FINAL
ENVIRONMENTAL
IMPACT
REPORT
VOLUME I

DRAFT
EIR

LODESTAR

AT

M A M M O T H

PREPARED
FOR
THE
TOWN
OF
MAMMOTH
LAKES

FEBRUARY
1991

EIP
ASSOCIATES

LODESTAR FINAL EIR
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1. INTRODUCTION

1. INTRODUCTION

Purpose and Content of Final EIR

This Final Environmental Impact Report has been prepared for the Town of Mammoth Lakes (Town) Planning Department in accordance with Town requirements, the California Environmental Quality Act (CEQA) (Public Resources Code Section 2100 *et seq.*), and State CEQA Guidelines (14 California Administrative Code Section 15000 *et seq.*). This Final EIR contains the Draft Environmental Impact Report (DEIR) for the Lodestar Master Plan, comments received during the public review period on the DEIR, written responses to those comments, and a Mitigation Monitoring Program for the Project.

The Environmental Process

Initial Study and Notice of Preparation

An Initial Study (IS) was prepared by the Town of Mammoth Lakes Planning Department for the proposed Project on January 8, 1990. The IS determined that development of the proposed Project may have significant environmental effects in the following environmental issue areas:

- Geology, Soils, and Seismicity
- Hydrology and Water Quality
- Biotic Resources
- Jobs/Housing Relationship
- Utilities
- Traffic
- Air Quality
- Noise
- Archaeological Resources
- Aesthetics/Visual Quality
- Public Services/Fiscal Impacts

A Notice of Preparation for the Draft EIR was issued by the Town Planning Department to affected public agencies on January 9, 1990.

Draft EIR

The Draft EIR was published in November 1990 and distributed for review and comment to the public and interested public agencies from November 14, 1990 to December 28, 1990. A public hearing was held at the Town Community Center on December 12, 1990, at 9:00 AM to receive comments on the Draft EIR. All verbal comments at the Planning Commission Hearing were noted and recorded. Written comments from the public and interested public agencies on the Draft EIR were received by the Town of Mammoth Lakes during the public review period.

Final EIR

The Final EIR (FEIR) is prepared to respond to all formal comments (written and oral) on the Draft EIR. Copies of all written and verbal comments received on the Draft EIR are contained in **Responses to Comments** in **Volume II** of this report. The comments within each letter were bracketed and assigned numbers indicated in the margin of each page next to the comments. The Town has prepared responses to each comment, and these responses, corresponding to the numbered comments, directly follow each letter.

The Town will review and consider the FEIR prior to their decision to approve, revise, or reject the proposed Project.

Upon review and consideration of the FEIR, the Town may approve the proposed Project. Approval of the proposed Project would be accompanied by written findings for each significant environmental effect identified in the EIR. When making findings, the Town must adopt a monitoring or reporting program, as described below, for mitigation measures that have been incorporated into the approved Project to reduce or avoid significant effects on the environment. This monitoring or reporting program would be designed to ensure CEQA compliance during Project implementation.

Project Approval

The Lodestar Master Plan will be reviewed by the Planning Commission which will forward its recommendations to the Town Council. The Town Council will approve, modify, or deny the Master Plan. Final Project design incorporating Master Plan standards, mitigation measures of this EIR, and any subsequent environmental review required by detailed studies will be reviewed by the Planning Commission.

Mitigation Monitoring

CEQA requires that project approval be accompanied by adoption of a monitoring program for the project to ensure that conditions of approval are implemented in order to mitigate or avoid significant effects on the environment [Public Resources Code Section 21081.6, AB 3180,

(1988)]. The monitoring program must be designed to ensure compliance during project implementation (Public Resources Code Section 21081.6).

Organization of this Report

This report consists of three volumes: Volume I - Draft EIR; Volume II - Comments and Responses and the Mitigation Monitoring Program; Volume III - Appendices.

Volume I: Draft EIR comprises nine chapters: 1. Introduction; 2. Project Description; 3. Summary of Environmental Impacts and Mitigation Measures; 4. Environmental Impact Analysis; 5. CEQA Considerations (Relationship Between Local Short-Term Uses of Man's Environment and Enhancement of Long-Term Productivity, Significant Irreversible Effects, and Cumulative Impacts); 6. Growth-Inducing Impacts of the Proposed Project; 7. Significant Unavoidable Environmental Impacts of the Proposed Project; 8. Alternatives; 9. Organizations and Persons Contacted; and 10. EIR Authors.

1. **Introduction** contains a brief overview of the environmental process and outline of the report.

2. **Project Description** contains a discussion of type of EIR (program vs. project-specific EIR), statement of Project objectives, Project location, Project characteristics, and outline of Project development phasing.

3. **Summary of Environmental Impacts and Mitigation Measures** contains a brief project description, a summary discussion of potential areas of controversy, significant impacts, mitigation measures to avoid or reduce identified significant impacts, unavoidable significant impacts, and project alternatives. Also included is Table 3-1, Summary of Environmental Impacts and Mitigation Measures, which summarizes identified impacts, level of significance of impacts prior to mitigation, recommended mitigation measures for each impact, and level of significance of impacts after implementation of the recommended mitigation measures.

4. **Environmental Impact Analysis** contains the environmental impact analyses for each of the environmental issue areas identified as having potential impacts on the environment as a result of development of the proposed Project.

5. **CEQA Considerations** contains discussion of long-term impacts of the proposed Project in the following areas: Relationship Between Local Short-Term Uses of Man's Environment and Enhancement of Long-Term Productivity; Significant Irreversible Effects, and Cumulative Impacts.

6. **Growth-Inducing Impacts of the Proposed Project** contains a detailed discussion of growth-inducing impacts resulting from development of the proposed Project.

7. **Significant Unavoidable Environmental Impacts of the Proposed Project** presents a summary of significant environmental impacts that are unavoidable as a result of development of the proposed Project.

8. **Alternatives** contains a detailed discussion of alternatives to the proposed Project: No Project; Alternative Site; and Reduced Project Size.

9. **Organizations and Persons Contacted** contains a list of organizations and persons contacted during the course of preparation of the Draft and Final EIRs.

10. **EIR Authors** contains a list of the persons involved in the preparation of the Draft and Final EIRs.

Volume II: ***Responses to Comments*** contains a reproduction of each letter showing the numbered and bracketed comments on the Draft EIR and written responses to these comments.

Mitigation Monitoring Program contains the following sections:

- Section 1 - Introduction: Provides an overview of CEQA's monitoring and reporting requirements, program objectives, the project for which the program has been prepared, and the way in which the Mitigation Monitoring Program has been organized.

- Section 2 - Program Description: Describes the Town of Mammoth entities that are responsible for the implementation of the Mitigation Monitoring Program, the program scope, procedures for monitoring, public availability of documents, the process for making changes to the program, and the way in which monitoring will be coordinated to ensure implementation of mitigation measures.

- Section 3 - Mitigation Monitoring Form: Outlines the impacts and mitigation measures, responsible entities, and the timing for monitoring each mitigation measure included in the program.

- Section 4 - Report Preparation: Lists the persons involved in development of the Mitigation Monitoring Plan.

Volume III: ***Appendices*** consist of:

Appendix A - Notice of Preparation/Initial Study

Appendix B - Notice of Preparation Comments

Appendix C - Guidelines for Erosion Control in the Mammoth Lakes Area

Appendix D - Biotic Resources Survey

Appendix E - Traffic Study

Appendix F - Archaeological Survey Report

2. PROJECT DESCRIPTION

2. *PROJECT DESCRIPTION*

Type of EIR

The development project described in this EIR would be built in several phases over a period of years. The exact configuration and timing of future phases (beyond Phase One) has not yet been established and is highly influenced by Project success and market conditions.

This EIR is *not* intended as the complete environmental review for all phases of the Lodestar Project. Rather, this EIR is a ***Program EIR*** which discusses potential impacts and mitigation measures at the Master Plan level. In addition, specific approval is sought for Phase One of the Project, as described below.

Each development phase (after Phase One) would require separate entitlement review and approval (e.g., Conditional Use Permit, tentative tract map, etc.) and an additional environmental review. The purpose of the later environmental review(s) is to analyze detailed, project-specific development plans for consistency with the adopted Master Plan, the occurrence of changed environmental conditions, and so on. The overall program of mitigation measures established in this Program EIR would be applied to each future phase of the Project and would be supplemented by additional mitigation measures specific to the phase under review. This concept of environmental review at both the Master Plan and project-specific levels is called "tiering" by CEQA (Section 15152 of CEQA Guidelines).

Project Objectives

In proposing this development the Project Applicant has the following objectives:

- To design and develop a resort and country club that is compatible with adjacent and surrounding land uses;
- To construct a project that will have the fewest short- and long-term environmental impacts as is practically and feasibly possible;
- To provide both short- and long-term economic benefit to both the region and Town of Mammoth Lakes;
- To provide a development that will enrich and enhance the quality of lifestyle(s) for both existing and future residents of the region and Town of Mammoth Lakes; and

- To realize a reasonable return on investment.

Project Location

The proposed Lodestar Resort and Country Club would be located in the Town of Mammoth Lakes, Mono County, on the eastern slopes of the Sierra Nevada Mountains (see Figure 2-1, Regional Location Map). The Project site, located within Section 34, Township 3 South, Range 27 East, is located near the geographic center of the Town (see Figure 2-2, Project Vicinity Map). It is generally bordered to the north by Main Street, to the south by Meridian Boulevard and Minaret Road, to the west by Lake Mary Road and the back side of the Mammoth Mountain Ski Resort, and to the east by Joaquin Road.

Project Characteristics

The Lodestar Development Company is proposing construction of a 210-acre master-planned destination resort which includes the construction of 40 single-family homes, 735 multi-family condominiums, 100 lodges and apartments (employee housing), 515,600 square feet of full-service hotels, an 80,000-square-foot commercial village and a 110-acre 18-hole golf course. Approximately 1,575 units are now planned for the 210-acre Project representing an overall density of 7.5 units per acre (see Figure 2-3, Project Site Land Use Map).

As shown in Figure 2-3, the Master Plan for the Project divides the site into five main development areas. These planning areas should not be confused with development phases (see discussion below).

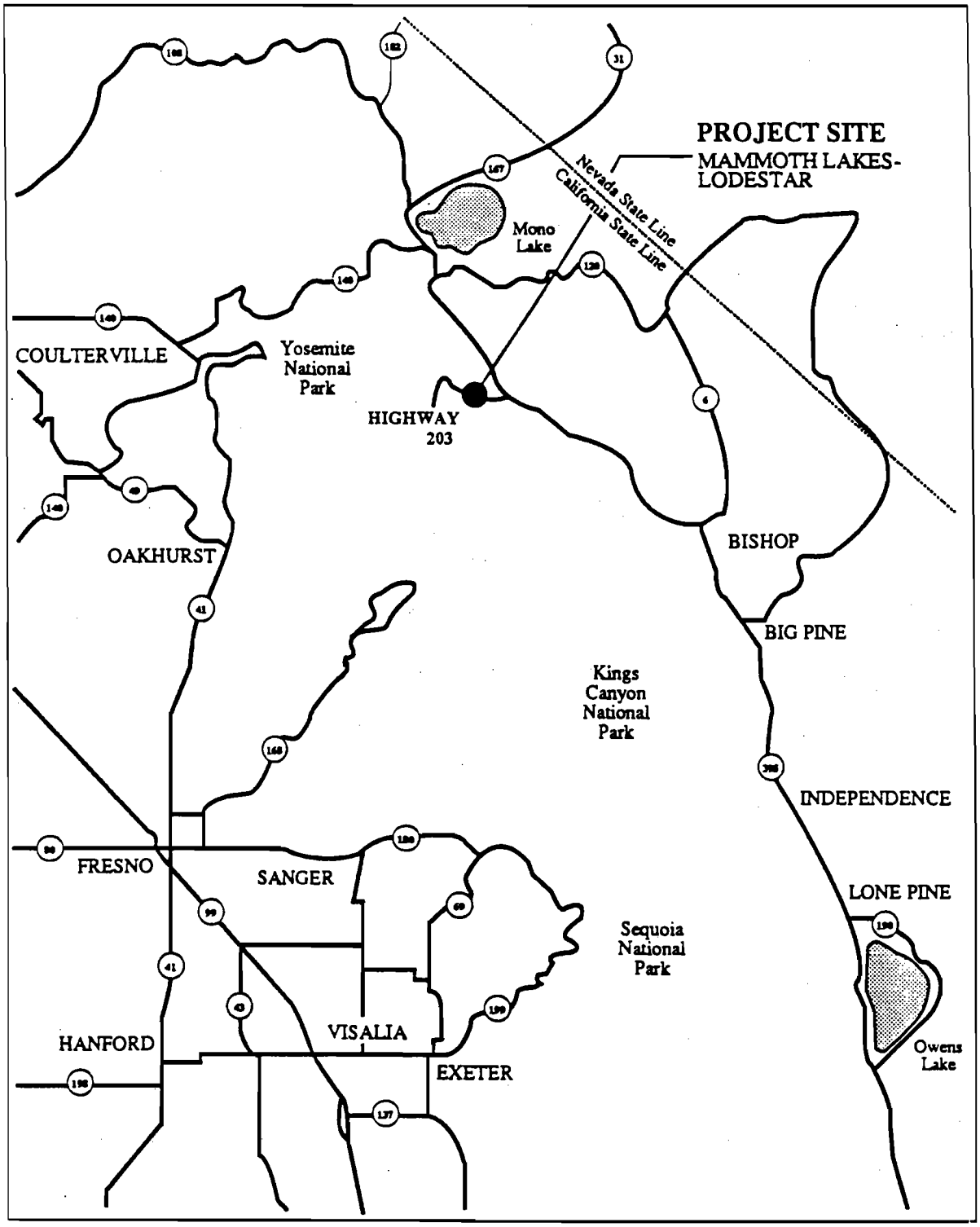
Area 1 consists of approximately 20 acres of development and borders the golf course on the west. The total number of residential units planned is 300 for a gross density of 15 units per acre. The type of units designated for the area are medium density (2½-story over subterranean parking) condominiums.

Area 2 consists of approximately 23 acres of residential development. The total number of units planned is 375 for a gross density of 16.3 units per acre. The type of units designated for the area are a combination of townhouses and condominiums. The configuration of the condominiums will be similar to those in Area 1, while the townhouses will be 2 stories with attached 2-car garages.

Area 3 includes approximately 14 acres of residential development. The total number of units planned is 100 for a gross density of 7.1 units per acre. The types of units designated for the area are single-family homes and townhouses. The single-family homes will consist of individual homes on minimum lots of 7,500 square feet. The townhouses will be attached duplexes with 2-car garages.

Regional Location Map

Figure 2-1



SOURCE: Mammoth Lakes General Plan

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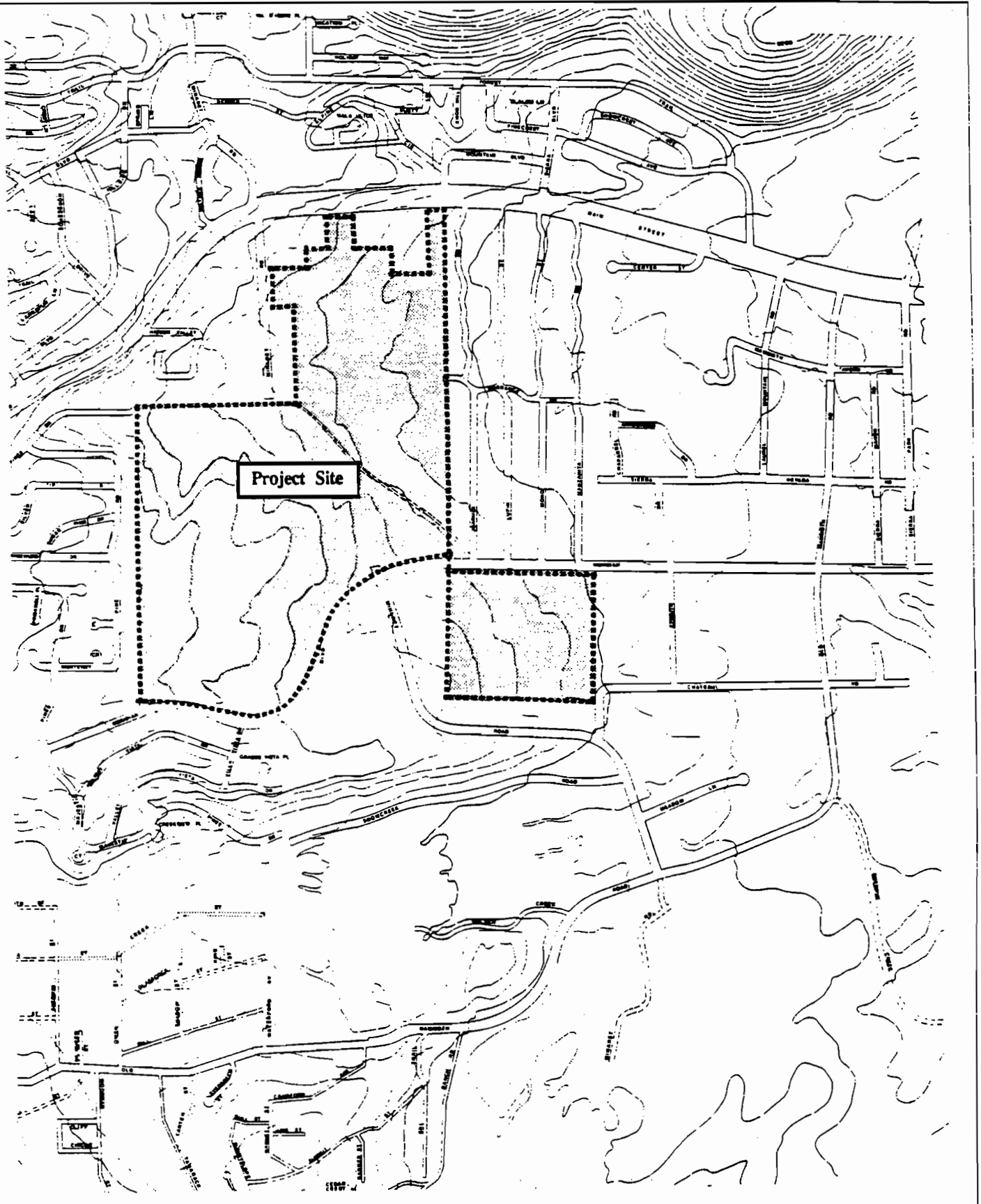
Vicinity Map

Figure 2-2



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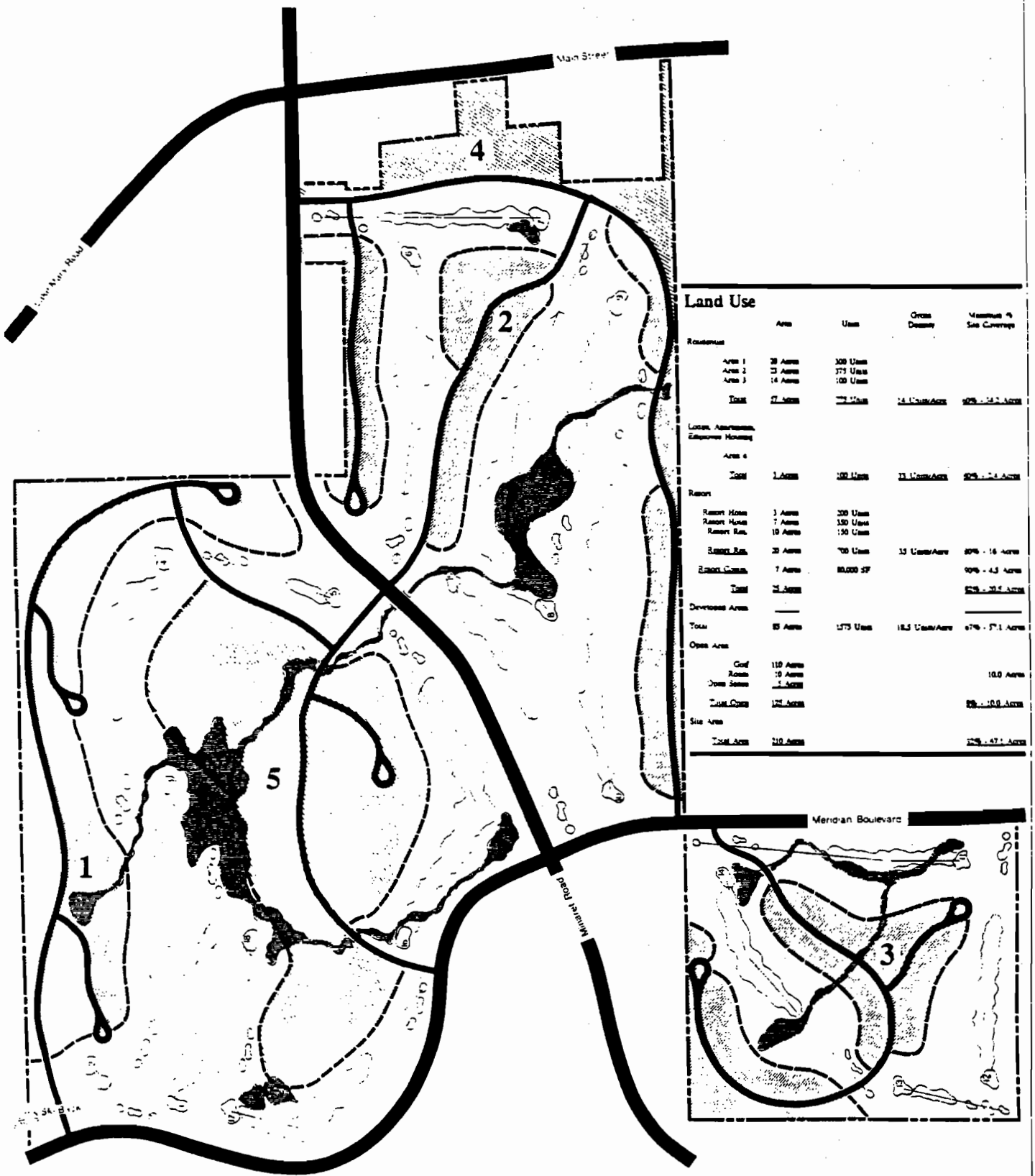
Project Site Land Use Map

Figure 2-3



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Area 4 has been designated for Commercial Lodging. Approximately 3 acres are planned for development of 100 lodge and apartment (employee housing) units. The number of lodge versus apartment units has not yet been determined.

Area 5, totalling approximately 25 acres, is planned for various uses, including 2 hotel sites, retail commercial and resort condominiums. The hotels and resort condominiums will not exceed 700 units in total. Amenities which may be provided onsite include swimming pools, spas, tennis courts, a fitness center, meeting facilities, a movie theater, and an ice skating rink. Also planned is a ski lift connecting to the base of Mammoth Mountain Ski Area, near Chair 15. The commercial village is planned as a pedestrian-oriented, multi-use retail, residential, and recreational development. A total of 80,000 square feet of restaurant and commercial retail space is included. An unspecified number of residential condominiums will be built over the retail shops.

A uniform signing and lighting program, controlled by provisions of the CC&Rs, is planned for the entire Lodestar Project.

A 110-acre, 18-hole "mountain style" golf course (6,200 yards, Par 70) would be constructed through the entire site with direct access from all five areas. As depicted in Figure 2-3, numerous ponds and lakes are planned for the Project and will be developed in conjunction with the golf course. The water regime for the Lodestar golf course consists of a main upper and a main lower lake serviced with reclaimed water. Only reclaimed water will be used for golf course and hotel grounds irrigation. The lakes will be fully lined to minimize water loss through percolation. In addition to serving as a visual amenity, the lake system will be used to control surface runoff (20-year, one-hour storm) in the spring.

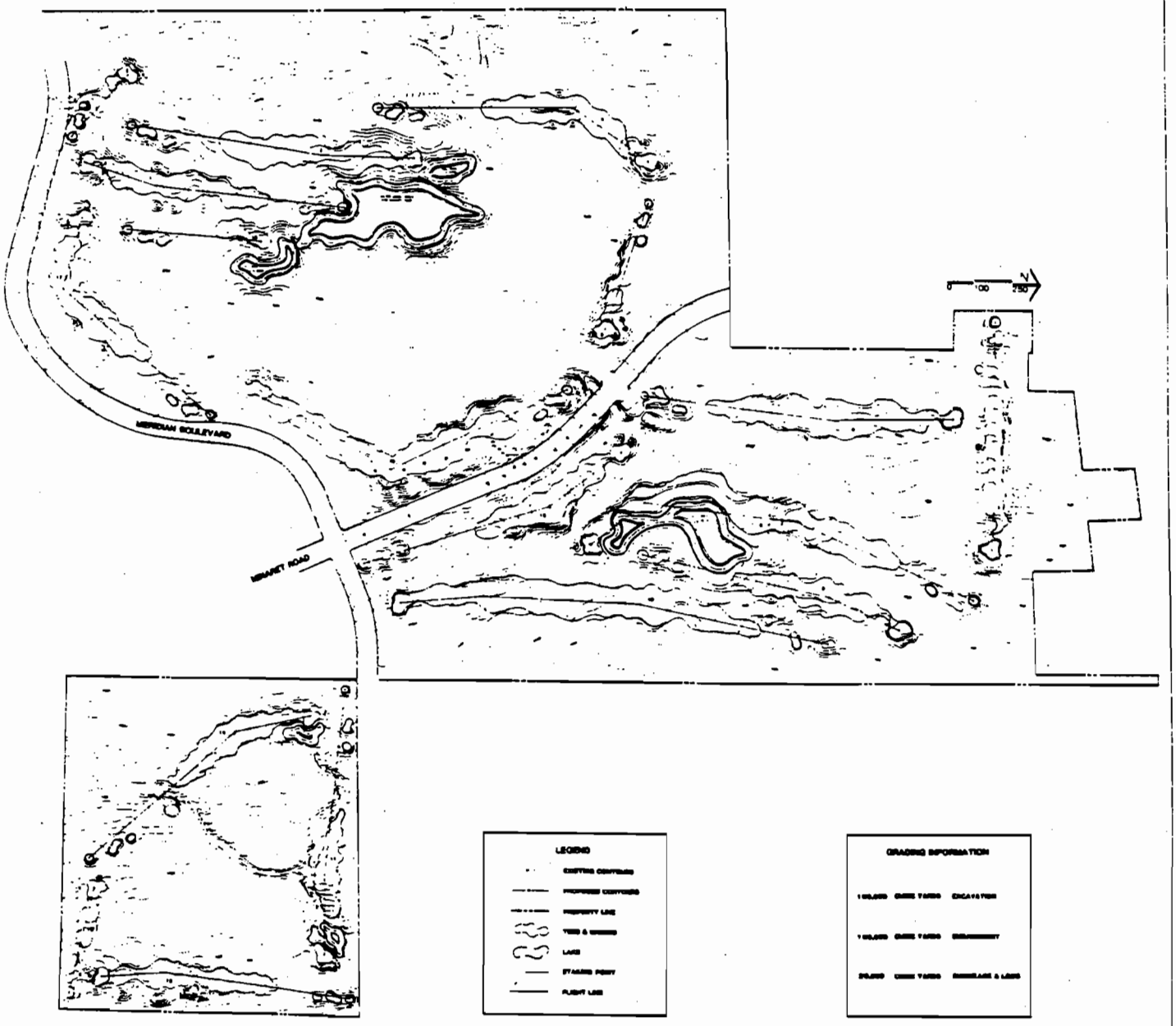
Grading of the site will be kept to a minimum to disturb the fewest number of trees. The golf course will require forming and grading of the fairways, tees, and greens, with the edges daylighting existing contours (a total of 160,000 to 180,000 cubic yards). Of the 115 acres designated as golf course and open space, approximately 78 acres would be cleared, leaving 37 acres of natural open space buffer between fairways and adjacent uses (see Figure 2-5). It is anticipated that buffers of 50 to 100 feet would be provided. In addition, all trees over 36 inches diameter breast height (DBH) would be tagged and considered for retention within the fairway areas.

In addition, approximately 28 acres of natural open space would be retained in the development areas throughout the Project.

The Project Land Use Map (Figure 2-3) shows a ski lift going from the "resort village" (Area 5) to the southwest corner of the property. This lift would provide skier access to the base of Chair 15. The lift would be located in an existing 20-foot easement and would be supplemented by a ski-back trail located in an existing 60-foot easement for that purpose. No definitive planning has been done on a ski lift for the Project. It is anticipated that other means of trip reduction, such as use of shuttle busses, will be more cost effective during the early phases of the Project development. Any future design would be subject to Town review (e.g., a Conditional Use Permit) and *is not a part of the current development application.*

Concept Grading Plan

Figure 2-4



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There are two areas of riparian vegetation on the Project site. The major area is an east-west trending band of willows, aspens, rushes, and concomitant species following a natural drainage course from the southwest corner of the site to Meridian Boulevard. This band is 100 to 150 feet wide and has a total area of 3 to 4 acres. It would be impacted by development of holes 1, 2, and 17 of the golf course. It is the intent of the developer to retain the full *size* of this riparian area and to transplant existing plant materials where possible. Where transplanting is not possible, one-to-one replacement of plant materials with indigenous species is proposed.

The second, smaller riparian area follows another east-west drainage course in the center of the site. This area is not planned for any development and will remain in its natural state.

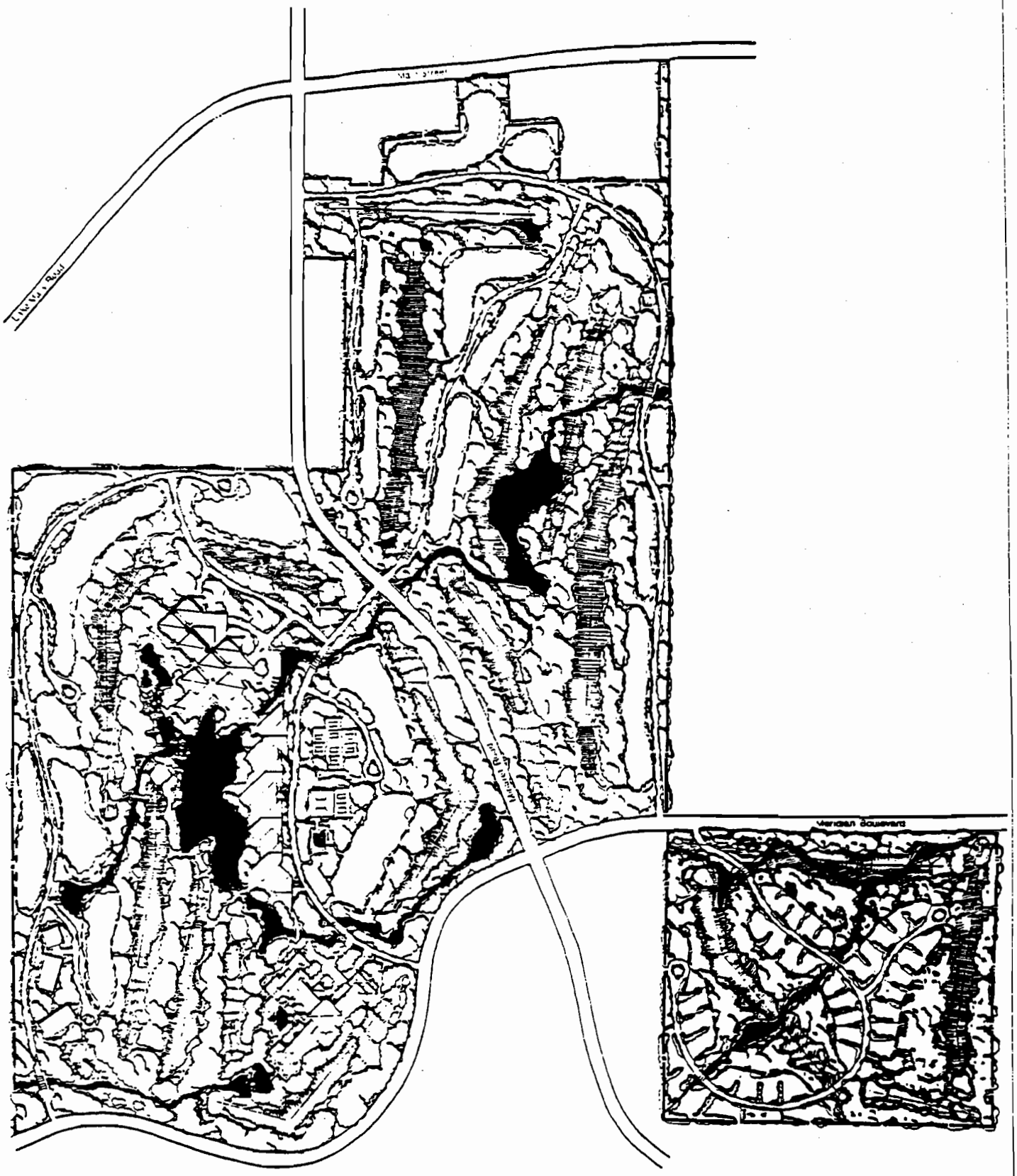
Development Phasing

Phase One of the Lodestar Project, the specific development for which approval is presently sought, consists of the 200-room hotel located in Planning Area 5 (see Figures 2-5 and 2-6) and the 18-hole golf course (all Planning Areas). In addition, approval of the 40-unit single-family residential portion of the development proposed for Planning Area 3 will be pursued under separate application in parallel with Phase One.

The 200-room hotel is planned as a national franchise operation and will include approximately 7,500 square feet of meeting space, one to two three-meal restaurants, and underground parking for 200 automobiles. Construction of this hotel is anticipated to begin in 1991, with completion in late 1992. Preliminary designs call for a maximum building height of 65 feet and a minimum front setback of 10 feet. Side and rear setbacks may be reduced to 0 feet. Ultimately, a system of shared parking for the complex of uses in the "resort village" of Area 5 is planned.

Concept Master Plan

Figure 2-5



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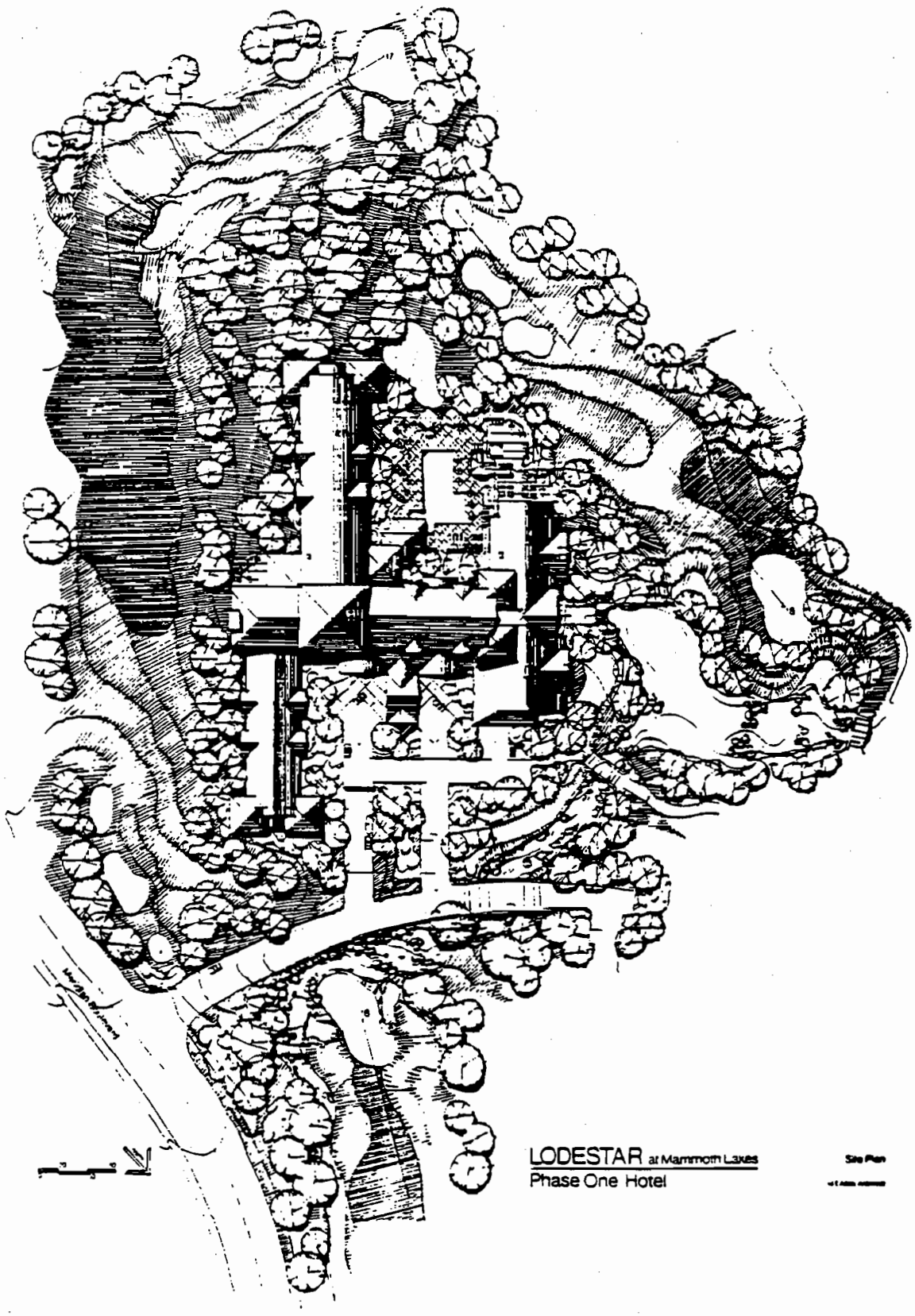
,00 Room Hotel Site Plan

Figure 2-6



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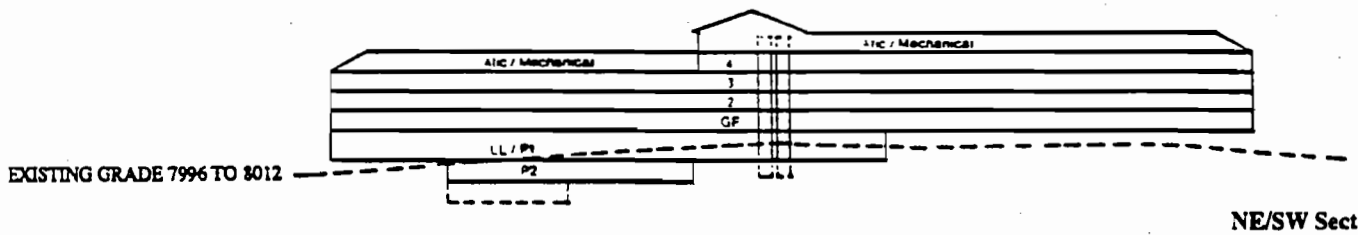
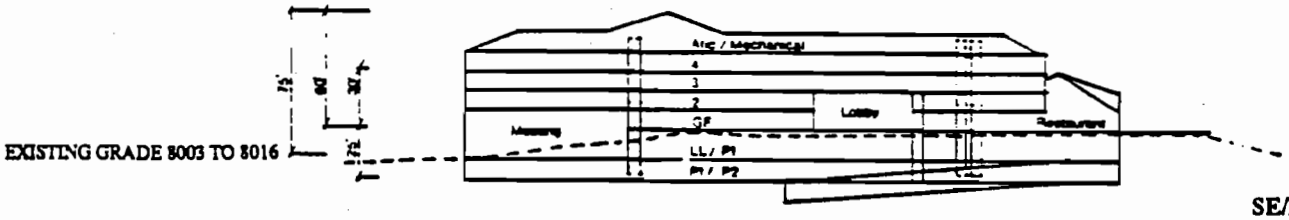
200 Room Hotel Elevations and Sections

Figure 2-7



NE/SW Section



SE/NW Section

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3. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

3. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

SUMMARY OF PROPOSED ACTION

This Environmental Impact Report (EIR) addresses a proposed 210-acre master-planned destination resort in Mammoth Lakes, California. The proposed Project includes a Master Plan for up to 40 single-family homes, 735 multi-family condominiums/townhomes, and 100 lodges and apartments for employee housing. Also proposed is 515,600 square feet of full-service hotels with 500 hotel rooms and 200 units of condominium, an 80,000-square-foot commercial village and a 110-acre, 18-hole golf course. Approximately 1,575 units are now planned, representing an overall density of 7.5 units per acre. All aspects of the Project would be consistent with the site's current zoning designation (R-Resort Development) as set forth in the Town of Mammoth Lakes' Zoning Ordinance (See Figure 1-1).

ALTERNATIVES

In accordance with Section 15126 (d) of the State CEQA Guidelines, a range of project alternatives are addressed in this EIR. A detailed analysis of alternatives evaluation is provided in Chapter 8 (Alternatives) of this document. The following three alternatives are considered:

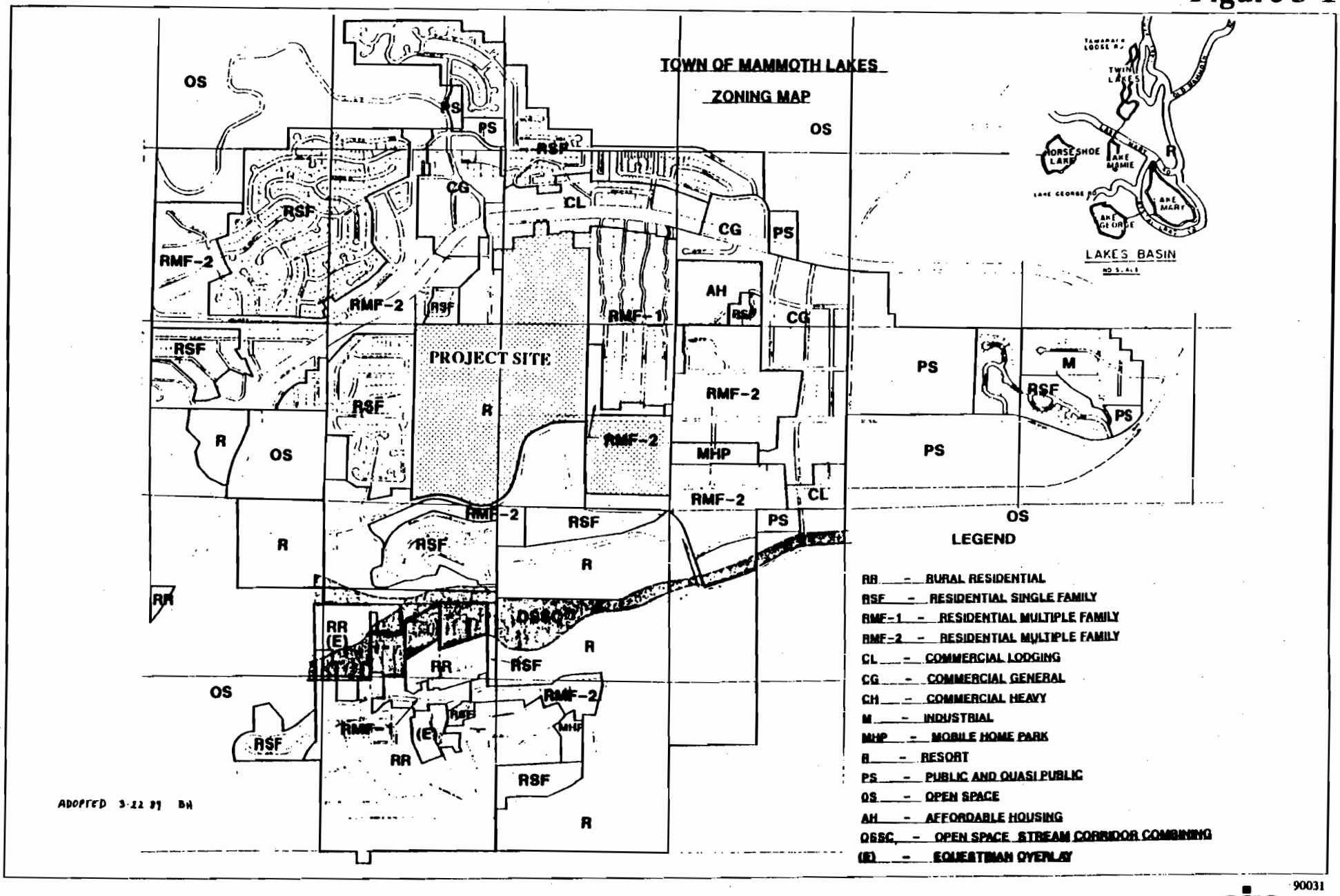
- No Project
- Alternative Project Site
- Reduced Project Size

The No Project Alternative would mean that the proposed Project would not be constructed and the Project site would remain in its present undeveloped state. None of the unavoidable significant impacts associated with the proposed Project would occur.

The Alternative Project site is located within the Town of Mammoth Lakes east of Old Mammoth Road, south of Meridian Boulevard. This alternative assumes that the number of dwelling units and the design of the resort area would remain generally as proposed, but at the alternative location. Impacts due to this alternative would be unchanged. The primary benefit obtained by relocating the Project would be the retention of the existing site as a major open space feature centrally located within the Town of Mammoth Lakes.

Zoning Map

Figure 3-1



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The Reduced Project size alternative is usually presented in response to environmental constraints associated with the site. In this case, it involves retention of the hotel, commercial, and employee housing components of the proposed Project, but with a reduced number of "private market" housing units. Note that the planning areas have been renumbered in this alternative.

Development Area 1 would encompass approximately 11.6 acres and would include a hotel, resort commercial, and employee housing uses. Development Area 2 (4 acres) would accommodate 60 housing units. Area 3 (5 acres), situated at the intersection of Meridian and Minaret, could be the site of the second hotel use, with ancillary commercial and residential uses. This centrally located site might naturally serve as the focus of the golf course operation. Development Area 4 (just over 2 acres), would be developed with 30 to 40 units of townhouses or condominiums. Area 5, south of Meridian, would be best restricted to residential and golf course uses. Approximately 100 dwelling units could be accommodated on this 10.5-acre site.

Maximum retention of existing forest would preclude development of the proposed golf course in its present form. However, roughly half of the proposed course could be accommodated within less-forested areas of the site and adjacent to the development areas of the reduced intensity alternative. The course could be limited to 9 holes or additional (less densely forested) acreage could be developed south of the Project site.

SUMMARY OF IMPACTS AND MITIGATION MEASURES

The following Summary of Environmental Impacts and Mitigation Measures has been prepared to give the reader a summary of the analyses contained in Chapter 4 (Environmental Impact Analysis).

Table 3-1 lists the environmental impacts associated with Project implementation, level of significance of impacts prior to mitigation, the mitigation measures recommended to minimize significant and potentially significant environmental effects, level of significance of impacts after implementation of the recommended mitigation measures, and significant unavoidable impacts. A detailed description of environmental impact findings is provided in Chapter 4. Environmental Impact Analysis.

TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Level of Significance w/o Mitigation	Mitigation Measures	Level of Significance w/Mitigation
4.1 GEOLOGY, SOILS AND SEISMICITY			
GEOLOGY AND SOILS			
Slope Instability			
4.1-1 **Development of the proposed Project could create new or increased slope instability. This is a *potentially significant impact.***	PS	4.1-1(a) *Soils and foundation analyses shall be approved by the Public Works Director prior to final Project design approval, as stipulated in the Town's Safety Policy #18. All measures required by the Public Works Director shall be incorporated into grading plans and building plans.*	LS
		4.1-1(b) *New slopes shall be constructed at an angle and degree of compaction that will ensure stability, as stipulated in the standards of the Town's Municipal Code.*	
		4.1-1(c) *The ponds and man-made lakes shall be constructed and operated to prevent downslope saturation or stress that could lead to slope instability.*	
		4.1-1(d) *All work shall be overseen by a licensed Civil Engineer (CE), Certified Engineering Geologist (CEG), or similar appropriately qualified professional, who shall report to the Town in order to ensure the standards of the applicable Codes are met.*	
		4.1-1(e) *Subsequent development phases will require additional environmental review and approval by the Planning Commission.*	
Soil Erosion			

S = Significant SU = Significant Unavoidable B = Beneficial
LS = Less Than Significant PS = Potentially Significant NA = Not Applicable

TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

	Impact	Level of Significance w/o Mitigation		Mitigation Measures	Level of Significance w/Mitigation
4.1-2	**Development of the proposed Project could result in new or increased soil erosion. This is a *potentially significant impact.***	PS	4.1-2	*A comprehensive Erosion and Sediment Transport Control Plan shall be prepared and approved by the Town prior to issuance of any grading or building permit. The Plan shall be included in the Project design, as stipulated in the Town's Safety Policy #18. The Plan shall also meet the requirements of the Regional Water Quality Control Board and the Town Municipal Code.*	LS
Topography					
4.1-3	**Development of the proposed Project could significantly alter the topography of the site. This is an *unavoidable, significant impact.***	SU	4.1-3	*Prior to issuance of grading or building permits, geotechnical studies shall be completed and their recommendations shall be incorporated in the Project design, as stipulated in the Town's Safety Policy #26. Any grading in the southwest portion of the site shall consider the potentially high groundwater in that area.*	LS
SEISMICITY					
Seismic Activity					
4.1-4	**Development of the proposed Project would increase the number of people living in and visiting an area subject to seismic activity. This is a *potentially significant impact.***	PS	4.1-4(a)	*Two measures specifically designed for the geological environment would reduce the number of lives that could be adversely impacted in the event of either an earthquake or volcanic eruption:* *i) The USGS is actively monitoring both volcanic and seismic activities in the Long Valley area.* *ii) The Project Sponsor is assisting the Town in completing the existing and emergency access roadway system (Safety Policy #29).*	LS

S = Significant
LS = Less Than Significant
SU = Significant Unavoidable
PS = Potentially Significant
B = Beneficial
NA = Not Applicable

TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Level of Significance w/o Mitigation	Mitigation Measures	Level of Significance w/Mitigation
		4.1-4(b) *The Town shall require the Project Sponsor's cooperation in designing and disseminating information to assist citizens and visitors in responding to emergency situations that are likely to arise (Safety Policy #31).*	
		4.1-4(c) *All structures shall be designed and built to at least the standards of UBC Seismic Zone 4.*	
VOLCANIC ACTIVITY			
4.1-5 **Development of the proposed Project would increase the number of people living in and visiting an area subject to volcanic activity. This is a *potentially significant impact.***	PS	4.1-5 *Implement Mitigation Measures 4.1-4(a) and (b).*	LS
4.2 HYDROLOGY AND WATER QUALITY			
Surface Water			
4.2-1 **Development of the proposed Project would result in a modification of the existing drainage paths and a higher surface runoff than currently leaves the project site. This is a *potentially significant impact.***	PS	4.2-1(a) Prior to approval of the final project design, a final project-specific hydrology analysis for design purposes shall be required to estimate the amounts of runoff which would be required to be retained onsite and held within the lakes onsite.	LS
		4.2-1(b) *Runoff control shall be designed to meet the Lahontan Regional Water Quality Control Board's requirements and must be approved by the Town prior to issuance of any grading permits.*	
		4.2-1(c) *The following water conservation procedures shall be incorporated into project elements where feasible:*	

S = Significant SU = Significant Unavoidable B = Beneficial
LS = Less Than Significant PS = Potentially Significant NA = Not Applicable

TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

	Impact	Level of Significance w/o Mitigation		Mitigation Measures	Level of Significance w/Mitigation
				• *Landscape with low water-using plants;* • *Install efficient irrigation systems that minimize runoff and evaporation and maximize the water that will reach the plant roots, such as drip irrigation, soil moisture sensors, and automatic irrigation systems; and* • *Use pervious paving material whenever feasible.*	
4.2-2	**Maintenance of the proposed Project's golf course playing surfaces would require irrigation of a frequent nature through the dry season. Hydrologically, this is a *less-than-significant impact.***	LS	4.2-2	*None required.*	
Groundwater					
4.2-3	**Groundwater quality would not be affected by Project construction activities. This is considered a *less-than-significant impact.***	LS	4.2-3	*None required.*	
4.2-4	**The proposed Project includes plans for use of reclaimed water for golf course irrigation, which may result in potential hazards to human health and groundwater quality. This is a *less-than-significant impact.***	LS	4.2-4	*None required.*	
4.2-5	**Development of the proposed Project would result in the application of fertilizers and herbicides on the golf course grounds which could produce a pollutant load in surface and ground waters. This is a *potentially significant impact.***	PS	4.2-5	*To avoid impacts resulting from upkeep of greens and fairways, the following measures or equivalent shall be completed:* • *A certified greenskeeper with appropriate state-approved applicator's license for use of fertilizers and pesticides shall be employed for maintenance of greens and fairways.*	LS

S = Significant SU = Significant Unavoidable B = Beneficial
LS = Less Than Significant PS = Potentially Significant NA = Not Applicable

TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Level of Significance w/o Mitigation	Mitigation Measures	Level of Significance w/Mitigation
		• *A fertilization program shall be specifically developed to match application rate with the known uptake rate for each turf grass species.* • *Pesticides, herbicides, and fertilizers which are rapidly degradable, are relatively insoluble in water and exhibit significant soil adsorption shall be chosen for use. These chemicals shall comply with the requirements of the Lahonton RWQCB and the Soil Conservation Service.* • *The golf course operator shall submit to the LRWQCB and the MCWD a list of chemicals to be used on the golf course. This list shall be updated annually, before any chemicals are applied, and at any time new chemicals are proposed for use. No chemicals shall be used on the golf course which are prohibited by the LRWQCB or the Department of Health Services (DHS).* • *During periods when fertilizers and other chemicals are used watering shall be kept to a minimum.* • *Installation of automatic irrigation timers to implement an irrigation schedule to maximize infiltration.* • *Installation of automatic rain and soil moisture sensors that will override irrigation programs to reduce excess watering of fairways.* • *Specific chemical analysis shall be required in the project proponent;s downstream discharge monitoring program to account for compounds that could indicate contamination by*	

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TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

	Impact	Level of Significance w/o Mitigation		Mitigation Measures	Level of Significance w/Mitigation
				fertilizers, pesticides, or other chemical agents used in golf course maintenance. Should evidence of such contamination occur, use of pesticides or fertilizers shall cease until appropriate contamination prevention measures can be implemented. The monitoring plan shall be developed in accordance with waste discharge requirements established by the Lahontan RWQCB and the well water testing required by the DHS.	
				• *Compliance with the LRWQCB "Guidelines for Erosion Control."*	
4.2-6	**The quality of surface runoff could be degraded as a result of increased erosion during Project construction. This is a *potentially significant impact.***	PS	4.2-6(a)	For each individual project considered under this development concept, dDisturbance of soil requires a Waste Discharge Report to be filed with the Lahontan Regional Water Quality Control Board and a Waste Discharge Permit to be issued for the project to ensure that proper control measures for the protection of water quality are taken and adhered to during all phases of the project.	LS
			4.2-6(b)	*See Mitigation Measure 4.1-2.*	
4.2-7	**Increased runoff from additional impermeable surface could lower the quality of stormwater runoff. This is a *potentially significant impact.***	PS	4.2-7	*Installation of oil and grease separators shall be required in the inlets of catch basins where necessary, particularly at the collection points from parking areas, to minimize pollution of downstream water courses. The separators shall be maintained regularly (at least twice per year) to ensure efficient pollution removal.*	LS
4.2-8	**The proposed project's man-made lakes have the potential to become nuisances due to water quality problems**	PS	4.2-8(a)	*Weeds and algae in the man-made lakes shall be harvested and removed on a regular as-needed basis. Removal shall be*	LS

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Summary of Environmental Impacts and Mitigation Measures

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resulting from incorrect maintenance or care. This is a *potentially significant impact.*		*complete—not temporary control through application of chemicals and algacides.*	
		4.2-8(b) *Grass swales shall be used to convey runoff from major portions of the site toward the lakes. The swales would promote sedimentation of contaminants in the particulate or absorbed phase, and may allow some capture of dissolved contaminants through infiltration.*	
		4.2-8(c) *Implementation of an irrigation schedule (as previously required in Mitigation Measure 4.2-5) to reduce inflow from irrigated areas and to reduce nutrient inflows.*	
4.3 BIOTIC RESOURCES			
Vegetation			
4.3-1 **Development of the proposed Project would result in a loss of vegetation cover due to site clearing for parking lots and buildings. This is an *unavoidable, significant impact.***	SU	4.3-1 *To the maximum extent feasible, the Project shall preserve existing native vegetation. Landscaping shall emphasize the use of native plants indigenous to the Jeffrey Pine-Fir Forest, Sagebrush Scrub, and Riparian plant communities. Whenever possible, native plants used onsite shall be selected for their replacement habitat value.*	SU
4.3-2 **Development of the proposed Project would result in a change in vegetation type. This is an *unavoidable significant impact.***	SU	4.3-2 *Implement Mitigation Measure 4.3-1.*	SU
4.3-3 **Development of the proposed Project would not result in the loss of a member of a plant Species of Special Concern. There would be *no impacts* to Species of Special Concern.**	LS	4.3-3 *None required.*	

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TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Level of Significance w/o Mitigation	Mitigation Measures	Level of Significance w/Mitigation
4.3-4(a) **Development of the proposed Project could result in the loss of several large, specimen trees. This is a *potentially significant impact.***	PS	4.3-4(a) *All trees greater than 12 inches dbh (diameter breast height) and significant stands on the Project site shall be mapped prior to issuance of grading permits or clearing. A registered forester or arborist shall then determine the age and condition of these trees and whether they should be retained or removed based upon health and visual significance of the trees, except for removal required by approved improvements. Once this determination is made those trees should be retained and integrated into the design of the Project. A program of specific protection measures shall be prepared by the developer and approved by the Town prior to issuance of any construction permits (e.g., construction fencing, grading controls, grading design, etc.) Any trees removed unavoidably by the final Project approval shall be in accordance with Town policies. Off-site replacement will need the approval of the Town Planning Director.*	LS
4.3-4(b) **Development of the proposed Project would result in the loss of a significant number of trees currently existing on the Project site. This is an *unavoidable, significant impact.***	SU	4.3-4(b) *Construction and site development, such as grading and trenching, shall be prohibited within the dripline of retained trees. Equipment shall not be stored or driven under trees. Grading shall not cover the ground surface within the dripline of existing trees.*	
		4.3-4(c) *Landscape materials shall be incorporated into a landscape plan which allows for the protection and preservation of existing trees. Native plant species, preferably from seed or cuttings from local plants, shall be used where possible. The landscape plan shall be approved by the Planning Director prior to issuance of any construction permits.*	
		4.3-4(d) *Irrigation, fertilization, and other landscape management practices shall be designed to minimize effects on existing trees and other vegetation.*	

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	Impact	Level of Significance w/o Mitigation		Mitigation Measures	Level of Significance w/Mitigation
			4.3-4(e)	*Proper disposal methods for all coniferous slash shall be used in order to prevent the spread of bark beetles.*	
Wildlife					
4.3-5	**Development of the proposed Project would result in the loss of 145 acres of native wildlife habitat. This is a *significant impact.***	S	4.3-5(a)	In order to maintain plant and animal diversity, the design of the Project shall take both of these elements into account. Ideally, the preservation of all of the high-value wildlife habitat areas would preserve an important corridor for the movement of larger species through the area and provide a genetic linkage for smaller less mobile species such as the lodgepole chipmunk. As it now exists, the Project would eliminate a significant portion of these high-value wildlife habitat areas. *The project will largely avoid riparian areas. If disturbance is necessary, the applicant shall meet all applicable California Department of Fish and Game (CDFG) and U.S. Corps of Engineers' policies.*	LS
			4.3-5(b)	*To retain wildlife values, as much native vegetation as possible should be retained and protected during construction. A Revegetation Plan, prepared by a qualified botanist and approved by the Town of Mammoth Lakes, shall be completed prior to the commencement of the Project which will describe in detail the species of trees and shrubs which will be used, where they will be planted and in what numbers, and the methods of planting and maintenance which will ensure successful growth. It shall include a monitoring program to follow the progress of new plantings and ensure replacement of unsuccessful plants. Landscaping with native species of trees and shrubs shall be undertaken wherever possible to enhance wildlife use of cleared areas.*	

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			4.3-5(c)	*Under mitigation monitoring, once mitigation plans designed to offset habitat losses are approved and the specific areas where they will be located are identified, the proponent must provide a program to monitor their progress for a period of time (usually three to five years) deemed sufficient by the Planning Director to assure their successful development. Adequate security shall be deposited with the Town to ensure successful implementation of this measure.*	
4.3-6	**Disturbances and disruptions during Project construction scatter/disperse and fragment existing wildlife communities on site, forcing survivors into already occupied habitats to cause cumulative negative impacts on all wildlife in the area. This is a *significant impact.***	S	4.3-6	*All construction activities, including movement and storage of vehicles and the storage of building and other materials, shall be confined to areas slated for development. Care shall be taken during construction to avoid damage to vegetation and habitats not directly involved in Project construction.* Any damaged vegetation shall be replaced on a one-to-one basis on- or off-site. Off-site replacement will need the approval of the Town Planning Director.	LS
4.3-7	**Increased erosion and siltation as a result of construction and grading activities could alter streamflows, water quality, and vegetation in the Project area. This is a *significant impact.***	S	4.3-7(a)	*To prevent erosion and siltation into intermittent creeks, areas cleared of vegetation, fill or other materials shall be stabilized as quickly as possible after clearing and grading. To further protect the drainage system and prevent erosion, all grading and construction shall be completed during the dry summer months.*	LS
			4.3-7(b)	*To prevent disruptions of normal stream flows and ensure maintenance of water quality for down-stream habitats during the critical low-water summer period, all creek waters should be collected above and continuously piped through any construction zone on or near drainages.*	
4.3-8	**Development of the proposed Project would alter**	S	4.3-8(a)	*Final construction plans shall include provisions for construction of retention basins for on-site retention of runoff from roadways,*	LS

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Summary of Environmental Impacts and Mitigation Measures

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streamcourses and drainages in the area. This is a *significant impact.*		*home sites and golf facilities or equivalent alternative measures approved by the public works director (refer to Impact 4.2-1, Hydrology). Such retention basins shall be cleaned on a regular basis and accumulated pollutants and debris properly disposed of in areas which will assure that no aquatic habitats onsite or downstream from the Project site are damaged.*	
		4.3-8(b) *Development of on-site water bodies shall include creation of native riparian habitat. All such design and construction shall be subject to California Department of Fish and Game review.*	

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4.4 JOBS/HOUSING			
HOUSING			
4.4-1 **Employment generated by the commercial development of the proposed Project could increase the population of Mammoth Lakes and the surrounding areas by as much as 1,086 people, with an accompanying housing demand of 472 units. This is a *significant impact.***	S	4.4-1(a) *One hundred percent of housing for employees generated by uses within the Project shall be provided onsite, including affordable employee housing based upon Health and Safety code section 50079.5 and 50105 criteria unless the Town Council allows a portion of this housing need offsite, through an in-lieu fee, or equivalent program. If the Town adopts an employee/affordable housing program, requiring on- or off-site housing or in-lieu fees prior to any phase of development, provision of housing in accordance with that ordinance shall constitute adequate mitigation.* 4.4-1(b) *Any housing constructed offsite shall be subject to further environmental review to ensure that significant or cumulative environmental effects are mitigated on a site-specific basis.* 4.4-1(c) *Employee housing, an in-lieu fee, or equivalent program as approved by the Town Council shall be in place prior to or concurrent with the non-residential development generating the need for such housing.*	LS
EMPLOYMENT			
4.4-2 **As presented in Table 4.4-5 the proposed Project, which includes an 80,000-square-foot commercial village, 18-hole golf course and two hotels, is estimated to generate 619 permanent jobs and 91 temporary construction jobs at full buildout of all phases. This is a beneficial impact.**	B	4.4-2 *None required.*	NA

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TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Level of Significance w/o Mitigation	Mitigation Measures	Level of Significance w/Mitigation
UTILITIES			
Water			
4.5-1 **The development portion of the Project would create a total annual community water demand of 3,250 acre-feet, which is 150 acre-feet less than the current available supply. This is a *less-than-significant impact.***	LS	4.5-1(a) *In the event that the Dry Creek wells are not developed in a timely fashion, development shall be deferred until adequate water resources are in place to serve the project and existing development as determined by the Mammoth County Water District.* 4.5-1(b) *Golf course water bodies and irrigation shall use reclaimed water to the fullest extent possible. If reclaimed or domestic water is not available to allow for the water bodies as determined by the Mammoth County Water District, the water bodies shall be reduced in size to obtain District approval or be eliminated in the final Project design. Approval by the County Health Department shall be obtained prior to final Project approval regarding the use of reclaimed water.* 4.5-1(c) *Maximum feasible water conservation measures shall be used in all structures, including reuse and recycling of water, low-use water fixtures, and drought resistant landscaping.* 4.5-1(d) *The Project proponent shall contribute mitigation fees, as determined by the Mammoth County Water District, for any expanded facilities needed to serve the development.* 4.5-1(e) *Landscaping shall be predominately native and drought resistant vegetation.*	LS

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Wastewater					
4.5-2	**The proposed Project is anticipated to generate a total of approximately 346,750 gallons of wastewater per day, made up of 236,250 gpd from residential uses, 8,000 gpd from the retail space, 82,500 gpd from the hotel rooms (based upon full occupancy), and 20,000 gpd from the restaurants. Since MCWD has adequate treatment capacity for Project-generated wastewater flows, the proposed Project would have a *less-than-significant impact* on wastewater facilities.**	LS	4.5-2	*The Project shall comply with all requirements of the Mammoth County Water District regarding flow reduction, and sewer system design and operation.*	LS
Drainage					
4.5-3(a)	**Increased amount of impervious surfaces associated with development of the proposed Project would increase surface water runoff from the Project site and could require infrastructure improvements. This is a *potentially significant impact.***	PS	4.5-3(a)	*Drainage collectors, retention and infiltration facilities shall be constructed and maintained to prevent transport of the runoff from a 20-year, 1-hour storm from the proposed Project site.*	LS
			4.5-3(b)	*The requirements of the Lahonton RWQCB as specified in the "Erosion Control Guidelines" shall be met while construction is being undertaken and during project operation.*	
Solid Waste					
4.5-4	**The Project is anticipated to produce a total of 18,607 pounds of solid waste per day, made up of 5,670 pounds per day from all residences and 12,937 pounds per day from all commercial operations. This is a *significant impact.***	S	4.5-4(a)	*Alternate methods of solid waste disposal, such as the use of onsite trash compaction, shall be incorporated into the final Project design subject to the approval of the Mammoth Lakes Planning Department.*	LS
			4.5-4(b)	*All visible trash collection facilities and features of the development shall be designed to complement the Project design scheme.*	

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			4.5-4(c)	*The Project applicant shall provide a recycling collection station or contract a solid waste disposal company which will offer a system of convenient recycling stations for Project residents. Placement and design shall be subject to the review and approval of the Planning Director.*	
			4.5-4(d)	*The Project applicant shall provide each residence with a divided cabinet suitable for aluminum cans, glass bottles, and plastic bottles.*	
			4.5-4(e)	*A portion of the golf course shall be reserved for the processing of green wastes generated by the golf course. The processing of green wastes shall be the responsibility of the golf course management for the life of the Project.*	
Electricity					
4.5-5	**Development of the proposed Project is estimated to generate a demand for 28,500,000 kilowatt hours annually. This is a *less-than-significant impact.***	LS	4.5-5	*None required.*	NA
Telephone					
4.5-6	**Based on Project descriptions, approximately 1,700 phone lines will be needed. This is a *less-than-significant impact.***	LS	4.5-6	*None required.*	NA

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4.6 TRAFFIC			
4.6-1 **The proposed Project will generate additional vehicular trips, which would impact traffic volumes and intersection Levels of Service throughout the study area. This is a *potentially significant impact.***	PS	4.6-1(a) *The project shall be required to contribute "in lieu" fees if transit system improvements are not implemented by the Town. It is anticipated that the continued need for certain roadway improvements and the level of developer financial participation in support of an improved transit system would be determined by the upcoming transit system study.*	
		4.6-1(b) *Minaret Road (Main Street/Lake Mary Road to south of Old Mammoth Road) - Dedicate and widen Minaret Road between Main Street/Lake Mary Road and a point just south of Old Mammoth Road to provide four travel lanes plus the necessary snow storage easement. This improvement is consistent with the designation of Minaret Road as an arterial in the Town General Plan.*	
		4.6-1(c) *Old Mammoth Road (Main Street to south of Chateau Road) - Restripe or widen Old Mammoth Road between Main Street and a point just south of Chateau Road to provide four travel lanes, and maintain the existing continuous left-turn lane. This improvement is consistent with the designation of Old Mammoth Road as an arterial in the Town General Plan.*	
		4.6-1(d) *Lake Mary Road (Main Street to Lakeview Road) - Widen Lake Mary Road between Main Street and Lakeview Road to provide four travel lanes. The outer westbound through lane within this road segment would become a forced right-turn lane at the intersection with Lakeview Road.*	
		4.6-1(e) *Main Street (Sierra Boulevard to Minaret Road) - Widen and restripe Main Street between Sierra Boulevard and Minaret Road*	

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to provide a two-way continuous left-turn lane in the median (consistent with the existing two-way continuous left-turn lane east of Sierra Boulevard).

Intersection Improvements

4.6-1(f) *Minaret Road/Forest Trail - In addition to the traffic signal and other improvements proposed as part of the North Village Specific Plan circulation plan, widen Minaret Road just north of Forest Trail to provide two southbound lanes, resulting in one exclusive left-turn lane, one through lane, and a shared through/right-turn lane on the southbound Minaret approach to Forest Trail. Also, eliminate the constant eastbound right-turn arrow for traffic turning from eastbound Forest Trail to southbound Minaret which is proposed as part of the North Village Specific Plan circulation plan.*

4.6-1(g) *Lakeview Road/Lake Mary Road - In conjunction with the recommended widening of Lake Mary Road as described above, the following localized intersection improvements are required: widen or restripe the eastbound Lake Mary Road approach to provide one exclusive left-turn lane and one through lane (the second eastbound through lane recommended as part of the Lake Mary Road widening east of Lakeview Road would begin at Lakeview Road); widen the westbound Lake Mary Road approach to provide one through lane and one exclusive right-turn lane (the second westbound through lane recommended as part of the Lake Mary Road widening east of Lakeview Road would terminate as the forced right-turn lane at Lakeview Road); and formally stripe the southbound approach Lakeview Road approach to provide one*

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		exclusive left-turn lane and one shared left/right-turn lane. These improvements will be in addition to the installation of a traffic signal and grade reconstruction proposed as part of the North Village Specific Plan circulation plan.	
		4.6-1(h) *Minaret Road/Main Street/Lake Mary Road - Widen the northbound Minaret approach to provide an exclusive right-turn lane. Restripe the southbound approach and northbound departure to provide the following configuration on the southbound Minaret approach: two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane. Restripe the westbound approach and eastbound departure to provide a second left-turn lane on the westbound Main approach. Also, modify the signal phasing to provide left-turn protected phases on the north and south approaches which will replace the existing split phasing on these approaches.*	
		4.6-1(i) *Sierra Boulevard/Main Street - Restripe Main Street to provide a left-turn lane on the eastbound approach (in conjunction with the recommended widening of Main Street to provide a two-way continuous left-turn lane between Sierra Boulevard and Minaret Road as described above). This will remove turning vehicles from the through traffic lanes and thus improve the overall operation of the intersection. However, installation of a traffic signal is not recommended, as the cumulative traffic volumes do not satisfy signal warrants (see Appendix E), and the projected poor level of service would be experienced only by stop-controlled vehicles waiting to turn left from Sierra onto Main.*	
		4.6-1(j) *Old Mammoth Road/Main Street - Restripe the northbound and eastbound approaches to provide the following configurations: one*	

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		exclusive left-turn lane and one shared left/right-turn lane on the northbound Old Mammoth approach; one through lane, one shared through/right-turn lane, and one exclusive right-turn lane on the eastbound Main approach.	
		4.6-1(k) *Minaret Road/Meridian Boulevard - In conjunction with the recommended widening of Minaret Road to four through lanes as described above, the following localized intersection improvements will be required: widen both the northbound and southbound Minaret approaches to provide one exclusive left-turn lane, one through lane, and one shared through/right-turn lane on each approach; and widen and/or restripe the eastbound approach Meridian to provide an exclusive right-turn lane. These improvements will be in addition to the exclusive left-turn lanes on the eastbound and westbound Meridian approaches and installation of a traffic signal programmed for implementation by the Town of Mammoth Lakes.*	
		4.6-1(l) *Mono Street/Meridian Boulevard - Widen and restripe Meridian Boulevard to provide left-turn lanes on both the eastbound and westbound approaches (consistent with the two-way continuous left-turn lane proposed for Meridian Boulevard as a project access improvement in Chapter VI). This will remove turning vehicles from the through traffic lanes and thus improve the overall operation of the intersection. However, installation of a traffic signal is not recommended, as the cumulative traffic volumes do not satisfy signal warrants, and the projected poor level of service will be experienced only by stop-controlled vehicles waiting to turn left from Mono onto Meridian.*	

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		4.6-1(m) *Old Mammoth Road/Meridian Boulevard - In conjunction with the recommended widening of Old Mammoth Road as described above, the following localized intersection improvements will be required: restripe the southbound Old Mammoth approach to provide one exclusive left-turn lane, one through lane, and one shared through/right-turn lane; and widen the northbound Old Mammoth approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane.*	
		4.6-1(n) *Minaret Road/Chateau Road - In conjunction with the recommended widening of Minaret Road as described above, the following localized intersection improvements will be required: 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-turn/right-turn lane; and install a two-phase traffic signal (the cumulative traffic volumes satisfy traffic signal warrants).*	
		4.6-1(o) *Old Mammoth Road/Chateau Road - In conjunction with the recommended widening of Old Mammoth Road as described above, the following localized intersection improvements will be required: restripe the southbound Old Mammoth approach to provide one exclusive left-turn lane, one through lane, and one shared through/right-turn lane; widen the northbound Old Mammoth 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 (the cumulative traffic volumes satisfy traffic signal warrants).*	

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			4.6-1(p) *Minaret Road/Old Mammoth Road - In conjunction with the recommended widening of Minaret Road as described above, the following localized intersection improvements will be required: widen the northbound Minaret approach to provide one exclusive left-turn lane, one through lane and one shared through/right-turn lane; widen the southbound Minaret approach to provide one exclusive left-turn lane, two through lanes and one exclusive right-turn lane; widen the westbound Old Mammoth approach to provide two exclusive left-turn lanes, one through lane and one exclusive right-turn lane; widen the eastbound Old Mammoth approach to provide one exclusive left-turn lane, one through lane, and one exclusive right-turn lane; and install a traffic signal with overlapping left-turn phasing on the Old Mammoth approaches (the cumulative traffic volumes satisfy traffic signal warrants).*	
4.6-2	**A review of projected daily and peak-hour traffic volumes on the proposed internal roadways serving the proposed Project site indicates that each of the streets would be adequate to accommodate the projected traffic volumes, as well as non-motorized traffic, at good levels of service with two through lanes (one in each direction). This is a *less-than-significant-impact.***	LS	4.6-2(a) *Each of the internal roadways providing access to the Lodestar Project site should be constructed to two-lane collector street standards.* 4.6-2(b) *The proposed internal cul-de-sacs shall be constructed to two-lane local street standards.* 4.6-2(c) *Facilities for pedestrians and bicycle traffic shall be provided. In addition, internal access and circulation for transit facilities shall be provided. These shall be consistent to the policies of M.L. Policy 2C-4 and 2C-6 of the Town of Mammoth Lakes Parks and Recreation Element of the General Plan.*	LS

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4.6-3	**Traffic volumes at some intersections indicate that signalization will be required to maintain acceptable Levels of Service. This is a *significant impact.***	S	4.6-3(a) *Traffic signals shall be installed at access numbers 1 and 2 onto Minaret Road (See Figure 4.6-2). Left-turn storage pockets shall be provided on the southbound Minaret approach to access number 1, and on both the northbound and southbound approaches to access number 2. Two approach (outbound) lanes and one departure (inbound) lane shall be provided on each access road. At access number 1, the outbound lanes shall be striped as one left-turn and one right-turn lane. At access number 2, the outbound lanes shall be striped as one left-turn lane and one shared through/right-turn lane. All roadway improvements shall be designed and constructed in accordance with Town of Mammoth Lakes roadway standards, subject to approval of the Public Works Director.*	LS
			4.6-3(b) *The four access points onto Meridian Boulevard shall be controlled by stop signs on the project access approaches, with uncontrolled traffic flows along Meridian. Two approach (outbound) lanes and one departure (inbound) lane shall be provided on each access road, with the outbound lanes striped as one left-turn and one right-turn lane. All roadway improvements shall be designed and constructed in accordance with Town of Mammoth Lakes roadway standards, subject to approval of the Public Works Director.*	
			4.6-3(c) *Access number 6 (from Lodestar Area 3 to Meridian Boulevard) shall be aligned directly opposite the existing Joaquin Road, to form a four-way intersection rather than two slightly offset "T" intersections. Through movements from the access road onto Joaquin Road shall be permitted from the right-most approach (outbound) lane on the access road. All roadway improvements shall be designed and constructed in accordance with Town of*	

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PS = Potentially Significant
B = Beneficial
NA = Not Applicable

TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Level of Significance w/o Mitigation	Mitigation Measures	Level of Significance w/Mitigation
		Mammoth Lakes roadway standards, subject to approval of the Public Works Director.	
		4.6-3(d) *Access number 5 (from Areas 2 and 4 to Meridian Boulevard) shall be located as close as possible to the midpoint between Minaret Road and Joaquin Road/access number 6, to maximize the spacing between the three adjacent intersections. All roadway improvements shall be designed and constructed in accordance with Town of Mammoth Lakes roadway standards, subject to approval of the Public Works Director.*	
		4.6-3(e) *Meridian Boulevard, along the entire proposed Project frontage shall be widened to provide a two-way continuous left-turn lane, thus providing left-turn storage on Meridian Boulevard at each of the proposed project access roads (access numbers 3, 4, 5 and 6), as well as at the existing intersections of Meridian Boulevard with Villa Vista Drive, Joaquin Road, Lupin Street, Mono Street and Manzanita Road. All roadway improvements shall be designed and constructed in accordance with Town of Mammoth Lakes roadway standards, subject to approval of the Public Works Director.*	
4.7 AIR QUALITY			
4.7-1 **Construction in the area of the proposed site would temporarily increase PM_{10} concentrations and could lead to violations of the federal and State 24-hour average PM_{10} standards. This is a *potentially significant impact.***	PS	4.7-1(a) *To reduce the potential for nuisance due to dust and odors, all construction contracts shall require watering twice daily with complete site coverage; the frequency of watering shall increase as necessary to minimize dust if wind speeds exceed 15 mph.*	LS

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TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

	Impact	Level of Significance w/o Mitigation		Mitigation Measures	Level of Significance w/Mitigation
			4.7-1(b)	*Drift fencing tackifiers and covering of stockpiles shall be used in areas not under active construction.*	
4.7-2	**Operation of construction vehicles and equipment during the construction phase of the proposed Project could result in violations of federal and State 1-hour and 8-hour CO standards. This is a *short-term, potentially significant impact* during the construction phase of the proposed Project only.**	PS	4.7-2	*To reduce the potential of spot violations of the CO standards and odors from construction equipment exhaust, unnecessary idling of construction equipment shall be avoided.*	LS
4.7-3	**Emissions from vehicular traffic generated by the proposed Project could result in violations of federal and State ambient quality standards. This is a *potentially significant impact.***	PS	4.7-3	*Development will not be allowed within 50 feet of the Old Mammoth and Main intersection.*	LS
4.7-4	**Re-suspended road cinders and vehicle tail pipe and tire wear will contribute approximately 1,400 kg/day to the total PM_{10} emissions inventory at buildout of the proposed Project. This is a *significant impact.***	S	4.7-4	*Adopt and enforce Control Measures 1 through 7 of the Town of Mammoth Lakes Draft Air Quality Management Plan (see page 4.7-6).*	LS
4.7-5	**At buildout of the proposed Project, in 2005, the contribution of PM_{10} from woodburning would be approximately 22.7 Mg annually, and for a worst-case day approximately 277 kg. This is a *significant impact.***	S	4.7-5(a)	*Residential units shall be limited to one woodburning appliance per dwelling. The appliance must be an EPA Phase II-certified woodburning stove or pellet stove.* Woodburning shall comply with standard in the Town's "woodburning" ordinance (Chapter 8.30, Particulate Emissions Regulations).	LS
			4.7-5(b)	*Each hotel may have only one fireplace in the lobby or other common area. No other solid fuel appliances shall be allowed.*	
			4.7-5(c)	*All structures shall have high-efficiency central heat.*	

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TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

	Impact	Level of Significance w/o Mitigation		Mitigation Measures	Level of Significance w/Mitigation
NOISE					
4.8-1	**Construction-related noise from the proposed project will increase ambient noise levels in areas surrounding the project site. This is a *less-than-significant impact.***	LS	4.8-1(a)	*Construction activities shall be limited to the hours between 7 a.m. and 8 p.m. Monday through Saturday and 9 a.m. to 5 p.m. on Sunday in order to minimize noise impacts.*	LS
			4.8-1(b)	*Construction equipment shall be required to be muffled or controlled. Contracts shall specify that engine-driven equipment be fitted with appropriate noise mufflers.*	
4.8-2	**Noise levels exceeding 60 dB currently exist at all intersections reviewed and are projected to increase significantly as a result of cumulative development with and without the proposed project. Noise levels for the year 2005 with the project will not be noticeably higher than noise levels projected without the project. These are *less-than-significant impacts.***	LS	4.8-2(a)	*The proposed project shall be located or architecturally designed so the exterior noise levels will not exceed 60 dB and interior noise levels will not exceed 45 dB. Design features could include setbacks, berms, landscaping and architectural features, adjacent to both arterial and interior streets.*	LS
			4.8-2(b)	*Multi-family buildings shall be located or architecturally designed so the interior noise level will not exceed 45 L_{dn}. As a minimum, multi-family housing shall comply with Title 24 of the California Administrative Code.*	
			4.8-2(c)	*The project proponents shall work with Town staff to implement transit alternatives to reduce automobile traffic, as outlined in the Town's General Plan. Cumulative site development shall be reviewed at each phase and a trip reduction program developed for current phase implementation. Typically, a reduction in traffic of one-half would reduce the noise level by 3 dB.*	

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TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

	Impact	Level of Significance w/o Mitigation		Mitigation Measures	Level of Significance w/Mitigation
ARCHAEOLOGICAL RESOURCES					
4.9-1	**Cultural resources within the project area could be affected directly by construction activities and indirectly by the increased numbers and presence of humans in the area. This is a *potentially significant impact.***	PS	4.9-1(a)	*A qualified archaeologist shall be present during initial site clearing and grading to monitor the removal of any potential cultural deposits. If applicable, all procedures in Appendix K of the CEQA guidelines shall be implemented as determined by the Planning Director.*	LS
			4.9-1(b)	*The project design shall be modified as feasible to avoid disturbances to archaeological sites identified as potentially significant. If avoidance is not feasible, see Mitigation Measure 4.9-1(c).*	
			4.9-1(c)	*Prior to the issuance of a grading permit for any earth disturbance in the vicinity of any site identified as potentially significant, that site shall be excavated or the impacts otherwise mitigated to the satisfaction of the State Historic Preservation Officer.*	
4.10-1	**A significant area of forested land within the Town of Mammoth Lakes would be converted to a built use. And, although more than half of the site would be retained for open space use, most of the forested area would be altered with grading and construction of the golf course. The golf course, which could be considered a visual asset, would nonetheless change the visual character of a large portion of the forested site. This is an *unavoidable, significant impact.***	SU	4.10-1(a)	*To the maximum extent feasible, the proposed Project shall retain forested areas of the site, and shall remain subordinate to the natural character of the site and the surrounding landscape.*	SU
			4.10-1(b)	*Prior to final approval of project development plans the applicant shall submit a tree preservation and replacement plan prepared by a professional forester or arborist. Trees shall be replaced on a one-to-one basis with as many trees retained on-site as possible. Where trees have to be relocated off-site, the locations shall be determined through consultation with the Planning Director. The preservation and*	

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TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Level of Significance w/o Mitigation	Mitigation Measures	Level of Significance w/Mitigation
		replacement plan, including the type, size, number, and location of replacement trees shall be subject to the approval of the Town of Mammoth Lakes Planning Director.	
		4.10-1(c) *Contour grading shall be used to blend manufactured slopes into the natural terrain. Grading shall be minimized to preserve existing landform and vegetation to the greatest extent possible.*	
		4.10-1(d) *In order to reduce visual impacts, a forested buffer averaging no less than 100 feet shall be retained along Meridian Boulevard, Minaret Road, and along the western and eastern edges of the project site as required in project approval or by the Planning Director.*	
		4.10-1(e) *Designs for open areas of the site, most specifically the golf course, shall integrate existing trees to give the appearance of continual forest coverage from off-site vantage points.*	
		4.10-1(f) *To the maximum extent feasible, native trees and landscaping shall be concentrated around all structures, streets, and parking lots located on the project site.*	
		4.10-1(g) *The architectural style for all development shall blend with the site's natural setting. Rooflines shall reflect the slope of the site, and natural "earth tone" colors and materials such as stone and wood shall be emphasized. Project development plans (Use Permits & Building Permits) shall be subject to design review by the Town of Mammoth Lakes Planning Commission.*	

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TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

	Impact	Level of Significance w/o Mitigation		Mitigation Measures	Level of Significance w/Mitigation
			4.10-1(h)	*Buildings fronting Main Street shall respond to the scale, massing, and visual context established by existing development along Main Street.*	
			4.10-1(i)	*All multi-family housing structures shall be physically separated and buffered from non-residential structures except resort condominium units which are a part of the Hotel complex. Setbacks between residential and non-residential structures shall be subject to the approval of the Town of Mammoth Lakes Planning Commission.*	
			4.10-1(j)	*Employee housing shall have the same architectural, site design, and landscaping quality as all other development in the master plan.*	
4.10-2	**The proposed ski lift to Chairlift #15 is not a part of the present application. No design work has been completed. Potential impacts, therefore, could be too speculative to be meaningful.**		4.10-2	*Not applicable.*	
PUBLIC SERVICES/FISCAL					
Snow Removal					
4.11-1	**Development of the Project will result in increased amounts of snow removal due to new access roads to and from the project. There is presently enough land area within the project site to accommodate necessary snow storage for public streets and private developments. This is a *less-than-significant impact.***	LS	4.11-1(a)	*All project road alignments and project phases shall be designed to provide the necessary snow storage areas as determined by the Town Department of Public Works. Snow storage areas shall equal at least 70 percent of the surfaces to be cleared.*	LS

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TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Level of Significance w/o Mitigation		Mitigation Measures	Level of Significance w/Mitigation
		4.11-1(b)	*All buildings, walkways and pedestrian open spaces shall be located a minimum of 20 feet from the roadway edge to limit the amount of snow storagelblowing interference.*	
		4.11-1(c)	*Alternate methods of snow removal, such as radiant heat decking, shall be implemented in the plaza area to ensure that access is provided to all businesses at all times.*	
		4.11-1(d)	*Parking garage entry points shall avoid north-facing orientation. Design solutions shall be implemented to prevent blowing and drifting snow from accumulating in the garage entry area.*	
		4.11-1(e)	*Sloping roofs shall be designed so as not to shed snow onto adjacent properties, parking lots, walkways or other passage ways.*	
		4.11-1(f)	*The Town and CALTRANS shall retain the right to cover any sidewalks with snow located adjacent to streets for snow removal purposes.*	
		4.11-1(g)	*No snow removal activities, except that which is performed by the Town or by CALTRANS, shall be allowed to deposit snow within the public rights-of-way.*	
		4.11-1(h)	*To avoid ice build-up, all structures shall be oriented to minimize shading of streets and pedestrian areas.*	
		4.11-1(i)	*Clearing of private roads shall be the responsibility of the developer or homeowners associations.*	

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TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

	Impact	Level of Significance w/o Mitigation		Mitigation Measures	Level of Significance w/Mitigation
Schools					
4.11-2	**The proposed Project is anticipated to produce approximately 190 students. The project-generated student population would result in an overcrowded situation for both MUSD facilities. The Project will specifically create the need for a new elementary school facility. Each new student is expected to cost the district $4,760 in operating costs and $11,000 in capital costs. This is an *unavoidable, significant impact.***	SU	4.11-2(a)	*The project proponent shall pay school impact fees under the provisions of AB 2926 or provide equivalent alternative mitigation as determined by the School District.*	SU
			4.11-2(b)	*The project proponent may volunteer to designate a portion of the project site to the District for the purpose of constructing a new elementary school facility or to participate in a proportionate share of a school site at another location.*	
Police Protection					
4.11-3	**The population increase resulting from project construction would require a 24-hour patrol of the project area. Since the Police Department is currently operating at full capacity, this would require three new patrol officers (one per eight-hour shift) and a new patrol car. The project would require one additional Animal Control employee. This is a *significant impact.***	S	4.11-3	*The project proponent shall contribute sufficient funds to the Town of Mammoth Lakes for the cost of purchasing one patrol car.*	LS
Fire Protection		LS	4.11-4(a)	*The project proponent shall pay a one-time mitigation fee for construction of the project, based upon building height, and another one-time mitigation fee on project operations. Both fees are to be determined by the Fire Protection District and collected by the Town.*	LS
4.11-4	**The Fire Protection District has indicated that the proposed project would require one additional Fire Inspector to the District. This is a *less-than-significant impact.***		4.11-4(b)	*Access to all structures shall comply with Mammoth Lakes Fire Protection District Ordinance #85-02.*	

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TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Level of Significance w/o Mitigation	Mitigation Measures	Level of Significance w/Mitigation
		4.11-4(c) *Access roads shall be of an approved hard all-weather surface and shall have a minimum clear unobstructed width of 20 feet. All access roads shall have a minimum vertical clearance of 15 feet. Access roads shall have a grade of not more than 10 percent.*	
		4.11-4(d) *To provide for aerial ladder access to building rooftops, a minimum 20-foot wide access road shall be provided for each structure located not more than 25 feet from the structure, but no closer than 1 foot for every 3 feet of building height. This access road shall have a grade of not more than three percent and shall be clearly posted "No Parking - Fire Lane." All high-rise structures (defined by the District as any structure exceeding 3 stories or 35 feet in height for nonresidential structures, and 55 feet for residential structures) should be required to have approved Fire Department access roads to at least 2 sides of the structure. One of these access roads should be on the side of the building with the longest continual roof line.*	
		4.11-4(e) *Fire Department access roads that are 150 feet or more in length shall be provided with approved fire apparatus turn-arounds. The required width and height clearances for Fire Department access roads shall be maintained.*	
		4.11-4(f) *If a smoke tower or stairway is used as a required exit for a structure, that exit shall have an unobstructed passage of not less than 6 feet in width to Fire Department access, and then not less than 3 feet in width from that point to the public way.*	

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TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Level of Significance w/o Mitigation	Mitigation Measures	Level of Significance w/Mitigation
		4.11-4(g) *An approved water supply system capable of supplying required fire flow for fire protection purposes be provided to all premises upon which buildings or portions of buildings are constructed. The establishment of gallons-per-minute requirements for fire flow shall be based on the "Guide for Determination of Required Fire Flow" published by the Insurance Service Office.*	
		4.11-4(h) *Fire hydrants shall be located and installed per Fire Department standards and approved by the Fire Chief. On-site fire hydrants shall be provided when any portion of the building protected is in excess of 150 feet from a water supply on a public street, or as required by the Fire Chief.*	
		4.11-4(i) *Fire hydrants and access roads shall be installed and made serviceable prior to and during time of construction. All hydrants shall be properly identified per Fire Department standards.*	
		4.11-4(j) *An approved automatic fire extinguishing system is required for all covered parking areas and other structures having: a foundation footprint of 5,000 square feet or more; a height of more than 35 feet (50 feet for residential condominiums or apartment buildings); or a height of more than 3 stories. Fire extinguishing systems shall also be installed for all other occupancies designated for this system in the Uniform Fire and Uniform Building Code, or structures identified as special hazard occupancies as outlined in the appropriate National Fire Protection Association pamphlet.*	

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	Impact	Level of Significance w/o Mitigation		Mitigation Measures	Level of Significance w/Mitigation
			4.11-4(k)	*Fire standpipe systems shall be installed in conformance with National Fire Protection Association Standards and the Uniform Fire Code.*	
			4.11-4(l)	*Incorporation of other fire protection methods as necessary in underground parking garages and high-rise structures, based upon building construction, size, and adjoining occupancy types, shall be determined by the Fire Chief upon formal plan submission.*	
			4.11-4(m)	*All vehicular bridges and pedestrian bridges shall comply with fire apparatus access road requirements in regards to minimum width and height clearances.*	
			4.11-4(n)	*Liquid petroleum gas storage and system installation shall comply with Mammoth Lakes Fire Protection District Ordinance #85-02, which establishes and regulates the storage of liquid petroleum gases.*	
FISCAL					
4.11-5	**The proposed Project would result in a net revenue for the Town of Mammoth Lakes. This is a *beneficial impact.***	B	4.11-5	*None required.*	
4.11-6	**The proposed Project would add 190 more students to the Mammoth Unified School District and would result in a net cost for the District. This is an *unavoidable, significant impact.***	SU	4.11-6	*Implement Mitigation Measures 4.11-2(a) and 4.11-2(b).*	SU
4.11-7	**The proposed Project is anticipated to generate a net revenue to the Mammoth County Water District. This is a *beneficial impact.***	B	4.11-7	*None required.*	

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TABLE 3-1
Summary of Environmental Impacts and Mitigation Measures

	Impact	Level of Significance w/o Mitigation		Mitigation Measures	Level of Significance w/Mitigation
4.11-8	**The proposed Project would result in a net cost for the Mammoth Lakes Fire Protection District. This is a *less-than-significant impact.***	LS	4.11-8	*Implement Mitigation Measure 4.11-4(a).*	LS
4.11-9	**The proposed Project would contribute towards the Southern Mono Hospital District's annual revenues through payment of property taxes. This is a *beneficial impact.***	B	4.11-9	*None required.*	
4.11-10	**The proposed Project would result in an undetermined net cost to Mono County. This is a *significant impact.***	S	4.11-10	Not feasible.	S

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4. ENVIRONMENTAL IMPACT ANALYSIS

4. INTRODUCTION TO THE ANALYSIS

4. INTRODUCTION TO THE ENVIRONMENTAL IMPACT ANALYSIS

Issues Addressed in this EIR

An Initial Study (IS) prepared by the Town of Mammoth Lakes Planning Department on January 8, 1990, determined that development of the proposed Project may have significant effects on the environment. On January 9, 1990, the Town Planning Department issued a Notice of Preparation (NOP) for the Draft EIR to affected public agencies. The IS determined that development of the proposed Project may have significant environmental impacts in the following environmental issue areas:

- Geology, Soils, and Seismicity
- Hydrology and Water Quality
- Biotic Resources
- Jobs/Housing Relationship
- Utilities
- Traffic
- Air Quality
- Noise
- Archaeological Resources
- Aesthetics/Visual Quality
- Public Services/Fiscal Impacts

Existing Conditions

Existing base conditions for the environmental issue area analyses are the conditions present at the time of the preparation of this report.

Format of Environmental Issue Sections

The environmental issue sections each include two subsections: Setting; Impacts and Mitigation Measures; and Cumulative Impacts. The Setting subsection describes the existing conditions and provides a baseline from which the proposed Project is examined. The Impacts and Mitigation Measures subsection includes the following elements:

- Methodology used to conduct the analysis;
- Standards of significance for environmental impacts;

- Environmental impact(s) of the proposed Project;
- Pre-mitigation level of significance of environmental impact(s);
- Mitigation measure(s) recommended to reduce the environmental impact(s) to a less-than-significant level; and
- Level of significance of the environmental impact(s) after implementation of the recommended mitigation measure(s).

Environmental impacts are numbered consecutively through the EIR and set in **bold typeface**. The level of significance for each impact prior to mitigation is clearly stated immediately following the impact statement and is set in ***bold, italic typeface***. Each impact is then discussed in detail, followed by a correspondingly numbered mitigation measure(s). Mitigation measure text is presented in *italic typeface*. Where mitigation measures are not required or unavailable, this is also stated in *italic typeface*.

4.1 GEOLOGY, SOILS, AND SEISMICITY

4.1 GEOLOGY, SOILS, AND SEISMICITY

> "Although to us, whose days are brief, the Sierra Nevada seems immensely old - a part of the 'everlasting hills' - it is not, for it reveals but a tenth part of Earth's tumultuous 4500-million-year history. The record written in Sierran rock begins only a few hundreds of millions of years ago, in the midst of things. It opens in the depths of seas we will never sail, pushed aside by rising mountains we will never climb, drained by rivers we will never swim, rushing through tropical forests inhabited by animals we will never see and birds we will never hear. It is a tale of steaming volcanoes, and chilling glacial ice; of quiet, warm, shallow seas and of sudden earthquakes. The Sierra is an account of those events: it is how we know they took place."
>
> - Mary Hill, 1975

INTRODUCTION

From about 400 million years ago until about 130 million years ago, the area of today's Sierra Nevada was beneath sea water. About 210 million years ago bodies of molten granite deep within the earth began to cool slowly into rock, rising toward the surface, disrupting, uplifting, and partially melting the layers of ocean-laid sediment. Valuable mineral deposits formed at the junctions of the hot granite and the surrounding older rocks. The rising land surface eroded rapidly into the tropical sea to the west of the ranges from about 130 million years ago to about 40 million years ago. At the end of this period, the land was rising rapidly, volcanoes were erupting, and the ranges were experiencing wrenching seismic paroxysms. During the past three million years, glaciers have formed and melted several times in the eastern Sierra. Volcanoes have erupted in the Mono Lake area within the last 100 years. Faults continue to rupture the floor of Long Valley.[1]

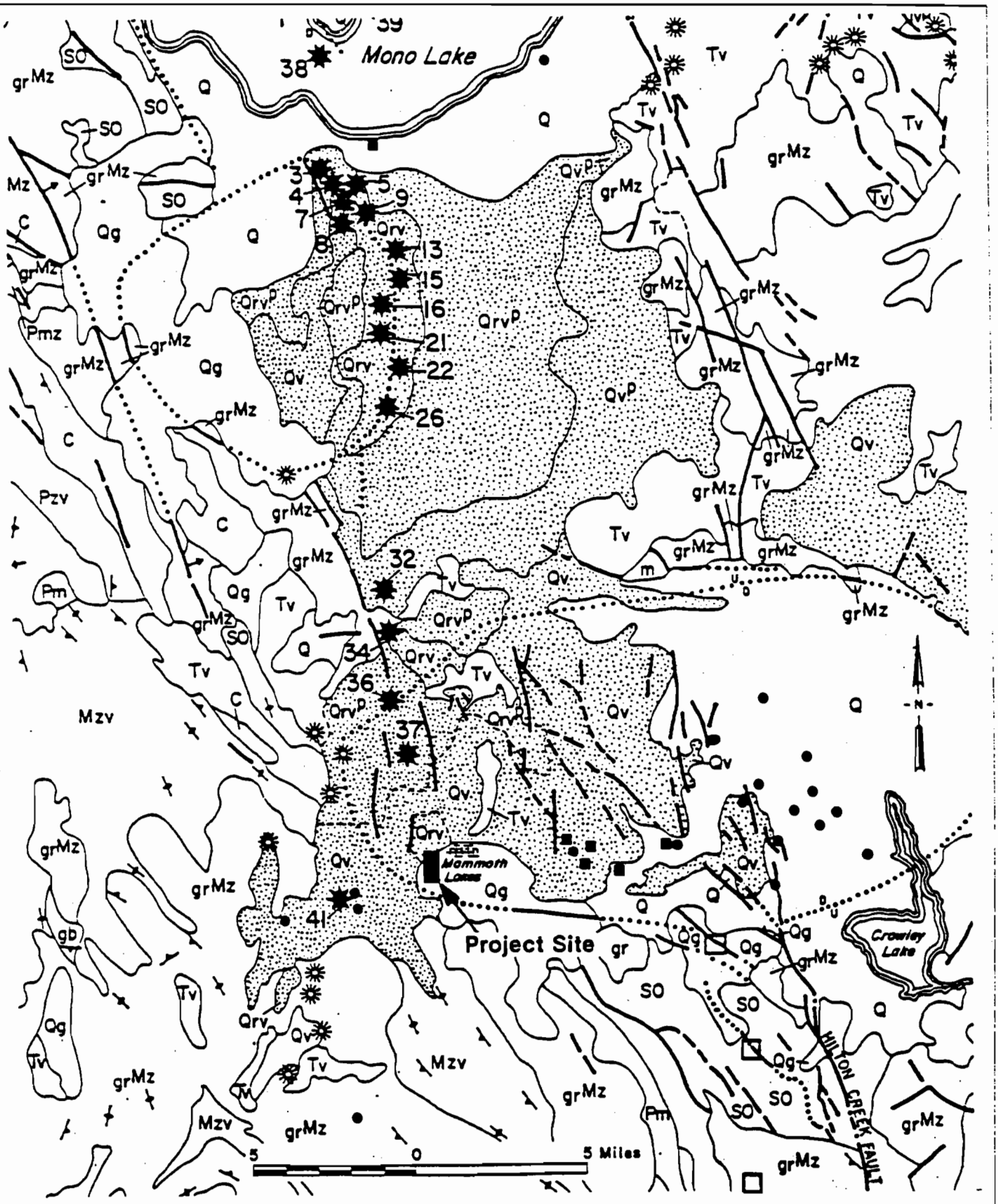
GEOLOGY AND SOILS

SETTING

The Town of Mammoth Lakes is located near the southwest edge of the Long Valley caldera, which is near the center of the Mono Lake-Long Valley area. The Long Valley caldera formed about 700,000 years ago during the massive eruptions that deposited the Bishop tuff.[2] The glacial deposits preserved in the Town represent younger Pleistocene materials. The Town is situated near the junction of several different types of geologic material (see Figure 4.1-1):

Geologic Materials, Volcanic Hazards and Faults

Figure 4.1-1



Source: California Division of Mines and Geology, 1980

No Scale

90031

eip

Legend for Figure 4.1-1

Q = Alluvium, nonmarine and marine terrrace deposits

Qg = Glacial till and moraine deposits

Qrv = Recent volcanic flow rocks; minor pyroclastic deposits

Qrv^{P} = Recent pyroclastic and volcanic mud flow deposits

Qv = Quaternary volcanic flow rocks, minor pyroclastic deposits

Tv = Tertiary volcanic flow rocks; minor pyroclastic deposits

Tv^{P} = Tertiary pyroclastic and volcanic mud flow deposits

Mzv = Undivided Mesozic volcanic and metavolcanic rocks

m = Undivided pre-Cenozoic metasedimentary and metavolcanic rocks

gr^{Mz} = Mesozoic granite, quartz monzonite, granodiorite, and quartz diorite

gb = Gabbro and dioritic rocks; chiefly Mesozoic

gr = Undated granitic rocks

Pzv = Undivided Paleozoic metavolcanic rocks

Pm = Permian marine rocks; minor pyroclastic rocks

C = Carboniferous marine rocks; in part pyroclastic rocks

SO = Silurian-Ordovician marine rocks; some greenstone

Quaternary volcanic rocks are shaded; most are probably Holcene in age

✸ = Eruptive center dated as younger than 2000 years. Number refers to eruptions listed in Table 2.

