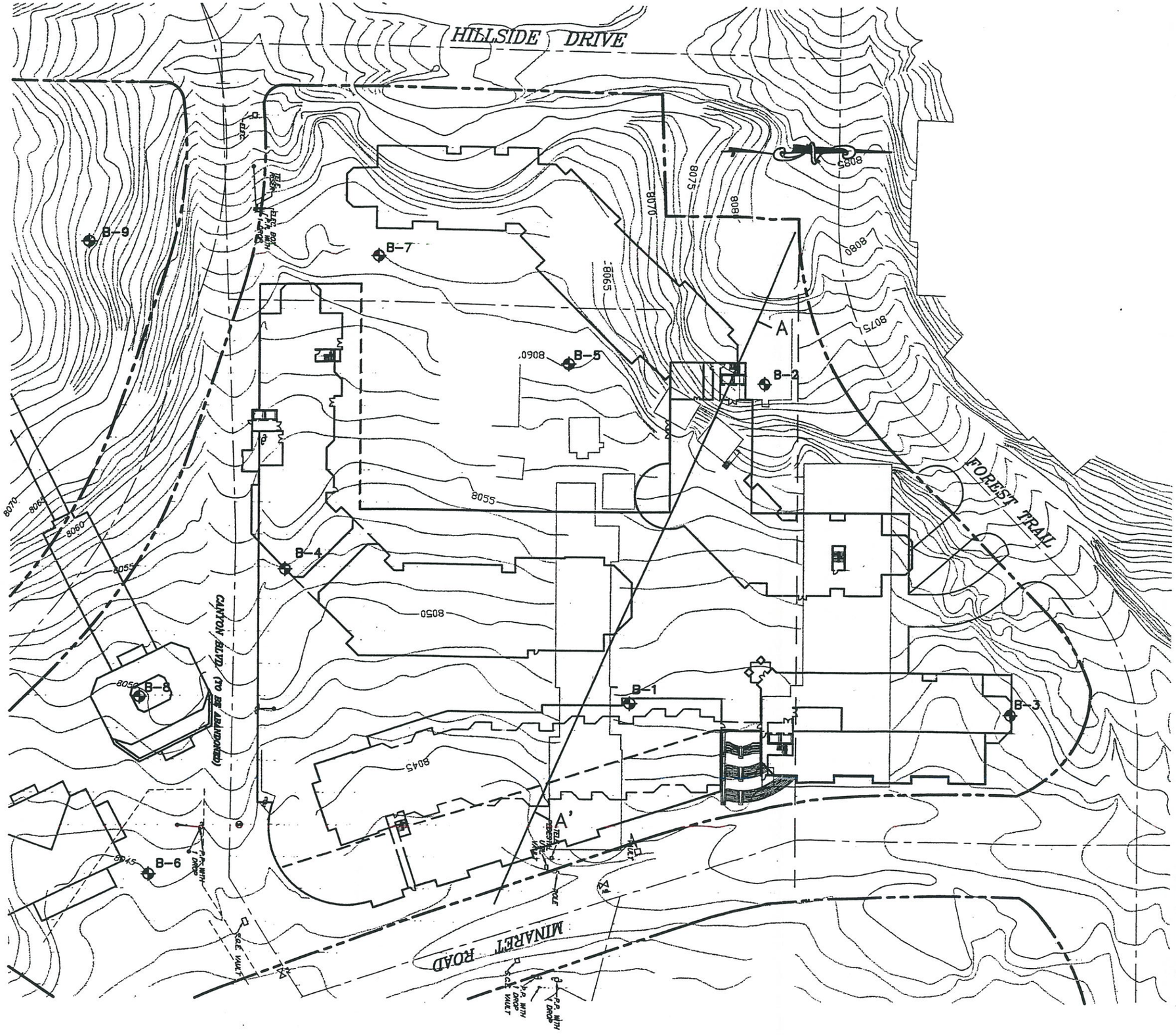
This report was prepared based upon an anticipated site development. If plans differ substantially from anticipated construction as described in this report, additional geotechnical work may be required. If geotechnical conditions encountered during grading differ substantially from those described herein, evaluation of those conditions should be requested from this office. Additional or modified recommendations may be offered at that time.

LIMITATIONS

The materials encountered in our exploratory test pits on the project site and in our laboratory study are believed to be representative of the total area. However, earth materials may vary in character between excavations. Since our study is based on the site material observed, selective laboratory testing and engineering analyses, the conclusions and recommendations are professional opinions. These opinions have been derived in accordance with the current standards of practice and no warranty is expressed nor implied.