✸ = Other Quaternary eruptive centers

● = Thermal spring location

■ = Thermal well location

□ = Epicenters of the three M≥6.0 shocks of 1980 Mammoth Lakes earthquake swarm.

..... ___ = Fault, dashed where concealed

Pliocene volcanic flow rock (12 million to 3 million years old); Pleistocene through Holocene volcanic and pyroclastic rock (less than 3 million years old); Pleistocene glacial deposits (2.5 million to 10,000 years old); and Holocene alluvium (less than 10,000 years old). The Mono basin developed during the last three million years as a result of regional warping and faulting, with related volcanism.

The glacial deposits preserved in the Town represent younger Pleistocene materials: the Tahoe till (maximum ice 65,000 to 50,000 years ago); the Tioga till (maximum ice 20,000 to 10,000 years ago); and related outwash deposits of gravel and sand swept away from the glacial margins by meltwater streams.[3] The landform map (Figure 4.1-2) shows the general relationship of the geologic materials as recognized in the Town's General Plan.

The proposed Project site is located south of the Main Street portion of State Route 203 on a moraine of Tioga till. The land surface rises irregularly, but gently, toward the southwest from about 7,910 feet above mean sea level (msl) near the intersection of Joaquin Road and Main Street to about 8,070 feet msl near Camp High Sierra off Lake Mary Road. The till has been described as gravelly silty sand containing cobbles and boulders of granite as large as 4 feet in diameter; the unweathered material is dense to very dense and well consolidated.[4] It is known to be at least 14 feet thick and is not water-bearing to that depth. The topsoil is less than 2 feet thick, but root structures and organic material are reported to penetrate the loose dry sand portions of the deposit as far as 5 five feet below the ground surface.[5]

During construction of an underpass on the site, the Tioga till was exposed in cuts more than 10 feet deep across the Minaret Road right-of-way. In the excavation, the exposed moraine is oxidized and loosened by root penetration to about 4.5 feet below the ground surface. Below this level is a boulder lag, 1 to 2 feet thick, of rounded to sub-angular cobbles, about 8 inches in diameter, embedded in an indurated gravel matrix. Below the lag deposit is at least 6 feet of unoxidized, very densely compacted till. Few rootlets penetrate below the boulder lag.[6]

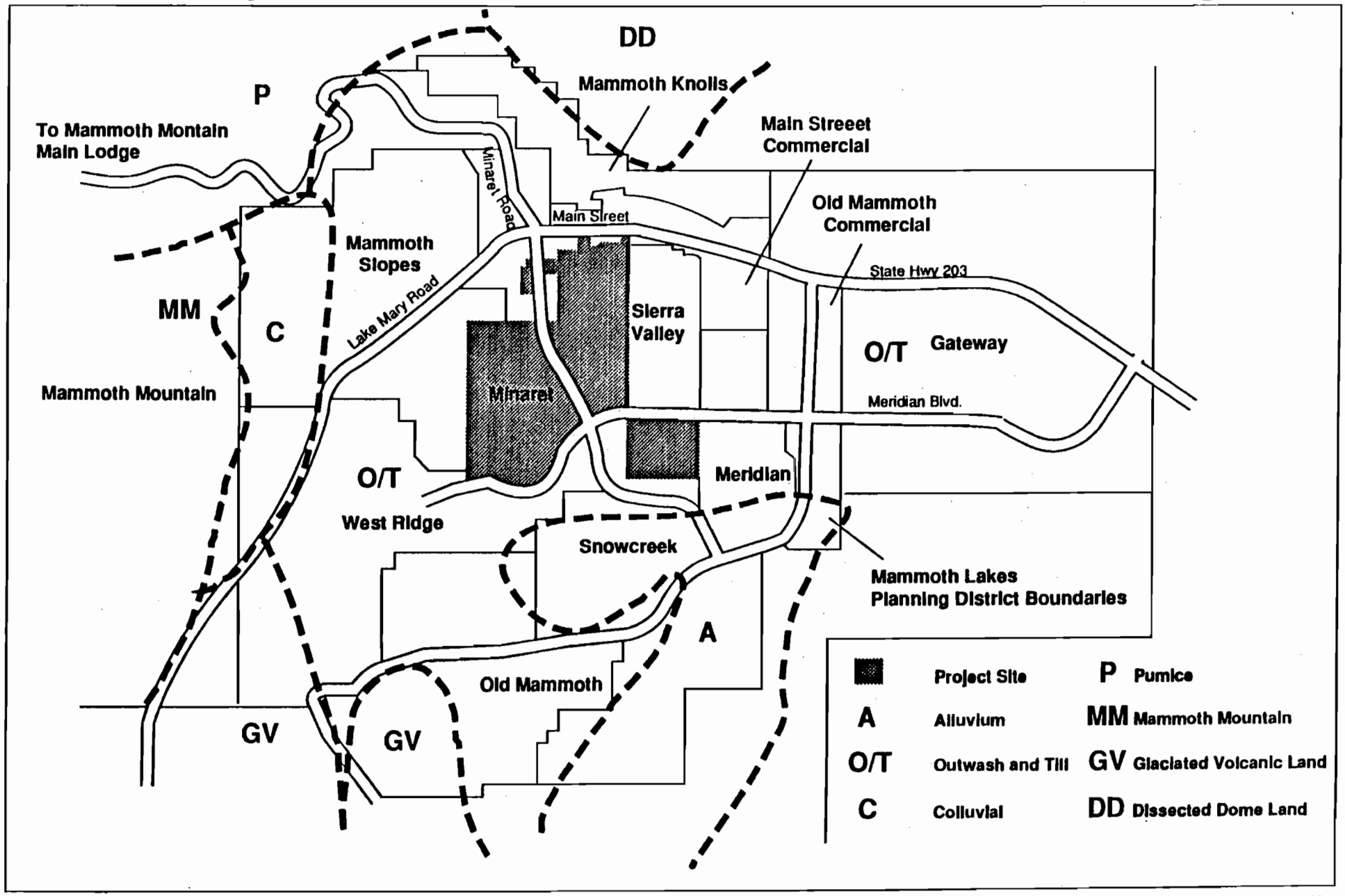
IMPACTS AND MITIGATION MEASURES

Standards of Significance and Methodology

Section 15382 of the CEQA Guidelines defines a significant effect on the geologic environment as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project."[7] Further, Section 15126 (a) of the Guidelines stipulates that an EIR must analyze "significant environmental effects the project might cause by bringing development or people into the area affected." The example used in the Guidelines is that of a subdivision astride an active fault having the effect of attracting people to an area where they would be exposed to seismic hazards. The examination of geologically related issues (i.e., geology, geotechnology, soils, topography, seismicity, and volcanism) is based on information obtained from site observation, from a review of existing literature including the reports, bore hole logs, and cross sections provided by the Project Sponsor's geotechnical engineering team, and from personal and telephone communications with persons involved with, or concerned

Land Forms Map

Figure 4.1-2



SOURCE: MAMMOTH LAKES GENERAL PLAN

0 2000 4000 FEET

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about, the proposed Project. The mitigation measures recommended to reduce, eliminate, or avoid the potential geologically related effects of, or on, the proposed Project are not intended to be an exhaustive catalogue of all conceivable actions. They are based on existing techniques, generally recognized by geotechnical consultants in California to be applicable, feasible, and conservative in approach. They do not always rely on structural solutions, such as building more retaining walls, or installing heavier foundations. The timing of excavation activities, the continuation of current inspection procedures, and the maintenance of ongoing clean-up and repair programs often provide the most effective environmental protection.

In general, it is the responsibility of a project applicant to implement the mitigation measures through the planning, design, construction, and occupation phases of the project. The mitigation measures should be approved at the time of filing of the Tentative Map, and should be required as part of the grading and construction permits, unless otherwise specified. It is the responsibility of the lead agency, the Town of Mammoth Lakes, to monitor the mitigation measures through plan checking, periodic reporting procedures, and on-site inspections. Many "monitoring" programs already exist in the form of planning policies, required standards of construction, and permit approval procedures that are administered routinely by departments of public works, branches of building inspection, and similar agencies in the public sector. Other mitigation and monitoring programs have been formalized as conditions of project approval agreed upon by the Lead Agency and the applicant.

Most of the detailed recommendations regarding specific techniques and designs to reduce, eliminate, or avoid geologically related hazards are provided by the reports of the geotechnical investigations for the proposed Project. Plan review, field inspection, and site observation are also involved in the mitigation of geotechnical effects. The completed site development plans would be reviewed by the lead agency to determine conformance with the recommended geotechnical procedures. Final field inspection of the mitigation measures would be performed by a Certified Engineering Geologist, or a similarly qualified professional, during the earthwork and construction operations. The observation of cuts, fills, backfills, foundation excavations, and the preparation of pavement subgrades would take place during these phases of site development. The recommendations of the geotechnical report and the inspecting professional would be incorporated in the work.

Slope Instability

Impact

4.1-1 Development of the proposed Project could create new or increased slope instability. This is a *potentially significant impact.*

The site is not now subject to slope instability because the natural slopes are relatively shallow. The soil is very dense and manufactured slopes have been engineered to provide adequate stability.

If new cuts and fills were not similarly engineered, or if proposed ponds saturated areas downslope or placed undue stress on areas downslope, slope failures could occur. A possibility of instability exists where high groundwater may occur, a condition not identified on the Project site.

Mitigation Measure

Implementation of Mitigation Measures 4.1-1(a) through 4.1-1(e) would reduce Project impacts to a less-than-significant level.

4.1-1(a) *Soils and foundation analyses shall be approved by the Public Works Director prior to final Project design approval, as stipulated in the Town's Safety Policy #18. All measures required by the Public Works Director shall be incorporated into grading plans and building plans.*

4.1-1(b) *New slopes shall be constructed at an angle and degree of compaction that will ensure stability, as stipulated in the standards of the Town's Municipal Code.*

4.1-1(c) *The ponds and man-made lakes shall be constructed and operated to prevent downslope saturation or stress that could lead to slope instability.*

4.1-1(d) *All work shall be overseen by a licensed Civil Engineer (CE), Certified Engineering Geologist (CEG), or similar appropriately qualified professional, who shall report to the Town in order to ensure the standards of the applicable Codes are met.*

4.1-1(e) *Subsequent development phases will require additional environmental review and approval by the Planning Commission.*

Soil Erosion

Impact

4.1-2 **Development of the proposed Project could result in new or increased soil erosion. This is a *potentially significant impact.***

The site is slightly prone to erosion in its natural condition and moderately prone to erosion where soils are disturbed by human activities. The subsoils are dense, the slopes are shallow, and the natural ground cover is generally undisturbed. The existing constructed slopes for the extension of Minaret Road are angled, compacted, and protected with rip-rap or vegetation to prevent erosion. If new slopes, foundation excavations, pad cuts-and-fills, etc., are not similarly engineered, the erosion potential of the site would increase to moderately high or high.

Mitigation Measure

Implementation of Mitigation Measure 4.1-2 would reduce the proposed Project impacts to a less-than-significant level.

4.1-2 *A comprehensive Erosion and Sediment Transport Control Plan shall be prepared and approved by the Town prior to issuance of any grading or building permit. The Plan shall be included in the Project design, as stipulated in the Town's Safety Policy #18. The Plan shall also meet the requirements of the Regional Water Quality Control Board and the Town Municipal Code.*

The language and specifications of such plans vary depending on site conditions, but the general principals to be adhered to are listed in the Town's Safety Policies #s 21, 22, and 23. Further types of recommendations to be applied as appropriate are listed in Endnote 36 of this section of the report.[8] All work shall be overseen by a CE, CEG, or similar appropriately qualified professional, who shall report to the Town in order to ensure the standards of the applicable codes are met.

Topography

Impact

4.1-3 **Development of the proposed Project could significantly alter the topography of the site. This is an *unavoidable, significant impact.***

Topographic alteration is unavoidable during the development of any site. The proposed site is relatively level, with low, irregular slopes that would be leveled or obscured by building pads, pond excavations, and golf course contouring and landscaping. The resulting image of an orderly residential/hotel development on a manicured site may be pleasing to the viewer. However, it would be significantly different from the existing vista of tree-covered open spaces interspersed with paths, glades, and monoliths in a relatively natural setting. This impact cannot be avoided if the site is developed as proposed. The site does not contain other unmitigable conditions or pose undue geologic or seismic risks (see below) that would require the Town to invoke Safety Policy #28, designating it as permanent open space.

Mitigation Measure

Implementation of Mitigation Measure 4.1-3 would reduce Project impacts to a less-than-significant level.

4.1-3 *Prior to issuance of grading or building permits, geotechnical studies shall be completed and their recommendations shall be incorporated in the Project design, as stipulated in*

the Town's Safety Policy #26. Any grading in the southwest portion of the site shall consider the potentially high groundwater in that area.

SEISMICITY

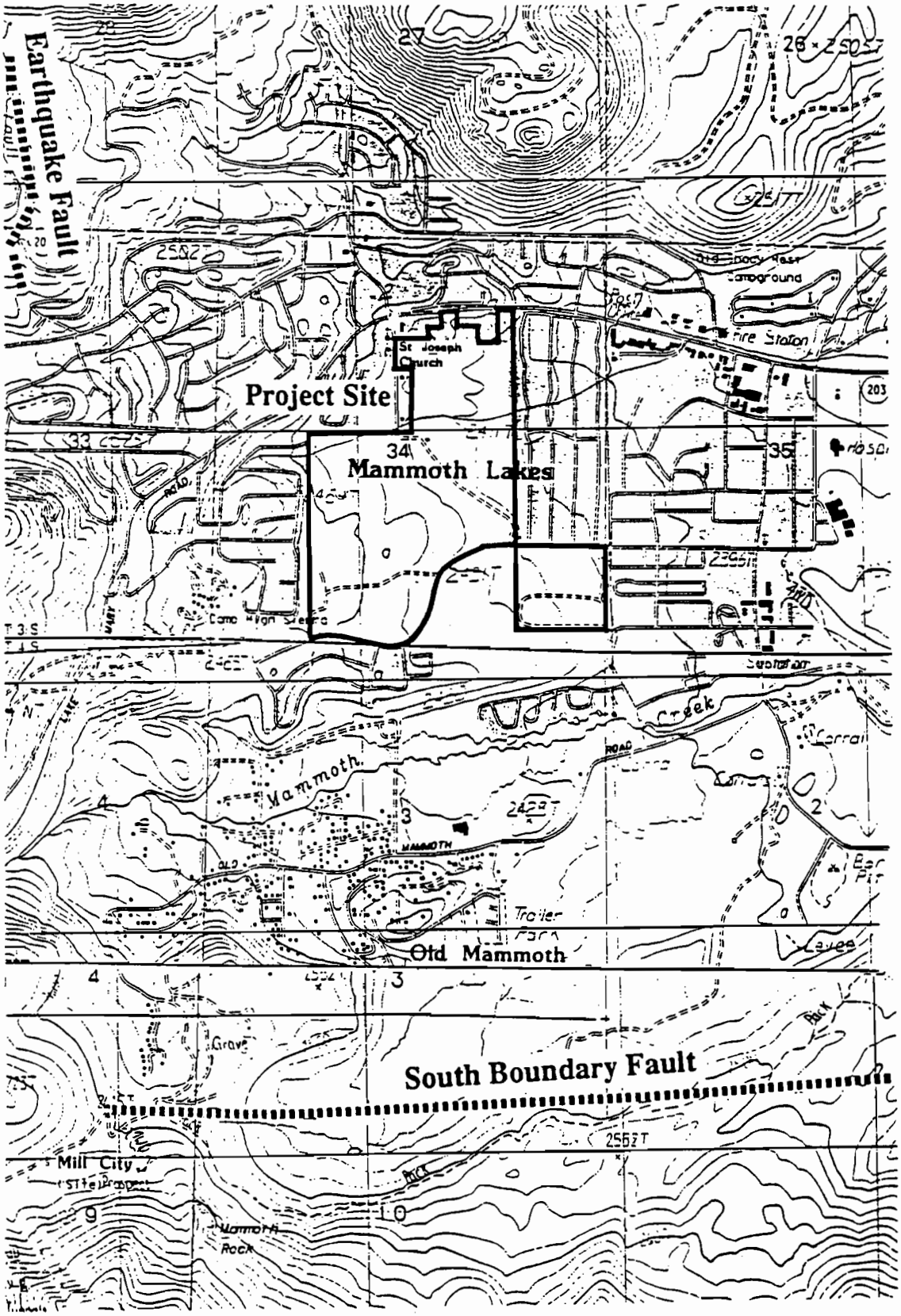
SETTING

The Mono Lake-Long Valley region is part of one of the most active seismic regions in the United States. Low and moderate magnitude earthquakes occurring within the caldera are felt frequently by residents of Mono and Inyo Counties. Very large shocks have occurred in the area and are expected to occur again. Seismic activity in the vicinity of the Town of Mammoth Lakes is a result of continuing tectonic movement along the eastern front of the Sierra Nevada. Regional deformation, faulting, groundshaking, and volcanism accompany tectonic movement. The present elevation and westward tilt of the region are the result of broad up-warping between about 9 million years ago and about 3 million years ago, but the major down-faulting that created the eastern front did not begin until the Pleistocene (less than 3 million years ago). The Sierra Nevada frontal fault system,offsets glacial deposits as old as 65,000 years (Tahoe till) and as young as 20,000 years old (Tioga till). During the last 2,000 years, volcanism has formed a chain of domes, flows, craters, and pyroclastic deposits from the islands in Mono Lake to Mammoth Mountain volcano. It is this active volcanism that is considered the proximal cause of local seismicity.[9] In 1872, one of the largest historic earthquakes in California (estimated Richter magnitude 8.0) occurred along the Owens Valley fault (one of the major active faults along the Sierra Nevada front) causing surface rupture for 60 miles. In 1980, a series of earthquakes, culminating in three RM6+ (RM = Richter magnitude) shocks caused damage and ground failures throughout the vicinity of Mammoth Lakes. Surface rupture occurred along numerous north to northwest-trending faults. The Hilton fault (about 12 miles southeast of the Town) experienced as much as 1 foot of offset. Surface rupture ranging from less than 1 inch to about 3 inches of offset also occurred on fault traces 4 miles east and 1 mile west of Town.[10] The most recently reported series of earthquakes, all smaller than RM2, began in November 1989 and continued through March 1990.

There are several active and potentially active fault zones within 60 miles of the Town (see Figure 4.1-1 and Figure 4.1-3). These include faults that are historically active (during the last 200 years), those that have been active in the geologically recent past (the last 10,000 years, usually referred to as the Holocene) and those that have been active at some time during the Quaternary geologic period (the last 2 million years). The Mono Lake, June Lake, and Hilton Creek faults are historically active. They form the northern extension of the Sierra Nevada frontal fault system. The southern extension of this system includes the main trace of the Sierra Nevada fault and the Owens Valley fault. These also are historically active. Holocene faults occur as branches within the major active fault zones and as segments of other faults in Mono and Inyo Counties. The faults that have been classified as Quaternary or older do not display evidence of recent movement. These include the Bodie Hills, White Mountains, Death Valley-Furnace Creek, and Saline Valley faults.[9]

Fault Map

Figure 4.1-3



Each of the major fault zones is capable of generating a maximum credible earthquake of at least RM6.2.[10,11] The Owens Valley fault is capable of generating an RM8.3[12] Earthquakes of these magnitudes are sufficient to create ground accelerations in bedrock and in unconsolidated deposits severe enough to cause major damage to structures, foundations, and underground utility lines.[13,14]

Other faults exist throughout Mono County but have shown no evidence of activity during the last 2 million years.[15] Each of the historically active faults is in an Alquist-Priolo Special Studies Zone, but none crosses or trends toward the site.[16,17] Consequently, the potential for damage to the proposed Project by surface faulting is very low.[18]

POTENTIAL HAZARDS

Several types of geologic hazards may occur in the vicinity of the Town of Mammoth Lakes that could have an impact on, or be impacted by, the proposed Project. They are not all of equal severity and they would not all affect the site of the proposed Project to the same extent. As discussed below, the hazards include slope instability, erosion, seismicity, and various volcanic events. Hazards related to seismicity include surface rupture, groundshaking, landslides, liquefaction, and seiche inundation. Hazards related to volcanism include flowage phenomena, tephra eruption, and gas emission.

Slope Instability

Landslides, earthslips, mudflows, and soilcreeps are expressions of soil conditions related to the instabilities created by steep slopes, shallow soil development, the presence of excess water, or the lack of shear strength in the soil or at the soil/rock interface. Each of these conditions is observable in Mono County, but usually is reported simply as a "landslide." Slope instability can be of static or dynamic origin. Earthquake activity induces some landsliding, but most slides result from the weight of rain-saturated soil and rock exceeding the shear strength of the underlying material. Erosion of supporting material at the foot of constructed slopes is another major cause of sliding. Landslides are a significant component of the natural erosional processes in the Sierra Nevada. Although an existing geologic material or condition may form the basis of an unstable situation, natural processes and human activities have initiated landslides in otherwise stable areas.[19]

Geologic materials, such as clay minerals, have a great capacity to absorb water, resulting in a reduction of shear strength. The force of gravity (shear stress) can cause a water-soaked mass of rock or soil to slide when saturated clays reduce the shear strength of the material below its minimum stability threshold. Certain formations of glacial and lacustrine origin are only marginally stable in steep natural or constructed slopes because of their clay constituents.

The moraines south, west, and north of the Town are considered unstable partly because they contain irregular deposits of clay that lack the strength to stand in steep slopes. Moraines in the

center of the Town (i.e., at or near the Project site) and to the east are considered generally stable because of their relatively low topography, unless they are underlain by shallow groundwater (see Figure 4.1-4, Slope Instability Map). Clay deposits and steep slopes do not appear to exist on the Project site. The existing natural slopes are shallow. The till may contain isolated bodies of clay but subsurface and surface inspection indicates that generally the till is very dense and very sandy. Constructed slopes have been engineered to provide stability, and are subject to inspection by the Town to ensure their maintenance and good condition. Figure 4.1-4 indicates the possibility of shallow groundwater under the southwest portion of the Project site. However, no free groundwater was encountered in the 12- and 13-foot deep test pits dug there in 1976.[20] This condition may have changed and needs to be reconfirmed during the Project design phase.

Erosion

Erosion potential is variable throughout the area. The highest erosion potentials occur when slopes are steep and the soils are loose and/or shallow. However, any of these three conditions may be sufficient to create an erosion hazard. Foundation components may be weakened by the loss of soil support created through erosion. If uncorrected, the effects can range from the nuisance level (sticking doors and windows) to the major structural damage level (shifted or collapsed foundations). Combined with seismic loads, the effect could be sufficient to make the difference between survival and destruction of a component of the foundation system during a major earthquake.[21]

Naturally occurring steep slopes are not a factor at the Project site. The loose, sandy portion of the moraine is subject to erosion if its surface is disrupted or devegetated. Under existing conditions, the potentially erosive effects of overland flow from snowmelt and rainfall runoff are reduced by the groundcover of fallen leaves and needles, and by the root systems of the living trees. Also, the underlying till is dense enough, and contains sufficient silt-sized particles, to resist these relatively mild erosive forces.

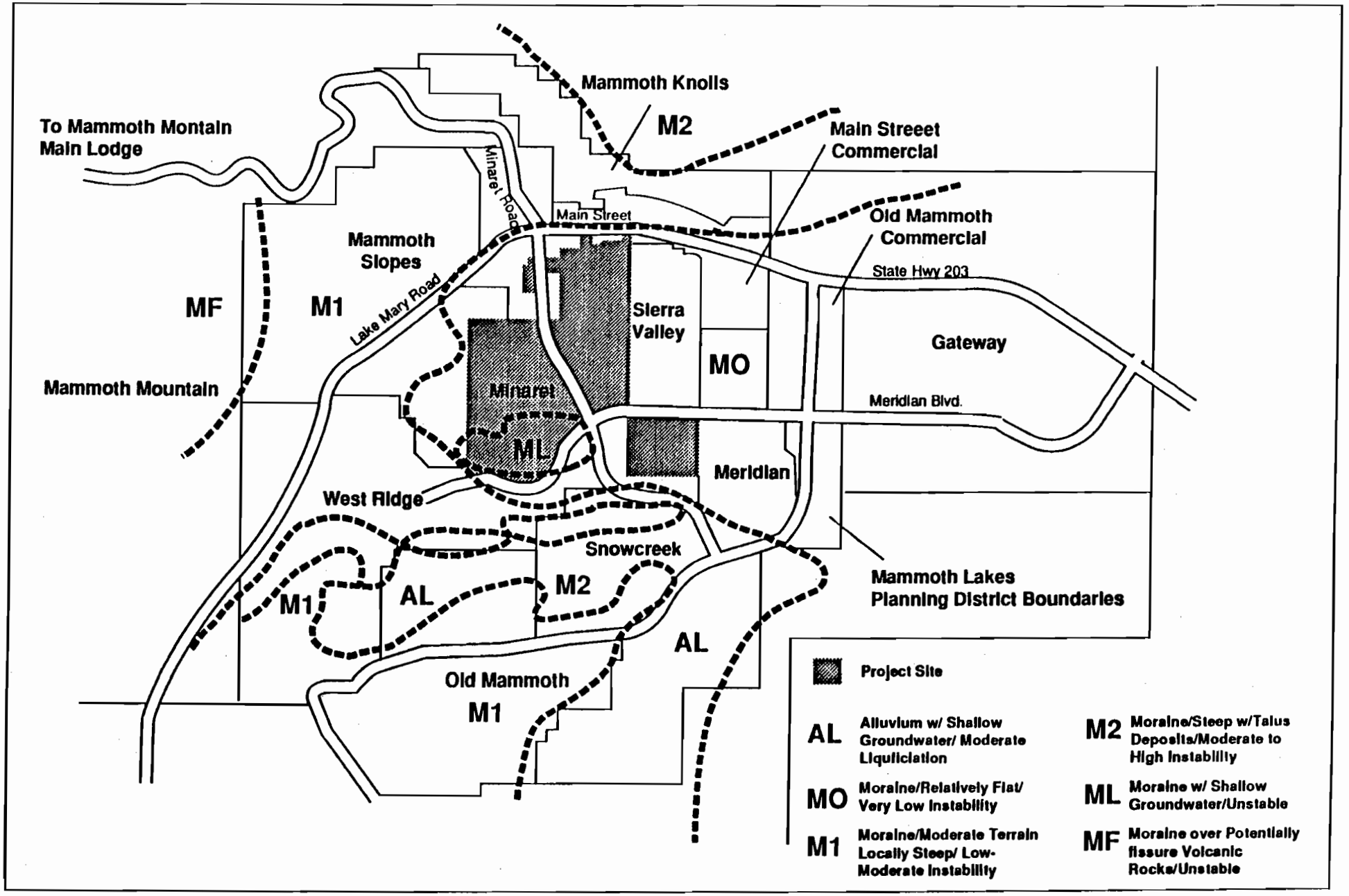
Soil erosion also creates several other problems. The loss of the soil itself reduces the vegetal viability of an area (endangering wildlife habitat, see Section 4.3, Biotic Resources). The redeposition of the eroded soil in streams creates turbidity (endangering aquatic life - see Section 4.2 Hydrology and Water Quality and Section 4.3 Biotic Resources) and may reduce the water-carrying capacity of streams or drainage systems (aggravation of flood conditions - see Section 4.2, Hydrology and Water Quality).

Seismicity: Surface Rupture

Surface rupturing along the trace of a fault affects all types of material; however, it does not always show clearly in a loose or water-saturated soil. Damage due to surface rupturing is limited to the actual location of the fault-line break, unlike damage from groundshaking, which

Slope Instability

Figure 4.1-4



SOURCE: MAMMOTH LAKES GENERAL PLAN

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can occur at great distances from the fault. Even a moderate earthquake can be accompanied by enough surface rupturing to damage foundations and buried utility lines that have not been adequately protected where they cross fault traces.[22]

Seismicity: Groundshaking

Bedrock formations and unconsolidated deposits (soils) exhibit different responses to seismically-induced groundshaking. As a general rule, the severity of groundshaking increases with proximity to the epicenter of the earthquake. However, given similar location and seismic energy output, the least amount of damaging vibration would occur on a site that was completely composed of bedrock or densely compacted sediments, such as till. A site underlain by major thicknesses of loose alluvial material would experience considerably more damaging vibration because of the unconsolidated material's tendency to deform to a greater degree than the bedrock.[23]

Seismicity: Landslides

Earthquake-induced landsliding of steep slopes can occur in either bedrock or unconsolidated deposits. Bedrock hills and hills composed of unconsolidated deposits (till, outwash, soil) respond differently to seismic vibration. General, the closer the hill is to the epicenter of the earthquake, the greater the amount of vibration it will experience. Firm bedrock usually can stand in steeper slopes and withstand more severe vibration than soils or glacial materials are able to maintain. However, rock type, grain size, degree of consolidation, and angle of the bedding or jointing planes all contribute to the strength or weakness of a bedrock hillside. Deeply weathered till and fractured volcanic rocks are susceptible to slope failures.[24] As previously discussed, naturally occurring steep slopes do not exist on the site.

Seismicity: Liquefaction

Another response to severe groundshaking that can occur in loose soils is liquefaction. This transformation from a solid state to a liquid state ("quicksand"), as a response to seismically-induced groundshaking, can cause ground settling, landsliding, and lurch cracking. Earthquake-induced liquefaction does not affect bedrock or densely compacted sediments containing a wide gradation of grain sizes. The soil characteristics of a liquefaction-prone deposit are saturated conditions, loose, uniformly fine sand with little or no clay-sized particles to act as binders, and sufficiently violent vibration to increase pore pressure beyond the shear strength of the sand particles.[25]

Seismicity: Seiche Inundation

A hazard associated with seismicity near large bodies of water in mountainous regions is the generation of seiches, commonly known as sloshing or surge waves. These waves result from the repeated oscillation of the water in a lake, reservoir, or bay either directly from groundshaking or from large landslides cascading into the water. They can cause devastating damage along shore areas, similar to that caused along ocean fronts by tsunamis (tidal waves). There are no existing large bodies of water on the proposed Project site or adjacent to it. However, the Project proposes to include two man-made lakes as part of the proposed golf course. These lakes are not of sufficient size to pose risks of seiche inundation.

Volcanism: Flowage Phenomena[26]

Material erupted into the air or onto the flanks of a volcano flows downslope as lava or as a mixture of particles (lava blocks, lapilli, ash) and fluids (water, gases). Flow speed and direction is dictated by the specific composition, temperature of the flow, slope and topography of the area surrounding the volcanic vent.

Lava flows are streams of molten rock that move relatively slowly (depending on mineral content, viscosity, and slope) and spread 10 to 30 miles from their sources. They usually move a few yards or a few hundred of yards per hour along paths that can be at least roughly predicted. Lava domes are masses of solid rock formed of viscous lava erupted slowly from a vent. Their direct hazards include local burial by the dome itself or by rock debris scattered around the dome. Fires may be started because of the high temperature of the dome and debris.

Pyroclastic flows are masses of hot, dry rock fragments mixed with hot gases. They travel at high speeds (over 100 miles per hour), are extremely hot (several hundreds of degrees), and take the form of basal flow (coarse fragments) accompanied by a turbulent ash cloud (fine fragments). They are extremely hazardous because of their speed, temperature, and wide dispersion. Pyroclastic surges are turbulent, low-density clouds of rock debris and gases that move along the ground at high speeds and many extend more than five miles from their sources. Surges may be "hot," consisting of dry clouds of rock fragments and gas well above 272°F, or "cold," consisting of rock fragments and steam or water below 212°F. The hazards are similar to those of pyroclastic flows.

Directed blasts are inflated mixtures of rock debris, ash, and gases that may be hundreds of yards deep and travel at extremely high speeds with little or no control by the underlying topography. Known blasts have speeds approaching 700 miles per hour, cover sectors as broad as 180° of arc, and extend for hundreds of square miles around the vents.

Debris flows are mixtures of water-saturated materials flowing under the force of gravity. The material may range from clay-sized (mud flows) to blocks several dozens of yards in diameter. They may be hot or cold, and usually are highly viscous. They can travel long distances at high

speeds, down slopes, or be confined to valleys, burying the areas where they settle to depths greater than 100 yards. Impact and burial are the hazards of debris flows.

Floods related to volcanic activity can be produced by the melting of ice and snow during eruptions, and by heavy rains that may accompany eruptions (juvenile water and/or cloud seeding effects). Their hazards are similar to those of other floods, but they may be more damaging because of their high sediment and debris content.

The entire Town of Mammoth Lakes and the area for about 10 miles in any direction is subject to flowage hazards from the possible vent zone.

Volcanism: Tephra Eruption[27]

Fragments of lava or rock are blasted into the air by volcanic explosions, or carried upward on currents of hot gases. They fall downwind as deposits of ash (particles less than 0.08 inches in diameter), lapilli (0.08 to 2.5 inches), or blocks (greater than 2.5 inches) that are called tephra. They may be hot or cold, and may land a few yards or thousands of miles from their vents. Close to the vents, the main hazards include high temperatures, burial, and impact of falling fragments: fires may be ignited by hot debris; buildings collapsed by the weight of ash (especially if wet); plants, animals and people injured or killed by falling blocks. Further downwind ash may fatally clog respiratory systems or poison animals that eat ash-coated vegetation.

The extent of tephra hazard zones in the vicinity of Mammoth Lakes is based on the relationship between the thickness and distribution of the largest ash falls from a given volcano during the last 10,000 years. The area subject to at least 8 inches of compacted ash extends about 22 miles from the possible vent zone; the area of at least 2 inches of compacted ash fall is about 53 miles.

Volcanism: Gas Emission[28]

Gas emission often precedes eruptions, and may continue for thousands of years afterward. The most common volcanic gas is steam, followed in order of abundance by carbon dioxide, sulfur compounds, chlorine compounds, and minor amounts of carbon monoxide, fluorine, boron, ammonia, etc. Distribution is controlled by the wind, which also is responsible for diluting the concentration (and therefore, the effects) of the various gases. Near the vents, high concentrations of acidic gases may endanger life and injure respiratory systems and eyes. Concentrations of heavy gases (like CO_2) in closed depressions can suffocate animals or people. Plant destruction or damage and metal corrosion are other hazards. Wind direction frequency analysis indicates gases (and airborne tephra) generally would travel east-northeast from eruptions in the Mono Lake-Long Valley area.

TOWN SAFETY ELEMENT[29]

The Town's Safety Element of the General Plan was adopted in 1984 and addresses, among other issues, geologic hazards and seismic potential, and seismically related landsliding on steep slopes with loose soils. An emergency response plan has been prepared in the event of volcanic activity (Finding #14). The plan is administered by the Mammoth Lakes Police Department (Finding #20).

Goals related to these Findings are to protect life and property (Geologic Hazard Safety Goal #12, Seismic Hazard Safety Goal #16), to condition or prohibit development in geologically hazardous areas (GHSG #13), to reduce or avoid adverse seismic impacts (SHSG #17), and to participate in volcanic hazard response planning (Volcanic Hazards Safety Goal #14). Under Geologic Hazards, the findings identify poorly consolidated soils and steep slopes contributing to landslides (#10), erosion (#11), volcanic activity (#12), and volcanically related seismic activity, ash fall, pyroclastic surges and flows (#13). Under Seismic Hazards, the findings identify several active faults capable of generating RM7.0 earthquakes (#15), a groundshaking intensity rating of MM-IZ to MM-X for most of the region (#16), several active faults displaying recent surface rupture and mapped within Alquist-Priolo Special Studies Zones (#17), potential liquefaction areas at Sherwin Meadows and near Old Mammoth District (#18), and faster effective volcanic hazard response (#19) (VHSG #15).

The following policies regarding Geologic Safety (#18 through #25) and Seismic Safety (#26 through #32) appear in the Town's Safety Element. Those Policies indicated with asterisks (*) (#s 18, 21, 22, 23, 25, 26, 29, and 31) are directly applicable to the proposed Project.

Geologic Safety

*18. The Town shall require developers to complete a preliminary soils and foundation analysis, and prepare a comprehensive erosion control plan to prevent erosion and siltation of streams in the Community, through conditions in the Town Development Code.

19. The Town shall require detailed geotechnic studies of sites with slopes of 20 percent or greater, landslide or liquefaction potential, or other potential geotechnic hazards, through requirements in the Town Development Code.

20. The Town shall encourage clustered development in areas with problem soils and other geotechnic problems, through requirements in the Development Code, in order to reduce impact to fragile areas or reduce development exposure to hazard areas.

*21. The Town shall encourage grading and foundation plans which minimize excavation. Off-site disposal of soils shall be discouraged, and where excavation is necessary, balanced cut and fill will be encouraged. Further, if excavated soils must be moved off-site, designated borrow pits shall be used and sculpted to fit the surrounding topography. Fill materials shall be extracted from Town designated areas.

* 22. Soil erosion and soil transport during construction shall be controlled through requirements in the Town Development code, including:

a) Disturbed soils surfaces covered with mulch or grass until vegetation is re-established and/or permanent surface is overlaid.

b) Minimization of exposed graded areas for extended periods through project phasing.

c) Sprinkling of disturbed soils.

d) Covering, windfencing around or wetting of stockpiled topsoil or dusty building materials.

e) Use of wind erosion construction barriers in sites exposed to wind erosion during construction.

f) Limitation of construction equipment and vehicle speeds to 15 miles per hour on construction sites.

g) Use of sedimentation basins or ponds to prevent sediment reaching streams and the Town drainage system.

*23. The Town shall prohibit activities which could potentially devegetate or loosen soil surfaces, unless a comprehensive water and wind erosion control plan is prepared and adopted. Of particular concern are intensive recreational activity areas (such as hiking and horseback riding trails).

24. The Town shall participate in any updating and implementation of hazards response planning including an emergency evacuation facilities plan and training programs.

*25. The Town shall require major developments to prepare Specific Area Plans to address hazard emergencies such as evacuation, shelter, communication issues, etc.

Seismic Safety

*26. The Town shall ensure that new development modernization projects and public works facilities projects will be constructed to reduce structural damage during seismic events through conditions in the Town's Development Code, including:

a) The strict enforcement of the Uniform Building Code sections regarding seismic design, grading and excavation.

b) Upgrading of utilities serving the development to withstand projected earthquake loadings and/or to shut off utility in case of failure (e.g., gas pressure drop valves).

c) Requiring detailed geotechnic studies for development sites with liquefaction, landslide and faulting potential to insure appropriate siting and design is utilized in project development.

27. The Town shall adopt the State criteria for regulating development within the Alquist-Priolo Special Study Zones.

28. The Town shall designate open space uses for areas which have been identified in EIRs or special studies to present potential hazards which cannot be satisfactorily mitigated to allow for more intensive development.

*29. The Town shall ensure that adequate emergency access is available to evacuate peak populations during emergencies through:

a) Designation of an additional emergency access road alignment(s) to accommodate buildout populations.

b) Completion of the existing roadway system.

c) Encouragement of continued airport improvements to improve its use for emergency evacuation.

30. The Town shall develop an Emergency Plan for Mammoth Lakes which sets forth the responsibilities, functions and operations of the Town government and its interrelationship with other agencies and jurisdictions which provide services during an emergency.

*31. The Town shall initiate emergency training programs for Town employees and community volunteers and shall initiate a public education program which advises people on what to do in an emergency.

32. The Town shall utilize interagency agreements (i.e., mutual and joint use agreements) and support the consolidation of public safety services were appropriate, in order to establish a more efficient and coordinated emergency service system.

Administration and training of personnel involved in the emergency response plans for the Town is carried out by the Unified Command System. Members of the command meet at least once each calendar quarter to coordinate and participate in response exercises. Additional equipment and volunteers are being acquired to assist the Command. The County Office of Emergency Services is in the process of updating the emergency response plan.[30]

IMPACTS AND MITIGATION MEASURES

Standards of Significance and Methodolov

The standards of significance and methodology have been summarized in the Geology subsection, page 4.1-4.

Seismic Activity

Impact

4.1-4 **Development of the proposed Project will increase the number of people living in and visiting an area subject to seismic activity. This is a *potentially significant impact.***

Some increased density is unavoidable following the development of any site, regardless of its location in a high or low seismically active area, or of its proposed use. The entire Mammoth Lakes region, and about 45 percent of the rest of California, is in the Uniform Building Code (UBC) Seismic Zone 4, the highest activity zone in the code. The findings of the Town's Safety Element recognize this situation. The Element provides Goals and Policies to be met by the Town and by developers that reduce or avoid the risks of living in and visiting a seismically active region.

The Project Sponsor is assisting the Town in completing the existing and emergency access roadway system (Safety Policy #29).

The Town is implementing the Safety Policies regarding emergency response in the event of destructive seismic activity (Policy #s 24, 30, and 32). The Project site is not subject to known surface faulting, earthquake-induced landsliding, liquefaction, or seiche inundation hazards. Generally, the Project site is subject to the same groundshaking hazards as other areas in the Town located on outwash/fill (see Figure 4.1-2). Furthermore, no building is planned for the southwest portion of the site which may be less seismically stable than the rest of the site if a high water table is confirmed in that area (see Figure 4.1-4).

Mitigation Measure

Implementation of Mitigation Measure 4.1-4 will reduce proposed Project impacts to a less-than-significant level.

4.1-4(a) *Two measures specifically designed for the geological environment will reduce the number of lives that could be adversely impacted in the event of either an earthquake or volcanic eruption:*

i) The USGS is actively monitoring both volcanic and seismic activities in the Long Valley area.

ii) The Project Sponsor is assisting the Town in completing the existing and emergency access roadway system (Safety Policy #29).

4.1-4(b) *The Town shall require the Project Sponsor's cooperation in designing and disseminating information to assist citizens and visitors in responding to emergency situations that are likely to arise (Safety Policy #31).*

4.1-4(c) *All structures shall be designed and built to at least the standards of UBC Seismic Zone 4.*

VOLCANIC ACTIVITY

SETTING

At least 30 volcanic events have occurred during the past 2,000 years in the Mono Lake-Long Valley area, including at least 10 eruptions in the Mono-Inyo volcanic chain during the past 600 years. The Mono basin developed between 3 and 7 million years ago as a result of regional warping and faulting. The Long Valley caldera formed about 700,000 years ago, during the eruption of the Bishop Algicide and continues to be a center of volcanically-related seismic activity. Earthquake swarms and surface rupturing in the caldera are accompanied by uplift and deformation that have increased concerns about the possibility of renewed eruptive activity.[31]

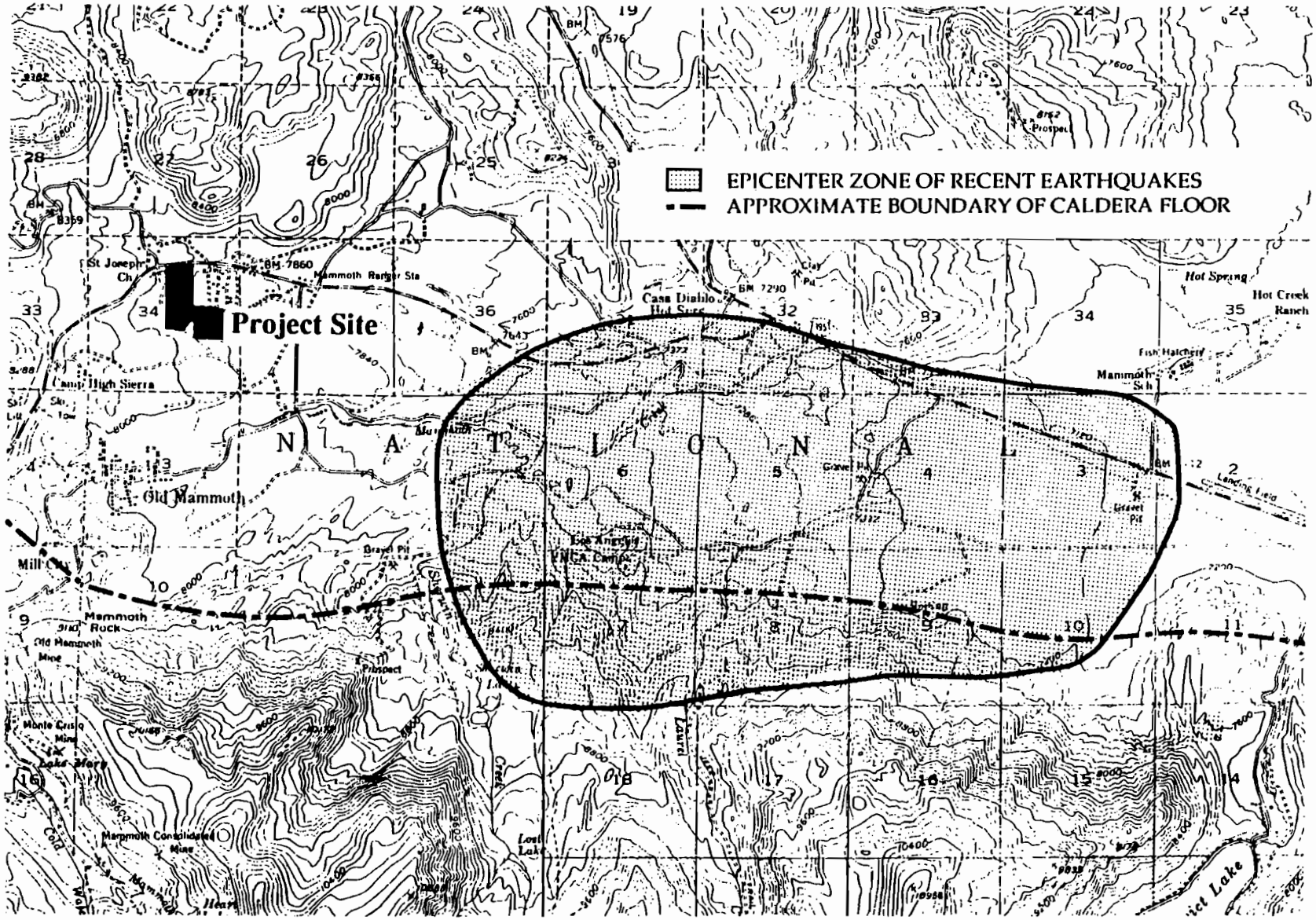
One mechanism for eruptions appears to be earthquakes along the Sierra Nevada frontal fault system which open fissures reaching to the magma chamber a few miles beneath the ground surface. Actual volcanic eruption in the vicinity of the Town of Mammoth Lakes has not occurred in recent times. The most recent eruption occurred in 1890 beneath the southern part of Mono Lake, about 25 miles north of the Town. Eruptions occurred about 1400 A.D. within 4 miles of the Town at Mammoth Mountain and at the southernmost Inyo Crater. Both eruptions were of the "phreatic" type; that is, they produced steam, water, mud, and other gasses and materials, probably as a result of groundwater being heated by magma.[32]

The possibility of such an occurrence in the Mono Lake-Long Valley area has resulted in increased monitoring of seismic and non-eruptive volcanic activity, and in increased efforts by local, State, and federal offices to prepare emergency response plans. The potential hazards from future eruptions of volcanoes in the area are being studied by the U.S. Geological Survey.

The three types of hazards (tephra eruption, flowage phenomena, and gas emission) that would affect the area are expected to emanate from a possible vent zone southeast of the Town of Mammoth Lakes, the epicenter area (see Figure 4.1-5). The zone includes the epicenters of earthquake swarms and the focus of extensive deformations of the crust between 1982 and 1985. Although no eruptions have occurred in this portion of the caldera during the last 10,000 years, the behavior of the Mono-Inyo volcanic chain during that time indicates this possible vent zone as a likely location of a future eruption. It will be seen, upon examination of the volcanic hazard map, that shifting this zone several miles in any direction would not significantly alter the hazards analysis for the Town.[33]

Earthquake Epicenters

Figure 4.1-5



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IMPACTS AND MITIGATION MEASURES

Standards of Significance and Methodolov

The standards of significance and methodology have been summarized in the Geology subsection, page 4.1-4.

Impact

4.1-5 **Development of the proposed Project will increase the number of people living in and visiting an area subject to volcanic activity. This is a *potentially significant impact.***

Some increased population density is unavoidable following the development of any site, regardless of its location in a high or low volcanically active area, or of its proposed use. A cumulative increase in the number of persons who potentially would need assistance during an emergency would occur as the population of the site becomes more dense.

The Town is adjacent to a possible vent zone in the Long Valley caldera and near the epicenter of the volcanic hazards zones associated with volcanic eruptions in the Mono Lake-Long Valley area. Because the Project site is centrally located in the Town, it is subject to the same flowage phenomena, tephra eruption, and gas emission hazards as the rest of the developed portion of Mammoth Lakes.

The Findings of the Town's Safety Element recognize this situation and provide Goals to be met by the Town that reduce the risks of living in and visiting a volcanically active region (Geologic Safety Policies #20 and #24, and under Seismic Safety Policies #28 through #32). According to Dr. David P. Hill, a volcano expert at the U. S. Geological Survey (USGS), Menlo Park, California, seismic stations in the Long Valley region have been increased to forty and a network of other instruments are in place. Volcanic and volcano-seismic activity are being monitored by the USGS: it is expected that at least several hours, and probably several days, warning time could be provided for any threatened eruption.[34]

As discussed earlier in this chapter, the Town is implementing the Safety Policies regarding emergency response in the event of a destructive volcanic event. The Project Sponsor is also assisting the Town in completing the existing and emergency access roadway system to the Project site (Safety Policy #29).

Most of the site is not adjacent to or near a creek valley where floods are likely to concentrate. The risk to life and property at the site is the same as that which exists throughout the community.

Mitigation Measure

Implementation of Mitigation Measure 4.1-5 will reduce Project impacts to a less-than-significant level.

4.1-5 *Implement Mitigation Measures 4.1-4(a) and (b).*

CUMULATIVE IMPACT

Cumulative development would increase the permanent and temporary population of the Town of Mammoth Lakes. As a result, the increased number of people living in and visiting the Town would be exposed to landsliding, groundshaking, and associated hazards that commonly occur in a seismic- and volcanically-active area. However, implementation of the General Safety and Seismic Safety Elements of the Town of Mammoth Lakes General Plan would reduce the risk associated with these unavoidable impacts.

ENDNOTES

1. Hill, M., *Geology of the Sierra Nevada*, University of California Press, Berkeley, 1975, 232 pp.

2. Alfors, J.T., "Regional Geology of the Mammoth Lakes Region, California" in *Mammoth Lakes, California Earthquakes of May 1980*, California Division of Mines and Geology, Special Report 150, edited by R.W. Sherbourne, 1980, pp. 1-6.

3. Bailey, R.A., and R.P. Koeppen, *Preliminary Geologic Map of Long Valley Caldera, Mono County, California*, U.S. Geological Survey, Open File Report 77-468, 1977, scale 1:62,500.

4. Platz, T.A., RPE #42039, *Grading and Pavement Recommendations, Minaret Road Extension, Mammoth Lakes, Mono County, California*, Sierra Geotechnical Services, Inc., February 7, 1990, 18 pp., 2 maps (scale 1:480), 7 plates (test pit logs).

5. Howell, R.D., C.E., and C.M. McRae, CEG, *Preliminary Geotechnical Study for the Allan Davis Project, Mammoth Lakes, California*, J.H. Kleinfelder and Associates, February 23, 1977, 33 pp., 2 maps (scale c. 1:12,000 and c. 1:66,000), 13 plates (test pit logs).

6. EIP Associates, site visit, June 20, 1990.

7. Office of Planning and Research, *CEQA: The California Environmental Quality Act, Statutes and Guidelines, 1986*, revised June 1986.

8. This list contains many of the recommendations of the Association of Bay Area Governments (ABAG), *Manual of Standards for Erosion and Sediment Control Measures*, revised, June 1981. They are applicable through most of the State with little or no modification.

   - Confine construction to the dry season, whenever possible.

   - If construction needs to be scheduled for the wet season, ensure that erosion and sediment transport control measures are ready for implementation prior to the onset of the first major storm of the season.

   - Locate staging areas outside major streams and drainageways.

   - Keep slope lengths and gradients to a minimum.

   - Discharge construction runoff into small drainage at frequent intervals to avoid buildup of large potentially erosive flows.

   - Prevent runoff from flowing over unprotected slopes.

- Keep disturbed areas to the minimum necessary for construction.

- Keep runoff away from disturbed areas during construction.

- Stabilize disturbed areas as quickly as possible, either by vegetative or mechanical methods.

- Direct flows over vegetated areas prior to discharge into public storm drainage systems.

- Trap sediment before it leaves the site with such techniques as check dams, sediment ponds, or siltation fences.

- Removal and disposal of all project construction-generated siltation that occurs in off-site retention ponds is the responsibility of the project sponsor.

- Use landscaping and grading methods that lower the potential for downstream sedimentation. Modified drainage patterns, longer flow paths, encouraging infiltration into the ground and slower stormwater conveyance velocities are examples of effective methods.

- Control landscaping activities carefully with regard to the application of fertilizers, pesticides or other hazardous substances. Provide proper instruction to all landscaping personnel on the construction team, and to residential landscapers.

9. Kilbourne, R.T., and C.L. Anderson, "Volcanic History and 'Active' Volcanism in California" in *California Geology*, August 1981, pp. 159-168.

10. Taylor, G.C., and W.A. Bryant, "Surface Rupture Associated with the Mammoth Lakes Earthquakes of 25 and 27 May, 1980," in *CDMG Special Report 150*, 1980, op. cit., pp. 49-67, with 1 plate, scale 1:62,500.

9. Jennings, C.W. et al, *Fault Map of California*, Geologic Data Map series, Number 1, California Division of Mines and Geology, 1975, scale 1:750 000.

10. Maximum credible earthquake: the largest Richter magnitude (RM) seismic event that appears to be reasonably capable of occurring under the conditions of the presently known geological framework. In the Bay area, RM8.3 is the maximum credible earthquake for the San Andreas fault, RM7.5 for the Hayward and Calaveras faults, and RM7.0 for the Rodgers Creed and Green Valley-Concord faults.

11. Richter scale: a logarithmic scale developed in 1935/36 by Dr. Charles F. Richter and Dr. Beno Gutenberg to measure earthquake magnitude by the amount of energy released, as opposed to earthquake intensity as determined by local effects on people, structures, and earth materials.

12. Borcherdt, R.D., et al., *Maximum Earthquake Intensity Predicted on a Regional Scale*, U.S. Geological Survey, Miscellaneous Field Investigations Map MF-709, 1975, scale 1:125,000.

13. Greensfelder, R.W., *Maximum Credible Rock Acceleration from Earthquakes in California*, California Division of Mines and Geology, Map Sheet 23, 1974, scale 1:2,500,000.

14. Greensfelder, R.W., "Seismicity, Groundshaking and Liquefaction Potential," in: M.E. Huffman and C.F. Armstrong, *Geology for Planning in Sonoma County*, California Division of Mines and Geology, Special Report 120, 1980, pp. 5-14.

15. Strand, R.G., "Geologic Map of California, Mariposa Sheet," in *Geologic Atlas of California*, Olaf P. Jenkins, editor, California Division of Mines and Geology, Sacramento, California, 1967, scale 1:250,000.

16. Alquist-Priolo Special Studies Zones: the State of California has delineated special studies zones around active and potentially active faults in the state. The zones extend about 660 feet on either side of identified fault traces. No structures for human occupancy may be built across an identified active fault trace. An area of 50 feet on either side of an active fault trace is assumed to be underlain by the fault, unless proven otherwise. Proposed construction within the Special Studies Zone can take place only following the completion of a geological report prepared by a California Registered Geologist.

17. California Division of Mines & Geology, *Special Studies Zones Map, NW 1/4 Mt. Morrison Quadrangle*, Effective Date January 1, 1982, scale 1:24,000.

18. California Division of Mines and Geology, *Fault-Rupture Hazard Zones in California, Alquist-Priolo Special Studies Zone Act of 1972*, revised 1987.

19. Oakeshott, G.B., *California's Changing Landscapes, A Guide to the Geology of the State*, 2nd edition, McGraw-Hill Book Company, San Francisco, 1978, 378 pp.

20. Howell and McRae, 1977, op. cit.

21. Association of Bay Area Governments (ABAG), *Manual of Standards for Erosion and Sedimentation Control Measures*, Berkeley, revised June 1981.

22. Huffman, M.E. and C.F. Armstrong, *Geology for Planning in Sonoma County*, California Division of Mines and Geology, Special Report 120, 1980, 31 pp., 5 plates, map scale 1:62,500.

23. Borcherdt, R. D., et al., *Maximum earthquake intensity predicted on a regional scale*, U.S. Geological Survey, Miscellaneous Field Investigations Map MF-709, 1975, scale 1:125,000.

24. Borcherdt, et al., 1975, op. cit.

25. Greensfelder, 1980, op. cit.

26. Miller, 1989, op.cit.

27. Ibid.

28. Ibid.

29. Safety Element, *Town of Mammoth Lakes General Plan*, 1984, pp. 186-216.

30. Sweeney, J., Fire Chief, Mammoth Lakes Fire Protection District, personal communication with EIP Associates, June 21, 1990.

31. Miller, C.D., *Potential Hazards from Future Volcanic Eruptions in California*, U.S. Geological Survey, Bulletin 1847, 1989, 17 pp., 3 figures, 2 tables, 1 plate, map scale 1:500,000. Unless otherwise noted, descriptions of volcanic phenomena included in the AWARE are from this Bulletin.

32. Kilbourne, R.T., C.W. Chesterman, and S.H. Wood, "Recent Volcanism in the Mono Basin-Long Valley Region of Mono County, California," *CDMG Special Report 150*, 1980, pp. 7-22.

33. Miller, 1989, op. cit.

36. Hill, David, U.S. Geological Survey, telephone communication with EIP Associates, June 16, 1990.

4.2 HYDROLOGY AND WATER QUALITY

4.2 HYDROLOGY AND WATER QUALITY

SETTING

The project site is situated within the boundaries of the Long Valley caldera, a potentially active volcanic area on the eastern side of the Sierra Nevada Mountains. The Sierra Nevada Mountains lie along the west and south margins of the caldera. Mountains to the immediate north of the Town range in elevation from 9,386 feet to 8,258 feet. The project site is situated at elevations between 8,070 feet and 7,907 feet, on slopes of approximately 5 percent, within the catchment of Mammoth Creek.

The average annual air temperature in the study area is approximately 5.6° C with maximum temperatures ranging up to 32.2° C and minimum temperatures ranging as low as -29.4° C. The total precipitation averages about 20 inches per year, although most of the precipitation occurs as snowfall. The majority of the runoff in the area occurs in the spring as snowmelt.

Surface Water

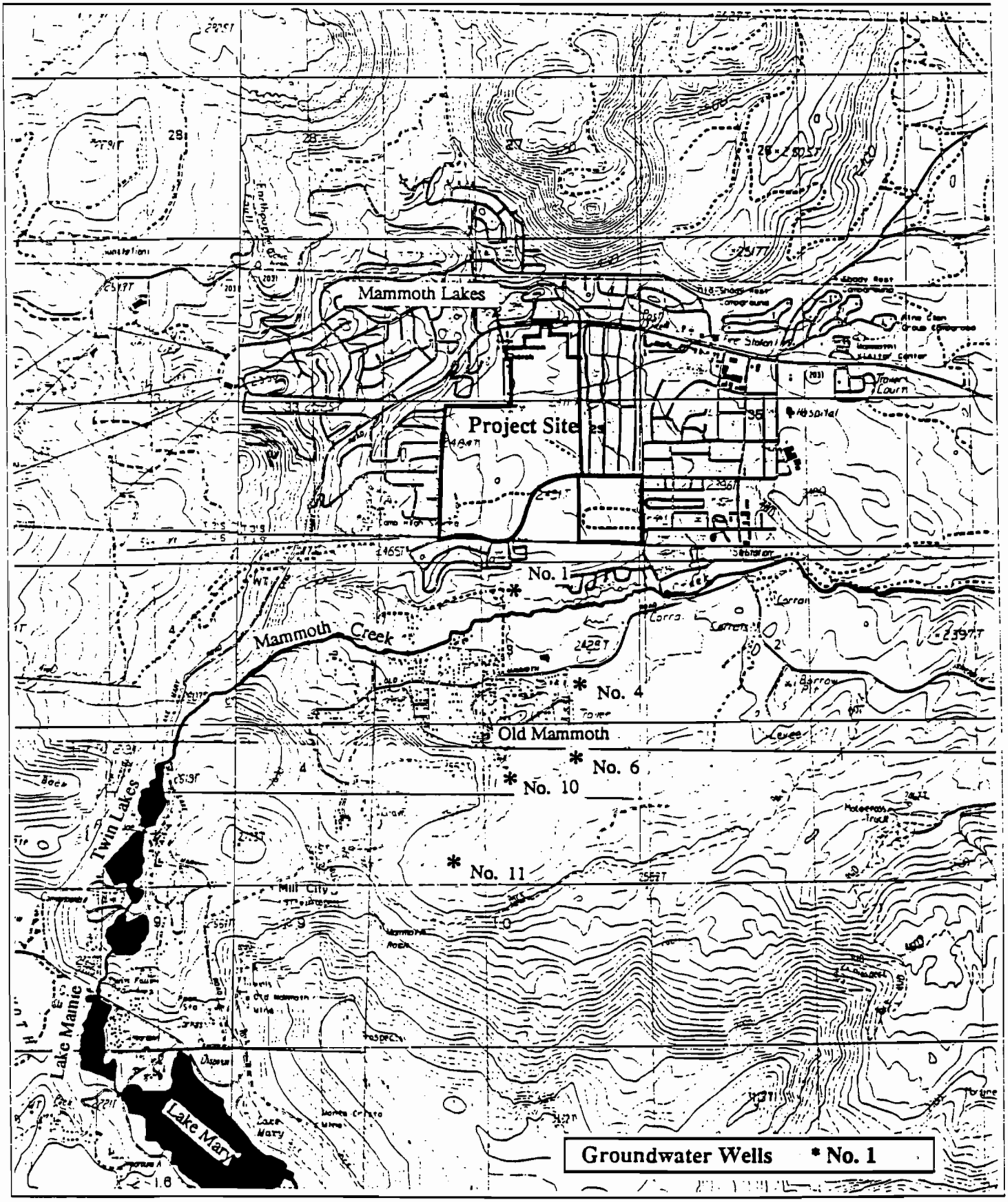
The Project site lies within the Mammoth Lakes Basin which has a total watershed area of 27,110 acres (see Figure 4.2-1). Mammoth Creek originates from various tributaries above Lake Mary (located southwest of the town at an elevation of 8,957 feet) and near the Mammoth crest area of Inyo National Forest. At a junction below the Hot Creek Fish Hatchery, Mammoth Creek becomes Hot Creek. Hot Creek drains an area of visible thermal activity and flows into Long Valley, where it joins the Owens River immediately upstream of Crowley Lake. Water from Crowley Lake comprises over 50 percent of the water entering the Los Angeles-Owens River aqueduct.[1]

The Mammoth basin is divided into 5 subdivisions. The majority of the project site is contained within Division III, which drains into Murphy Gulch and eventually into Mammoth Creek, just west of the Highway 395 and SR 203 intersection (see Figure 4.2-2). The remaining small portion in the southeast of the project site is included within Division II and drains directly into Mammoth Creek.

Murphy Gulch is a seasonal stream and has very little or no flow during dry months but does carry significant runoff volumes during the spring snow melt, as well as during heavy rainfall periods. Drainage paths across the site are ill-defined and will carry water only during spring and on the first snow falls.

Mammoth Creek Basin

Figure 4.2-1



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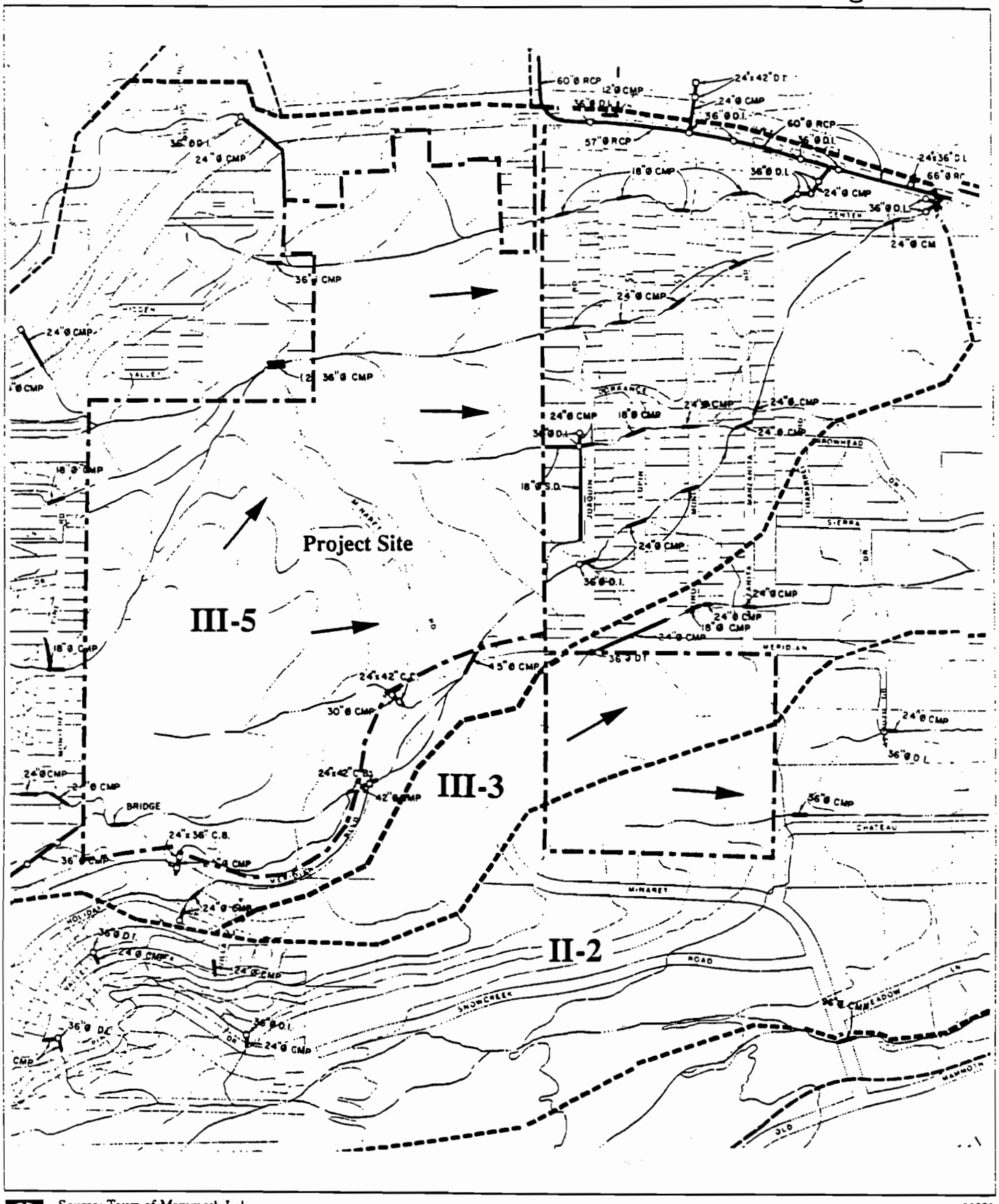
Storm Drain Network

Figure 4.2-2



Source: Town of Mammoth Lakes

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The Town of Mammoth Lakes does not have a complete integrated storm drainage system. The majority of the community is traversed by numerous natural or man-made surface channels, hence drainage problems are prevalent.[2] The Mammoth Lakes Storm Drainage Plan is a detailed storm drainage plan for the community which has been prepared under the direction of the Mono County Public Works Department. The Plan sets forth an improvement program to rehabilitate existing developed areas and policies, standards, and procedures to guide future development. The Storm Drainage Plan proposes to retain or improve natural streams where possible, rather than replacing them with storm pipe for aesthetic, cost, and functional reasons.

To alleviate severe runoff problems in the Murphy Gulch area, a major stormdrain was constructed along Canyon Boulevard, Berner Street, Alpine Circle, and Main Street, discharging into Murphy Gulch at the Mammoth Ranger Station. A 43,560-cubic-foot siltation basin was constructed at the downstream end of the storm drain to settle sediments before the stream enters Mammoth Creek.[3]

The project site at present is undeveloped and has no storm drainage facilities. The location of storm drains which release surface water into the site are shown in Figure 4.2-2. These drainage paths are picked up in urban development to the east of the project site and eventually flow into the 60-inch reinforced concrete pipe in Main Street.

Mammoth Lakes' water supply is obtained from Lake Mary and groundwater supplies and is provided by the Mammoth County Water District. Water supply issues are discussed in Section 4.5 Utilities of this EIR. Water entitlements also affect natural surface water flow. The Lake Mary surface right is subject to a number of restrictions requiring maintenance of minimum flows in Mammoth Creek, a maximum Mary Lake level variation of 5.7 feet, and minimum water flows in Bodle Ditch.[4]

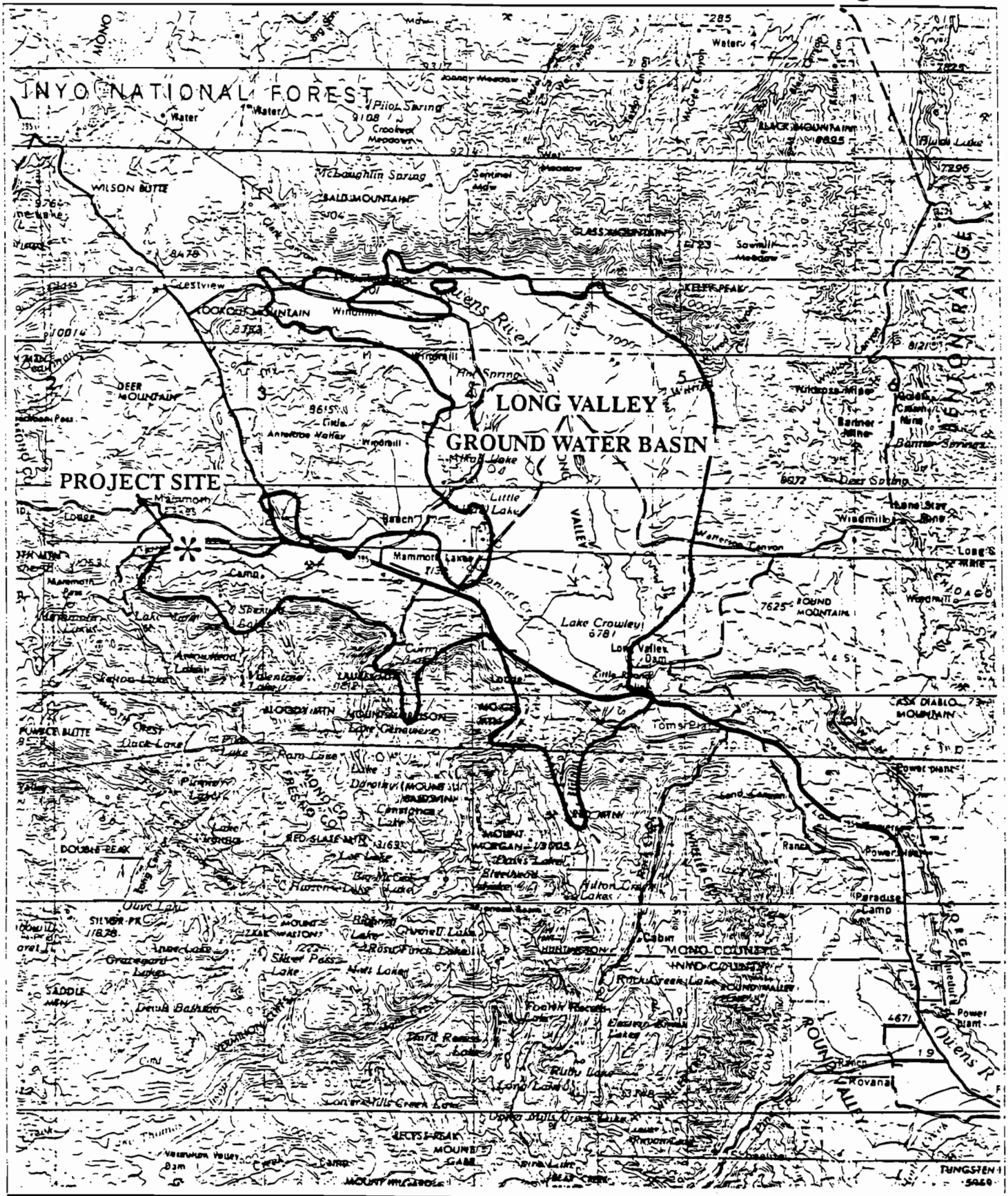
The Federal Emergency Management Agency is preparing revised Flood Zone Maps for the Town of Mammoth Lakes. Potential flood hazard areas in the Town of Mammoth Lakes are located along the length of Mammoth Creek drainage channel, approximately one-half mile to the south of the proposed Project site. The Project site is located within a Zone C flood hazard zone, an area of minimal flooding.

Groundwater

The proposed Project site is located within the Long Valley Groundwater Basin, shown in Figure 4.2-3. The basin is bordered to the west and southwest by the Sierra Nevada Mountains, to the north by Bald Mountain and Glass Mountain, and to the east by Round Mountain.[5] The basin has a total area of 248,600 acres.[6] The groundwater system consists of a shallow unconfined groundwater system, a shallow, generally non-thermal confined groundwater system, and a deeper geothermal system.[7] Groundwater is found erratically in the Recent and underlying older alluvial deposits. Deeper underlying volcanics could contain extensive openings locally and have been considered possible sites for artificial recharge.[8]

Long Valley Groundwater Basin

Figure 4.2-3



The movement of groundwater in the shallow non-thermal system is generally from west to east, and southeasterly towards the Owens River gorge area where it may seep through the tuffaceous deposits into Owens Valley. Recharge occurs around the Long Valley caldera rim, within the western portion, and beneath the resurgent area in the northwestern-central portion of the caldera. Groundwater discharge also occurs in springs located around the caldera rim, and along the south and east sides of the resurgent area.[9]

The Mammoth Lakes water supply is supplemented by groundwater (for a discussion of water supply issues, see Section 4.5 Utilities of this EIR). Since the 1960s, the Mammoth County Water District has attempted to find water supply sources using both vertical and horizontal wells, but have found the basin to be irregular and not well defined.[10] Active wells of the Mammoth County Water District are shown in Figure 4.2-1 and their characteristics are outlined in Table 4.2-1. The majority of the wells are located to the south of Mammoth Lakes, south of Old Mammoth Road. A test well drilled to the northwest (TH-9) was found to be dry and a well drilled in the northeast (TH-8) was abandoned due to elevated temperatures.

Water level fluctuations are associated with seasonal recharge, seismic events, and aseismic rock deformation. A water level rise of 0.63 feet was documented in a test water well on November 23, 1984, as a response to a magnitude 5.8 earthquake with an epicenter located 25 miles southeast of Mammoth Lakes.[11]

Water Quality

Streams fed by melting snow and runoff from the high Sierras are generally calcium carbonate in character with total dissolved solids concentrations average 20 mg/l, and generally have excellent water quality. The water is soft. Groundwater is suitable for domestic and irrigation uses. It is either calcium bicarbonate or sodium bicarbonate in character and has a TDS concentration ranging from 180 to 255 mg/l.[12] Test wells and active wells of the Mammoth County Water District have shown elevated levels of iron, low Ph, and excessive amounts of manganese, mercury, and arsenic. Iron/manganese treatment is currently required at Well Nos. 6 and 10.

Regulation

Federal regulation 40 CFS 130.40 requires each state to classify its surface water according to two segmental categories: 1) water quality class; and 2) effluent limitation class. The segments are used to determine priorities for federal and state grants for the construction of water quality control facilities. The beneficial uses of Mammoth Creek are: 1) municipal supply; 2) cold-water habitat; and 3) contact and noncontact water recreation. Other beneficial uses are groundwater recharge (Mammoth Creek and Hot Creek), agricultural use (Mammoth Creek, Lake Mary, and Hot Creek), and wildlife habitat (Mammoth Creek and its lakes and Hot Creek).[13]

TABLE 4.2-1
ACTIVE WELLS IN MAMMOTH LAKES VICINITY

Well No.	Date Constructed	Date Sampled	Depth to Water[1] (feet)	Water Quality Problems	Production Rate (gpm)[2]
1	7/76	4/88	176.0		700 gpm
4	12/85	1985	379.0	elevated arsenic	190 gpm
6	11/87				1,000 gpm
10	12/87	1987	16.6	iron/manganese concentrations	1,200 gpm

[1]Depth to groundwater below ground surface.
[2]gpm = gallons per minute.
[3]Production rate will produce a water level of approximately 300 feet.

Erosion

Past development activities in the community, which were conducted under limited development control, have created significant erosion problems. The largely uncontrolled runoff is accelerating erosion thereby increasing sediment loads and creating water quality problems in Mammoth Creek. These problems are also aggravated by direct discharges to Mammoth Creek or surface runoff from heavily developed commercial areas containing sediment, oil, grease, and nutrients.[14] The quality of Mammoth Creek water has declined in recent years, based on samples from Hot Creek.[15]

In June 1983, the Lahontan Regional Water Quality Control Board (LRWQCB) adopted *Guidelines for Erosion Control in the Mammoth Lakes Area*, attached as Appendix C of this EIR. The Guidelines prescribe erosion control requirements which must be complied with during all phases of development above 7,000 feet which consist of: 1) six or more dwellings units; or 2) commercial developments including soil disturbance of 1/4 acre or more.[16] The Guidelines specify that drainage collection, retention, and infiltration facilities should be constructed and maintained to prevent transport of the runoff from a 20-year, 1-hour design storm from the Project site.

Lake Water Quality

Eutrophication, a water quality condition in which the increase of mineral and organic nutrients has reduced the dissolved oxygen, producing an environment that favors plant over animal life, is active within the Mammoth and Hot Creek system. The resultant "algal blooms" and profuse algal growth can significantly impair water quality, causing disagreeable taste and odor, filter plugging and aesthetic problems.

The concentration of nutrients is a key factor in determining the eutrophic state of an aquatic system. For biological growth to occur, a balance of various nutritive elements must be present. Concentrations of nutrients such as nitrogen and phosphorous indicate the potential for algal and aquatic vascular plant growth. Twin Lakes' eutrophic problems resulted from introduction of elodea in 1928 through 1930 and growths of Mares Tail, Coon Tail, and other pond weeds. The combination of potential nutrient sources surrounding the lake, the lakes' alignment, and spring and autumn overturn to recycle the nutrients might perpetuate the algal problem.

The detention time or residence time of water within the lake system also affects the amount of nutrients. If the residence period is long and the influx of nutrients high, the lake will likely become enriched to a greater degree. However, if there is a relatively rapid rate of flushing along with a lesser concentration of nutrients in the incoming water, the lake will not become any more enriched.

IMPACTS AND MITIGATION MEASURES

The proposed Project incorporates commercial, residential, and recreational development. The focus of the development is a golf course with several man-made lakes to provide a golf course irrigation supply. These lakes will be supplied with reclaimed water. The upper lake covers an area of 2.75 acres and the lower lake an area of 1.5 acres.[17] Both lakes will serve as runoff retention areas. The larger lakes will be interconnected with smaller lakes and streams for aesthetic and circulation reasons. Circulation will be provided between lakes. Lakes will be lined and edges gunnited.[18] The lakes will not have an outlet and will not discharge downstream. Reclaimed water will be supplied by the Mammoth County Water District.

The CEQA Guidelines indicate that a project is normally considered to have significant adverse effects on water resources if it:

- Substantially degrades or depletes groundwater resources;
- Interferes substantially with groundwater recharge;
- Causes substantial flooding; or
- Substantially degrades water quality either through pollutants or siltation.

Methodology

The proposed Project, alternatives, and cumulative development surface runoff estimates were calculated by use of the Rational Formula. The method is commonly used for determining peak discharges from relatively small drainage area. The Rational Method is based on the following: Q = CIA, where Q = peak discharge in cfs, c = coefficient of runoff, I = rainfall intensity (inches/hour) and A = area in acres. Runoff coefficients are designated in erosion control manuals and hydrology text and depend upon conditions of soil permeability, vegetation, slope, and land use. The rainfall intensity (1.0 inch/hour) was designated by the Lahonton Regional Water Quality Control Board within the *Guidelines for Erosion Control.* Proposed Project, alternatives, and cumulative development impacts on groundwater were determined by analysis of groundwater well information supplied by the Department of Water Resources and studies identifying basin characteristics by the U.S. Geological Survey. The proposed project, alternatives, and cumulative development water quality impacts were determined by comparison with standards set forth by the Lahontan RWQCB.

Surface Water

Impact

4.2-1 **Development of the proposed Project will result in a modification of the existing drainage paths and a higher surface runoff than currently leaves the project site. This is a *potentially significant impact.***

The 210-acre site is currently undeveloped and covered by mature forest with little understory. A preliminary calculation of total runoff estimates approximately 42 cubic feet per second (cfs) will occur during a storm of 20-year return interval distributed over several water courses.[19] Development will replace approximately 60 acres with impermeable surface in the form of residential and hotel buildings, roadways, and parking areas. Both the amount and velocity of surface runoff will increase as buildings and paved areas will decrease the infiltration potential of existing soil surface. Runoff in the developed condition for the 20-year design storm will then be approximately 82 cfs.[20]

The existing natural drainage paths which traverse the site are not well defined, and will carry flow in limited periods throughout the year. Sheet flow will also occur across the site and be collected by drains on the east. Construction of buildings and placement of lakes may interrupt the drainage courses. Though usually ill-defined, spring surface runoff may be sufficient to cause localized flooding problems, and may result in significant localized impacts.

The increased discharge and modification of natural surface flow will result in adverse impacts on existing drainage capacity and will require alteration and modification of the existing drainage system to handle the flow. Development within the Mammoth Creek Watershed is required to conform to the Guidelines for *Erosion Control in the Mammoth Lakes Area* (see Appendix C), regulated by the LRWQCB. For water quality control and drainage purposes, developers are

required to install drainage collection, retention, and filtration facilities to prevent transport of runoff from a 20-year, 1-hour design storm from the Project site. The lakes within the development are intended to act as retention basins to contain stormwater runoff from the golf course.

Mitigation Measure

Implementation of Mitigation Measures 4.2-1(a) through 4.2-1(c) will reduce project impacts to a less-than-significant level.

4.2-1(a) *Prior to approval of the final project design, a final project-specific hydrology analysis for design purposes shall be required to estimate the amounts of runoff which would be required to be retained onsite and held within the lakes onsite.*

4.2-1(b) *Runoff control shall be designed to meet the Lahontan Regional Water Quality Control Board's requirements and must be approved by the Town prior to issuance of any grading permits.*

4.2-1(c) *The following water conservation procedures shall be incorporated into project elements where feasible:*

- *Landscape with low water-using plants;*
- *Install efficient irrigation systems that minimize runoff and evaporation and maximize the water that will reach the plant roots, such as drip irrigation, soil moisture sensors, and automatic irrigation systems; and*
- *Use pervious paving material whenever feasible.*

Impact

4.2-2 **Maintenance of the proposed Project's golf course playing surfaces will require irrigation of a frequent nature through the dry season. Hydrologically, this is a *less-than-significant impact.***

Irrigation of the 110-acre golf course is estimated to use approximately 395,000 gallons per day for 137 days of irrigation, or equivalent to 27 inches of rainfall over the irrigating season.[21] Irrigation equals the amount of naturally occurring annual rainfall. However, once turf is established on the golf course, minimal runoff is expected from the green surfaces, since these are usually underlain by loamy topsoil and high infiltration sand. Water quality impacts resulting from excessive irrigation are discussed in Impacts and Mitigation Measures 4.2-4 through 4.2-8 below.

Mitigation Measure

4.2-2 *None required.*

Groundwater

Impact

4.2-3 **Groundwater quality will not be affected by Project construction activities. This is considered a *less-than-significant impact.***

Groundwater occurrence is erratic within the vicinity of the project site. The depth to groundwater in the vicinity of the project site is anticipated to be approximately 150 feet. Construction of lakes within the proposed Project will not require excavation below the water table.

Recharge to the underlying aquifer occurs around the Long Valley caldera rim, within the western portion and beneath the resurgent area in the northwestern-central portion of the caldera. Recharge will also occur from precipitation falling on the alluvial fill of the caldera. Approximately 67 acres of the total 210-acre project site area (32 percent) will be developed and covered with impermeable surfaces, in the way of residential and resort development. The proposed Project is not expected to have a significant impact on recharge of underlying aquifers, given the total basin area is 248,600 acres.

Mitigation Measure

4.2-3 *None required.*

Water Quality

Impact

4.2-4 **The proposed Project includes plans for use of reclaimed water for golf course irrigation, which may result in potential hazards to human health and groundwater quality. This is a *less-than-significant impact.***

The reclaimed water will be supplied by the Mammoth County Water District, and will require construction of supply lines to the area. Discharge of reclaimed water is regulated to prevent hazards to human health and to protect water quality. Reclaimed water discharge requires a permit from the Regional Water Quality Control Board as designated in the California Administrative Code, Title 22, Division 4.

The treatment processes needed to produce reclaimed water of quality suitable irrigation generally includes biological oxidation, and chlorination. The wastewater is considered adequately disinfected if the median number of coliform organisms in the effluent does not exceed 24 per 100 ml., with no two consecutive samples exceeding 240 per 100 ml. According to the Mammoth County Water District, the median number of coliform organisms in their reclaimed water is less than 2.2 per 100 ml. The impact is therefore less-than-significant.

The Mammoth County Water District has recognized that reclaimed water, regardless of the degree of treatment provided, cannot be applied for irrigation within a 500-foot radius around any production wells. Production Well nos. 1, 4, 6, and 10 are located greater than 500 feet from any golf course irrigation.

The project proponent is required by law to apply for and receive a reclaimed water discharge permit as designated in California Administrative Code, Title 22, Division 4, from the Regional Water Quality Control Board, Lahontan Region, prior to commencement of construction. In this case, a permit is already granted to the Mammoth County Water District and an amendment only will be required to add a new point of discharge.

Mitigation Measure

4.2-4 *None required.*

Impact

4.2-5 **Development of the proposed Project will result in the application of fertilizers and herbicides on the golf course grounds which could produce a pollutant load in surface and ground waters. This is a *potentially significant impact.***

A common problem with turf irrigation systems is the application of water at a greater rate than that which can be readily absorbed. This results in saturation leading to rapid build-up of a layer of water which then runs off laterally.

Excessive fertilization coupled with this excess irrigation water leads to runoff with degraded water quality. Nitrogen species such as common ammonia and nitrate forms exist in dissolved form and are capable of moving through the soil horizon along with the water. Phosphorous, however, is readily absorbed onto soil particles and a 6-inch soil layer is sufficient to eliminate downward transport of this nutrient into groundwater. In general, most pesticides adhere to soil particles and thatch organic material, so that potential contaminants are primarily held in the soil application zone where rapid degradation can occur.

The effect of this return flow and concentration of salts and fertilizers is also of serious concern in a groundwater basin, especially a closed system, as is the Long Valley Basin. Excessive chemical fertilizer application, contributes to increased nitrate concentration and mineralization of groundwater, and over time with cumulative development will result in significant impacts on groundwater resources.

In normal golf course operations, irrigation, fertilization and application of herbicides and pesticides are undertaken by a certified greenskeeper with the appropriate state-approved applicator's license. Careful application in accordance with manufacturers' directions for safe use for each compound will be necessary to reduce the potential for runoff or infiltration contamination.

Mitigation Measure

Implementation of Mitigation Measure 4.2-5 will reduce project impacts to a less-than-significant level.

4.2-5 *To avoid impacts resulting from upkeep of greens and fairways, the following measures or equivalent shall be completed:*

- *A certified greenskeeper with appropriate state-approved applicator's license for use of fertilizers and pesticides shall be employed for maintenance of greens and fairways.*
- *A fertilization program shall be specifically developed to match application rate with the known uptake rate for each turf grass species.*
- *Pesticides, herbicides, and fertilizers which are rapidly degradable, are relatively insoluble in water and exhibit significant soil adsorption shall be chosen for use. These chemicals shall comply with the requirements of the Lahonton RWQCB and the Soil Conservation Service.*
- *The golf course operator shall submit to the LRWQCB and the MCWD a list of chemicals to be used on the golf course. This list shall be updated annually, before any chemicals are applied, and at any time new chemicals are proposed for use. No chemicals shall be used on the golf course which are prohibited by the LRWQCB or the Department of Health Services (DHS).*
- *During periods when fertilizers and other chemicals are used watering shall be kept to a minimum.*
- *Installation of automatic irrigation timers to implement an irrigation schedule to maximize infiltration.*
- *Installation of automatic rain and soil moisture sensors that will override irrigation programs to reduce excess watering of fairways.*
- *Specific chemical analysis shall be required in the project proponent:s downstream discharge monitoring program to account for compounds that could indicate contamination by fertilizers, pesticides, or other chemical agents used in*

golf course maintenance. Should evidence of such contamination occur, use of pesticides or fertilizers shall cease until appropriate contamination prevention measures can be implemented. The monitoring plan shall be developed in accordance with waste discharge requirements established by the Lahontan RWQCB and the well water testing required by the DHS.

- *Compliance with the LRWQCB "Guidelines for Erosion Control."*

Impact

4.2-6 **The quality of surface runoff could be degraded as a result of increased erosion during Project construction. This is a *potentially significant impact.***

Grading activities onsite for artificial lakes, foundations, structures, and parking lots could adversely affect downstream water quality through erosion, the transport of sediments and dissolved constituents entering the natural receiving waters, and increased turbidity and contaminant load. Deposition of eroded soil in the storm drains downstream of the project site will decrease their capacity and will increase the possibility of local flooding within the area. Construction activities are required to conform to the Lahontan Regional Water Quality Control Board's *Guidelines for Erosion Control in the Mammoth Lakes Area.* Conformance to these guidelines will result in less-than-significant impacts on water quality.

Mitigation Measure

Implementation of Mitigation Measures 4.2-6(a) and 4.2-6(b) will reduce project impacts to a less-than-significant level.

4.2-6(a) *For each individual project considered under this development concept, disturbance of soil requires a Waste Discharge Report to be filed with the Lahontan Regional Water Quality Control Board and a Waste Discharge Permit to be issued for the project to ensure that proper control measures for the protection of water quality are taken and adhered to during all phases of the project.*

4.2-6(b) *See Mitigation Measure 4.1-2.*

Impact

4.2-7 **Increased runoff from additional impermeable surface could lower the quality of stormwater runoff. This is a *potentially significant impact.***

Runoff from developed areas tends to contain higher levels of suspended solids, as well as gasoline and other hydrocarbons, oil and grease, rubber, lead, and other automotive related contaminants than the runoff from undeveloped lands. This project will replace a portion of a large undeveloped area with buildings and parking lots. Storm runoff will drain over roof areas and asphalt parking areas which will contribute pollutants as described above. These

contaminants already exist in the surrounding environment and the incremental increase of contaminants in the surface runoff will not have a significant impact on water quality provided the following mitigation measure is implemented.

Mitigation Measure

Implementation of Mitigation Measure 4.2-7 will reduce project impacts to a less-than-significant level.

4.2-7 *Installation of oil and grease separators shall be required in the inlets of catch basins where necessary, particularly at the collection points from parking areas, to minimize pollution of downstream water courses. The separators shall be maintained regularly (at least twice per year) to ensure efficient pollution removal.*

Impact

4.2-8 **The proposed project's man-made lakes have the potential to become nuisances due to water quality problems resulting from incorrect maintenance or care. This is a *potentially significant impact.***

The proposed project will result in the creation of several man-made lakes for storage of irrigation water. Lakes will be interconnected and water pumped between water bodies. This circulation will aid in maintaining oxygen levels and a reasonable water quality. Water will be continually used within summer months and replaced. During peak irrigation requirements drawdown in the upper lake is expected to be 2.35 inches and 10.5 inches in the lower lake. Residence time within the lakes is expected to be reasonably short which will help maintain suitable water quality. The lakes will be used as retention basins for storm drainage control. However, water quality could be adversely affected by the inflow of surface runoff rich in nutrients from irrigated areas, which may cause unchecked growth of aquatic weeds. This can significantly impair water quality and result in a "green" lake causing disagreeable odor and aesthetic problems.

Mitigation Measure

Implementation of Mitigation Measures 4.2-8(a) and 4.2-8(b) will reduce project impacts to a less-than-significant level.

4.2-8(a) *Weeds and algae in the man-made lakes shall be harvested and removed on a regular as needed basis. Removal shall be complete—not temporary control through application of chemicals and algacides.*

4.2-8(b) *Grass swales shall be used to convey runoff from major portions of the site toward the lakes. The swales will promote sedimentation of contaminants in the particulate or absorbed phase, and may allow some capture of dissolved contaminants through infiltration.*

4.2-8(c) *Implementation of an irrigation schedule (as previously required in Mitigation Measure 4.2-5) to reduce inflow from irrigated areas and to reduce nutrient inflows.*

CUMULATIVE IMPACT

The proposed Project in combination with future projects within the Town will result in a substantial increase of paved and other impervious surfaces within the Mammoth Creek Basin. This will result in 1) significant increases in surface runoff, 2) a decrease in total pervious areas available for groundwater recharge, and 3) may lead to substantial degradation of water quality from surface flow over the increased area of paved surfaces.

The Lahontan Regional Water Quality Control Board has implemented Erosion Control Guidelines which attempt to reduce the impacts of development on the drainage of the watershed and water quality of Mammoth Creek. However, retention or detention facilities reduce peak flow by retaining the majority of the stormwaters and releasing water over a longer period of time. Use of these facilities for the cumulative proposed projects may result in a change in flow regime (for example, continuous dry weather flows and extended low flow periods) within the downstream water courses of Murphy Gulch and Mammoth Creek. The mitigation measures required by the LRWQCB reduce the impacts of drainage to a less-than-significant level; however, secondary impacts related to a change in the stream flow regime cannot be determined at this point, and may not be significant.

Cumulative development will result in a significant increase in impervious surfaces and may reduce areas of land available for groundwater recharge. Development is not anticipated to have a significant impact on recharge within the groundwater basin as it represents only a small portion of the total basin area of 248,600 acres. Mitigation measures required by the LRWQCB to reduce water quality impacts from development will reduce impacts from cumulative development to a less-than-significant level.

HYDROLOGY AND WATER QUALITY ENDNOTES

1. Setmire, J.G., *Water Quality Appraisal Mammoth Creek and Hot Creek, Mono County, California*, U.S. Geological Survey Water-Resources Investigations Report 84-4060, 1984.

2. Town of Mammoth Lakes, *General Plan*, October, 1987, p. 32.

3. Town of Mammoth, *Draft Environmental Impact Report, North Village Specific Plan*, April 1989, p. 29.

4. The Town of Mammoth Lakes, *General Plan*, October, 1987, p. 25.

5. Department of Water Resources, *Ground Water Occurrence and Quality, Lahontan Region*, Bulletin No. 106-1, June 1964.

6. Regional Water Quality Control Board, Lahontan Region (6), *Water Quality Control Plan Report, South Lahontan Basin (6B)*, 1987.

7. Eccles, L.A., *Sources of Arsenic in Streams Tributary to Lake Crowley, California*, U.S. Geological Survey Water-Resources Investigations 76-36, 1976.

8. Department of Water Resources, *Mammoth Basin Water Resources Environmental Study, Final Report*, December 1973.

9. Farrar, C.D., Sorey, M.L., Tojstaczer, S.A, Janik, C.J., Mariner, R.H., Winnett, T.L. and Clark, M.D., *Hydrologic and Geochemical Monitoring in Long Valley Caldera, Mono County California, 1982-1984*, U.S. Geological Survey Water-resources Investigation Report 85-4183.

10. Mammoth County Water District, *Iron and Manganese Groundwater Treatment Report*, May 1989.

11. Farrar, C.D., et.al., op. cit., 1985.

12. Mammoth County Water District, Annual Report.

13. Setmire, J.G., *Water-Quality Appraisal Mammoth Creek and Hot Creek, Mono County, California*, U.S. Geological Survey Water-Resources Investigations Report 84-4060, 1984.

14. Town of Mammoth Lakes, *General Plan*, refers to Mammoth Lakes Storm Drainage Plan, p. 32.

15. Town of Mammoth Lakes, *General Plan*, refers to Mammoth County Water District, 1982, Water Master Plan, p. 162.

16. Regional Water Quality Control Board, South Lahontan Basin, "Guidelines for Erosion Control in the Mammoth Lakes Area," contained within the *Water Quality Control Plan Report, South Lahontan Basin (6B)*, Reprinted 1987.

17. John Millhouse, Olson Associates, Golf Course Architects, personal communication, June 11, 1990.

18. Henry Acuff, telephone conversation, June 1, 1990.

19. A rainfall intensity of 1.0 inches was based on 20-year 1-hour design storm (supplied by the Regional Water Quality Control Board) and a runoff coefficient was estimated at 0.2 based on conditions of permeability, vegetation, slope and land use.