SIERRA GEOTECHNICAL SERVICES, INC.	
JOB NO.: 1769	DATE: 6/2/99
DWG NAME: VicinityMap.dwg	DRAWN BY: TP
FIGURE NAME: VICINITY MAP	
FIGURE NO.: FIGURE 1	



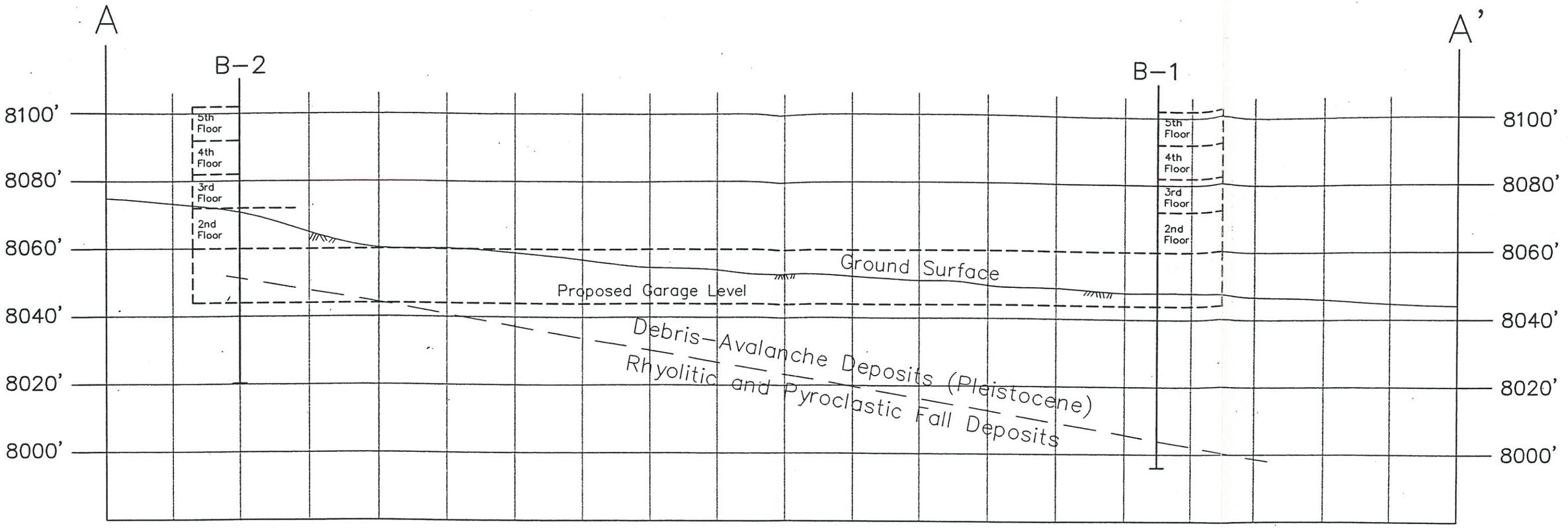
LEGEND

APPROXIMATE LOCATION OF EXPLORATORY TEST PIT

A — A' LOCATION OF CROSS SECTION

SIERRA GEOTECHNICAL SERVICES, INC.	
JOB NO.: 1644	DATE: 5/20/99
DWG NAME: 1644BORLOC.DWG	DRAWN BY: AWV
FIGURE NAME: TEST PIT LOCATION MAP	
FIGURE NO.: PLATE A	

SITE PLAN/EXPLORATORY BORING LOCATION MAP



SIERRA GEOTECHNICAL SERVICES, INC.		
JOB NO.: 3.01769	DATE: 6/1/99	
DWG NAME: A-A'xsect.dwg	DRAWN BY: PS	SCALE: 1"=30'
FIGURE NAME: CROSS SECTION A - A'		
FIGURE NO.: PLATE B		

SIERRA GEOTECHNICAL SERVICES INC.

September 24, 1999

VIA FAX AND MAIL (949) 837-4122

RECEIVED
SEP 29 1999
ROBERT BEIN, WM FROST

Mr. Glenn Lajoie
RBF Engineering
14725 Alton Parkway
Irvine, California 92618-2069

Subject: Gondola Village Groundwater Concern

Dear Mr. Lajoie:

You recently requested information regarding disposal of groundwater or perched water if encountered during construction of Gondola Village.

Groundwater seepage was encountered between 37 feet and 44 feet below the surface in borings drilled during the soils investigation for the project. Groundwater elevations fluctuate seasonally being highest in June and July due to percolation of snowmelt. Typically groundwater depths vary a maximum of 10 to 15 feet in any given season. Therefore the highest groundwater level expected is 22 feet below the surface.

When the soils investigation was completed in April 1999, the maximum foundation depths for the then proposed development were on the order of 30 feet. The development has changed since the investigation and the maximum depth of foundations below the surface is less than 15 feet. Therefore groundwater is not expected to be encountered during construction.

However if groundwater is encountered it will be removed from the area under construction. The expected method of removal will be by directing the groundwater to a well point (collection basin) by a temporary subdrain system or by the installation of a permanent subdrain. The groundwater will be discharged to the 72-inch storm drain by either pumping from the well point or by gravity flow to the most accessible storm drain system inlet. Groundwater is clean (free of silt and contaminants) in the area and can be disposed of directly into the storm drain system without degrading surface waters.

Please feel free to contact me if you have any questions.

Yours truly,
SIERRA GEOTECHNICAL SERVICES

Thomas A. Platz, Pres.
P.E. C41039

REGISTERED PROFESSIONAL ENGINEER
THOMAS A. PLATZ
No. C 41039
Exp. 3/31/03
CIVIL
STATE OF CALIFORNIA

TAP:jj
cc: Ed Brisson
Karen Johnston

P.O. BOX 5024, MAMMOTH LAKES, CA 93546 • (760) 934-3992 • FAX (760) 934-5619