20. Calculation of runoff in developed condition was based on the Rational Formula (see Endnote 19). Runoff coefficient for buildings/roadways was estimated to be 0.90; greens, 0.05 (sandy soil 2 percent slope); fairways, 0.15 (sandy soil 2 to 5 percent slope); and landscaped areas, 0.20 (heavy soil 2 to 7 percent slope).

21. Communication, Olson Associates, 11 June, 1990, described the irrigation needs as 395,000 gallons a day for 137 days of irrigation. Given that there are 325,850 gallons/AF and irrigation occurs over 72 acres, irrigation will be approximately 0.20 inches/acre/day or a total of 27.4 inches over the irrigating season of 137 days.

4.3 BIOTIC RESOURCES

4.3 BIOTIC RESOURCES

SETTING

The proposed Project is located at the 8,000 foot (2,440 m) level in the eastern Sierra Nevada of Mono County between Mono Lake and the City of Bishop. The eastern Sierra is affected by a rain shadow formed by the higher peaks of the range and precipitation is usually much less on the eastern side than on the west at the same elevation. It is estimated that precipitation at the Valentine Reserve of the University of California (located 0.5 mile southwest of the proposed Project) is 25 inches annually, while at similar elevations west of the Sierra crest there is approximately 45 to 50 inches annually.[1] Estimates of precipitation at the same elevation as Mammoth Lakes but to the north and south are approximately 15 to 20 inches annually. It is likely that the relatively low passes (lower than 10,000 feet) in the region around Mammoth Mountain allow additional precipitation from winter storms to cross the crest. This additional precipitation, falling mostly as snow in winter, is reflected in the vegetation present on the site. Summer thundershowers can be common but do not add appreciably to the annual precipitation totals. Summer rainfall may, however, allow some species to persist in areas where they may not otherwise occur. Temperatures in the area of the proposed Project range between 65 and 80 degrees Fahrenheit for highs and between 40 and 50 degrees Fahrenheit for lows during the summer months. Daily temperatures during the winter months range from highs of 35 to 45 degrees Fahrenheit to lows of 15 to 25 degrees Fahrenheit.[2]

The Project site slopes gently to the east and northeast and is crossed in those directions by several drainages which support varied types of vegetation. The combination of relatively high precipitation and relatively moderate temperatures has resulted in a mix of species representative of the more moist western slopes and the drier eastern slopes. The predominant vegetation on the site consists of Jeffrey pine-fir forest. Sagebrush scrub is dominant on only a small portion of the site but species from this community form the understory of the pine-fir forest.

Vegetation

Jeffrey Pine-Fir Forest

The forest community on the site of the proposed Project is dominated by Jeffrey pine and lodgepole pine. Both white fir and red fir are present onsite, but white fir is more common. Red fir is more common in this area on slopes than is white fir. White fir, because it is capable of growing in dense shade, is common as an understory tree. The tallest trees on the site are the lodgepole pines. There are, however, several very large diameter Jeffrey pines that have escaped logging.

In areas where trees form dense stands there is little in the way of understory. In more open locations, however, there is a diverse understory of sagebrush scrub and montane chaparral species, including big sagebrush, antelope bitterbrush, snowberry, squaw currant, snowbush, tobacco brush, and greenleaf manzanita.

Common herbaceous perennials include mule's ears, paintbrush, phlox, Nuttall's linanthus, Anderson's lupine, and pussypaws. Numerous annuals can be found in open areas at various times of year but are of greatest abundance in the spring. A list of plants seen or collected on June 26 and 27, 1990 can be found in Appendix D.

Sagebrush Scrub

As a dominant community, sagebrush scrub occurs only along the north side of Meridian Boulevard, especially the area just east of the intersection with Minaret Road. Typical species include big sagebrush, antelope bitterbrush, and sulphur buckwheat.

Miscellaneous Vegetation

Although no perennial creeks or streams occur on the site, there are a number of intermittent drainages that support vegetation typical of montane riparian communities such as willow and aspen. Species of rush also occur in these drainages, indicating that these sites are moister than the surrounding areas. These areas are not extensive, and are not readily discernable on aerial photographs.

Plant Species of Special Concern

A search of the California Natural Diversity Data Base (CNDDB) indicated a potential for four Species of Special Concern:[3] hoary draba (*Draba cama*), kobresia (*Kobresia myosuroides*), Mono Lake lupin (*Lupinus duranii*), and Mono milkvetch (*Astragalos monoensis*). The U.S. Forest Service has requested that an additional plant species, *Sedum pinetorum*, be placed on that list. A summary of these plant species is found in Appendix D.

Both hoary draba and kobresia occur at elevations higher than the present site, and in different habitat as well. Both are common in other states as indicated by the California Native Plant Society (CNPS).[4] Neither were seen during a field survey conducted on June 26 and 27, 1990, and it is unlikely that they occur on the site.

Personnel of the Forest Service indicated an interest in *Sedum pinetorum* (synonym = *Congdonia pinetorum*).[5] This plant has no common name and is known only from the type specimen (a herbarium specimen that is considered the nomenclatural type of the species) collected "at deserted Pine City above Mammoth, Mono County, California" in July of 1913 by Katherine Brandegee.[6] Its habitat is unknown, but other species of this family (*Crassulaceae* or stonecrop

family) commonly grow on steep rocky slopes. This habitat does not occur on the site. Further, Abrams notes that the type specimen at U.C. Berkeley was too fragmentary to provide material for illustration.[7] No other populations of this plant are known and the original population has not been relocated. Also, the CNPS has considered this plant for inclusion in its inventory but rejected it as not occurring in California.[8] Finally, the highly disturbed nature of the site, combined with the above factors, makes it unlikely that this species would be found within the Project site. During a botanical survey on June 26 and 27, 1990 no species of the *Crassulaceae* were seen. In addition, no members of this family were included in the flora of the Valentine Reserve.[9]

Mono milk vetch is listed as rare by the State of California and by the US Fish and Wildlife Service as having enough information to support federal listing. This species grows in pumice or gravelly, sandy soil in Great Basin scrub and occasionally in montane coniferous forests. Known locations occur to the north and east of Mammoth Lakes. During the June 1990 survey, special attention was devoted to the open areas of the forest and to the sagebrush scrub portions of the site. At this time no species of the genus *Astragalus* were seen. Only *A. purshii* var. *lectulus* was included in the Valentine Flora.[10]

Of the remaining plants on the list, Mono Lake lupine commonly occurs with Mono milk vetch to the north of Mammoth Lakes in similar habitat. This species is found along Smokey Bear Flat where it was seen flowering in June 1990. It was not found on the site of the proposed Project.

Mono County lupine is known only from the type locality "between Mammoth and Earthquake Fault, Mono Co., California" and was collected by the horticulturist Lester Rowntree on July 16, 1935. It was named by Alice Eastwood of the California Academy of Sciences (CAS) from this one specimen;[11] no other examples are known, and no other populations have been located. According to the original description no habitat was given, but it can be assumed that it would be montane coniferous forest.[12] EIP personnel have seen the type specimen (located at CAS) and it is considerably different from the common lupine on the site, Anderson's lupine. One other non-blooming lupine was found on the site but it also is very different from the Mono County lupine, and it occurred only in very moist locations.

Wildlife

The dense growths of mixed conifers which cover most of the proposed Project site have low structural diversity and as a result are relatively low in animal species and numbers. While lodgepole pines provide little in the way of wildlife values, the Jeffrey pine component of this mixed conifer ecosystem is valuable to wildlife due to the food value of their seeds. Pine seeds are included in the diets of more wildlife species than any other genus of trees except the oak.[13] The bark and foliage also serve as important food sources for mule deer and squirrels such as Douglas's squirrel and lodgepole chipmunk. Jeffrey pines also provide vital nesting cover for several bird species recorded on the site such as the pygmy nuthatch, brown creeper, white-headed woodpecker, and Clarks's nutcracker.

In openings in the forested areas and near the roadsides, and in clearings along the southern Project boundaries, occur small, discontinuous stands of big sage brush interspersed with quaking aspen. Sagebrush habitat is important to wildlife because it is used heavily by some of the more important game animals, especially mule deer, which use it as summer range at middle and high elevations. The ability of many wildlife species to retreat into nearby forested areas from this open habitat further enhances its value in this montane environment. The value of this "edge effect" can be seen in the rich diversity of the wildlife observed in these areas, including most of the 28 species of birds, mammals, and reptiles recorded on the site. Indeed, small mammal live trapping which was performed during the field survey (an effort of 40 trap nights) captured lodgepole chipmunks and deer mice in sagebrush habitats, but nothing in coniferous forest habitats.

Considering the encroachment of urbanization with its disturbance of habitats and wildlife species themselves, along with the introduction of pets which harass and destroy many wild animals, the Project site was still being well used by wildlife. A coyote was observed on the site, black bear scats were plentiful, and a number of mule deer were seen in addition to the smaller birds and mammals expected near human development. In general, the area appeared to continue to provide good wildlife habitat values.

Wildlife Species of Special Concern

Although no Rare, Threatened or Endangered wildlife species are known to reside on the Project site and none were observed during the wildlife survey, a search of the CNDDB for sensitive wildlife species which might occur on the study area or in nearby areas indicated that two State-listed species, the great grey owl (Endangered) and the wolverine (Threatened), and one recently listed federal species, the spotted owl (Threatened), are known to have occurred in the region. The proximity of human habitation to the Project site and the absence of suitable habitats for these species within Project boundaries argues strongly for their absence from the site.

In addition to the listed species, three species classified by the California Department of Fish and Game as Species of Special Concern in California were found to have distributional ranges which include the Project site. These include the northern goshawk, the yellow warbler and the Pacific fisher. Again, due to proximity of human habitation and the absence of suitable habitats for listed species, it is extremely unlikely that any of these candidate species would be able to utilize the Project site. The status of all sensitive wildlife species is summarized in Appendix D.

IMPACTS AND MITIGATION MEASURES

Methodology

Biological resources on the proposed Project site were assessed during field surveys conducted by a wildlife biologist on June 16 through 18, 1990 and by a botanist on June 26 through 27,

1990. During these surveys, the site was examined on foot to determine the types and extent of suitable wildlife habitats and to identify as many plant and wildlife species as possible.

The survey of plant and wildlife species was conducted with special emphasis directed toward identifying the presence of any Species of Special Concern, which were identified through a literature search as occurring in the region.[14] The list of rare plant or animal species potentially occurring within the study area was refined using geographic distribution and habitat information provided in standard floristic and wildlife manuals[15] and unpublished rare plant status reports prepared for the California Native Plant Society (CNPS). Additional references were consulted to generate a list of all vegetation and wildlife which could be reasonably expected to occur in the region.[16] A list of all plant and animal species positively identified during the field survey and the scientific names of all plant and animal species referred to in this section is presented as Appendix D of this EIR.

Vegetation

For the purposes of this EIR, a significant impact to vegetation is considered to be the result of one or more of the following losses or changes:

- Loss of vegetation cover;
- Change in vegetation type;
- Loss of any member of a Species of Special Concern; or
- Loss of large, specimen trees.

A loss of vegetation cover is the removal of most, if not all, of the vegetation on the site, and is the result of clearing land for urban development such as buildings or parking lots. Loss of cover is considered significant since it results in lowered wildlife habitat values and can lead to soil erosion, blowing dust, and other environmental problems. A change in vegetation type refers to a change from one vegetation type or community to another. For example, a change from wetland vegetation to upland vegetation, or from forest to meadow (a golf course could be considered an artificial meadow). This type of change in vegetation is often considered significant, but it may be positive or negative depending on the nature of the change. Loss of any single member of a Species of Special Concern is significant because the already rare, endangered, or threatened specie population would lose a critically valuable potential source of reproduction or seed. Loss of any large specimen trees is significant because these specimens provide refuge for raptors and larger mammals which cannot utilize smaller trees.

Impact

4.3-1 **Development of the proposed Project will result in a loss of vegetation cover due to site clearing for parking lots and buildings. This is an *unavoidable, significant impact.***

It is unlikely that the proposed Project will result in a loss of significant biological cover. In fact, cover may be increased in some areas as a result of landscape planting or the golf course. Any increase in cover, however, may not increase habitat values since the resulting vegetation represents a loss of plant species diversity.

Mitigation Measure

Implementation of Mitigation Measure 4.3-1 will reduce Project impacts, but not to a less-than-significant level.

4.3-1 *To the maximum extent feasible, the Project shall preserve existing native vegetation. Landscaping shall emphasize the use of native plants indigenous to the Jeffrey Pine-Fir Forest, Sagebrush Scrub, and Riparian plant communities. Whenever possible, native plants used onsite shall be selected for their replacement habitat value.*

Impact

4.3-2 **Development of the proposed Project will result in a change in vegetation type. This is an *unavoidable, significant impact.***

The proposed Project will result in a change in vegetation from conifer forest to urban development, including the creation of an artificial meadow (golf course) and artificial lakes. As in the case of changes in vegetation cover, this change in vegetation will likely result in a lowering of habitat values.

Mitigation Measure

Implementation of Mitigation Measure 4.3-2 will reduce Project impacts but not to a less-than-significant level.

4.3-2 *Implement Mitigation Measure 4.3-1.*

Impact

4.3-3 **Development of the proposed Project will not result in the loss of a member of a plant Species of Special Concern. There will be *no impacts* to Species of Special Concern.**

Field surveys done in late June 1990, a time of flowering for all Species of Special Concern, failed to find any of the four rare, endangered, or threatened plants listed in Appendix D.

Mitigation Measure

4.3-3 *None required.*

Impact

4.3-4(a) **Development of the proposed Project could result in the loss of several large, specimen trees. This is a *potentially significant impact.***

4.3-4(b) **Development of the proposed Project will result in the loss of a significant number of trees currently existing on the Project site. This is an *unavoidable, significant impact.***

Several large, specimen trees (mostly Jeffrey pine, but also including at least one white fir) were spared during early logging of the site and should, where possible, be retained. Because the overall loss of trees is considered an unavoidable significant impact of the Project, it is important that the remaining trees be protected from further loss, either directly or through disease or insect damage.

Mitigation Measure

Implementation of Mitigation Measures 4.3-4(a) through (e) will reduce Project impacts to trees to a less-than-significant level.

4.3-4(a) *All trees greater than 12 inches dbh (diameter breast height) and significant stands on the Project site shall be mapped prior to issuance of grading permits or clearing. A registered forester or arborist shall then determine the age and condition of these trees and whether they should be retained or removed based upon health and visual significance of the trees, except for removal required by approved improvements. Once this determination is made those trees should be retained and integrated into the design of the Project. A program of specific protection measures shall be prepared by the developer and approved by the Town prior to issuance of any construction permits (e.g., construction fencing, grading controls, grading design, etc.)*[17] *Any trees removed unavoidably by the final Project approval shall be in accordance with Town policies. Off-site replacement will need the approval of the Town Planning Director.*

4.3-4(b) *Construction and site development, such as grading and trenching, shall be prohibited within the dripline of retained trees. Equipment shall not be stored or driven under trees. Grading shall not cover the ground surface within the dripline of existing trees.*

4.3-4(c) *Landscape materials shall be incorporated into a landscape plan which allows for the protection and preservation of existing trees. Native plant species, preferably from seed or cuttings from local plants, shall be used where possible. The landscape plan shall be approved by the Planning Director prior to issuance of any construction permits.*

4.3-4(d) *Irrigation, fertilization, and other landscape management practices shall be designed to minimize effects on existing trees and other vegetation.*

4.3-4(e) *Proper disposal methods for all coniferous slash shall be used in order to prevent the spread of bark beetles.*

Wildlife

A preliminary site plan for the proposed Project showing the locations of the proposed buildings, recreational facilities, roadways, and open space was available during the preparation of this report. Specific grading and drainage plans, final elevations and other details of the Project were not available; consequently, some worst-case assumptions (i.e., that all habitat would be lost in developed areas) were used to evaluate certain elements of the proposed Project.

Impact

4.3-5 **Development of the proposed Project will result in the loss of 145 acres of native wildlife habitat. This is a *significant impact.***

As presently designed, the residential and recreational development planned for this site will result in the alteration or elimination of much of the native vegetation and wildlife resources presently on the property. Site plans available at this time do not specifically note which trees and other vegetation will be removed, but it can be assumed that most will be cleared for proposed developments.

The loss of wildlife habitat in California, especially in this rapidly developing region, threatens the continued existence of a number of wildlife species which depend on these areas for most or all of their life requirements. In addition to the water, food, and shelter available in these rich habitats, riparian and forest corridors are used for concealment during daily passages to foraging and nesting sites, and during seasonal migrations in much the same way that man uses a highway. Any activity which interrupts or blocks these corridors severely restricts or eliminates their use by wildlife.

Because of the foraging, nesting, and roosting opportunities provided by these various habitats, their loss, and especially that of the intermittent creek habitats, will cause the extirpation or displacement of most wildlife presently residing on the site. The more mobile birds and mammals such as the coyote and mule deer will be dispersed into nearby, undeveloped areas. Less mobile mammals, reptiles, and amphibians will be destroyed during construction. Some of the bird species observed during the field survey adapt to planned, landscaped urban environments and may return to the site after Project completion.

Mitigation Measures

Implementation of Mitigation Measures 4.3-5(a) through (c) will reduce Project impacts to a less-than-significant level.

4.3-5(a) *In order to maintain plant and animal diversity, the design of the Project shall take both of these elements into account. Ideally, the preservation of all of the high-value wildlife habitat areas will preserve an important corridor for the movement of larger species through the area and provide a genetic linkage for smaller less mobile species such as the lodgepole chipmunk. As it now exists, the Project will eliminate a significant portion of these high-value wildlife habitat areas.*

The project will largely avoid riparian areas. If disturbance is necessary, the applicant shall meet all applicable California Department of Fish and Game (CDFG) and U.S. Corps of Engineers' policies.

4.3-5(b) *To retain wildlife values, as much native vegetation as possible should be retained and protected during construction. A Revegetation Plan, prepared by a qualified botanist and approved by the Town of Mammoth Lakes, shall be completed prior to the commencement of the Project which will describe in detail the species of trees and shrubs which will be used, where they will be planted and in what numbers, and the methods of planting and maintenance which will ensure successful growth. It shall include a monitoring program to follow the progress of new plantings and ensure replacement of unsuccessful plants. Landscaping with native species of trees and shrubs shall be undertaken wherever possible to enhance wildlife use of cleared areas.*

4.3-5(c) *Under mitigation monitoring, once mitigation plans designed to offset habitat losses are approved and the specific areas where they will be located are identified, the proponent must provide a program to monitor their progress for a period of time (usually three to five years) deemed sufficient by the Planning Director to assure their successful development. Adequate security shall be deposited with the Town to ensure successful implementation of this measure.*

Impact

4.3-6 **Disturbances and disruptions during Project construction scatter/disperse and fragment existing wildlife communities on site, forcing survivors into already occupied habitats to cause cumulative negative impacts on all wildlife in the area. This is a *significant impact.***

Increased population pressures reduce habitat values through excessive foraging, weakening populations through increased competition for resources, and reducing reproductive success. Construction noise can have impacts on wildlife by curtailing exploratory behavior, limiting

access to food and shelter, and disrupting breeding behavior. Noise impacts will likely extend the total area from which wildlife will be displaced beyond the Project boundaries.

Mitigation Measure

Implementation of Mitigation Measure 4.3-6 will reduce Project impacts to a less-than-significant level.

4.3-6 *All construction activities, including movement and storage of vehicles and the storage of building and other materials, shall be confined to areas slated for development. Care shall be taken during construction to avoid damage to vegetation and habitats not directly involved in Project construction. Any damaged vegetation shall be replaced on a one-to-one basis on- or off-site. Off-site replacement will need the approval of the Town Planning Director.*

Impact

4.3-7 **Increased erosion and siltation as a result of construction and grading activities could alter streamflows, water quality, and vegetation in the Project area. This is a *significant impact.***

Siltation or other pollution into the creek waters during construction can impact aquatic organisms and stream bank vegetation for considerable distances downstream. Interruptions in normal stream flows, especially during critical, low-water, summer months can also cause weakening of vegetation and wildlife at considerable distances downstream from the Project site. Pollutants from the fertilizers used on the golf courses and urban runoff from the housing developments will drain into these channels which produce a major portion of the food supply used by wildlife populations throughout the area and also act as breeding sites and overwintering areas.

Mitigation Measure

Implementation of Mitigation Measures 4.3-7(a) and (b) will reduce Project impacts to a less-than-significant level.

4.3-7(a) *To prevent erosion and siltation into intermittent creeks, areas cleared of vegetation, fill or other materials shall be stabilized as quickly as possible after clearing and grading. To further protect the drainage system and prevent erosion, all grading and construction shall be completed during the dry summer months.*

4.3-7(b) *To prevent disruptions of normal stream flows and ensure maintenance of water quality for down-stream habitats during the critical low-water summer period, all creek waters should be collected above and continuously piped through any construction zone on or near drainages.*

Impact

4.3-8 **Development of the proposed Project will alter streamcourses and drainages in the area. This is a *significant impact.***

The proposed golf course and roadways will channelize and remove the existing sheet flow on the site.

Mitigation Measure

Implementation of Mitigation Measures 4.3-8(a) and (b) will reduce Project impacts to a less-than-significant level.

4.3-8(a) *Final construction plans shall include provisions for construction of retention basins for on-site retention of runoff from roadways, home sites and golf facilities or equivalent alternative measures approved by the public works director (refer to Impact 4.2-1, Hydrology). Such retention basins shall be cleaned on a regular basis and accumulated pollutants and debris properly disposed of in areas which will assure that no aquatic habitats onsite or downstream from the Project site are damaged.*

4.3-8(b) *Development of on-site water bodies shall include creation of native riparian habitat. All such design and construction shall be subject to California Department of Fish and Game review.*

CUMULATIVE IMPACTS

Cumulative development in the vicinity may directly and indirectly contribute to the loss of wildlife habitat and the displacement of wildlife species.

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4.4 JOBS/HOUSING RELATIONSHIP

4.4 JOBS/HOUSING RELATIONSHIP

INTRODUCTION

This section examines the potential effects of the Lodestar Master Plan on the balance of jobs and housing for the Town of Mammoth Lakes. The relationship of jobs and housing has become a major issue because of recent commercial developments, proposed expansion of the ski area, and escalating housing prices.

The proposed Project consists of: 875 residential units, two full-service hotels with 700 hotel/resort units, an 80,000-square foot-commercial village, and an 18-hole "mountain-style" golf course. A potential of 619 jobs could be generated from the commercial portion of the development. These new jobs will create a demand for additional housing in the Town.

POPULATION AND HOUSING

SETTING

The Town's population is composed of two distinct elements: 1) permanent, year-round residents; and 2) seasonal residents who live and work in the Town during the Winter season.. According to State Department of Finance (DOF) 1990 estimates,[1] the permanent population of the Town was 5,200, or about half of Mono County's total population of 10,355. As shown in Table 4.4-1, much of Mammoth Lakes' growth occurred during the decade of the 1970s, when population grew at an annual rate of 21.2 percent. During the 1980s, annual growth rates fell to 2.6 percent. According to the Mammoth Lakes General Plan (1987),[2] by the year 2005, resident population is projected to increase to 8,000 people, for an annual increase of 5.4 percent.

The temporary population of the Town fluctuates with the four seasons, as well as year to year, depending on snowfall levels. During a peak winter weekend, the seasonal and tourist population has risen to as high as 30,000 people.

The Town's housing stock increased from 5,649 units in 1980 to an estimated 7,308 units in 1990, for an increase of 1,659 units (29 percent).[3] Total housing out-numbered households by a factor of three to one--indicating a large stock of seasonal homes and a large vacancy rate. However, despite a sizable vacancy rate, affordable housing is still needed in Mammoth Lakes.

TABLE 4.4-1

PERMANENT POPULATION OF MAMMOTH LAKES (1970-2005)

	1970	1980	1990	2005
MAMMOTH LAKES	1,318	4,089	5,200	8,000
Ann. % Inc.	--	21.2%	2.6%	5.4%
MONO COUNTY	4,016	8,577	10,355	N/A
Ann. % Inc.	--	11.4%	2.1%	--

Source: 1970, 1980 U.S. Census, Department of Finance, *Mammoth Lakes General Plan*, 1987.

Income

According to the Inyo/Mono Advocates for Community Action's (IMACA) report *Affordable Housing Needs Assessment* (1990),[4] prepared by Laurin Associates, the median household income of the Town and its immediate surrounding unincorporated areas increased from $19,600 in 1980 to an estimated $26,200 in 1990. However, despite rising median income, 30.5 percent of the households in 1990 were in the very-low income category (State Housing and Community Development definition of households earning 50 percent or less of County median) and 20.9 percent in the low-income categories (51 to 80 percent of County median). Mono County's 1990 median income was estimated at $34,000.

Composition of the Housing Stock

As shown in Table 4.4-2, multiple family housing units comprised over three-quarters of total housing growth over the past decade. In 1990, 68.1 percent of Mammoth Lake's existing housing stock was multi-family, 29.7 percent single family units, and 2.2 percent mobile. Approximately two-thirds of the existing housing stock is made up of condominium units.

Tenure

According to the 1980 Census data shown in the IMACA report, 55.8 percent of all households in the Town rented their homes. Recent estimates show a slight increase in the renter proportion (56.1 percent).

TABLE 4.4-2

HOUSING COMPOSITION OF MAMMOTH LAKES (1980 & 1990)

	1980	Percent	1990	Percent	1980-90	Percent
Single Family	1,764	31.2	2,173	29.7	409	24.6
Multiple Family	3,691	65.3	4,976	68.1	1,285	77.5
Mobile Homes	194	3.4	159	2.2	-35	
TOTAL UNITS	**5,649**	**100.0**	**7,308**	**100.0**	**1,659**	**100.0**

Note: May not equal 100% due to rounding and negative growth.
Source: State Department of Finance Estimates

Vacancy

According to the 1990 DOF housing estimates, 5,042 units out of 7,308 total units (69 percent) were vacant in the Town. This rate is, however, misleading since a majority of the units are short-term rentals. Approximately 88 percent of the condominiums were used for seasonal occupancy. Five percent of the condominiums were owner-occupied and the remaining 7 percent rented to permanent households.

Price of Homes and Affordability

The IMACA study, which conducted an affordable housing[5] survey and analysis, found that 2housing prices in the Mammoth Lakes Market Area eliminated single-family units from the affordable housing stock and limited the number of condominium units that could be purchased by moderate-income families. For very-low- and low-income families, purchasing of housing units was non-existent. Apartment units with two bedrooms renting for about $650 to 700 per month were beyond the affordable levels of very- low-and low-income households. See Table 4.4-3 for the results of the housing survey.

TABLE 4.4-3

SURVEY OF AVERAGE HOUSING PRICES AND APARTMENT RENTS
(1989 Sold Listing)

Single-Family Unit	$198,000	(148 units)
Condominium Unit	$118,400	(780 units)
Mobile Home	$ 17,700	
Apartment Unit (2-Br.)	$600/mo.+ $100 utility	

Source: Inyo Mono Advocates for Community Action, 1990.

This survey also found about 350 affordable rental units. But the study concluded that given the number of existing households in the very-low- and low-income categories, there is a need and demand for 966 affordable housing units for permanent residents and an additional 300 affordable units for seasonal residents. By 1995, 1,232 affordable units will be needed for permanent residents.

In 1985, the State Housing and Community Development (HCD) prepared the Regional Housing Needs Plan which allocated the regional needs to the local areas. The Plan called for the construction of 387 affordable units in Mammoth Lakes by 1992.[6] Currently, the Town is not in compliance with these numbers. In 1990, HCD developed new housing needs numbers for the period 1990 to 1997 for Mono County;[7] however, allocations to the local levels have yet to be developed. The future housing needs for Mono County are distributed into four income categories: very low income (less than 50 percent of the area's median income), low (50 to 80 percent), moderate (80 to 120 percent), and high (more than 120 percent); see below:

Very Low	Low	Moderate	High	Total Units
82 units	74 units	91 units	164 units	411 units

IMPACTS AND MITIGATION MEASURES

Methodology

Housing impacts are based on the demands of the new employment generated by the proposed Project. Housing projections developed for this EIR assume the current jobs-to-population ratio, household size, occupancy rates, and percent very-low- and low-income households.

Since there is a present unmet need for affordable housing in the Town additional demands created by the project are considered significant impacts on the Town of Mammoth Lakes.

Impacts

4.4-1 **Employment generated by the commercial development of the proposed Project could increase the population of Mammoth Lakes and the surrounding areas by as much as 1,086 people, with an accompanying housing demand of 472 units. This is a *significant impact.***

As shown in Table 4.4-4, the employment generated by the proposed Project would create a demand for 472 housing units:

(1) 619 jobs / .57 jobs-to-population ratio = 1,086 people
(2) 1,086 people / 2.3 household size = 472 housing units

A portion of the new housing demand could be absorbed by the residential development of the Project. As presented in Table 4.4-4, the Project proposes 875 housing units and 700 hotel units. Of the 875 residential units, 100 units are proposed for employee apartments. Assuming current permanent occupancy rates of 86 percent for single-family units, 11 percent for condominiums, and 100 percent for employee apartments, approximately 215 units could be available for year-round residents. However, given current prices of single-family homes and condominiums, and the type of jobs generated from the proposed Project, it is unlikely that many of the single-family and condominium units will be available for purchasing or renting by the new employees. Therefore, under a worst-case scenario, the 100 proposed employee apartment units may be the only available units for the new employees.

If the current percentage (49 percent) of very-low and low-income households in the Town[8] is applied to the newly created households, then 231 households will need affordable housing. The 100 employee housing units under the proposed Project are still 131 units short of meeting the potential needs of the projected employees.

TABLE 4.4-4

YEAR ROUND RESIDENTIAL UNITS AND HOTEL UNITS PROPOSED LODESTAR DEVELOPMENT

Housing	Units	Occup. Rates	Yr. Round Units
Single Family	40 units	86%	34 units
Condominiums	735 units	11%	81 units
Apartments	100 units	100%	100 units
Hotel Rooms	500 rooms		
Hotel Condominiums	200 units		
TOTAL	**1,575 units**		**215 units**

Mitigation Measures

Implementation of Mitigation Measures 4.4-1(a) through 4.4-1(c) will reduce Project impacts to a less-than-significant level.

4.4-1(a) *One hundred percent of housing for employees generated by uses within the Project shall be provided onsite, including affordable employee housing based upon Health and Safety code section 50079.5 and 50105 criteria unless the Town Council allows a portion of this housing need offsite, through an in-lieu fee, or equivalent program. If the Town adopts an employee/affordable housing program, requiring on- or off-site housing or in-lieu fees prior to any phase of development, provision of housing in accordance with that ordinance shall constitute adequate mitigation.*

4.4-1(b) *Any housing constructed offsite shall be subject to further environmental review to ensure that significant or cumulative environmental effects are mitigated on a site-specific basis.*

4.4-1(c) *Employee housing, an in-lieu fee, or equivalent program as approved by the Town Council shall be in place prior to or concurrent with the non-residential development generating the need for such housing.*

EMPLOYMENT

SETTING

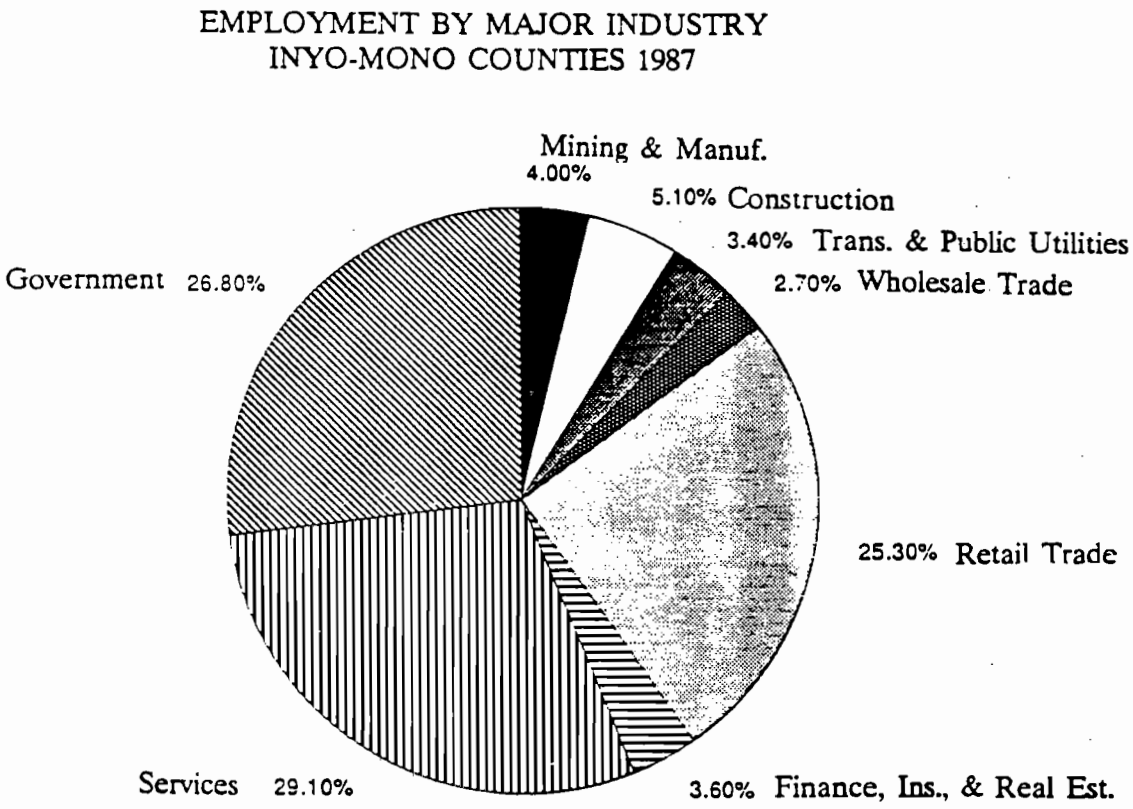
Based on the State Employment Development Department (EDD) 1990 estimates,[9] the Town has 2,981 jobs and a labor force of 3,094--representing over half (55 percent) of Mono County's jobs and labor force. The six largest private sector employers comprise almost one-third of the Town's jobs. The major employer in Mammoth Lakes is the Mammoth Mountain Ski Resort, which employs up to 1,900 workers during the peak winter months. However, the number of jobs fluctuates according to the time of year and snow conditions. This is exemplified by the fact that in June of 1989, Mammoth Mountain Ski Resort employed only 470 workers.

Unemployment

The May 1990 unemployment rate for the Town stood at 3.7 percent, compared to 3.9 percent for Mono County and 5.4 percent for the State as a whole. One year ago (May 1989), the unemployment rate was as high as 8.3 percent--the highest for the whole year. Again, unemployment rates can fluctuate with the seasons and year by year.

Employment By Major Industry

Figure 4.4-1



ource: Employment Development Department

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Employment by Sector

As shown in Figure 4.4-1, the largest number of jobs in Inyo and Mono Counties are in the service industry (28.4 percent), followed by retail trade (26.3 percent), and government (25.3 percent). (The State Employment Development Department combines Inyo and Mono Counties for detailed employment data). According to EDD, between 1987 and 1992 the fastest growing sectors are projected in construction (39.1 percent), and finance, insurance, and real estate (FIRE) industries (37.5 percent).

IMPACTS AND MITIGATION MEASURES

Methodology

This EIR has assumed that there would be one employee for each 300 square feet of office and 450 square feet of resort retail, 10 employees for the proposed golf course, 0.7 employee per hotel room, and 0.3 employee per hotel condo unit.

Impact

4.4-2 **As presented in Table 4.4-5 the proposed Project, which includes an 80,000-square-foot commercial village, 18-hole golf course and two hotels, is estimated to generate 619 permanent jobs and 91 temporary construction jobs at full buildout of all phases. This is a *beneficial impact.***

The commercial village (restaurants and resort retail) has the potential of generating approximately 200 jobs and the hotel establishment 410 jobs. Jobs associated with the hotels include management, administrative, hospitality, food services, maintenance, and various other support staff. The golf course is anticipated to generate only 10 jobs. Unlike most major resort golf courses, this course will not have a clubhouse or pro shop, and much of the golf-related services will be shared with the hotel. The developer anticipates all or most of the commercial development to be completed by 1996.

While some of the new jobs could be filled by current unemployed residents of the Town, this should be minimal considering the relatively low unemployment rate of the Town. It is anticipated that a sizeable portion of the new labor force to fill the jobs generated from the proposed Project will come from immigrants to the Town.

Specific occupations will be required to fill the new jobs generated from the proposed Project. A large segment of the occupations will be service-related. These include food beverage preparers, waiters/waitresses, and hotel cleaners. Other needed occupations will be retail-related (sales clerks, cashiers), managerial (restaurants, retail stores, hotels), and construction. Typically,

service-related jobs fall into the lower income categories, thus creating a greater demand for affordable housing.

As shown below in Table 4.5-6, approximately 91 temporary, construction-related employment positions would be generated from the proposed Project. This estimate is based on assumed construction values of $165,600 for single family units, $89,300 per condo unit, $53,700 per apartment unit, $32,800 per Hotel unit, $63 to $70 per square foot per retail/restaurant space, and $3.6 million for the golf course. It also assumes that 25 percent of total value goes to labor, and that the average salary of a construction worker is approximately $22,000 per year during the 15 year project period.

Mitigation Measure

None required.

TABLE 4.4-5

EMPLOYMENT OPPORTUNITIES OF THE PROPOSED LODESTAR DEVELOPMENT

Land Use	Size	Employment Factor	Jobs
Restaurants	20,000 sq. ft.	300 sq. ft./emp.	67
Resort Retail	60,000 sq. ft.	450 sq. ft./emp.	132
Golf Course	110 acres	10 emp./course	10
Hotel Rooms	500 rooms	0.7 emp./room	350
Hotel Condos	200 units	0.3 emp./unit	60
Total Employment			619

Note: Jobs represent full-time employees.
Sources: Federal Highway Administration; James T. Kelley and Associates, Hospitality Consultants; Western Golf Properties, Golf Course Management Co.

TABLE 4.4-6

Construction-Related Employment Generated By the Lodestar Development

	Single Family	Condo	Apartment	Hotel Unit	Retail/Rest	Golf Course	Total
Units or Sq. ft.	40	935	100	500	80,000 sq.ft.	110 ac.	
Value/Unit or Sq. ft.	$ 165,600	$ 89,300	$ 53,700	$ 32,800	$ 63-70	--	
Total Value (1,000's)	6,620	83,360	5,400	16,410	5,170	3,600	
Total Value to Labor	25%	25%	25%	25%	25%	25%	
Average Annuarl Salary	22,000	22,000	22,000	22,000	22,000	22,000	
Person years	75	947	61	186	59	41	1,369
Project Period							15 yrs
No. Const. Wkrs.							91

Note: Condo = 735 private plus 200 hotel condominiums.
Source: Construction Industry Research Board, California Economic Development Department.

4.5 UTILITIES

4.5 UTILITIES

WATER

SETTING

Water Supply

The Mammoth County Water District (MCWD) provides water to the Town of Mammoth Lakes. The MCWD service area covers approximately 3,640 acres, including 2,500 acres of privately owned land, and provides water to over 2,000 service connections.

The primary water supply source for the District is Lake Mary (elevation 8,957 feet), located approximately two miles south of the Project site. Lake Mary can provide up to 5 cubic feet of water per second.[1] Water from Lake Mary is diverted to the District's surface water filtration plant through a submerged surface water intake structure. A 2-million-gallon treated water storage reservoir is located near this filtration plant at an elevation higher than the entire District service area. The District has a surface water entitlement of 2,760 acre-feet per year (899.5 million gallons). This water right also limits the rate of diversion from Lake Mary to 2,250 gallons per minute (gpm), equivalent to 5 cubic feet per second (cfs), which is the design capacity of the District's surface water filtration plant.[2]

The other source of water comes from a number of groundwater wells. Groundwater in the area varies greatly in terms of level, quality, and quantity. The Mammoth Lakes General Plan EIR states that geophysical studies have identified at least two separate aquifers in the Mammoth Basin. MCWD estimates that the aquifers are at least 500 feet deep. However, it is unknown how much water the aquifers actually contain or how much percolation occurs either into or out of the aquifers.

The active groundwater production wells operated by MCWD are District Wells No. 1 in Town, and Wells No. 6 and 10, which are all located in Snowcreek. These active production wells have a combined rated capacity of 2,900 gpm.[3] Well No. 1 was drilled in 1976 and produces about 700 gpm. Although originally used only to meet seasonal peak demands, this well has been used throughout the year since 1987 to enable the District to meet its current water demand. Well No. 6, completed in November 1987, is equipped to produce around 1,000 gpm and is currently producing 700 gpm. Well No. 10, completed in October 1987, is equipped to produce about 1,200 gpm and is currently producing 1,000 gpm.[4] A description of the District's active production wells and booster pumping system is provided in Table 4.5-1.

Table 4.5-1

MCWD WELL AND BOOSTER PUMPING SYSTEMS

Pumping System Name & Location (Construction Year)	Number of Pumps	Electric Motor	Capacity and Head Each	Elevation	Remarks
Tank T-2, South of Lake Mary Road (1979)	2	100 hp 3500 rpm	900 gpm 300 ft.	8,270	PR No. 12 with 2-8" PRV in series
Timber Ridge, end of Division Road (1985)	2	50 hp 3500 rpm	350 gpm 350 ft.	8,832	PR No. 15 with 1-4" PRV
Mammoth Knolls	2	-	-	8,220	Requires PRV
Well No. 1 (1979)	1	150 hp 1750 rpm	600 gpm 595 ft.	7,925	300 ft. bowl setting, 150 hp, 1800 rmp, LPG engine & right angle drive, flow is metered. Well depth: 382 ft.
Well No. 6 (1988)	1	100 hp	1000 gpm		
Well No. 10 (1988)	1	100 hp	1200 gpm		
I & M Plant	2	100 hp	1000 gpm		
I & M Plant	2	75 hp	1000 gpm		

Water Quality

Testing of untreated surface water from Lake Mary indicates excellent water quality, with the possible exception of water corrosivity. Electrical conductivity, total dissolved solids, and algae and bacteria levels are very low relative to federal drinking water standards. The indicated pH level is 6.3, which is typical for surface waters in mountainous areas. The District is currently evaluating the improvement needs at the existing filtration plant, including a pH control treatment system to better assure that this water will not dissolve metals from the District's distribution system.

The quality of non-geothermal groundwater (80° Fahrenheit or less) in the Mammoth Basin has historically been excellent, with mineral quality and total dissolved solids within acceptable ranges. However, the Lahontan Regional Water Quality Control Board (LRWQCB) indicates that surface runoff and storm water drainage has begun to deteriorate the water quality of Mammoth Creek. Runoff from paved surfaces has increased the concentrations of nutrients, complex organic compounds, heavy metals, and petroleum residues. Water quality tests performed in 1986 on Well No. 1 indicated that the overall chemical quality of the water is extremely good, although pH control treatment has been recommended. Previous testing on Well No. 6 showed high manganese levels and traces of arsenic. The District is now treating this water for iron and manganese removal. Testing done on Well No. 10 indicated iron and manganese levels that exceed State Drinking Water Standards, as well as trace amounts of arsenic. This well is now also being treated for iron and manganese removal.

Water Distribution

The District's water distribution system is divided into several pressure zones. These pressure zones are separated by closed gate valves and pressure-reducing valves. The Project site is located within Pressure Zone No. 3, which receives water directly from District Well No. 1.[5] The water distribution system in the Town consists of a network of water lines ranging from 2 to 12 inches in diameter. Most of the water lines serving residential properties in the Town are 8 inches in diameter.

The District's fire flow requirements are a minimum of 750 gpm for 1/2-acre lots or larger, 1,000 gpm for 1/4-acre lots or smaller, 1,250 to 1,500 gpm for multi-family residences, and 1,000 to 1,500 gpm for commercial areas.[6]

Local Water Demand

During 1989, the average water demand from MCWD customers amounted to 2.444 million gallons per day (gpd). The peak water demand for 1989 was 5.296 million gpd. The ratio of maximum day water use to average day water use during 1989 equalled 2.17 to 1.[7] Based upon an analysis of 23 distinct water billing types from February 1988 to March 1989, average annual water consumption rates were determined as shown in Table 4.5-2.

TABLE 4.5-2

MCWD ANNUAL WATER DEMAND

Category[1]	Gallons	EDU[2]
Single Family	81,778	1.000
Multi-Family[3]	64,794	0.792
Condominiums	50,400	0.616
Mobile Home/RV	64,524	0.789
Dormitory	17,016	0.208
Motel	34,744	0.425
Restaurant Seat	5,391	0.066
Bar Seat	5,391	0.066
Landscape[4]	37,372	0.457

[1]Includes interior and outside water uses.

[2] Equivalent Dwelling Unit, expressed in terms of annual demand divided by the single family residence demand.

[3]Includes apartment, duplex, triplex, motel manager, and quadplex.

[4]Based on 1,000 square feet of grassed landscape area.

Source: *Capital Expansion Long Range Financial Plan*, Mammoth County Water District, August 1989.

Estimated water demand varies seasonally, increasing dramatically in dry or summer months due to irrigation. During average precipitation years, there is adequate surface water to meet existing needs except during the months of January, February and March, when the MCWD uses well water to supplement the Lake Mary water supply. However, it is not known whether these supplies would be adequate under drought conditions. During a severe drought, pumping from wells may have to be done year-round, which could result in an overdraft of groundwater supplies.

The MCWD Board of Directors set forth the determination in Resolution No. 03-15-90-06 that there is a threatened or existing water shortage within the District during 1990. In an effort to assure the efficient use of current water supplies, the MCWD Board adopted ordinances placing some restrictions on the use of its potable water. Effective October 1990, the following Level 4 water restrictions have been instituted:

1. All existing variances granted by the District for irrigation are null and void.

2. North of Meridian Blvd. has two days remaining to water for 1990:
   Saturday, October 6 and Saturday, October 13, 1990.
   During the hours between 5:00 a.m. and 9:00 a.m. only multi-family and/or commercial properties may irrigate.

   During the hours between 5:00 p.m. and 9:00 p.m. only single family dwellings and/or mobile home areas may irrigate.

3. South of Meridian Blvd. has two days remaining to water for 1990:
   Friday, October 5, and Friday, October 12, 1990:
   During the hours between 5:00 a.m. and 9:00 a.m. only multi-family and /or commercial properties may irrigate.

   During the hours between 5:00 p.m. and 9:00 p.m. only single family dwellings and/or mobile home areas may irrigate.

4. The Dempsey Golf Course will not receive any additional water from the District's system. They may irrigate using the water contained within their lakes on-site.

5. The Town may continue irrigating the green belt along Main Street with reclaimed wastewater.

6. Mammoth High School and Elementary School may irrigate the playing fields at these facilities between 5:00 a.m. and 9:00 a.m., only on Fridays within the month of October.

7. Shady Rest Park playing fields may be irrigated between 12:00 a.m. and 4:00 a.m., only on Mondays within October.

The previous Level 1, 2, and 3 restrictions continue to be in effect. Violation of any of these regulations may, after one written warning, result in the installation of a flow restricting device in the service line of the customer or the shut-off of water service. MCWD has, however, granted variances to some condominium projects, residences, and other customers.

MCWD does not provide any unconditional guarantee of priority or reservation of capacity regarding water availability. The Project proponent must acquire a water permit from MCWD prior to any construction activities. Such permits are issued by MCWD solely on a first-come first-serve basis and only to the extent there is remaining available capacity in the physical facilities for conveyance and treatment.[8]

Future supplies identified by MCWD include wells that have been drilled and pump tested in the Dry Creek area. Groundwater supplies available for MCWD use from the Dry Creek area are being projected at this time to be approximately 2,000 acre-feet. MCWD has projected an annual water demand of 5,946 acre-feet under General Plan buildout. The cumulative impacts of potential future developments would require MCWD to connect available groundwater supplies from the Dry Creek area to the distribution system.[9]

IMPACTS AND MITIGATION MEASURES

Methodology

Data used in this analysis were collected from available reports and from information provided by the MCWD. The MCWD provided projected water demand associated with the Project in addition to existing and future water supply in the Town of Mammoth. Projected water demand was evaluated in relation to existing and future water supplies.

Impact

4.5-1 **The development portion of the Project would create a total annual community water demand of 3,250 acre-feet, which is 150 acre-feet less than the current available supply. This is a *less-than-significant impact.*[10]**

The Mammoth County Water District reports that the proposed Project, exclusive of the golf course development, would have an estimated total water demand of 450,000 gallons per day, which is equivalent to 504 acre-feet per year, approximately the same amount of water which would be used by 2,000 single-family residences. The most recent data available to MCWD indicates that there is approximately 3,400 acre-feet of water available on an annual basis to serve existing community needs. Total water demand for 1989 amounted to 2,746 acre-feet.

The water regime for the Lodestar Golf Course would consist of a main upper lake and a main lower lake serviced with reclaimed water, with other smaller lakes and streams interconnected to these main lakes. The 2.75-acre upper lake is proposed to serve as a reservoir for irrigation of golf course holes 1 through 4 and 17 and 18 (totaling 20 acres), as well as for hotel

landscaping purposes. The 1.5-acre lower lake is proposed for irrigation of the balance of the golf course (holes 5 through 16, totaling 52 acres).[11] The water needs for the proposed golf course amounts of 54 million gallons annually (165.7 acre-feet), averaging 395,000 gpd for 137 days of irrigation. These figures are based on 8 hours of operation a day, 6 days a week for the 72 acres to be irrigated.[12]

Since Project-generated water demand can be met with the existing available supply and MCWD has available groundwater supplies which can be utilized to meet future projected demand under General Plan buildout, the Project would have a less-than-significant impact. However, this assumes the prompt development of the Dry Creek wells. The Project operations would have to comply with all MCWD water conservation restrictions.

Mitigation Measures

While no mitigation is necessary to augment existing water supplies, the following Mitigation Measures 4.5-1(a) through (e) are recommended for conservation purposes.

4.5-1(a) *In the event that the Dry Creek wells are not developed in a timely fashion, development shall be deferred until adequate water resources are in place to serve the project and existing development as determined by the Mammoth County Water District.*

4.5-1(b) *Golf course water bodies and irrigation shall use reclaimed water to the fullest extent possible. If reclaimed or domestic water is not available to allow for the water bodies as determined by the Mammoth County Water District, the water bodies shall be reduced in size to obtain District approval or be eliminated in the final Project design. Approval by the County Health Department shall be obtained prior to final Project approval regarding the use of reclaimed water.*

4.5-1(c) *Maximum feasible water conservation measures shall be used in all structures, including reuse and recycling of water, low-use water fixtures, and drought resistant landscaping.*

4.5-1(d) *The Project proponent shall contribute mitigation fees, as determined by the Mammoth County Water District, for any expanded facilities needed to serve the development.*

4.5-1(e) *Landscaping shall be predominately native and drought resistant vegetation.*

WASTEWATER

SETTING

The Mammoth County Water District (MCWD) owns, operates, and maintains complete sewage collection systems for the Town of Mammoth Lakes, including pump stations and over 35 miles of sewer mains and interceptors. MCWD also operates and maintains pump stations and 11 miles of sewers for the U.S. Forest Service.[13]

The Town's core area sewage collection system was constructed in 1966. Although most sewer lines were constructed with asbestos cement (AC) pipe, some vitrified clay (VC) pipe has been used in areas with flat slopes, and ABS pipe has been used for newly constructed lines. Most sewage collection lines in the Town are 8 inches in diameter. The sewer lines closest to the Project site include a 12-inch line running along State Highway 203, an 8-inch line running along Meridian Boulevard, and a number of 8-inch lines running throughout the existing residential developments adjacent to the Project site. During 1989, the average daily wastewater flow amounted to 1.444 million gpd The maximum daily flow rate for 1989 was 2.598 million gpd. Raw wastewater is delivered to the MCWD wastewater treatment facility, located near the intersection of Meridian Boulevard and State Highway 203, through two 18-inch interceptor sewer lines. The current capacity of this treatment facility is 2.2 million gpd with treatment requirements of a 30 mg/L BOD, 1.0 mg/L MBAS, >5.9 pH, >0.9 mg/L dissolved oxygen, and a 7-day median coliform bacteria count of 2.2 MPN/100 ml. This facility is a secondary treatment plant utilizing activated sludge with sand filtration and chlorination. Design for expansion of the facility to an average 30-day flow rate of 4.05 million gpd has been approved, with construction scheduled to begin in August 1990.[14]

IMPACTS AND MITIGATION MEASURES

Methodology

The MCWD was contacted for information regarding existing infrastructure and treatment capacity. Projected wastewater generation was evaluated in relation to existing treatment capacity.

Impact

4.5-2 **The proposed Project is anticipated to generate a total of approximately 346,750 gallons of wastewater per day, made up of 236,250 gpd from residential uses, 8,000 gpd from the retail space, 82,500 gpd from the hotel rooms (based upon full occupancy), and 20,000 gpd from the restaurants.[15] Since MCWD has adequate treatment capacity for Project-generated wastewater flows, the proposed Project would have a *less-than-significant impact* on wastewater facilities.**

MCWD has held discussions with the Project proponent regarding the proper sizing and location of sewer pipelines and the location of a reclaimed water pipeline system. MCWD has indicated

that some modifications will be necessary to handle the projected flow rates from the Project. Construction and operation of any sewage lines connecting with the MCWD facilities are contingent upon obtaining a Sewer Permit from the MCWD District Manager in accordance with Division 5 of the MCWD Sanitary Sewer Service Code.[16]

Mitigation Measure

4.5-2 *The Project shall comply with all requirements of the Mammoth County Water District regarding flow reduction, and sewer system design and operation.*

DRAINAGE

SETTING

A major storm drainage system runs along Canyon Boulevard, Berner Street, Alpine Circle, and Main Street. The runoff discharges into Murphy Gulch at the Mammoth Ranger Station. A 43,560-cubic-foot siltation basin is located at the downstream end of the storm drain to settle out sediments before entering Mammoth Creek. In 1984, the LRWQCB adopted *Guidelines for Erosion Control in the Mammoth Lakes Area* as an amendment to the South Lahontan Basin Plan. In an effort to arrest drainage and erosion problems, the Guidelines prescribe requirements to retain storm water onsite for a 20-year one-hour storm event.[17]

IMPACTS AND MITIGATION MEASURES

Methodology

Information regarding the existing storm drainage system was collected from various Town documents including the Town of Mammoth Lakes General Plan. These documents contained information on existing drainage infrastructure provided by the LRWQCB.

Impact

4.5-3(a) **Increased amount of impervious surfaces associated with development of the proposed Project would increase surface water runoff from the Project site and could require infrastructure improvements. This is a *potentially significant impact.***

Increased impervious surfaces would result in increased surface runoff from the site, as addressed in Section 4.2 Hydrology. The Lahonton RWQCB has specific requirements in the "Erosion Control Guidelines" (Appendix C) to control drainage. In particular, retention facilities are required to be contructed. The proposed Project includes the creation of several man-made lakes which are able to fulfill this requirement if suitable design is undertaken.

Mitigation Measure

4.5-3(a) *Drainage collectors, retention and infiltration facilities shall be constructed and maintained to prevent transport of the runoff from a 20-year, 1-hour storm from the proposed Project site.*

4.5-3(b) *The requirements of the Lahonton RWQCB as specified in the "Erosion Control Guidelines" shall be met while construction is being undertaken and during project operation.*

SOLID WASTE

SETTING

Solid waste collection for the Town of Mammoth Lakes is provided by the Mammoth Disposal Company. Mammoth Disposal operates every day of the year, hauling approximately 300 cubic yards of uncompacted materials per day to the County landfill at Benton Crossing, an estimated 80 percent of which is refuse (the remainder being construction materials, etc.).[18] Waste hauled to the landfill is compacted which allows it to take up less space.

All solid waste collected in the Town of Mammoth Lakes is delivered to the landfill, located on a site leased from the Los Angeles Department of Water and Power approximately 5 miles east of the U.S. Highway 395/Benton Crossing Road intersection. This landfill is approximately 40 acres in size with a design capacity of 1.35 million cubic yards. The maximum daily delivery of all solid waste to this landfill is 100 cubic yards of compacted waste. The in-place volume of existing solid waste is 378,000 cubic yards. Based upon present population and disposal rates, this landfill should not reach full capacity until another 19 years. Ten acres of the landfill are devoted to the disposal of treated sludge (with an 86 percent moisture content) from the Mammoth County Water District, averaging 234 cubic yards of sludge per week. There are no recycling activities currently taking place at this landfill.[19]

IMPACTS AND MITIGATION MEASURES

Methodology

The Mammoth Disposal Company and the Benton Crossing Landfill were contacted for information on adequacy of the collection system and the availability of landfill space. Projected solid waste production was compared to existing landfill capacity.

Impact

4.5-4 **The Project is anticipated to produce a total of 18,607 pounds of solid waste per day, made up of 5,670 pounds per day from all residences and 12,937 pounds per day from all commercial operations.[20] This is a *significant impact.***

The Mammoth Disposal Company has indicated that it has adequate collection facilities to serve the Project.[21] The Benton Crossing Landfill also has adequate capacity to serve the proposed development.[22]

Mitigation Measures

Implementation of Mitigation Measures 4.5-4(a) through (e) will reduce Project impacts to a less-than-significant level.

4.5-4(a) *Alternate methods of solid waste disposal, such as the use of onsite trash compaction, shall be incorporated into the final Project design subject to the approval of the Mammoth Lakes Planning Department.*

4.5-4(b) *All visible trash collection facilities and features of the development shall be designed to complement the Project design scheme.*

4.5-4(c) *The Project applicant shall provide a recycling collection station or contract a solid waste disposal company which will offer a system of convenient recycling stations for Project residents. Placement and design shall be subject to the review and approval of the Planning Director.*

4.5-4(d) *The Project applicant shall provide each residence with a divided cabinet suitable for aluminum cans, glass bottles, and plastic bottles.*

4.5-4(e) *A portion of the golf course shall be reserved for the processing of green wastes generated by the golf course. The processing of green wastes shall be the responsibility of the golf course management for the life of the Project.*

ELECTRICITY

SETTING

The Town of Mammoth Lakes is supplied with electricity from Southern California Edison (SCE).

IMPACTS AND MITIGATION MEASURES

Methodology

Southern California Edison was contacted for information on existing electricity supply infrastructure capacity. The proposed Project's annual electrical demands were calculated based on present consumption rates for similar type uses in Mammoth Lakes. This methodology is considered conservative because many structures in Town predate Title 24 standards and show somewhat higher usage than new standards.

Impact

4.5-5 **Development of the proposed Project is estimated to generate a demand for 28,500,000 kilowatt hours annually.[23] This is a *less-than-significant impact.***

SCE currently has the infrastructure in place to supply this demand.

Mitigation Measure

4.5-5 *None required.*

TELEPHONE

SETTING

Continental Telephone (ConTel) supplies the Town of Mammoth Lakes with telephone service.

IMPACTS AND MITIGATION MEASURES

Methodology

Based on present concept plans, the total number of telephone lines needed as a result of development of the proposed Project was calculated based on present concept plans. ConTel was contacted for information on existing telephone service infrastructure.

Impact

4.5-6 **Based on Project descriptions, approximately 1,700 phone lines will be needed. This is a *less-than-significant impact.***

ConTel has the infrastructure in place to meet this demand.[24]

Mitigation Measures

4.5-6 *None required.*

CUMULATIVE IMPACTS

Cumulative development in the Town of Mammoth Lakes will result in increased pressure on the utilities. For instance, cumulative impacts on water will require the MCWD to develop new water sources if the proposed projects are to be developed. In anticipation of growth, the MCWD is planning to expand their wastewater treatment facilities. Increased development will reduce the number of capacity years remaining at St-4, the Benton Crossing Landfill. This will require the Town to locate alternative landfill space.

ENDNOTES

1. Town of Mammoth Lakes, *North Village EIR*, 1989.

2. Boyle Engineering, *Iron and Manganese Groundwater Treatment Plant Report*, May 1989.

3. Sisson, Gary, Operations and Maintenance Manager, Mammoth County Water District, written communication, June 4, 1990.

4. Op. Cit., *Iron and Manganese Groundwater Treatment Plant Report.*

5. Op. Cit., *Iron and Manganese Groundwater Treatment Plant Report.*

6. Op. Cit., Correspondence from Gary Sisson, June 4, 1990.

7. Op. Cit., Correspondence from Gary Sisson, June 4, 1990.

8. Sisson, Gary, Operations and Maintenance Manager, Mammoth County Water District, written communication, January 31, 1990.

9. Ibid.

10. Sisson, Gary, Operations and Maintenance Manager, Mammoth County Water District, written communication, July 5, 1990.

11. Olson Associates, telephone communication, June 4, 1990.

12. Ibid.

13. Op. cit., Gary Sisson, June 4, 1990.

14. Op. cit., Gary Sisson, June 4, 1990.

15. Projections are based upon generation rates of 150 gpd per dwelling unit, 150 gpd per hotel room, 100 gpd per every 1,000 square feet of gross retail floor area, and 50 gpd per restaurant seat.

16. Op. cit., Gary Sisson, June 4, 1990.

17. Town of Mammoth Lakes, *North Village EIR.*

18. Hartman, Dennis, Mammoth Disposal Company, telephone communication, May 21, 1990.

19. Ward, James, Director of Public Works, Mono County Department of Public Works, telephone communication, June 7, 1990.

20. Projections are based upon generation rates of 3.6 pounds per day per dwelling unit and 20.9 pounds per day per employee. Employment projections are based on generation rates of one employee per every 450 square feet of retail space (132 employees), 0.7 employees per hotel room (350 employees), 0.3 employees per hotel condo (60 employees), and 10 employees per golf course (10 employees), and one employee for every 300 square feet of restaurant space (67 employees) for a total of 619 project-generated employees.

21. Op. cit., Dennis Hartman.

22. Op. cit., James Ward.

23. Projections based on generation rates of 16,081 kWh per dwelling units per year for residential uses, 11.8 kWh per square foot of retail space per year, 6.8 kWh per square foot of hotel space per year, and 47.3 kWh per square foot of restaurant space per year. These generation rates are taken from *Air Quality Handbook for Preparing Environmental Impact Reports*, South Coast Air Quality Management District, 1987.

24. Continental Telephone engineer (unidentified), telephone communication, October 4, 1990.

4.6 TRAFFIC

4.6 TRAFFIC

INTRODUCTION

This section of the EIR documents the findings of a traffic study conducted by Kaku Associates to evaluate the potential traffic impacts and circulation needs of the proposed Lodestar Master Plan in the Town of Mammoth Lakes, California. This traffic study has been prepared in compliance with the California Environmental Quality Act (CEQA) of 1970, the CEQA Guidelines of January 1984 and the CEQA requirements for an Environmental Impact Report, as the proposed Project has been determined to present potentially significant impacts on existing environs.

Project Description

The proposed Project is a 210-acre master-planned resort community which would include the following components: single-family homes; resort condominiums; apartments for employee housing; lodges; resort hotels; a commercial village; an 18-hole golf course which would be built throughout the entire development area; and an overhead ski lift and ski back connecting the commercial village to Mammoth Mountain Ski Area (MMSA) Base 7. Figure 4.6-1 illustrates the Project site location in relation to the existing street system.

Project access would be provided by a series of internal local streets, four of which would intersect Meridian Boulevard and two of which would intersect Minaret Road.

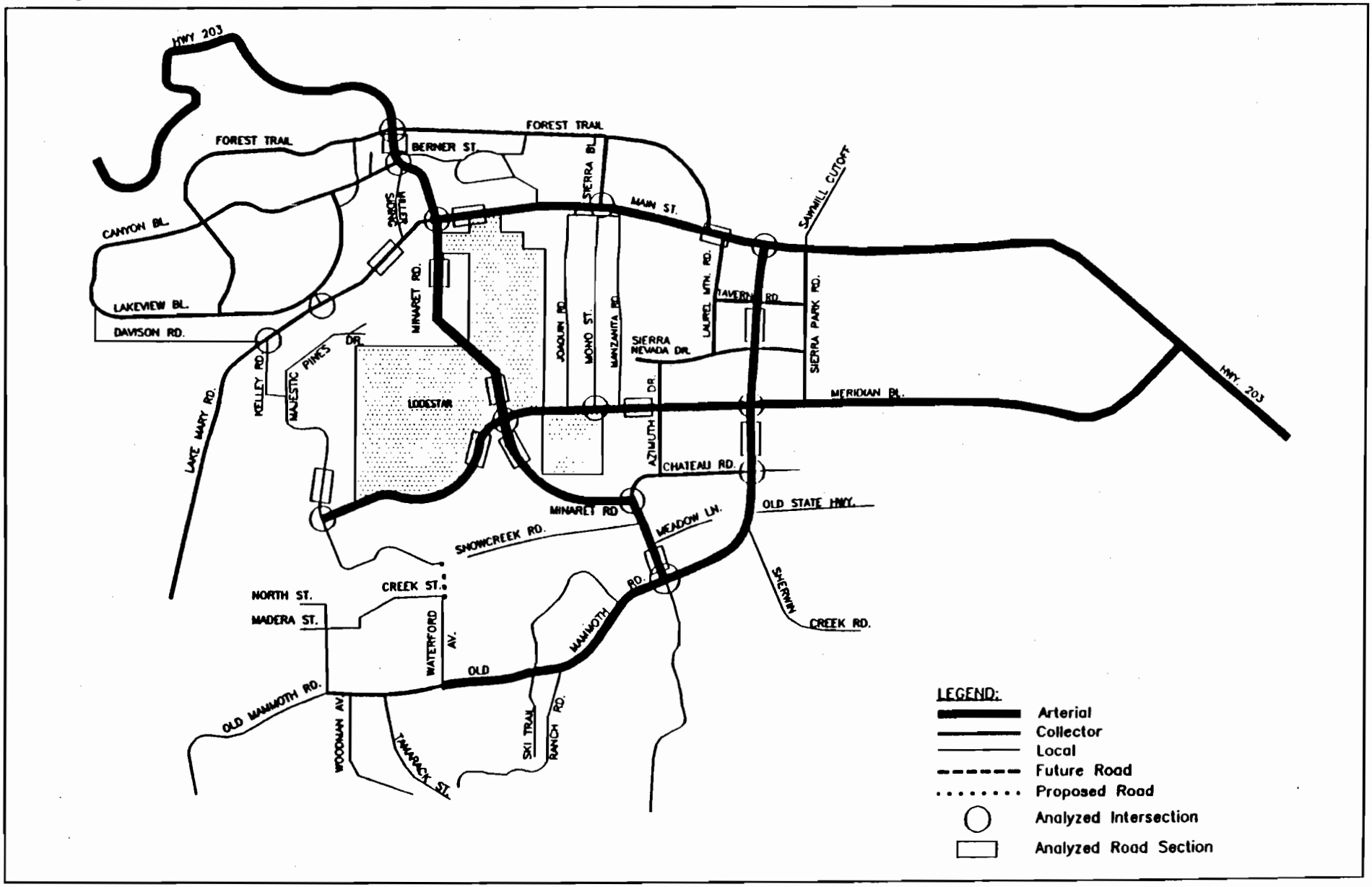
Study Scope

The scope for this traffic analysis was developed in conjunction with the Town of Mammoth Lakes. The base assumptions, technical methodologies, and geographic coverage of the study were all identified as part of the study approach. The study is directed at the analysis of potential project-generated traffic impacts on the adjacent street system. Afternoon peak-hour intersection capacity analyses are conducted in this study at the following fourteen intersections:

1. Minaret Road & Forest Trail
2. Minaret Road & Canyon Boulevard
3. Kelley Road & Lake Mary Road
4. Lakeview Road & Lake Mary Road
5. Minaret Road & Main Street/Lake Mary Road
6. Sierra Boulevard & Main Street

Study Area

Figure 4.6-1



Source: KAKU ASSOCIATES

7. Old Mammoth Road & Main Street
8. Majestic Pines Drive & Meridian Boulevard
9. Minaret Road & Meridian Boulevard
10. Mono Street & Meridian Boulevard
11. Old Mammoth Road & Meridian Boulevard
12. Minaret Road & Chateau Road
13. Old Mammoth Road & Chateau Road
14. Minaret Road & Old Mammoth Road

In addition, daily volumes and capacities are evaluated for the following thirteen roadway segments:

1. Lake Mary Road - Lakeview Road to Minaret Road
2. Main Street - Minaret Road to Mono Street/Sierra Boulevard
3. Main Street - Mono Street/Sierra Boulevard to Old Mammoth Road
4. Majestic Pines Drive - Meridian Boulevard to Kelley Road
5. Meridian Boulevard - Majestic Pines Drive to Minaret Road
6. Meridian Boulevard - Minaret Road to Old Mammoth Road
7. Minaret Road - Old Mammoth Road to Chateau Road
8. Minaret Road - Chateau Road to Meridian Boulevard
9. Minaret Road - north of Meridian Boulevard (future segment)
10. Minaret Road - south of Main Street (future segment)
11. Minaret Road - Canyon Boulevard to Forest Trail
12. Old Mammoth Road - Chateau Road to Meridian Boulevard
13. Old Mammoth Road - Meridian Boulevard to Main Street

Also, potential project impacts at the proposed Project access points onto Minaret Road and Meridian Boulevard are evaluated in the study (See Figure 4.6-2).

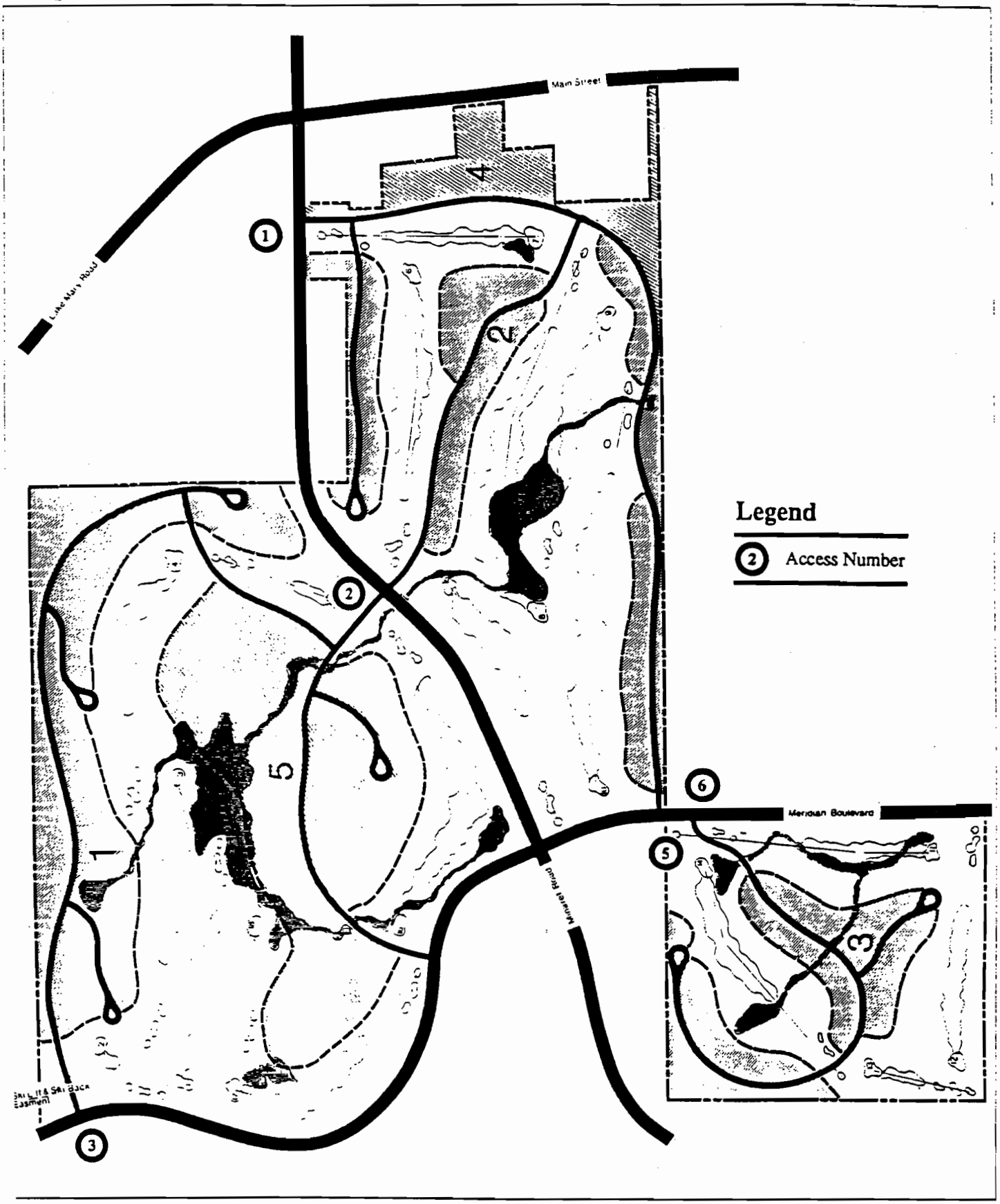
The following traffic scenarios are analyzed in the study:

- Existing Base Conditions
- Proposed Project
- Cumulative Base Conditions (without the Lodestar Master Plan)
- Cumulative Plus Project Conditions (with the Lodestar Master Plan)

The traffic analysis concentrates on conditions for a peak Saturday during the winter ski season, which represents the most heavily travelled and congested period on streets within Mammoth Lakes. Also, it is anticipated that the proposed Project would generate more traffic (and thus have greater traffic impacts) during the winter ski season than during the summer months, as the Project's proposed visitor lodging units would be more fully utilized during the winter ski season. Therefore, this study is concerned solely with peak winter conditions, on the assumption that summer traffic volumes would be adequately accommodated on roadways sized for winter conditions.

Proposed Project Site Plan

Figure 4.6-2



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SETTING

Regional Access

Regional access to the Town of Mammoth Lakes is provided by U.S. 395 via State Route 203 and the Mammoth Scenic Loop Road. State Route 203 is an east-west, four-lane divided highway between the interchange with U.S. 395 and the Town. Within Mammoth Lakes, both Main Street (east of Minaret Road) and Minaret Road (north of Main Street) are designated as State Route 203. Main Street provides four travel lanes, while Minaret Road provides four lanes at Main Street and narrows to two lanes to the north of Main Street at Canyon Boulevard.

Local Roadways

Primary access to the Lodestar Project site would be provided by Meridian Boulevard and Minaret Road. The following is a brief description of the key streets of interest in this study:

- Main Street/Lake Mary Road - West of Minaret Road, this facility is known as Lake Mary Road and is a two-lane collector street. East of Minaret Road, this facility is known as Main Street and is also designated as State Route 203. Main Street is a major east/west arterial connecting with all three of the other arterials in Mammoth Lakes (Minaret Road, Old Mammoth Road, and Meridian Boulevard). Main Street/State Route 203 also provides the primary access into and out of the Mammoth Lakes area, connecting with U.S. 395 approximately three miles to the east of the Town. Main Street provides four travel lanes east of Minaret Road. A two-way continuous left-turn lane is provided between Mono Street/Sierra Boulevard and Sierra Park Boulevard. The intersections with Minaret Road and Old Mammoth Road are signalized.

- Meridian Boulevard - Meridian Boulevard is a four-lane arterial between its western terminus at Majestic Pines Drive and Sierra Park Road east of Old Mammoth Road. Parking is permitted in this section in summer months. East of Sierra Park Road, Meridian Boulevard is striped for two lanes and connects with State Route 203, providing an alternative route into and out of Mammoth Lakes. The intersection with Old Mammoth Road is signalized.

- Minaret Road - Minaret Road is designated as State Route 203 between Main Street and the Mammoth Mountain Ski Area and is designated as an arterial in the Town General Plan. Between Main Street and Canyon Boulevard, Minaret Road provides four travel lanes. From Canyon Road to the Mammoth Mountain Ski Area, Minaret is a two-lane rural highway. Between Main Street and the existing terminus of the Minaret Road to the south of Main Street, Minaret is striped for two lanes with a continuous left-turn lane. Minaret Road does not presently exist between this location and Meridian Boulevard, although eventual completion of

this section is in the General Plan. South of Meridian Boulevard to Old Mammoth Road, Minaret Road exists and is striped for two travel lanes. The intersection with Main Street/Lake Mary Road is signalized.

- Old Mammoth Road - Old Mammoth Road is classified as an arterial. Between its northern terminus at Main Street and south of Chateau Road (at the Stove Restaurant), Old Mammoth Road has two travel lanes and a two-way continuous left-turn lane. Two lanes are provided from south of Chateau Road to the western terminus of the paved section of Old Mammoth Road (in Old Mammoth). West of this point to Lake Mary Road, Old Mammoth Road is narrow, unpaved, and closed during winter months. The segment of Old Mammoth Road between the Stove Restaurant and Ranch Road has recently been reconstructed on a new alignment. On-street parking is permitted on Old Mammoth Road between Main Street and the Stove Restaurant, in the summer only. The intersections of Old Mammoth Road with Meridian Boulevard and Main Street are signalized.

- Majestic Pines Drive - Majestic Pines Drive is a two-lane local road between Monterey Pine Road/Kelley Road and its southern terminus adjacent to the private residential community of Snowcreek.

- Kelley Road - Kelley Road is a two-lane local road which connects Majestic Pines Drive with Lake Mary Road.

- Waterford Avenue - Waterford Avenue is a two-lane, discontinuous local road within the community of Old Mammoth. The road is about 20 feet wide and is paved between Old Mammoth Road and a point just north of Hill Street. From Hill Street to a point just north of Glasscock Street the road is unpaved.

- Forest Trail - Forest Trail is a two-lane collector serving a residential areas to the east and west of Minaret Road. To the east it terminates at Main Street and to the west at Lakeview Boulevard.

- Lakeview Boulevard - Lakeview Boulevard is classified as a collector. It provides two travel lanes and provides access between Warming Hut II and residential areas and Lake Mary Road (via Lakeview Road) and Minaret Road (via Canyon Boulevard). Near Warming Hut II, at the western end of Lakeview Boulevard, it turns north and becomes Canyon Boulevard.

- Lakeview Road - Lakeview Road is a short, two-lane local road which connects Lakeview Boulevard with Lake Mary Road. Traffic travelling from Lake Mary Road to Warming Hut II must jog through Lakeview Road to obtain access to Lakeview Boulevard.

- Canyon Boulevard - Canyon Boulevard is an east/west, two-lane collector. Near Warming Hut II, at the western end of Canyon Boulevard, it turns south and

becomes Lakeview Boulevard. It provides access between Warming Hut II and residential areas and Minaret Road.

- Miller Siding - This short, two-lane local street provides a connection between Minaret Road and Lake Mary Road.

- Sierra Boulevard - Sierra Boulevard is a north/south, two-lane collector that connects Forest Trail with Main Street.

- Mono Street - Mono Street is a north/south local street serving a residential area. It is a paved street but is substandard in width and does not have any curbs or gutters. Mono Street intersects Meridian Boulevard to the south and connects with Main Street to the north via frontage road access points at Lupin Street and Manzanita Road.

- Chateau Road - Chateau Road serves as a collector to the west of Old Mammoth Road and as a local street to the east of Old Mammoth Road. It provides two travel lanes.

- Azimuth Drive - Azimuth Drive is a two-lane collector which intersects with Sierra Nevada Drive at its northern terminus and with Chateau Road at its southern terminus.

- Sierra Nevada Drive - Sierra Nevada Drive is an east/west two-lane collector intersecting with Azimuth Drive, Laurel Mountain Road, Old Mammoth Road, and Sierra Park Road.

Existing Winter Weekend Traffic Volumes

New 24-hour traffic counts were conducted at 11 of the 13 analyzed roadway segments on the weekends of March 31, and April 7, 1990 (no counts were conducted for the two analyzed sections of Minaret Road north of Meridian Boulevard and south of Main Street, as Minaret Road currently exists immediately south of Main Street and does not connect to Meridian Boulevard). New afternoon peak hour turning movement counts were conducted at the following 11 of the 14 analyzed intersections on March 31, or April 7, 1990:

- Kelley Road & Lake Mary Road
- Lakeview Road & Lake Mary Road
- Sierra Boulevard & Main Street
- Old Mammoth Road & Main Street
- Majestic Pines Drive & Meridian Boulevard
- Minaret Road & Meridian Boulevard
- Mono Street & Meridian Boulevard
- Old Mammoth Road & Meridian Boulevard

- Minaret Road & Chateau Road
- Old Mammoth Road & Chateau Road
- Minaret Road & Old Mammoth Road

PM peak-hour turning movement counts conducted by BSI Consultants, Inc., on March 4, 1989, were obtained from the North Village Specific Plan EIR for the remaining three study intersections:

- Minaret Road & Main Street/Lake Mary Road
- Minaret Road & Canyon Boulevard
- Minaret Road & Forest Trail

The resulting estimates of existing daily traffic volumes for a peak winter Saturday are illustrated in Figure 4.6-3.

Existing Levels of Service

"Level of service" (LOS) is a qualitative measure used to describe the condition of traffic flow, ranging from excellent conditions at LOS A to overloaded conditions at LOS F. The Town of Mammoth Lakes' standard for acceptable level of service is LOS C or better. Level of service definitions are included in Tables 4.6-1 and 4.6-2 for signalized and unsignalized intersections, respectively.

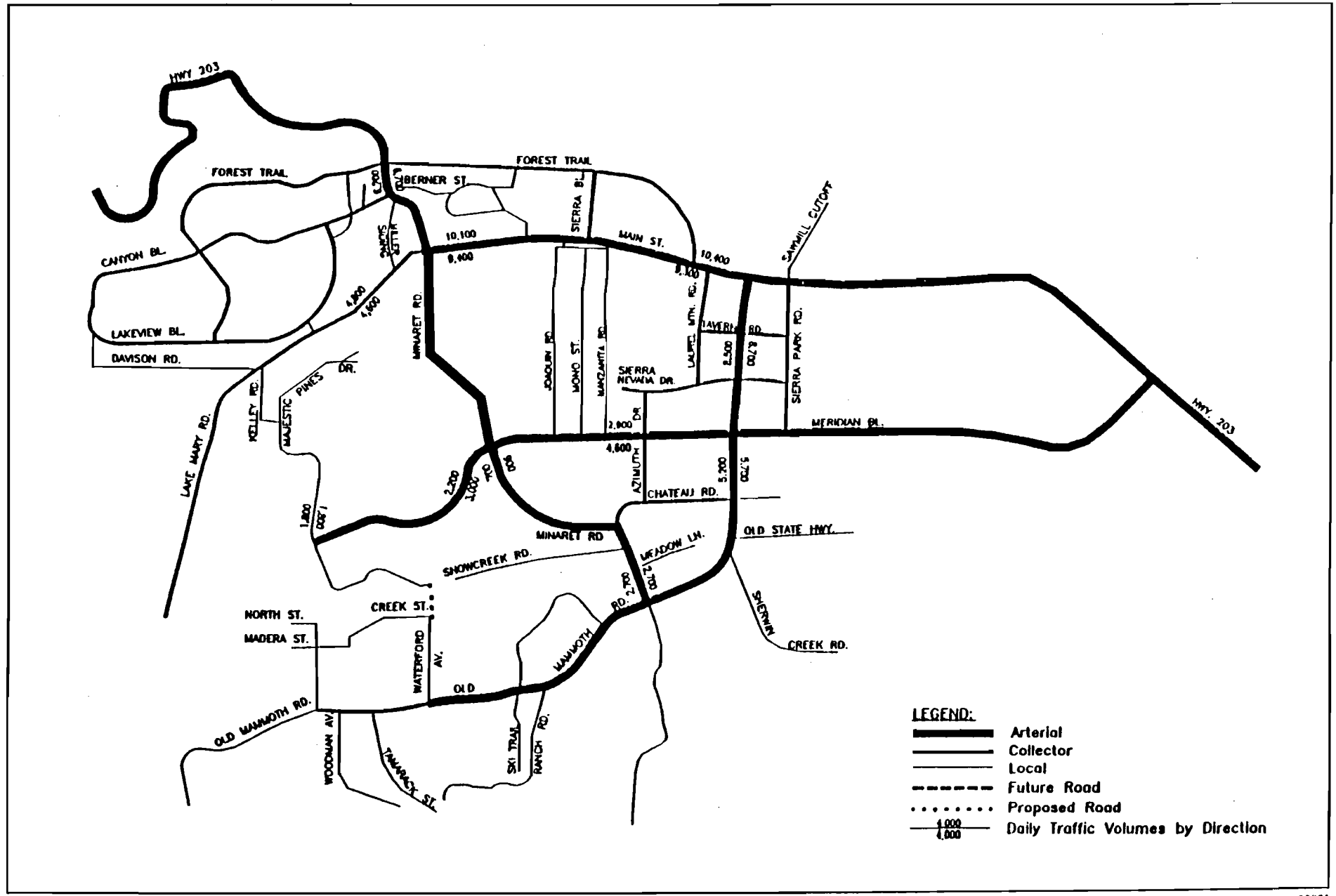
The Critical Movement Analysis-Planning (CMA) (Transportation Research Board, 1980) method of intersection capacity analysis was used to determine the intersection volume to capacity (V/C) ratio and corresponding level of service for the turning movements and intersection characteristics at each of the signalized intersections in the study area. The CMA methodology normally uses a volume of 1,500 vehicles per lane per hour of green time as the capacity for a two-phase traffic signal. However, to present a "worst case" analysis and ensure that the street system capacity is sufficient to accommodate traffic volumes during snow and ice conditions, a reduced capacity value of 1,275 vehicles per lane per hour of green was used in this study for two-phase signals (15 percent lower than the standard capacity value), with a corresponding 15 percent reductions in capacity for three- and four-phase signals.

The "Two-Way Stop Control" (Transportation Research Board, 1985) method was used to conduct intersection capacity analyses for the unsignalized intersections. This methodology provides an estimate of the available reserve capacity and corresponding level of service for each of the constrained movements at the intersection. Under existing conditions, all but three of the analyzed intersections (Minaret Road/Main Street, Old Mammoth Road/Meridian Boulevard, and Old Mammoth Road/Main Street) are unsignalized.

Levels of service for the analyzed roadway segments were determined based on a comparison of daily volumes and daily capacities, using procedures similar to those utilized in preparation

Estimated Existing Base Daily (Winter Weekend)

Figure 4.6-3



Source: KAKU ASSOCIATES

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Table 4.6-1

LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS

Level of Service	Volume/Capacity Ratio	Definition
A	0.00 - 0.60	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	0.61 - 0.70	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.71 - 0.80	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.81 - 0.90	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.91 - 1.00	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	Greater than 1.00	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board, Transportation Research Circular No. 212, Interim Materials on Highway Capacity, January 1980.

Table 4.6-2

LEVEL OF SERVICE DEFINITIONS FOR TWO-WAY STOP-CONTROLLED INTERSECTIONS

Available Reserve Capacity	Level of Service	Expected Delay to Minor Street Traffic
400 or more	A	Little or no delay.
300 to 399	B	Short traffic delays.
200 to 299	C	Average traffic delays.
100 to 199	D	Long traffic delays.
0 to 99	E	Very long traffic delays.
Less than 0	F	Failure - extreme congestion.
(Any value)	F	Intersection blocked by external causes.

Source: Transportation Research Board, Highway Capacity Manual, Special Report 209, 1985.

of the Circulation Element for the Mammoth Lakes General Plan. These procedures are based on estimated two-way daily roadway capacity values of 12,500 vehicles per day (vpd) for a two-lane street, 17,500 vpd for a three-lane street (two through lanes plus a two-way continuous left-turn lane), 25,000 vpd for a four-lane arterial and 30,000 vpd for a five-lane street (four through lanes plus a two-way continuous left-turn lane). It should be noted that these values are slightly lower than typical daily capacity values used for urban and suburban streets, and as such take into account the lower than average street capacities often experienced in Mammoth Lakes during winter months due to adverse weather and street surface conditions (as discussed above).

Existing Winter Weekend Levels of Service

Table 4.6-3 shows the estimated existing daily levels of service on major streets in Mammoth Lakes for a typical winter Saturday, while the level of service worksheets are contained in Appendix E. As shown, all but two street segments are currently operating at acceptable levels of service (LOS C or better). Old Mammoth Road is operating at a poor LOS E between Meridian Boulevard and Main Street, and Minaret Road is operating at LOS F between Canyon Boulevard and Forest Trail.

As indicated in the Table 4.6-4, under estimated existing conditions, 6 of the 14 analyzed intersections are currently operating at unacceptable levels of service (i.e., LOS D, E, or F) during the PM peak-hour. The signalized intersection of Old Mammoth Road/Meridian Boulevard operates at LOS D. The unsignalized intersections of Minaret Road/Forest Trail, Lakeview Road/Lake Mary Road and Old Mammoth Road/Chateau Road operate at LOS D, while Sierra Boulevard/Main Street and Minaret Road/Canyon Boulevard operate at LOS E and F, respectively.

IMPACTS AND MITIGATION MEASURES

Methodology

Traffic generation estimates for the proposed Project were developed using the methodology, assumptions and trip generation rates developed to take into account the unique trip-making characteristics associated with the ski resort and the resort lodging development. This methodology is described in detail in the traffic study.

Ski-related traffic generated by the resort hotel, motel, and condominium elements of the Project was distributed to the various ski base facilities (MMSA and Sherwin). Non-ski-related traffic generated by the resort hotel, motel, and condominium elements of the Project was distributed to commercial areas throughout the Town as well as to the resort commercial uses proposed within the proposed Project. Traffic generated by the single-family residential and employee housing elements of the Project was distributed to commercial and employment areas, while the net external traffic generated by the commercial village was distributed primarily to residential areas throughout the Town.

Table 4.6-3

EXISTING WINTER WEEKEND DAILY STREET SEGMENT LEVELS OF SERVICE

LINK #	STREET	SEGMENT	# OF LANES	DAILY CAPACITY	EXISTING CONDITIONS VOLUME	V/C	LOS
1.	Lake Mary Rd.	Lakeview Rd. to Minaret Rd.	2	12,500	9,400	0.75	C
2.	Main St.	Minaret Rd. to Sierra Blvd.	4	25,000	19,500	0.78	C
3.	Main St.	Forest Trail to Old Mammoth Rd.	5	30,000	19,800	0.66	B
4.	Majestic Pines Dr.	n/o Meridian Blvd.	2	12,500	3,600	0.28	A
5.	Meridian Blvd.	Majestic Pines Dr. to Minaret Rd.	4	25,000	5,300	0.21	A
6.	Meridian Blvd.	Manzanita Rd. to Azimuth Dr.	4	25,000	7,500	0.30	A
7.	Minaret Rd.	Old Mammoth Rd. to Meadow Ln.	2	12,500	5,400	0.43	A
8.	Minaret Rd.	Chateau Rd. to Meridian Blvd.	2	12,500	1,600	0.12	A
11.	Minaret Rd.	Canyon Blvd. to Forest Trail	2	12,500	12,900	1.03	F*
12.	Old Mammoth Rd.	Chateau Rd. to Meridian Blvd.	3	17,500	10,900	0.62	B
13.	Old Mammoth Rd.	Sierra Nevada Dr. to Tavern Rd.	3	17,500	17,200	0.98	E*

Note:
* Does not meet Town of Mammoth Lakes level of service standard.

Table 4.6-4

EXISTING WINTER WEEKEND PM PEAK HOUR INTERSECTION LEVELS OF SERVICE

Intersection	PM Peak Hour V/C Ratio or Reserve Capacity	LOS
1. Minaret Rd. & Forest Trail	+117[a]	D*
2. Minaret Rd. & Canyon Blvd.	-87[a]	F*
3. Kelley Rd. & Lake Mary Rd.	+558[a]	A
4. Lakeview Rd. & Lake Mary Rd.	+132[a]	D*
5. Minaret Rd. & Main St.	0.57[b]	A
6. Sierra Blvd. & Main St.	+11[a]	E*
7. Old Mammoth Rd. & Main St.	0.68[b]	B
8. Majestic Pines Dr. & Meridian Blvd.	+487[a]	A
9. Minaret Rd. & Meridian Blvd.	+472[a]	A
10. Mono St. & Meridian Blvd.	+322[a]	B
11. Old Mammoth Rd. & Meridian Blvd.	0.84[b]	D*
12. Minaret Rd. & Chateau Rd.	+678[a]	A
13. Old Mammoth Rd. & Chateau Rd.	+144[a]	D*
14. Minaret Rd. & Old Mammoth Rd.	+287[a]	C

Notes:

a. Intersection controlled by stop-signs on the minor street approaches, with free-flowing traffic on the major street. Indicates available reserve capacity and LOS for the most constrained movements on the minor street approaches.

b. Intersection controlled by signal. Indicates volume/capacity ratio and LOS for intersection operation as a whole.

* Does not meet Town of Mammoth Lakes level of service standard.

Future traffic generation was estimated for the cumulative developments listed above through a methodology developed specifically for use in Mammoth Lakes. This methodology was designed to take into account the unique trip-making characteristics associated with the ski resorts and the resort lodging developments, and the interrelationships between the two, and is described in detail in the traffic study.

The traffic expected to be generated by the proposed Project was added to the projected Cumulative Base traffic volumes.

In order to ascertain that portion of the cumulative mitigation measures which could be attributable to the proposed Project, an analysis was conducted to determine the percentage contribution of the proposed Project to the projected cumulative traffic volumes at each location.

Standards of Significance

This traffic analysis was conducted as part of the overall EIR to determine if the proposed project-generated traffic would have a significant impact at any of the 14 intersections or 13 roadway segments that have been identified. The Project is considered to have a significant traffic impact if it contributes traffic to an intersection or roadway segment which is projected to operate at an unacceptable level of service (i.e., LOS D, E, or F) after the addition of the project traffic. Using this criterion, the Project would not have a significant impact on an intersection or roadway segment if it is operating at an acceptable level of service (i.e., LOS C or better) after the addition of Project traffic, regardless of the volume of traffic which is added to the intersection or roadway segment.

Impact

4.6-1 **The proposed Project will generate additional vehicular trips, which would impact traffic volumes and intersection Levels of Service throughout the study area. This is a *potentially significant impact.***

In order to properly evaluate the potential impact of the proposed Project on local traffic conditions, the amount of traffic to be generated by the Project must be forecast and distributed over the surrounding street system. The Project traffic must then be added to forecasts of future traffic volumes which are expected within the Project area. These future forecasts reflect growth that is expected from other specific developments in the vicinity of the Project and increases in traffic due to general growth and development. This methodology is described in detail in the traffic study.

Project Traffic Generation

Traffic generation estimates for the proposed Project were developed using the methodology, assumptions and trip generation rates developed to take into account the unique trip-making

characteristics associated with the ski resort and the resort lodging development. This methodology is described in detail in the Traffic Study.

The resulting estimates of net vehicular trip generation for the proposed Project are summarized in Table 4.6-5. As indicated in the table, the Project is projected to generate a net total of approximately 13,160 daily vehicle trips on a peak winter Saturday, of which approximately 1,515 would be during the afternoon peak-hour.

Project Traffic Distribution and Assignment

Ski-related traffic generated by the resort hotel, motel, and condominium elements of the Project was distributed to the various ski base facilities (MMSA and Sherwin). Non-ski-related traffic generated by the resort hotel, motel, and condominium elements of the Project was distributed to commercial areas throughout the Town as well as to the resort commercial uses proposed within the Project. Traffic generated by the single-family residential and employee housing elements of the Project was distributed to commercial and employment areas, while the net external traffic generated by the commercial village was distributed primarily to residential areas throughout the Town.

Figure 4.6-4 illustrates that the Project-generated winter weekend daily traffic is greatest on Minaret Road and on Main Street north of the proposed Project.

Description of Cumulative Projects

The Cumulative Base traffic projections include traffic expected to be generated by the following sources: proposed expansion of the Mammoth Mountain Ski Area (MMSA) to 24,000 skiers-at-one-time (SAOT); construction of the proposed Sherwin Ski Area at a capacity of 8,000 SAOT; and a number of residential/lodging/commercial projects proposed for development throughout the Town. Information regarding these projects was obtained from the Mammoth Lakes General Plan and from previous traffic and environmental studies conducted in the Town, and was updated by the Town of Mammoth Lakes Planning Department. These projects are described on Table 4.6-6 and their locations are illustrated on Figure 4.6-5.

Cumulative Traffic Generation and Distribution

Future traffic generation was estimated for the cumulative developments listed above through a methodology developed specifically for use in Mammoth Lakes. This methodology was designed to take into account the unique trip-making characteristics associated with the ski resorts and the resort lodging developments, and the interrelationships between the two, and is described in detail in the Traffic Study.

The resulting estimates of net vehicular trip generation for each of the cumulative development projects is summarized in Table 4.6-6. As indicated in the table, the seven cumulative development projects are projected to generate a net total of approximately 46,980 daily vehicle trips on a peak winter Saturday, of which approximately 4,415 would be during the afternoon peak-hour. These trips include future trips generated by the MMSA expansion and the Sherwin Ski Area. Thus, in order to avoid double-counting the ski area trips, the MMSA and Sherwin Ski Area trips are not added to the cumulative total indicated in the table.

Cumulative Base Traffic Projections

Figure 4.6-6 illustrates the resulting projection of winter Saturday daily traffic volumes for the Cumulative Base scenario, assuming implementation of the base street system improvements and the cumulative projects described above.

Cumulative Plus Project Traffic Projections

The traffic expected to be generated by the proposed Project was added to the projected Cumulative Base traffic volumes, illustrated on Figure 4.6-6. Figure 4.6-7 illustrates the resulting projections of winter weekend daily traffic volumes for the Cumulative Plus Project scenario.

Cumulative Base Analysis Levels of Service

Tables 4.6-7 and 4.6-8 summarize the projected winter weekend levels of service for the Cumulative Base scenario for roadway segments and intersections, respectively. The results of this analysis indicates that traffic conditions on streets and intersections throughout the Town would decline substantially from existing conditions under the Cumulative Base scenario. Operating conditions along the following analyzed roadway segments are projected to deteriorate to poor levels of service of F as a result of the growth in traffic from cumulative projects:

- Lake Mary Road - Lakeview Road to Minaret Road
- Main Street - Minaret Road to Sierra Boulevard
- Minaret Road - Old Mammoth Road to Main Street
- Old Mammoth Road - Chateau Road to Main Street

Table 4.6-8 indicates that 11 of the 14 analyzed intersections would operate at LOS D, E, or F during the afternoon peak-hour under the projected Cumulative Base conditions (as compared to six under existing conditions). These intersections are as follows:

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

Table 4.6-5

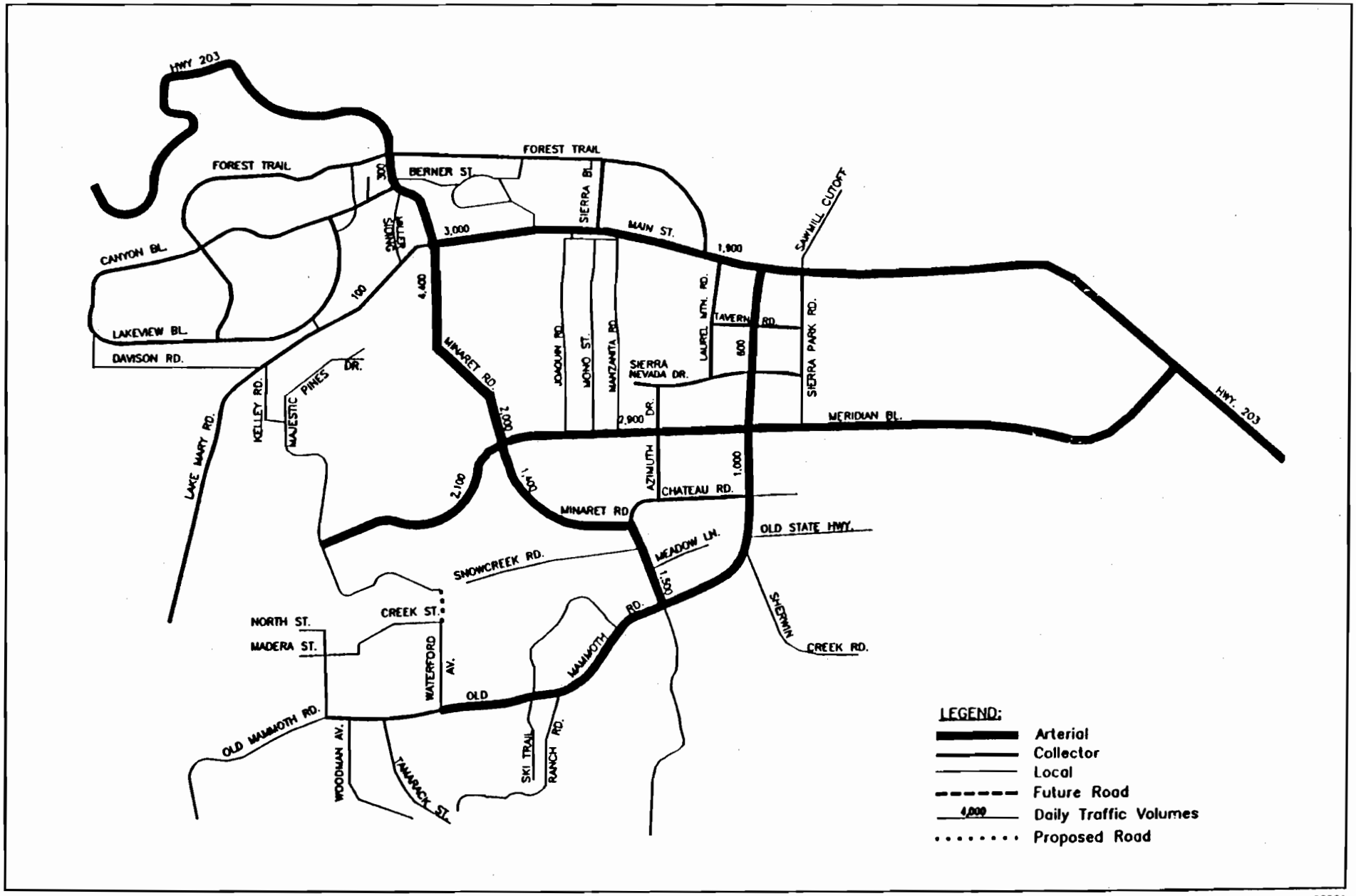
NET WINTER WEEKEND VEHICULAR TRIP GENERATION FOR PROPOSED PROJECT

Land Use	Size	Daily Trips	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Resort Hotel (walk-in)	550 rms	3,970	100	95	195
Motel	50 du	400	20	10	30
Condominiums (walk-in)	300 du	1,320	140	120	260
Condominiums (non-walk-in)	525 du	2,940	370	250	620
Single Family	100 du	1,010	65	35	100
Employee Housing	50 du	310	25	10	35
Commercial Village	80,000 sf	3,210	135	140	275
Total		13,160	855	660	1,515

Notes:
Daily trips rounded to nearest ten vehicles.
Peak hour trips rounded to nearest five vehicles.

Project Generated Daily Traffic Volumes (Winter Weekend)

Figure 4.6-4



Source: KAKU ASSOCIATES

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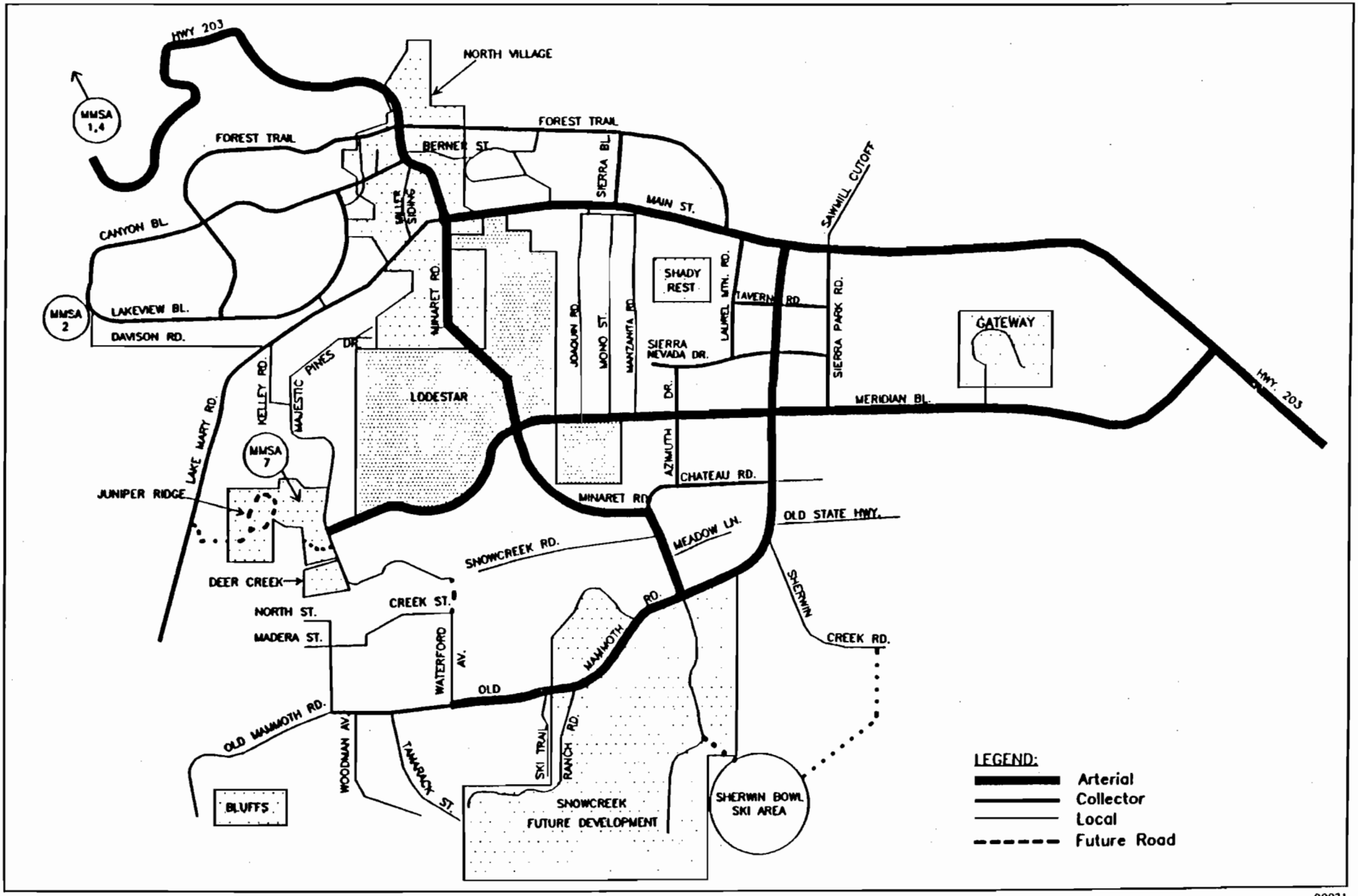
Town of Mammoth Lakes Cumulative Developments

Figure 4.6-5



Source: KAKU ASSOCIATES

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Table 4.6-6

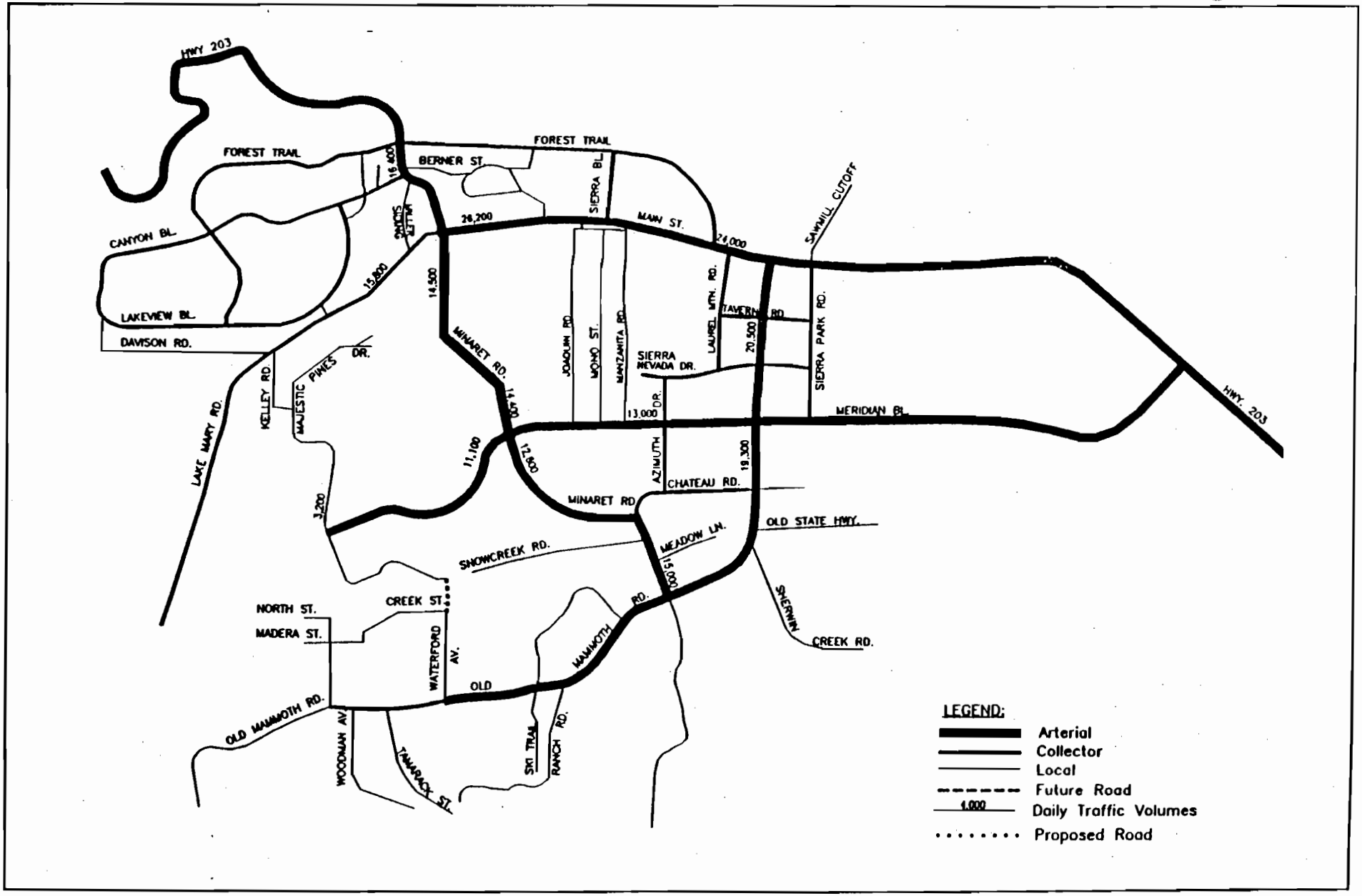
NET WINTER WEEKEND VEHICULAR TRIP GENERATION FOR CUMULATIVE PROJECTS

Name/Location	Land Use	Size	Daily Trips	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
North Village	Hotel (walk-in)	200 rms	1,600	70	40	110
	Hotel (non-walk-in)	1,550 rms	11,190	280	275	555
	Motel	50 rms	360	10	10	20
	Condominiums (walk-in)	40 du	220	25	20	45
	Condominiums (non-walk-in)	360 du	1,590	170	145	315
	Commercial	80,000 sf	3,210	135	140	275
	Total		18,170	690	630	1,320
Snowcreek	Resort Hotel (walk-in)	1,200 rms	8,560	220	210	430
	Condominiums (walk-in)	575 du	2,430	270	230	500
	Condominiums (non-walk-in)	856 du	4,790	605	405	1,010
	Commercial	150,000 sf	4,340	190	195	385
	Total		20,720	1,285	1,040	2,325
Juniper Ridge	Resort Hotel (walk-in)	250 rms	1,810	45	45	90
	Condominiums (walk-in)	120 du	510	55	50	105
	Commercial	35,000 sf	1,880	90	90	180
	Single Family	44 du	440	30	15	45
	Total		4,640	220	200	420
Deer Creek	Resort Hotel (walk-in)	195 rms	1,410	35	35	70
Shady Rest	Condominiums (non-walk-in)	120 du	670	85	55	140
Bluffs	Single Family	60 du	610	40	20	60
Gateway	Single Family	75 du	760	50	30	80
	Net Total		46,980	2,405	2,010	4,415

Notes:
Daily trips rounded to nearest ten vehicles.
Peak hour trips rounded to nearest five vehicles.

Cumulative Base Daily Traffic Volumes (Winter Weekend)

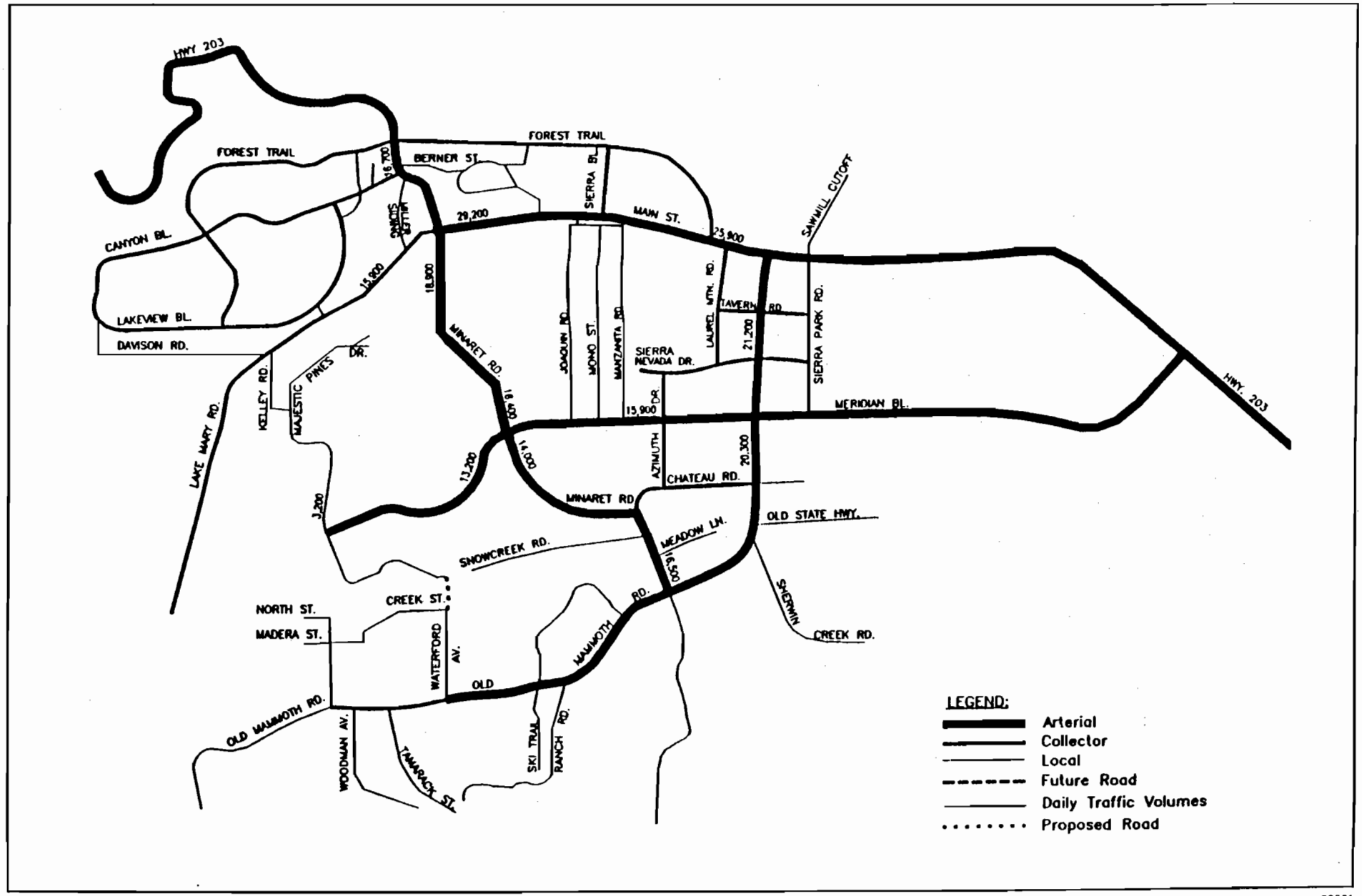
Figure 4.6-6



Source: KAKU ASSOCIATES

Cumulative Plus Lodestar Daily Traffic Volumes (Winter Weekend)

Figure 4.6-7



Source: KAKU ASSOCIATES

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Table 4.6-7

WINTER WEEKEND DAILY STREET SEGMENT LEVELS OF SERVICE
CUMULATIVE BASE

LINK #	STREET	SEGMENT	# OF LANES	DAILY CAPACITY	CUMULATIVE BASE CONDITIONS VOLUME	V/C	LOS
1.	Lake Mary Rd.	Lakeview Rd. to Minaret Rd.	2	12,500	15,800	1.26	F*
2.	Main St.	Minaret Rd. to Sierra Blvd.	4	25,000	26,200	1.05	F*
3.	Main St.	Forest Trail to Old Mammoth Rd.	5	30,000	24,000	0.80	C
4.	Majestic Pines Dr.	n/o Meridian Blvd.	2	12,500	3,200	0.26	A
5.	Meridian Blvd.	Majestic Pines Dr. to Minaret Rd.	4	25,000	11,100	0.44	A
6.	Meridian Blvd.	Manzanita Rd. to Azimuth Dr.	4	25,000	13,000	0.52	A
7.	Minaret Rd.	Old Mammoth Rd. to Meadow Ln.	2	12,500	15,000	1.20	F*
8.	Minaret Rd.	Chateau Rd. to Meridian Blvd.	2	12,500	12,600	1.01	F*
9.	Minaret Rd.	n/o Meridian Blvd.	2	12,500	14,400	1.15	F*
10.	Minaret Rd.	s/o Main St.	2	12,500	14,500	1.16	F*
11.	Minaret Rd.	Berner St. to Forest Trail	5	30,000	16,400	0.55	A
12.	Old Mammoth Rd.	Chateau Rd. to Meridian Blvd.	3	17,500	19,300	1.10	F*
13.	Old Mammoth Rd.	Sierra Nevada Dr. to Tavern Rd.	3	17,500	20,500	1.17	F*

Note:
* Does not meet Town of Mammoth Lakes level of service standard.

Table 4.6-8

WINTER WEEKEND PM PEAK HOUR INTERSECTION LEVELS OF SERVICE CUMULATIVE BASE AND CUMULATIVE PLUS PROJECT

Intersection	PM Peak Hour			
	Cumulative Base		Cumulative Plus Project	
	V/C	LOS	V/C	LOS
1. Minaret Rd. & Forest Trail	1.08[b]	F*	1.14[b]	F*
2. Minaret Rd. & Canyon Blvd.	[c]		[c]	
3. Kelley Rd. & Lake Mary Rd.	+511[a]	A	+507[a]	A
4. Lakeview Rd. & Lake Mary Rd.	0.87[b]	D*	0.89[b]	D*
5. Minaret Rd. & Main St.	0.97	E*	1.22	F*
6. Sierra Blvd. & Main St.	+10[a]	E*	+10[a]	E*
7. Old Mammoth Rd. & Main St.	0.87	D*	0.91	E*
8. Majestic Pines Dr. & Meridian Blvd.	+352[a]	B	+346[a]	B
9. Minaret Rd. & Meridian Blvd.	0.82[d]	D*	0.95[d]	E*
10. Mono St. & Meridian Blvd.	+180[a]	D*	+86[a]	E*
11. Old Mammoth Rd. & Meridian Blvd.	1.21	F*	1.32	F*
12. Minaret Rd. & Chateau Rd.	+50[a]	E*	+6[a]	E*
13. Old Mammoth Rd. & Chateau Rd.	-48[a]	F*	-48[a]	F*
14. Minaret Rd. & Old Mammoth Rd.	-630[a]	F*	-701[a]	F*

Notes:

a. Intersection controlled by stop-signs on the minor street approaches, with free-flowing traffic on the major street. Indicates available reserve capacity and LOS for the most constrained movements on the minor street approaches.

b. Intersection would be signalized in conjunction with proposed North Village Specific Plan improvements.

c. Intersection would be vacated in conjunction with proposed North Village Specific Plan improvements.

d. Intersection to be signalized as a Town of Mammoth Lakes improvement.

* Does not meet Town of Mammoth Lakes level of service standard.

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- Sierra Boulevard/Main Street
- Old Mammoth Road/Main Street
- Minaret Road/Meridian Boulevard
- Mono Street/Meridian Boulevard
- Old Mammoth Road/Meridian Boulevard
- Minaret Road/Chateau Road
- Old Mammoth Road/Chateau Road
- Minaret Road/Old Mammoth Road

The intersections of Kelley Road/Lake Mary Road and Majestic Pines Drive/Meridian Boulevard are projected to continue to operate at good levels of service (LOS A and B, respectively).

It should be noted that the Cumulative Base forecasts represent traffic demand at each of the roadway segments and intersections under analysis. When streets or intersections become severely congested, traffic will generally choose another route. Since it is not possible to analyze all possible paths when distributing traffic and since it is of value to understand the magnitude of the demand and the potential "worst case" conditions, traffic projections at some locations may be unrealistically high. The levels of service projected for these locations may be unlikely to occur, but provide an indication of the magnitude of the potential problems.

Cumulative Plus Project Levels of Service

As indicated in Table 4.6-9, poor daily levels of service are projected under Cumulative Plus Project conditions for the same roadway segments (sections of Lake Mary Road, Main Street, Minaret Road, and Old Mammoth Road) which are projected to operate poorly under the Cumulative Base conditions. In addition, operating conditions along Main Street between Sierra Boulevard and Old Mammoth Road are projected to decline from a good LOS C to an unacceptable LOS D. The addition of Project-generated traffic would result in increases in the projected volume to capacity ratios at each of these locations. The streets which would be impacted most significantly by the proposed Project include Main Street (increases in V/C of 0.06 to 0.12), Minaret Road between Old Mammoth Road and Main Street (V/C increases of 0.11 to 0.35), and Old Mammoth Road (increases of 0.04 to 0.06). This indicates that, at these locations, the Project-generated traffic would utilize between approximately 4 percent (Old Mammoth Road between Meridian Boulevard and Main Street) to 35 percent (Minaret Road south of Main Street) of the daily roadway capacity.

As indicated in Table 4.6-8, poor PM peak-hour levels of service are projected under Cumulative Plus Project conditions for the same 11 intersections which are projected to operate poorly under the Cumulative Base conditions. The addition of Project-generated traffic would result in a decline in level of service from D to E at Old Mammoth Road/Main Street, Minaret Road/Meridian Boulevard and Mono Street/Meridian Boulevard, and from E to F at Minaret Road/Main Street. The project-generated traffic is projected to increase V/C ratios at the signalized intersections from between 0.02 (at Lakeview Road/Lake Mary Road) to 0.25 (at Minaret Road/Main Street), and would also contribute to declines in operating conditions at the

Table 4.6-9

WINTER WEEKEND DAILY STREET SEGMENT LEVELS OF SERVICE
CUMULATIVE PLUS PROJECT

LINK #	STREET	SEGMENT	# OF LANES	DAILY CAPACITY	CUMULATIVE PLUS PROJECT CONDITIONS		
					VOLUME	V/C	LOS
1.	Lake Mary Rd.	Lakeview Rd. to Minaret Rd.	2	12,500	15,900	1.27	F*
2.	Main St.	Minaret Rd. to Sierra Blvd.	4	25,000	29,200	1.17	F*
3.	Main St.	Forest Trail to Old Mammoth Rd.	5	30,000	25,900	0.86	D*
4.	Majestic Pines Dr.	n/o Meridian Blvd.	2	12,500	3,200	0.26	A
5.	Meridian Blvd.	Majestic Pines Dr. to Minaret Rd.	4	25,000	13,200	0.53	A
6.	Meridian Blvd.	Manzanita Rd. to Azimuth Dr.	4	25,000	15,900	0.64	B
7.	Minaret Rd.	Old Mammoth Rd. to Meadow Ln.	2	12,500	16,500	1.32	F*
8.	Minaret Rd.	Chateau Rd. to Meridian Blvd.	2	12,500	14,000	1.12	F*
9.	Minaret Rd.	n/o Meridian Blvd.	2	12,500	16,400	1.31	F*
10.	Minaret Rd.	s/o Main St.	2	12,500	18,900	1.51	F*
11.	Minaret Rd.	Berner St. to Forest Trail	5	30,000	16,700	0.56	A
12.	Old Mammoth Rd.	Chateau Rd. to Meridian Blvd.	3	17,500	20,300	1.16	F*
13.	Old Mammoth Rd.	Sierra Nevada Dr. to Tavern Rd.	3	17,500	21,200	1.21	F*

Note:
* Does not meet Town of Mammoth Lakes level of service standard.

unsignalized intersections. The intersections of Kelley Road/Lake Mary Road and Majestic Pines Drive/Meridian Boulevard are projected to continue to operate at good levels of service with the addition of Project traffic.

The traffic impact analysis determined that unacceptable levels of service would be experienced on peak winter Saturdays along portions of Lake Mary Road, Main Street, Minaret Road, and Old Mammoth Road on a daily basis and at 11 of the 14 analyzed intersections during the afternoon peak-hour, under both Cumulative Base and Cumulative Plus Project conditions. These conditions result from the substantial amount of new traffic which would be generated by thecumulative projects as well as by the proposed Project. The proposed Project is expected to contribute traffic to each of the locations which are projected to operate at poor levels of service under the cumulative conditions.

A series of street system improvements have been developed in an attempt to achieve acceptable operating conditions throughout the roadway system with the projected future traffic volumes. These mitigation measures are described below.

Mitigation Measures

4.6-1(a) *The project shall be required to contribute "in lieu" fees if transit system improvements are not implemented by the Town. It is anticipated that the continued need for certain roadway improvements and the level of developer financial participation in support of an improved transit system would be determined by the upcoming transit system study.*

4.6-1(b) *Minaret Road (Main Street/Lake Mary Road to south of Old Mammoth Road) - Dedicate and widen Minaret Road between Main Street/Lake Mary Road and a point just south of Old Mammoth Road to provide four travel lanes plus the necessary snow storage easement. This improvement is consistent with the designation of Minaret Road as an arterial in the Town General Plan.*

4.6-1(b) *Old Mammoth Road (Main Street to south of Chateau Road) - Restripe or widen Old Mammoth Road between Main Street and a point just south of Chateau Road to provide four travel lanes, and maintain the existing continuous left-turn lane. This improvement is consistent with the designation of Old Mammoth Road as an arterial in the Town General Plan.*

4.6-1(c) *Lake Mary Road (Main Street to Lakeview Road) - Widen Lake Mary Road between Main Street and Lakeview Road to provide four travel lanes. The outer westbound through lane within this road segment would become a forced right-turn lane at the intersection with Lakeview Road.*

4.6-1(d) *Main Street (Sierra Boulevard to Minaret Road) - Widen and restripe Main Street between Sierra Boulevard and Minaret Road to provide a two-way continuous left-turn lane in the median (consistent with the existing two-way continuous left-turn lane east of Sierra Boulevard).*

Intersection Improvements

4.6-1(e) *Minaret Road/Forest Trail - In addition to the traffic signal and other improvements proposed as part of the North Village Specific Plan circulation plan, widen Minaret Road just north of Forest Trail to provide two southbound lanes, resulting in one exclusive left-turn lane, one through lane, and a shared through/right-turn lane on the southbound Minaret approach to Forest Trail. Also, eliminate the constant eastbound right-turn arrow for traffic turning from eastbound Forest Trail to southbound Minaret which is proposed as part of the North Village Specific Plan circulation plan.*

4.6-1(f) *Lakeview Road/Lake Mary Road - In conjunction with the recommended widening of Lake Mary Road as described above, the following localized intersection improvements are required: widen or restripe the eastbound Lake Mary Road approach to provide one exclusive left-turn lane and one through lane (the second eastbound through lane recommended as part of the Lake Mary Road widening east of Lakeview Road would begin at Lakeview Road); widen the westbound Lake Mary Road approach to provide one through lane and one exclusive right-turn lane (the second westbound through lane recommended as part of the Lake Mary Road widening east of Lakeview Road would terminate as the forced right-turn lane at Lakeview Road); and formally stripe the southbound approach Lakeview Road approach to provide one exclusive left-turn lane and one shared left/right-turn lane. These improvements will be in addition to the installation of a traffic signal and grade reconstruction proposed as part of the North Village Specific Plan circulation plan.*

4.6-1(g) *Minaret Road/Main Street/Lake Mary Road - Widen the northbound Minaret approach to provide an exclusive right-turn lane. Restripe the southbound approach and northbound departure to provide the following configuration on the southbound Minaret approach: two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane. Restripe the westbound approach and eastbound departure to provide a second left-turn lane on the westbound Main approach. Also, modify the signal phasing to provide left-turn protected phases on the north and south approaches which will replace the existing split phasing on these approaches.*

4.6-1(h) *Sierra Boulevard/Main Street - Restripe Main Street to provide a left-turn lane on the eastbound approach (in conjunction with the recommended widening of Main Street to provide a two-way continuous left-turn lane between Sierra Boulevard and Minaret Road as described above). This will remove turning vehicles from the through traffic lanes and thus improve the overall operation of the intersection. However, installation of a traffic signal is not recommended, as the cumulative traffic volumes do not satisfy signal warrants (see Appendix E), and the projected poor level of service would be experienced only by stop-controlled vehicles waiting to turn left from Sierra onto Main.*

4.6-1(i) *Old Mammoth Road/Main Street - Restripe the northbound and eastbound approaches to provide the following configurations: one exclusive left-turn lane and one shared left/right-turn lane on the northbound Old Mammoth approach; one through lane, one shared through/right-turn lane, and one exclusive right-turn lane on the eastbound Main approach.*

4.6-1(j) *Minaret Road/Meridian Boulevard - In conjunction with the recommended widening of Minaret Road to four through lanes as described above, the following localized intersection improvements will be required: widen both the northbound and southbound Minaret approaches to provide one exclusive left-turn lane, one through lane, and one shared through/right-turn lane on each approach; and widen and/or restripe the eastbound approach Meridian to provide an exclusive right-turn lane. These improvements will be in addition to the exclusive left-turn lanes on the eastbound and westbound Meridian approaches and installation of a traffic signal programmed for implementation by the Town of Mammoth Lakes.*

4.6-1(k) *Mono Street/Meridian Boulevard - Widen and restripe Meridian Boulevard to provide left-turn lanes on both the eastbound and westbound approaches (consistent with the two-way continuous left-turn lane proposed for Meridian Boulevard as a project access improvement in Chapter VI). This will remove turning vehicles from the through traffic lanes and thus improve the overall operation of the intersection. However, installation of a traffic signal is not recommended, as the cumulative traffic volumes do not satisfy signal warrants, and the projected poor level of service will be experienced only by stop-controlled vehicles waiting to turn left from Mono onto Meridian.*

4.6-1(l) *Old Mammoth Road/Meridian Boulevard - In conjunction with the recommended widening of Old Mammoth Road as described above, the following localized intersection improvements will be required: restripe the southbound Old Mammoth approach to provide one exclusive left-turn lane, one through lane, and one shared through/right-turn lane; and widen the northbound Old Mammoth approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane.*

4.6-1(m) *Minaret Road/Chateau Road - In conjunction with the recommended widening of Minaret Road as described above, the following localized intersection improvements will be required: 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-turn/right-turn lane; and install a two-phase traffic signal (the cumulative traffic volumes satisfy traffic signal warrants).*

4.6-1(n) *Old Mammoth Road/Chateau Road - In conjunction with the recommended widening of Old Mammoth Road as described above, the following localized*

intersection improvements will be required: restripe the southbound Old Mammoth approach to provide one exclusive left-turn lane, one through lane, and one shared through/right-turn lane; widen the northbound Old Mammoth 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 (the cumulative traffic volumes satisfy traffic signal warrants).

4.6-1(o) *Minaret Road/Old Mammoth Road - In conjunction with the recommended widening of Minaret Road as described above, the following localized intersection improvements will be required: widen the northbound Minaret approach to provide one exclusive left-turn lane, one through lane and one shared through/right-turn lane; widen the southbound Minaret approach to provide one exclusive left-turn lane, two through lanes and one exclusive right-turn lane; widen the westbound Old Mammoth approach to provide two exclusive left-turn lanes, one through lane and one exclusive right-turn lane; widen the eastbound Old Mammoth approach to provide one exclusive left-turn lane, one through lane, and one exclusive right-turn lane; and install a traffic signal with overlapping left-turn phasing on the Old Mammoth approaches (the cumulative traffic volumes satisfy traffic signal warrants).*

Effect of Proposed Mitigation Measures

Assuming that Mitigation Measures 4.6-1(a) through 4.6-1(o) identified above would be implemented, each of the roadway segments would operate at acceptable levels of service (LOS C or better) on a peak winter weekend with the proposed roadway improvements, with the exception of the two analyzed segments of Main Street between Minaret Road and Old Mammoth Road (which are projected to operate at LOS D and E). And, each of the analyzed intersections would operate at acceptable levels of service during the winter weekend afternoon peak-hour with the proposed intersection improvements, with the following four exceptions (each of which is projected to operate at LOS E):

- Minaret Road/Main Street/Lake Mary Road
- Sierra Boulevard/Main Street
- Mono Street/Meridian Boulevard
- Old Mammoth Road/Meridian Boulevard

Further evaluation of the locations identified above which are projected to continue to operate at poor levels of service indicates that substantial additional physical improvements (such as widening Main Street to provide six through lanes or widening the Old Mammoth/Meridian Boulevard intersection into adjacent commercial parcels) would be needed which may not be feasible. At Sierra Boulevard/Main Street and Mono Street/Meridian Boulevard, traffic signals would be required to improve the poor levels of service projected for stop-controlled vehicles waiting to turn from the side street (Sierra or Mono) onto the major street (Main or Meridian). However, traffic signal warrants are not satisfied by the projected volumes at these locations,

indicating that the side street volumes would not be sufficient to justify the delays to and degradation of flows on the major street which would be incurred if a signal were to be installed. These results imply that, if the projected travel demands in fact materialize in the future, additional measures such as implementation of an extensive and successful public transit system would be needed to accommodate the peak winter weekend.

However, it should be recognized that the level of service projections in this study represent a conservative "worst case" scenario combining peak winter weekend traffic volumes with reduced capacities due to adverse weather and road surface conditions (snow and ice). Levels of service better than those projected would be experienced during most of the year, including the spring, summer, and fall months and winter weekdays, when lower traffic volumes are present on the roadway system. Better levels of service would also be experienced during peak winter weekends with "normal" (dry) roadway conditions, when the street and intersection capacities would be greater.

An evaluation was conducted of the projected winter weekend traffic volumes at these locations assuming typical capacities associated with "normal" (dry) roadway conditions to determine the potential levels of service which would be experienced when snow and ice conditions are not present. This evaluation determined that the two signalized intersections of Minaret Road/Main Street/Lake Mary Road and Old Mammoth Road/Meridian Boulevard, as well as the affected segments of Main Street on a daily basis, would operate at acceptable levels of service of C. Although poor levels of service would still be experienced by stop-controlled vehicles waiting to turn from the side street at the unsignalized intersections of Sierra Boulevard/Main Street and Mono Street/Meridian Boulevard, these results indicate that each of the analyzed street segments and signalized intersections throughout the Town would operate at acceptable levels of service with winter weekend traffic during "normal" surface conditions, assuming implementation of the series of mitigation measures recommended previously.

Proposed Project Contribution

In order to ascertain that portion of the cumulative mitigation measures which could be attributable to the proposed Project, an analysis was conducted to determine the percentage contribution of the proposed Project to the projected cumulative traffic volumes at each location.

As indicated in Table 4.6-10, the proposed Project is expected to contribute anywhere from 1 percent (on Lake Mary Road between Lakeview Road and Minaret Road) to 23 percent (on Minaret Road south of Main Street) of the total cumulative daily winter weekend traffic volumes on the roadway segments requiring mitigation. If existing background traffic is not considered in this analysis, the proposed Project would contribute anywhere from 3 percent (on Lake Mary Road between Lakeview Road and Minaret Road) to 32 percent (on Minaret Road south of Main Street) of the net incremental growth in cumulative future traffic volumes.

As indicated in Table 4.6-11, the proposed Project is projected to contribute between less than 1 percent (at Old Mammoth Road/Chateau Road) to 24 percent (at Mono Street/Meridian

Table 4.6-10

PERCENT CONTRIBUTION OF PROJECT TRAFFIC TO
CUMULATIVE WINTER WEEKEND DAILY TRAFFIC

LINK #	STREET	SEGMENT	PERCENT OF TOTAL CUMULATIVE TRAFFIC [a]			PERCENT OF CUMULATIVE TRAFFIC GROWTH [b]	
			LODESTAR	OTHER PROJECTS	EXISTING	LODESTAR	OTHER PROJECTS
1.	Lake Mary Rd.	Lakeview Rd. to Minaret Rd.	1%	24%	75%	3%	97%
2.	Main St.	Minaret Rd. to Sierra Blvd.	10%	38%	52%	22%	78%
3.	Main St.	Forest Trail to Old Mammoth Rd.	7%	34%	59%	18%	82%
4.	Majestic Pines Dr.	n/o Meridian Blvd.	*	3%	97%	*	100%
5.	Meridian Blvd.	Majestic Pines Dr. to Minaret Rd.	16%	48%	36%	25%	75%
6.	Meridian Blvd.	Manzanita Rd. to Azimuth Dr.	18%	23%	59%	44%	56%
7.	Minaret Rd.	Old Mammoth Rd. to Meadow Ln.	9%	52%	39%	15%	85%
8.	Minaret Rd.	Chateau Rd. to Meridian Blvd.	10%	61%	29%	14%	86%
9.	Minaret Rd.	n/o Meridian Blvd.	12%	58%	30%	18%	82%
10.	Minaret Rd.	s/o Main St.	23%	51%	26%	32%	68%
11.	Minaret Rd.	Berner St. to Forest Trail	2%	6%	92%	25%	75%
12.	Old Mammoth Rd.	Chateau Rd. to Meridian Blvd.	5%	54%	41%	8%	92%
13.	Old Mammoth Rd.	Sierra Nevada Dr. to Tavern Rd.	3%	37%	60%	8%	92%

Note:

a. Percent of total cumulative traffic volume, including existing traffic.

b. Percent of incremental increase in traffic, not including existing traffic.

* Less than one percent.

eip

Table 4.6-11

PERCENT CONTRIBUTION OF PROJECT TRAFFIC TO
CUMULATIVE WINTER WEEKEND PM PEAK HOUR TRAFFIC

Intersection	Percent of Total Cumulative Traffic[a]			Percent of Cumulative Traffic Growth[b]	
	Lodestar	Other Projects	Existing	Lodestar	Other Projects
1. Minaret Rd. & Forest Trail	4%	13%	83%	24%	76%
2. Minaret Rd. & Canyon Bl.	[c]	[c]	[c]	[c]	[c]
3. Kelley Rd. & Lake Mary Rd.	1%	17%	82%	7%	93%
4. Lakeview Rd. & Lake Mary Rd.	2%	10%	88%	19%	81%
5. Minaret Rd. & Main St.	12%	36%	52%	25%	75%
6. Sierra Bl. & Main St.	9%	19%	72%	31%	69%
7. Old Mammoth Rd. & Main St.	6%	24%	70%	20%	80%
8. Majestic Pines Dr. & Meridian Bl.	1%	28%	71%	4%	96%
9. Minaret Rd. & Meridian Bl.	20%	56%	24%	26%	74%
10. Mono St. & Meridian Bl.	24%	19%	57%	56%	44%
11. Old Mammoth Rd. & Meridian Bl.	8%	28%	64%	21%	79%
12. Minaret Rd. & Chateau Rd.	14%	67%	19%	18%	82%
13. Old Mammoth Rd. & Chateau Rd.	*	46%	54%	*	100%
14. Minaret Rd. & Old Mammoth Rd.	7%	67%	26%	10%	90%

Notes:

a. Percent of total cumulative traffic volume, including existing traffic.

b. Percent of incremental increase in traffic, not including existing traffic.

c. Intersection would be vacated in conjunction with proposed North Village Specific Plan improvements.

* Less than one percent.

Boulevard) of the total cumulative afternoon peak-hour winter weekend traffic volumes at the intersections requiring mitigation. Again, if existing background traffic is not considered in the analysis, the proposed Project contribution would range from less than 1 percent (at Old Mammoth Road/Chateau Road) to 56 percent (at Mono Street/Meridian Boulevard) of the net incremental increase in cumulative future traffic volumes.

Impact

4.6-2 **A review of projected daily and peak-hour traffic volumes on the proposed internal roadways serving the proposed Project site indicates that each of the streets would be adequate to accommodate the projected traffic volumes, as well as non-motorized traffic, at good levels of service with two through lanes (one in each direction). This is a *less-than-significant-impact.***

Mitigation Measures

4.6-2(a) *Each of the internal roadways providing access to the Lodestar Project site should be constructed to two-lane collector street standards.*

4.6-2(b) *The proposed internal cul-de-sacs shall be constructed to two-lane local street standards.*

4.6-2(c) *Facilities for pedestrians and bicycle traffic shall be provided. In addition, internal access and circulation for transit facilities shall be provided. These shall be consistent to the policies of ML. Policy 2C-4 and 2C-6 of the Town of Mammoth Lakes Parks and Recreation Element of the General Plan.*

Impact

4.6-3 **Traffic volumes at some proposed Project site access points intersections indicate that signalization will be required to maintain acceptable Levels of Service. This is a *significant impact.***

The projected peak-hour traffic volumes at the six Project access points were evaluated to determine the potential levels of service and to ascertain whether traffic signals would be warranted. The following table summarizes the results of this analysis:

TABLE 4.6-12
PEAK-HOUR TRAFFIC VOLUMES AT PROJECT ACCESS POINTS

Access # (Location)	Signal Warrants?	Service
1 (Minaret Road)	yes	A*
2 (Minaret Road)	yes	A*
3 (Meridian Boulevard)	no	E
4 (Meridian Boulevard)	no	E
5 (Meridian Boulevard)	no	D
6 (Meridian Boulevard)	no	D

* assuming signalization

As indicated in the table, the projected traffic volumes at access numbers 1 and 2 would be sufficient to warrant installation of traffic signals. Both of these locations would operate under very poor conditions without signalization (LOS E at access number 1 and LOS F at access number 2), and both would operate at excellent levels of service (LOS A) assuming signalization.

The projected traffic volumes at access numbers 3 through 6 would not be sufficient to satisfy signal warrants. Since the projected, poor LOS of D or E at these locations would be experienced only by stop-controlled vehicles waiting to exit the Project site and turn left onto Meridian Boulevard, with good levels of service experienced by all other movements at the intersections, it is recommended that traffic signals not be installed (the close spacing of traffic signals at these locations, if they were to be installed, would likely result in a degradation of level of service along Meridian Boulevard itself). Rather, it is recommended that Meridian Boulevard be widened and restriped to provide a two-way continuous left-turn lane along the entire proposed Project frontage, from west of access number 3 to east of Manzanita Road. This would remove turning vehicles from the through traffic lanes and thus improve the overall operation of the intersections along Meridian Boulevard.

Mitigation Measure

Implementation of Mitigation Measures 4.6-3(a) through 4.6-3(e) will reduce Project impacts at Project access points to a less-than-significant level.

4.6-3(a) *Traffic signals shall be installed at access numbers 1 and 2 onto Minaret Road (See Figure 4.6-2). Left-turn storage pockets shall be provided on the southbound Minaret approach to access number 1, and on both the northbound and southbound approaches to access number 2. Two approach (outbound) lanes and one departure (inbound) lane shall be provided on each access road. At access number 1, the outbound lanes shall be striped as one left-turn and one right-turn lane. At access number 2, the outbound lanes shall be striped as one left-turn*

lane and one shared through/right-turn lane. All roadway improvements shall be designed and constructed in accordance with Town of Mammoth Lakes roadway standards, subject to approval of the public Works Director.

4.6-3(b) *The four access points onto Meridian Boulevard shall be controlled by stop signs on the project access approaches, with uncontrolled traffic flows along Meridian. Two approach (outbound) lanes and one departure (inbound) lane shall be provided on each access road, with the outbound lanes striped as one left-turn and one right-turn lane. All roadway improvements shall be designed and constructed in accordance with Town of Mammoth Lakes roadway standards, subject to approval of the public Works Director.*

4.6-3(c) *Access number 6 (from Lodestar Area 3 to Meridian Boulevard) shall be aligned directly opposite the existing Joaquin Road, to form a four-way intersection rather than two slightly offset "T" intersections. Through movements from the access road onto Joaquin Road shall be permitted from the right-most approach (outbound) lane on the access road. All roadway improvements shall be designed and constructed in accordance with Town of Mammoth Lakes roadway standards, subject to approval of the public Works Director.*

4.6-3(d) *Access number 5 (from Areas 2 and 4 to Meridian Boulevard) shall be located as close as possible to the midpoint between Minaret Road and Joaquin Road/access number 6, to maximize the spacing between the three adjacent intersections. All roadway improvements shall be designed and constructed in accordance with Town of Mammoth Lakes roadway standards, subject to approval of the public Works Director.*

4.6-3(e) *Meridian Boulevard, along the entire proposed Project frontage, shall be widened to provide a two-way continuous left-turn lane, thus providing left-turn storage on Meridian Boulevard at each of the proposed project access roads (access numbers 3, 4, 5 and 6), as well as at the existing intersections of Meridian Boulevard with Villa Vista Drive, Joaquin Road, Lupin Street, Mono Street and Manzanita Road. All roadway improvements shall be designed and constructed in accordance with Town of Mammoth Lakes roadway standards, subject to approval of the public Works Director.*

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4.7 AIR QUALITY

4.7 AIR QUALITY

INTRODUCTION

This section of the Final EIR evaluates the potential impacts on air quality resulting from the construction and operation of the proposed Project. Where appropriate, mitigation measures are proposed that will reduce or eliminate significant or potentially significant air quality impacts.

SETTING

Climate

The proposed Lodestar Project site is located in Mono County. The climate of Mono County is dry with clear skies, excellent visibility, hot summers, and wide fluctuations in daily temperatures. Typically, 70 percent of the precipitation occurs between November and February. The average minimum temperature is in the upper 20s with the average maximums in the mid- to high 50s. Spring is the windiest season with fast-moving northerly weather fronts. Summer winds are northerly at night as a result of cool air draining off the mountain sides. Southerly winds during the day result from strong solar heating of the mountain slopes causing upslope circulation. The mean annual wind speed in Mammoth Lakes is less than 11 mph.[1] Wind speeds just outside of Mammoth Lakes at elevations of 8,900 ft. and 7,800 ft. showed mean annual wind speeds of 21.7 and 11.5 mph, respectively.

Regulatory Background

Criteria Pollutants

The 1970 Clean Air Act gave the U.S. Environmental Protection Agency (EPA) the authority to set federal ambient air quality standards. The Act indicated the need for primary standards to protect public health and secondary standards to protect public welfare from air pollution effects such as visibility reduction, soiling, nuisance, and other forms of damage. It also required that the federal standards be designed to protect those people most susceptible to respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by illness, and persons engaged in strenuous work or exercise (all termed "sensitive receptors"). In 1971, the EPA established federal standards for five major criteria[2] air pollutants: photochemical oxidants (ozone), carbon monoxide (CO), suspended particulate matter (originally the standard applied to particulates of any diameter, termed total suspended particulates or TSP, but the standard was

changed in 1987 to apply only to particulates less than 10 microns in diameter (termed PM_{10}), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). State ambient air quality standards were first established for California in 1969, pursuant to the Mulford-Carrell Act. The federal and State standards, given in Table 4.7-1, provide acceptable concentrations for specific contaminant levels in order to protect sensitive receptors from adverse effects as indicated in Table 4.7-2.

The 1977 Clean Air Act Amendments required that each state identify areas within its borders that do not meet federal primary standards for criteria pollutants (i.e., non-attainment areas) and devise a State Implementation Plan (SIP), subject to EPA approval, to attain federal primary standards no later than 1987. The California standards do not have specific attainment dates.

The California Air Resources Board (CARB) coordinates and oversees both federal and State air pollution control programs in California. As part of this responsibility, the CARB monitors existing air quality, establishes State air quality standards (which in many cases are more stringent than federal standards, as shown in Table 4.7-1), limits allowable emissions from vehicular sources, and is responsible for overseeing the SIP. The CARB has divided the State into many single- and multi-county air basins. Authority for air quality management within each air basin has been given to local Air Quality Management Districts which develop local attainment plans within their jurisdiction. The CARB has designated the Great Basin Valley Air Basin (GBVAB) under the jurisdiction of the Great Basin Unified Air Pollution Control District (GBUAPCD).

Air Quality Planning and Control in the GBUAPCD

Air quality in Mammoth Lakes is monitored by the GBUAPCD located in Bishop, California. The airshed above Mammoth Lakes is part of the GBVAB. GBVAB consists of Inyo, Mono, and Alpine Counties, which is the same as the jurisdiction of the GBUAPCD. The GBVAB is defined by the Sierra Nevada mountain range to the west; the White, Inyo, and Coso ranges to the east; Mono Lake to the north; and Little Lake to the south.

Spot monitoring in the GBVAB, conducted by the California Air Resources Board (CARB) in 1972, identified particulates as the most likely air quality problem. Monitoring for particulates by the GBUAPCD began in 1979 with 18 sites monitoring particulates. Currently, there are 12 sites in the GBVAB monitoring particulates, all of which have been modified to monitor PM_{10}.

A Draft Air Quality Management Plan (Plan) for the Town of Mammoth Lakes was released on January 19, 1990 to identify PM_{10} sources and mitigation measures which may be instituted to attain National Ambient Air Quality Standards. The Plan, prepared by the GBUAPCD, is required under the federal Clean Air Act and will become part of the State Implementation Plan to attain federal standards.

TABLE 4.7-1
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Federal Primary Standard	Federal Secondary Standard	California Standard
Ozone	1-Hour	0.12 ppm	0.12 ppm	0.09 ppm
Carbon Monoxide	1-Hour	35.0 ppm	35.0 ppm	20.0 ppm
	8-Hour	9.0 ppm	9.0 ppm	9.0 ppm
Nitrogen Dioxide	1-Hour	---	---	0.25 ppm
	Annual	0.053 ppm	0.053 ppm	---
Sulfur Dioxide	1-Hour	---	---	0.25 ppm
	3-Hour	---	0.5 ppm	---
	24-Hour	0.14 ppm	---	0.05 ppm
	Annual	0.03 ppm	---	---
PM_{10}	24-Hour	150.0 ug/m^3	150.0 ug/m^3	50.0 ug/m^3
	Annual	50.0 ug/m^3	---	30.0 ug/m^3
Lead	30 Day Avg.	---	---	1.5 ug/m^3
	Calendar Quarter	1.5 ug/m^3	1.5 ug/m^3	---

ppm = parts per million, ug/m^3 = micrograms per cubic meter.

Note: The Federal PM_{10} Annual Standard is based on the Arithmetic Mean and the State PM_{10} Annual Standard is based on the Geometric Mean.

Source: California Air Resources Board.

TABLE 4.7-2

HEALTH EFFECTS SUMMARY OF THE CRITERIA AIR POLLUTANTS

Air Pollutant	Adverse Effects
Ozone	■ eye irritation ■ respiratory function impairment
Carbon Monoxide	■ impairment of oxygen transport in the bloodstream, increase of carboxyhemoglobin ■ aggravation of cardiovascular disease ■ impairment of central nervous system function ■ fatigue, headache, confusion, dizziness ■ can be fatal in the case of very high concentrations in enclosed places
Nitrogen Dioxide	■ risk of acute and chronic respiratory illness
Sulfur Dioxide	■ aggravation of chronic obstruction lung disease ■ increased risk of acute and chronic respiratory illness
Total Suspended Particulate	■ increased risk of chronic respiratory illness with long exposure ■ altered lung function in children ■ with SO_2, may produce acute illness
PM_{10}	■ particulate matter 10 microns or less in size (PM_{10}) which may be inhaled, and possibly lodge in and/or irritate the lungs
Lead	■ impairment of blood function and nerve construction ■ behavioral and learning problems in children

Source: Bay Area Air Quality Management District.

The Plan identifies exceedances of the PM_{10} standard as occurring in the winter and associates the exceedances with increased emissions from wood stoves, fireplaces, and traffic-related road dust and cinders. These increased emissions result from the large influx of visitors who come to Mammoth Lakes during the ski season. Periods of meteorological stagnation combined with peak periods of the ski season result in violations of the PM_{10} standards.

The Town of Mammoth Lakes has already taken action to reduce the PM_{10} emissions from road dust and cinders by operating a vacuum street sweeper. The Town of Mammoth Lakes is currently considering adoption of an ordinance (The Town of Mammoth Lakes Draft Air Quality Management Plan) to address the control of residential wood combustion and related PM_{10} emissions. All control measures suggested in the Plan are listed in Table 4.7-3.

Air Pollutant Problems and Trends - Mammoth Lakes and Project Vicinity

The GBUAPCD operates a regional air quality monitoring network in order to gauge the GBVAB's progress toward attainment of federal and State ambient air quality standards. At monitoring stations throughout this network, readings are taken regularly of criteria air pollutants. On the basis of monitoring data from the 14 stations spread throughout the GBVAB, the CARB has designated the entire GBVAB as a non-attainment area with respect to the State and federal PM_{10} standards and State ozone standards.

A 3-year summary of the data collected at the Mammoth Lakes - Gateway Home Center station is shown in Table 4.7-4. The data in Table 4.7-4 reveals an increase in the number of days of ozone exceedances over the last three years. The number of days of actual exceedances of the PM_{10} 24-hour standard, as well as the annual geometric mean, have also risen steadily. Because PM_{10} measurements are only taken once every six days, the number of exceedances could actually be higher. Exceedances of the federal 24-hour PM_{10} standard have been estimated to occur on an average of 9.5 times during each of the last four winter seasons.[3]

Exceedances of the ozone standard have occurred predominantly at night[4]. Because ozone requires sunlight to form, high levels of ozone in Mammoth Lakes have been hypothesized to result from transport of pollutants rather than local sources. The Northern San Joaquin Valley and the Mountain Counties Air Basin are currently under investigation by the CARB to determine their potential for contributing to exceedances of the ozone standard in Mammoth Lakes.

TABLE 4.7-3

CONTROL MEASURES LISTED IN THE TOWN OF MAMMOTH LAKES DRAFT AIR QUALITY MANAGEMENT PLAN

Measure Number	Control Measure
1.	Use vacuum street sweeper for cinders and road dust.
2.	Reduce vehicle traffic.
3.	Institute a public awareness program for wood burning.
4.	Wood stove replacement.
4.a.	Require replacement or removal of non-certified wood stoves upon resale of dwelling.
4.b.	Limit installation of wood stoves after July 1, 1990 to EPA Phase II Certified or pellet stoves.
5.	Fireplace phase-out.
5.a.	Ban fireplaces in new dwellings.
5.b.	Require transient occupancy units to render fireplaces inoperable or to replace with a gas burner or pellet stove.
5.c.	Require fireplaces to be rendered inoperable or replaced with a gas burner or pellet stove upon resale of dwelling.
6.	Wood burning performance.
6.a.	Require certification for wood stove installers.
6.b.	Require a 20 percent wood moisture limit for wood retailers.
6.c.	Prohibit trash and coal burning in wood stoves.
6.d.	Set 20 percent opacity limit for wood burning.
7.	Curtail wood burning during air pollution episodes.
7.a.	Institute a voluntary wood burning ban during periods of poor air quality.
7.b.	Institute a mandatory wood burning ban when continued stove use is expected to cause a federal PM_{10} standard violation.

Source: Draft Air Quality Management Plan for the Town of Mammoth Lakes, January 19, 1990.

TABLE 4.7-4

AIR POLLUTANT DATA SUMMARY 1985-1987[1]

Pollutant	1986	1987	1988
OZONE: (ppm)			
Highest 1-hour	0.10*	0.10*	0.10
Days > 0.09	3	4	5
CARBON MONOXIDE: (ppm)			
Highest 1-hour	9.0*	9.0	11.0
Days > 20.0	0	0	0
Highest 8-hour	4.6*	6.4	6.0
Days ≥ 9.1	0	0	0
PM_{10}: (ug/m^3)			
Highest 24-hour	166	110	159
Samples > 50	4	14	15
Annual Geometric Mean	23.4	31.0	36.7*
Year > 30	No	Yes	Yes

[1] STATION: Mammoth Lakes - Gateway Home Center

Notes: Highest recorded values for specific averaging times are followed by number of exceedances of the California state standards for each of the criteria pollutants.

* Data presented are valid, but incomplete in that an insufficient number of valid data points were collected to meet EPA and/or ARB criteria for statistical significance.

Units - ppm: parts per million; ug/m^3: microgram per cubic meter
NM: not monitored

Source: California Air Resources Board, Air Quality Data Summary, 1986-1988.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

Air quality impacts can be classified as having effects either on a regional or local scale. The CEQA Guidelines indicate that a project will have a significant effect if it would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. Impacts that would violate federal standards, i.e., primary standards designed to safeguard sensitive receptors or secondary standards to safeguard public health, or State standards developed by CARB are considered significant impacts. Additionally, a project would be considered to have significant impacts if it would violate any GBUAPCD standard.

Methodology

PM_{10} emissions resulting from construction-generated dust were estimated using EPA measurements made during apartment and shopping center construction in order to provide a rough indication of the maximum rate of particulate emissions. These measurements indicate that approximately 1,089 kg (1.2 tons) of dust are emitted per acre per month of construction activity.[5]

Traffic-related PM_{10} emissions were calculated using the same methodology as described in the Draft AQMP for Mammoth Lakes, Sections 3.2 and 3.3. Traffic generated by the proposed Project was estimated at 61,811 Vehicle Kilometers Travelled (VKT) daily. The VKT was obtained using California Department of Transportation trip generation rates for the different land uses proposed and average trip lengths of 3 miles per trip.

Construction Impacts

Impact

4.7-1 Construction in the area of the proposed site will temporarily increase PM_{10} concentrations and could lead to violations of the federal and State 24-hour average PM_{10} standards. This is a *potentially significant impact.*

Clearing, excavation and grading operations, construction vehicle traffic on unpaved ground, and wind blowing over exposed earth surfaces generate dust. It is not possible to estimate accurately the PM_{10} concentrations that would occur at or adjacent to the construction sites because such concentrations are very sensitive to local meteorology and topography, to variations in soil silt and moisture content, and to the level of equipment use. However, one-half of the dust would be comprised of large particles (i.e., diameter greater than 10 microns) which settle out rapidly on nearby horizontal surfaces and are easily filtered by human breathing passages. This dust is of concern as a soiling nuisance rather than a health hazard.

The remaining half (PM_{10}) could be sufficient to violate the federal and State PM_{10} standards in the site vicinity.

Mitigation Measures

Implementation of Mitigation Measure 4.7-1 will reduce Project impacts to a less-than-significant level.

4.7-1(a) *To reduce the potential for nuisance due to dust and odors, all construction contracts shall require watering twice daily with complete site coverage; the frequency of watering shall increase as necessary to minimize dust if wind speeds exceed 15 mph.*

4.7-1(b) *Drift fencing tackifiers and covering of stockpiles shall be used in areas not under active construction.*

Dust emissions related to construction can be reduced approximately 50 percent by watering exposed earth surfaces during excavation, grading and construction activities.[6] Conditions of approval shall also require daily cleanup of mud and dust carried onto street surfaces by construction vehicles. Throughout construction activities, haul trucks should use tarpaulins or other effective covers. Construction of dust control measures should include physical barriers as well as watering. These measures include drift fencing and covering of stockpiled soil with tarpaulins. Upon completion of construction, contractors should take measures to reduce wind erosion. Replanting and repaving should be completed as soon as possible. Construction activities should be scheduled so that they do not contribute to peak periods of woodburning and vehicular traffic, previously discussed as major contributors to PM_{10} exceedances.

Impact

4.7-2 **Operation of construction vehicles and equipment during the construction phase of the proposed Project could result in violations of federal and State 1-hour and 8-hour CO standards. This is a *short-term, potentially significant impact* during the construction phase of the proposed Project only.**

Large numbers of such vehicles and equipment operating or idling in a small area may cause spot violations of the federal and State CO standards. Construction equipment exhaust odors would probably be noticeable in the vicinity of the Project site for the duration of construction.

Mitigation Measure

Implementation of Mitigation Measure 4.7-2 will reduce Project impacts to a less-than-significant level.

4.7-2 *To reduce the potential of spot violations of the CO standards and odors from construction equipment exhaust, unnecessary idling of construction equipment shall be avoided.*

Traffic Impacts

Carbon Monoxide "Hot Spots"

Impact

4.7-3 **Emissions from vehicular traffic generated by the proposed Project could result in violations of federal and State ambient quality standards. This is a *potentially significant impact.***

By generating additional traffic in the Town of Mammoth Lakes, the proposed Project would affect local traffic patterns and, thereby, change the local spatial and temporal distributions of ambient CO. Local air quality effects were estimated by using the CALINE4 air pollutant dispersion model to determine if the proposed Project would cause any exceedances of the 1-hour or 8-hour federal or State CO standards (see Table 4.7-1). The federal 1-hour and 8-hour primary CO standards are 35.0 ppm and 9.0 ppm, respectively. The federal 1-hour and 8-hour secondary CO standards are 35.0 ppm and 9.0 ppm, respectively. The State 1-hour and 8-hour CO standards are 20.0 ppm and 9.0 ppm, respectively.

Table 4.7-5 shows existing and future worst-case curbside CO concentrations expected at six intersections where Project traffic is expected to have the greatest impact. As shown in the table, the potential for existing and future violations of the State's 9 ppm 8-hour CO standard exists only at the intersection of Old Mammoth and Main. The Old Mammoth and Main intersection currently has the potential to exceed the 8-hour CO standard. Combined traffic impacts from cumulative development plus the proposed Project at buildout could also exceed the 8-hour CO standards for receptors at the roadside. A sensitivity analysis showed that CO levels at this intersection dropped rapidly as receptors were moved away from the intersection. At a receptor distance of 50 feet from the roadside, CO concentrations were determined to be well below the standards. Cumulative development without the proposed Project did not show the potential for exceedances of the CO standards at any of the intersections analyzed. No exceedances of the 1-hour CO standard are projected as a result of the proposed Project or cumulative development.

TABLE 4.7-5

PREDICTED ROADSIDE CARBON MONOXIDE CONCENTRATIONS (IN PPM)[1]

Location	Averaging Time	Existing 1990	Cumulative 2010	Cumulative + Project 2010
1. Minaret/ Main	1-hr.	14.6	15.0	14.9
	8-hr.	8.5	8.8	8.7
2. Sierra/ Main	1-hr.	13.2	12.9	13.5
	8-hr.	7.5	7.3	7.8
3. Old Mammoth/ Main	1-hr.	15.5	14.2	15.6
	8-hr.	**9.2**	**9.2**	**9.2**[2]
4. Minaret/ Meridian	1-hr.	10.2	13.5	14.2
	8-hr.	5.5	7.8	8.2
5. Old Mammoth/ Meridian	1-hr.	14.7	14.0	14.3
	8-hr.	8.6	8.1	8.3
6. Old Mammoth/ Minaret	1-hr.	10.2	14.9	13.9
	8-hr.	5.4	8.7	8.0
Backgrounds	1-hr.	10.0	10.0	10.0
	8-hr.	5.3	5.3	5.3
Standards	1-hr.	20.0	20.0	20.0
	8-hr.	9.0	9.0	9.0

[1] The tabulated concentrations are the sums of a background component, which includes the cumulative effects of all CO sources in the Project vicinity, and a local component, which reflects the effects of vehicular traffic on roadways. Background components were obtained from the *Air Quality and Urban Development Guidelines for Assessing Impacts of Projects and Plans*, BAAQMD, Revised April 1988. Local CO components were derived from the CALINE4 computer program, assuming worst-case conditions at the intersections. Traffic data was provided by the City of Fremont.

[2] At a distance of 50 feet from curbside the 8-hour CO concentration would be 8.4 ppm.

NOTE: Violations of the federal and State 1-hour and 8-hour standards are shown in bold, underlined typeface.

Mitigation Measure

Implementation of Mitigation Measure 4.7-3 will reduce Project impacts to a less-than-significant level.

4.7-3 *Development will not be allowed within 50 feet of the Old Mammoth and Main intersection.*

A 50-foot open space buffer around the Old Mammoth and Main intersection will reduce the potential for exposure of individuals to elevated CO concentrations.

PM_{10} Emissions

Impact

4.7-4 **Re-suspended road cinders and vehicle tail pipe and tire wear will contribute approximately 1,400 kg/day to the total PM_{10} emissions inventory at buildout of the proposed Project. This is a *significant impact.***

Re-suspended road cinders contributed to 99 percent of the projected PM_{10} emissions from vehicular sources. The proposed Project would increase annual vehicular PM_{10} emissions by 58 percent. In the year 2005 the proposed Project would contribute approximately 26 percent of the daily vehicular emissions of PM_{10}. Because the proposed Project is in a non-attainment area for PM_{10}, any increase in emissions of this pollutant would be a significant impact on air quality. Therefore, the proposed Project would have a significant impact on air quality with respect to PM_{10} emissions from vehicular sources.

Mitigation Measures

Implementation of Mitigation Measure 4.7-4 will reduce Project PM_{10} emissions impacts to a less-than-significant level.

4.7-4 *Adopt and enforce Control Measures 1 through 7 of the Town of Mammoth Lakes Draft Air Quality Management Plan (see page 4.7-6).*

The Plan aims to limit vehicular traffic in the Town of Mammoth Lakes to 106,600 VMT, which is 40,320 VMT more than the present peak traffic estimates. The proposed Project without any transportation plans would increase the VMT by approximately 38,000. To attain the goals of this mitigation measure, the Plan will call on future development projects, such as the proposed Project, to implement transportation plans. Potential reductions from the above measures are illustrated in Table 4.7-6 for the years 1993, 1995, 2000, and 2005. All vehicle trip reduction measures described in the traffic section, as well as those described in the Plan, shall be implemented.

TABLE 4.7-6

ESTIMATED DAILY PEAK PM_{10} FROM CUMULATIVE DEVELOPMENT

	1993	1995	2000	2005
Uncontrolled Concentrations (ug/m^3)	244	267	324	381
Total Reductions Needed (ug/m^3)	94	117	174	231

	Ambient Reductions (ug/m^3)			
Control Measure	1993	1995	2000	2005
1. Vacuum Streets	35	38	44	51
2.a. Increase Mass Transit (reduce exhaust)	0	0	0	0
2.b. Increase Mass Transit (reduce cinders)	11	19	38	57
4.a. Remove Stove Upon Resale	6	10	19	29
4.b. Install Phase II Certified Stoves (1990)	0	0	1	1
5.a. Ban New Fireplaces	8	13	26	39
5.b. Ban Existing Fireplaces in Rental Units	20	20	20	20
5.c. Ban Existing Fireplaces Upon Home Resale	6	10	21	31
6.a. Certify Stove Installers	1	1	2	3
6.b. Limit Wood Moisture	4	4	3	2
7.a. Voluntary Wood Burning Ban	8	7	6	4
7.b. Mandatory Wood Burning Ban	32	29	24	18
Total Reductions Without 7.b.	99	122	180	237
Total Reductions With 7.b. (= all measures)	123	144	198	251
Total Concentrations Without 7.b.	145	145	144	144
Total Concentrations With 7.b. (= all measures)	121	123	126	130

Source: *Draft Air Quality Management Plan for the Town of Mammoth Lakes*, GBUAPCD, January 19, 1990.

Woodburning Impacts

Impact

4.7-5 At buildout of the proposed Project, in 2005, the contribution of PM_{10} from woodburning will be approximately 22.7 Mg[7] annually, and for a worst-case day approximately 277 kg. This is a *significant impact.*

These calculations assume that all proposed units will have EPA-certified woodburning stoves. The proposed Project would increase annual PM_{10} emissions by 18 percent above the current annual emissions from residential wood combustion. In the year 2005 the proposed Project would contribute approximately eight percent of the daily emissions of PM_{10} from fireplaces and wood stoves/inserts. Because the proposed Project is in a non-attainment area for PM_{10} any increase in emissions of this pollutant would be a significant impact on air quality. Therefore, the proposed Project would have a significant impact on air quality with respect to PM_{10} emissions from woodburning related to the Project.

Based on the projected growth analysis conducted in the Town of Mammoth Lakes Draft Air Quality Management Plan, implementation of all Control Measures with the exception of Measure 7.b. would bring PM_{10} emissions into compliance. Table 4.7-6 shows the cumulative impact of PM_{10} emissions from development through the year 2005 and the anticipated reductions resulting from implementation of the Control Measures presented in Table 4.7-3. The proposed Project was included in the emissions inventory of the Plan and therefore is represented as part of the cumulative development anticipated in the Town of Mammoth Lakes.

Mitigation Measures

To be consistent with the Plan, and reduce Project impacts to less-than-significant levels, the proposed Project will need to apply the following restrictions to wood burning:

4.7-5(a) *Residential units shall be limited to one woodburning appliance per dwelling. The appliance must be an EPA Phase II-certified woodburning stove or pellet stove. Wood burning shall comply with standards in the Town's "wood burning" ordinance* (Chapter 8.30, Particulate Emissions Regulations).

4.7-5(b) *Each hotel may have only one fireplace in the lobby or other common area. No other solid fuel appliances shall be allowed.*

4.7-5(c) *All structures shall have high-efficiency central heat.*

CUMULATIVE IMPACTS

The proposed Project will contribute to an increase in the degradation of the general air quality in the Town. Since both population and vehicular traffic will increase as a result of the buildout of the proposed Project, the release of pollutants will correspondingly increase. The changes in the level of pollutants from the proposed Project and other proposed cumulative development are summarized in Tables 4.7-5 and 4.7-6. The increases in PM_{10} emissions from cumulative development are significant, with and without the proposed Project. However, the Traffic Element of the Town of Mammoth Lakes General Plan calls for transportation systems management measures to reduce peak-hour trip generation. Implementation of these measures will reduce the cumulative impact on ambient air quality.

AIR QUALITY ENDNOTES

1. California Energy Commission, *Wind Atlas*, April 1985.

2. Acceptable concentration levels for some pollutants are chosen after careful review of available data on health effects. Pollutants subject to federal ambient standards are referred to as criteria pollutants because the EPA publishes criteria documents to justify the choice of standards.

3. Great Basin Unified Air Pollution Control District, *Draft Air Quality Management Plan for the Town of Mammoth Lakes*, January 19,1990.

4. California Air Resources Board, *Proposed Identification of Districts Affected by Transported Air Pollutants which Contribute to Violations of the State Ambient Air Quality Standard for Ozone*, October 1989.

5. The particulate emission factor was obtained from *Air Quality and Urban Development*, Bay Area Air Quality Management District, November 1985, Table VI-C-2,p. VI-18.

6. U.S. Environmental Protection Agency, *Compilation of Air Pollutant Emission Factors, AP-42*, Third Edition, August 1977, p. 11.2.4-1.

7. Mg is defined as one million grams.

4.8 NOISE

4.8 NOISE

INTRODUCTION

This section of the Final EIR evaluates the potential impacts of noise resulting from the construction and operation of the proposed project. Where appropriate, mitigation measures are suggested that could minimize or eliminate potential noise impacts.

SETTING

The human response to environmental noise is subjective and varies considerably from individual to individual. The effects of noise can range from interference with sleep, concentration, and communication, to the causation of physiological and psychological stress and, at higher intensity levels, to hearing loss. Several examples of the noise levels associated with common situations are listed in Table 4.8-1, given in A-Weighted decibels (abbreviated dBA). The decibel is a measure of sound pressure or loudness closely attuned to the frequency response of the human ear.

Environmental noise fluctuates in intensity over time, and several descriptors of time-averaged noise levels are in use. The three most commonly used are L_{eq}, L_{dn}, and CNEL. L_{eq}, the energy equivalent noise level, is a measure of the average energy content (intensity) of noise over any given period of time. L_{dn}, the day/night average noise level, is the 24-hour average of the noise intensity, with a 10 Db "penalty" added for nighttime noise (10:00 PM to 7:00 AM) to account for the greater sensitivity to noise during this period. CNEL, the community noise equivalent level, is similar to L_{dn}, but adds a 5 dB penalty to evening noise (7:00 PM to 10:00 PM). In situations where motor vehicles are the dominant source of noise, a useful rule of thumb for relating these three quantities is to remember that the L_{eq} for the peak commute hour is usually about equal to the L_{dn} and CNEL.

Regulatory Background

In order to limit population exposure to physically and/or psychologically damaging noise levels, the State of California, the various County governments, and most municipalities in the State have established standards and ordinances to control noise. The California Department of Health Services' (DHS) Office of Noise Control has studied the correlation of noise levels and their effects on different land uses. A summary of Land Use Compatibility Standards for Community Noise is presented in Table 4.8-2. Table 4.8-2 shows the noise levels (in this case, L_{dn}) below

TABLE 4.8-1

TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND IN THE INDUSTRY

At a Given Distance From Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Impression
	140		
Civil Defense Siren (100')	130		
			Pain
Jet Takeoff (200')	120		Threshold
	110	Rock Music Concert	
Pile Driver (50')	100		Very
Ambulance Siren (100')			Loud
	90	Boiler Room	
Freight Cars (50')		Printing Press Plant	
Pneumatic Drill (50')	80	In Kitchen with Garbage Disposal Running	
	70		Moderately Loud
Vacuum Cleaner (10')	60	Data Processing Center	
Department Store			
Light Traffic (100')	50	Private Business Office	
Large Transformer (200')			
	40		Quiet
Soft Whisper (5')	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing
	0		

Source: *Handbook of Noise Measurement* by Arnold P. G. Peterson and Ervin E. Gross, Jr., 1963.

which the land use would be compatible with the exterior noise environment with no special noise insulation requirements (e.g., for residential uses, this would be an L_{dn} of 60 dB). Table 4.8-2 also shows the noise levels above which the identified land use would be considered incompatible due to the difficulty of providing the needed noise insulation (e.g., for residential uses, this would be an L_{dn} of 75 dB). Table 4.8-2 indicates that there is often a large range of exterior noise levels in which different land uses could be made compatible if necessary noise reduction features are included in the design of a proposed project (e.g., for residential uses, L_{dn} levels ranging from 60 dB to 75 dB could be accommodated by installing adequate insulation).

The Town of Mammoth Lakes has adopted noise guidelines as part of the Noise Element of its General Plan. The noise guidelines state that a "normally acceptable" L_{dn} should not exceed 60 dB for detached housing, and 65 dB for multi-family buildings. The Town has adopted the Mono County Noise Regulations which also have specific noise limit standards, as set forth in Municipal Code Chapter 10.16. In addition to establishing exterior noise limits, Chapter 10.16 restricts construction noise and the hours during which it may occur.

Title 24 of the California Administrative Code establishes standards governing interior noise levels that apply to all new multi-family residential units in California. These standards require that acoustical studies be performed prior to construction at building locations where the existing L_{dn} exceeds 60 dB. Such acoustical studies are required to establish mitigation measures that will limit maximum L_{dn} noise levels to 45 dB in any inhabitable room. Although there are no generally applicable interior noise standards pertinent to all uses, many communities in California have adopted an L_{dn} of 45 dB as an upper limit on interior noise in all residential units.

Town of Mammoth Lakes Noise Environment

The major source of noise in the Town of Mammoth Lakes is motor vehicles. Based on the Noise Element of the General Plan, Main Street, east of Minaret Road, is the only source of traffic noise that generates noise above 65 dB. Levels of up to 75 dB have been recorded at the intersection of Main Street and Old Mammoth Road. Vehicles using other streets, including Lake Mary Road, Meridian Boulevard, Forest Trail and Sierra Park Road, contribute significantly to the total ambient noise level. The remainder of the ambient noise is produced by aircraft overflights from the Mammoth/June Lakes Airport, recreational vehicles including snowmobiles and off-road motorcycles, and construction operations.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

CEQA indicates that a project will normally result in a significant adverse noise impact if it causes a substantial increase in the ambient noise level in areas sensitive to noise adjacent to the project site. The potential for significant impacts also exists where land use compatibility

TABLE 4.8-2

LAND USE COMPATIBILITY STANDARDS: COMMUNITY NOISE

Land Use Category	Community Noise Exposure L_{dn} (dB)						
	50	55	60	65	70	75	80
Residential	a	a	b	b	c	d	d
Transient Lodging, Motels, Hotels	a	a	b	b	c	c	d
Schools, Libraries, Churches, Hospitals, Nursing Homes	a	a	b	b	c	c	d
Sports Areas, Outdoor Spectator Sports	a	a	b	b	c	d	d
Playgrounds, Neighborhood Parks	a	a	b	c	d	d	d
Golf Courses, Riding Stables, Water Recreation, Cemeteries	a	a	a	b	c	c	d
Office Buildings, Business Commercial and Professional	a	a	a	a	b	c	d
Industrial, Manufacturing Utilities, Agriculture	a	a	a	a	b	c	c

KEY:

a. Normally Acceptable - land use satisfactory, buildings need no special noise insulation.
b. Conditionally Acceptable - new construction should be undertaken only after acoustic analysis and installation of noise insulation. Conventional construction but with closed windows and fresh air supply systems or air conditioning will normally suffice.
c. Normally Unacceptable - new construction should be discouraged. If construction does proceed, acoustic analysis to determine the insulation needed is required.
d. Clearly Unacceptable - new construction should not be undertaken.

Source: Office of Noise Control, California Department of Health Services.

standards for community noise, as defined by the State of California and/or those adopted by the Town of Mammoth Lakes, are exceeded.

Methodology

Several of the Town's major arterial streets lead to or border the proposed project area and would contribute to the total ambient noise. Noise measurements based on existing traffic volumes were predicted along streets bordering the proposed project to define the existing ambient noise. A summary of these predicted noise levels at five locations is given in Table 4.8-3. Existing and projected noise L_{eq} levels were calculated by using traffic counts taken in the preparation of the traffic study presented in this DEIR. Predicted noise levels were determined at a distance of 50 feet from the centerline of the roadways for existing peak traffic volumes. The L_{eq} ranged from a low of 60.8 dB for existing conditions at Minaret Rd., between Meridian Blvd. and Old Mammoth Rd., to a high of 71.4 dB at Main St. between Sierra Blvd. and Minaret Rd.

Construction Noise

Impact

4.8-1 **Construction-related noise from the proposed project will increase ambient noise levels in areas surrounding the project site. This is a *less-than-significant impact.***

Construction activities would temporarily generate high noise levels on and around the proposed project site. Table 4.8-4 shows outdoor noise levels likely to be experienced during the various construction phases. Since noise from localized sources is typically reduced by about 6 dB with each doubling of distance from the source of noise to the person hearing the noise (receptor), outdoor receptors within 1,600 feet of construction sites, with an uninterrupted view of the construction site, would experience noise greater than 60 dB when noise on the construction site exceeds 90 dB. This would occur if pile driving is necessary. Noise levels during other stages of construction would also be high. Table 4.8-5 depicts noise levels associated with various types of construction equipment.

Construction noise has the greatest potential for disrupting and disturbing residents and workers in the surrounding neighborhoods. The time of greatest noise sensitivity generally occurs during morning and evening hours for residents neighboring the proposed site, and during the daytime for people working in the vicinity of the construction site.

Mitigation Measures

Implementation of Mitigation Measures 4.8-1(a) and 4.8-1(b) in accordance with the Town's Noise Ordinance would reduce project impacts to a less-than-significant level.

TABLE 4.8-3

PROJECTED PEAK NOISE LEVELS FOR PROPOSED PROJECT AND CUMULATIVE DEVELOPMENT (AND DISTANCE TO 60 dB NOISE CONTOURS)[1]
dB (ft.)

Locations[2]	Existing	Cumulative	Cumulative + Project
1. Main St. between Sierra Blvd. & Minaret Rd.	71.4 dB (288 ft.- 690 ft.)	72.7 dB (351 ft. - 931 ft.)	73.2 dB (379 ft. -1045 ft.)
2. Minaret Rd. between Meridian Blvd. and Main St.	---[3]	70.1 dB (236 ft. - 512 ft.)	71.3 (283 ft. - 674 ft.)
3. Minaret Rd. between Meridian Blvd. and Old Mammoth Rd.	60.8 dB (57 ft. - 60 ft.)	69.6 dB (218 ft. - 456 ft.)	70.0 dB (232 ft.- 500 ft.)
4. Meridian Blvd. between Minaret Rd. and Old Mammoth Rd.	69.4 dB (212 ft. - 435 ft.)	69.7 dB (222 ft. - 456 ft.)	70.5 dB (251 ft. - 561 ft.)
5. Meridian Blvd. between Minaret Rd. and Majestic Pines Dr.	65.8 dB (122 ft. - 190 ft.)	69.0 dB (199 ft. - 397 ft.)	69.8 dB (225 ft. - 478 ft.)

[1] Distances to 60 dB contour from centerline of road is based on a logarithmic attenuation rate of 15 and 10 respectively.

[2] Predicted noise levels were calculated for 50 feet from center of road.

[3] Minaret Rd. between Meridian Blvd. and Main St. has recently been constructed. Current link volumes for this road do not exist.

TABLE 4.8-4

TYPICAL CONSTRUCTION NOISE LEVELS AT 50 FEET (dB)[1]

Construction Phase	Noise Level	Housing Construction Average Noise Level
Groundclearing	84	84
Excavation	89	88
Pile Driving	101	101
Foundations	78	81
Erection	85	82
Finishing	89	88

[1] Taken from *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, prepared by Bolt, Beranek, and Newman for the U.S. Environmental Protection Agency, December 31, 1971, p. 20.

TABLE 4.8-5

TYPICAL CONSTRUCTION EQUIPMENT NOISE (dB)[1]

Equipment Type	Noise Level at 50 Feet: Without Noise Control	Noise Level at 50 Feet: With Feasible Noise Control[2]
Earthmoving		
Front Loaders	79	75
Backhoes	85	75
Dozers	80	75
Tractors	80	75
Scrapers	88	80
Graders	85	75
Trucks	91	75
Pavers	89	80
Materials Handling		
Concrete Mixers	85	75
Concrete Pumps	82	75
Cranes	83	75
Derricks	88	75
Stationary		
Pumps	76	75
Generators	78	75
Compressors	81	75
Impact		
Pile Drivers	101	95
Jack Hammers	88	75
Rock Drills	98	80
Pneumatic Tools	86	80
Other		
Saws	78	75
Vibrators	76	75

[1] Taken from *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, prepared by Bolt, Beranek, and Newman for the U.S. Environmental Protection Agency, December 31, 1971.

[2] Estimated levels obtainable by selecting quieter procedures or machines and implementing noise control features requiring no major redesign or extreme cost.

4.8-1(a) *Construction activities shall be limited to the hours between 7 a.m. and 8 p.m. Monday through Saturday and 9 a.m. to 5 p.m. on Sunday in order to minimize noise impacts.*

4.8-1(b) *Construction equipment shall be required to be muffled or controlled. Contracts shall specify that engine-driven equipment be fitted with appropriate noise mufflers.*

Operational Noise Effects (Post-Construction)

Impact

4.8-2 **Noise levels exceeding 60 dB currently exist at all intersections reviewed and are projected to increase significantly as a result of cumulative development with and without the proposed project. Noise levels for the year 2005 with the project will not be noticeably higher than noise levels projected without the project. These are *less-than-significant impacts.***

The largest increases between existing noise levels and predicted cumulative noise levels with and without the proposed project occurred at Minaret Rd. between Meridian Blvd. and Old Mammoth Rd. Increases along this corridor would be perceived to be twice as loud as a result of increased traffic from cumulative development. The incremental increase in noise from the proposed project to traffic noise generated by cumulative development would not be detectable. To the average person, an increase in noise levels of 3 dB would be perceived as just noticeable while an increase in noise levels of 10 dB would be perceived as twice as loud.

The increase in noise levels reported in Table 4.8-3 would be considered a significant noise impact only if it causes a substantial increase in the ambient noise level in areas sensitive to noise adjacent to the project site. Based on the distances to the 60 dB contour referenced in Table 4.8-3, receptors located inside this contour would be subjected to a significant noise impact from cumulative traffic noise.

A significant noise impact would also exist if the proposed project assigned land uses which were not in agreement with the land use compatibility standards for community noise as presented in Table 4.8-2. Setbacks from streets generating noise in excess of 60 dB have not currently been defined for the proposed project and therefore a determination of the potential for a significant noise impact on a specific type of land use cannot be determined at this time.

Mitigation Measures

4.8-2(a) *The proposed project shall be located or architecturally designed so the exterior noise levels will not exceed 60 dB and interior noise levels will not exceed 45 dB. Design features could include setbacks, berms, landscaping and architectural features, adjacent to both arterial and interior streets.*

4.8-2(b) *Multi-family buildings shall be located or architecturally designed so the interior noise level will not exceed 45 L_{dn}. As a minimum, multi-family housing shall comply with Title 24 of the California Administrative Code.*

4.8-2(c) *The project proponents shall work with Town staff to implement transit alternatives to reduce automobile traffic, as outlined in the Town's General Plan. Cumulative site development shall be reviewed at each phase and a trip reduction program developed for current phase implementation. Typically, a reduction in traffic of one-half would reduce the noise level by 3 dB.*

CUMULATIVE IMPACTS

The project will contribute to an increase in noise levels resulting from increased traffic and population growth. Noise exposure estimates resulting from project buildout and population growth have been analyzed in the Traffic and Population sections. The resulting estimates are summarized in Table 4.8-3. Mitigation measures 4.8-1 and 4.8-2 will reduce the impact of long-term noise. Implementation of the Town of Mammoth General Plan Noise element will further reduce ambient noise levels.

4.9 ARCHAEOLOGICAL RESOURCES

Site Photos

Figure 4.10-2

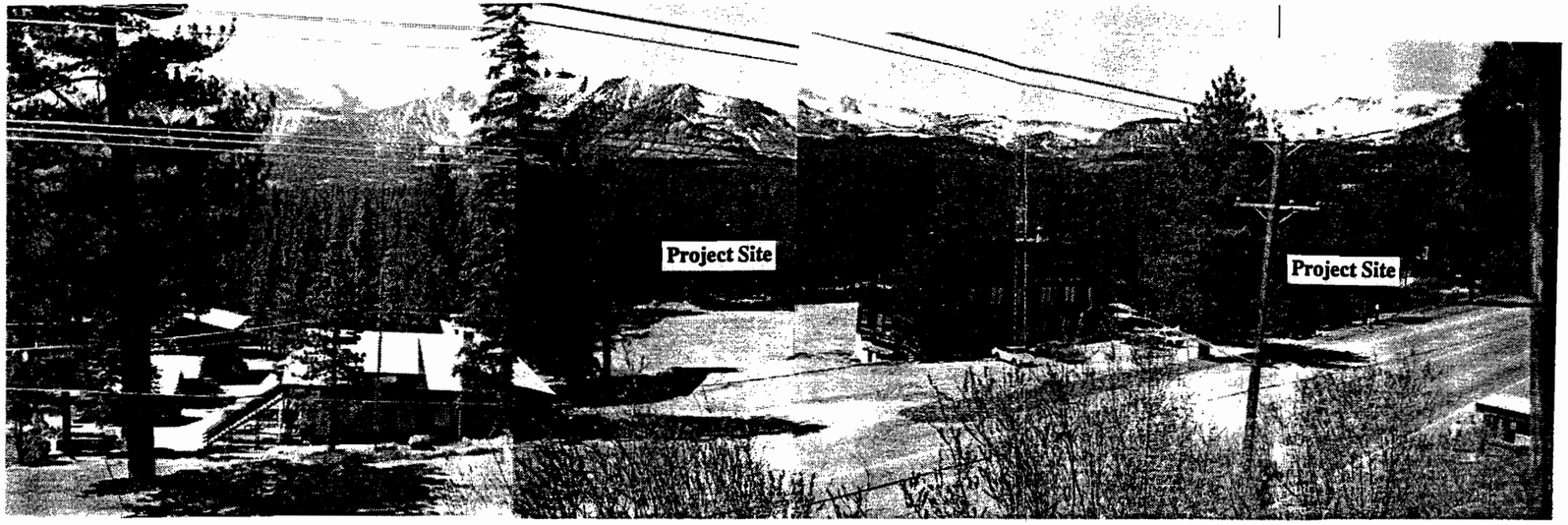

Photo A: View from north side of Main Street to project site. Forested edge of site blocks views to the sites interior.

Photo B: Distant views toward the site from Lake Mary Road. Views of site from this vantage point are screened by foreground vegetation.

Site Photos

Figure 4.10-3

Photo C: View from Lodestar entrance shows visual character of the sites edge from along the western portion of Meridian Boulevard.

Photo D: View of the site south of Meridian Boulevard. This edge of the site is densely forested.

Site Photos

Figure 4.10-4

Photo E: The scenic quality of Meridian Boulevard is enhanced by the forested edge of the site and long-range views to the Sierra Nevadas.

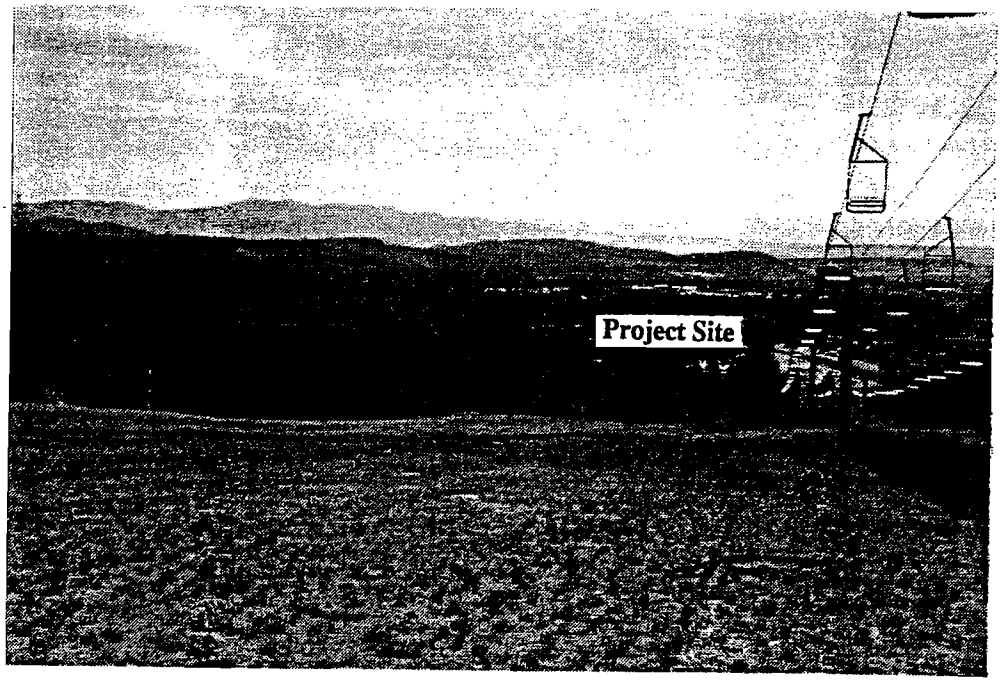

Photo F: View from along chairlift #15 towards the project site. The forested character of the site and surrounding areas contribute to exceptional views.

Site Photos

Figure 4.10-5

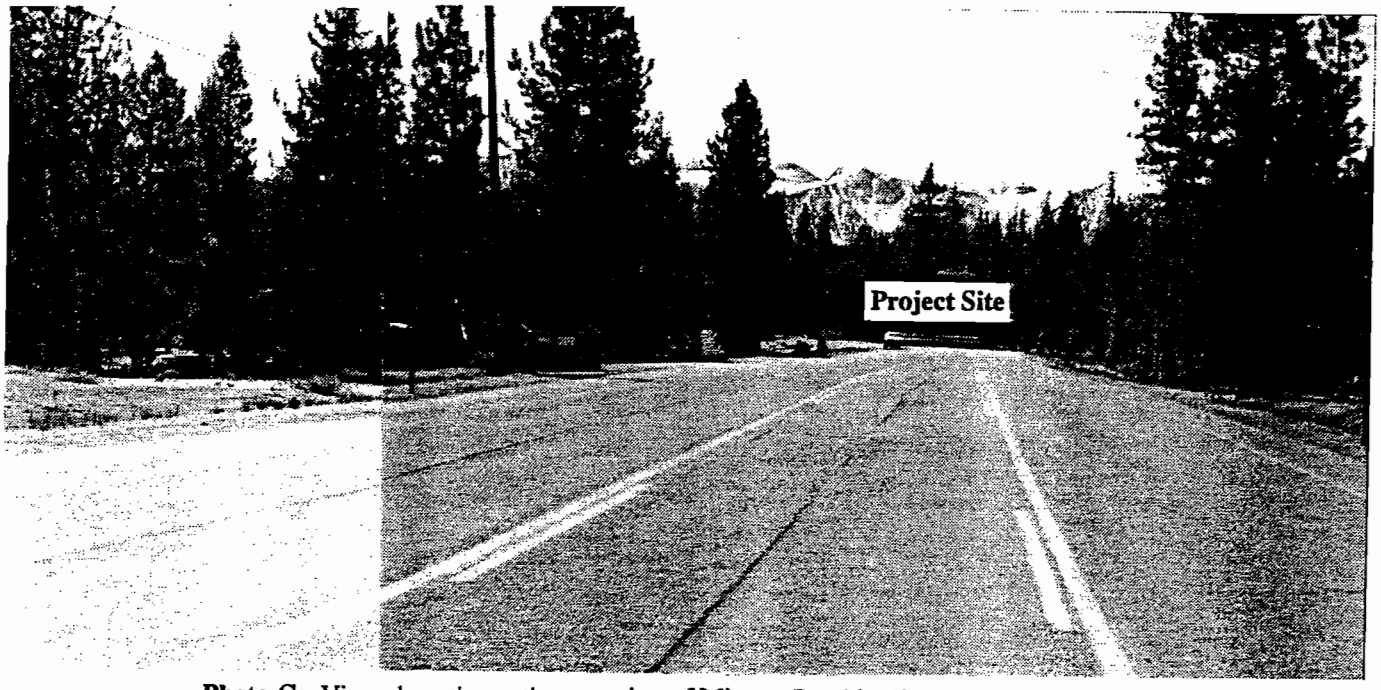

Photo G: View along the northern portion of Minaret Road leading to a dead end. Only a small portion of the site fronts this section of road. The planned extension of the road will cross through the site.

Photo H: This photo shows the character of residential development along Joaquin Road, which borders the sites eastern edge.

eip

Motorist's views to the site from Main Street in the downtown area are limited to a small portion of the site that fronts the street. The remainder of the site's northern edge is screened from view by a number of one- and two-story commercial buildings. Commercial uses located upslope and north of Main Street have limited views of the site due to trees that block views to the site's interior (Photo A). Further to the west along Lake Mary Road, short- and mid-range views of the site are accessible, but they are also limited by foreground trees with only treetop views of the site (Photo B).

Views to the project site along Meridian Boulevard are primarily of forested edges that vary from very densely forested to a somewhat dispersed distribution of trees (Photos C & D). The forested edges of the site, which frame long-range views of the Sierra Nevadas, give the curving road a scenic quality indicative of the mountain area. Where areas are less densely forested there are intermittent views to the site's interior (Photo E). A condominium development overlooks the project site across Meridian Road at the extreme south of the site near the existing Lodestar entrance. Existing views from the development are of a sparsely forested edge of the site. West of the site at the end of Meridian Road is Chairlift #15 of the Mammoth Mountain ski resort. During the winter season, skiers on the slope that leads to the chairlift have a full view of the southern portion of the project site (Photo F). Additionally, there are views of the site from the parking lot that serves Chairlift #15.

Minaret Road borders the upper portion of the project site on the east, and the lower portion to the west. While a number of trees border this portion of the road, the majority of properties along its edge have been disturbed and are partially cleared (Photo G). The southern portion of the site, which borders the edge of the road, varies from somewhat disturbed to heavily forested at the extreme southern edge. Across from the site along this section of the road the majority of land has been cleared and a new residential development is under construction.

The eastern edge of the project site borders multi- and single-family residential uses along Joaquin Road, which runs north/south from Main Street to Meridian Road (Photo H). The northern portion of the road is minimally developed with heavily forested edges, and the southern portion of the road is developed with clustered multi-family housing. Views from existing residences are of the forested edge of the project site. The major remaining portion of the site that borders Joaquin Road near its intersection with Meridian Boulevard has for the most part been cleared of trees.

Plans and Policies

The Town of Mammoth Lakes General Plan's (adopted October 14, 1987) Conservation and Open Space Element sets forth a number of goals and policies that are intended to encourage development that will be sensitive to and compatible with the natural environment and scenic resources of the community. The Conservation and Open Space Element emphasizes that retention of the Town's alpine character is essential to its livability and continued economic viability. The policies stated in the element are implemented through the Design Review Ordinance, No. 86-12, of the Municipal Code, and the Town of Mammoth Lakes Design Review

Manual. The Design Review Manual provides citizens and project proponents with the design criteria and standards that are used in evaluating development plans. The Town of Mammoth Lakes Parks and Recreation Element of the General Plan (adopted January 10, 1990) also presents goals and policies that promote the Mammoth Lakes Community as a quality year-round recreation destination resort. Policy 1A-3 states that "The Town shall preserve the resort-alpine character of Mammoth Lakes through the adoption of tree preservation standards which retain heritage trees (i.e., significant stands of old growth trees of unique or heritage quality, and large individual specimens) and groves where reasonable, and retain to the maximum extent feasible, the forest canopy and forested character of the Town. Native tree species should be planted to help offset the loss of trees unavoidably removed during construction (Conservation and Open Space Natural Vegetative Resources Policy #1)." The following impact analysis and the mitigation measures included in this section are intended to reinforce the goals, standards, and policies contained within the Conservation and Open Space Element, Parks and Recreation Element, the Design Review Ordinance, and the Town of Mammoth Lakes Design Review Manual.

IMPACTS AND MITIGATION MEASURES

Methodology

Visual features of the project site and adjacent areas were inventoried by conducting a photographic field survey, and by examining aerial photographs and applicant drawings. The site survey was conducted on May 25, 1990. A photo key map (Figure 4.10-1) indicates the locations and direction-of-view from which site photographs (Figures 4.10-2 through 4.10-5) were taken.

Impact

4.10-1 **A significant area of forested land within the Town of Mammoth Lakes would be converted to a built use. And, although more than half of the site would be retained for open space use, most of the forested area would be altered with grading and construction of the golf course. The golf course, which could be considered a visual asset, would nonetheless change the visual character of a large portion of the forested site. This is an *unavoidable, significant impact.***

The proposed Project would result in the development of approximately 85 acres, with 115 acres (which includes a golf course) retained as open space. The conceptual site plan for the project shows the site broken down into five general areas of development. Area One, located along Majestic Pines Drive in the western portion of the site, is a 20-acre area proposed for the development of 300 residential units. The type of units designated for the area are two-and-a-half story wood frame construction, medium-density condominiums. Area Two (23 acres), located in the northern portion of the site, is planned for 375 residential units. Both two-and-a-half story condominiums and two-story townhouse units are planned. Area Three (14 acres), in the southern portion of the site, would include 100 units consisting of single-family homes and

townhouses, and Area Four (3 acres), at the northern edge of the site, would be developed with a 100-unit lodge, which would include employee housing.

Area Five, located in the central portion of the site, would be the most densely developed portion of the site including up to 700 units of hotels and resort condominiums. The hotels would be a maximum of five floors above subterranean parking, with a maximum height of 65 feet. Other development that would occur within the 25-acre area includes 80,000 square feet of commercial uses. Front setbacks for commercial lots in Area Five would be a minimum of 10 feet. Side and rear setbacks may be reduced to zero. The amount of parking facilities required may be reduced through the formation of a parking district, and where possible, parking will be constructed under the hotel(s) and commercial area.[1]

An 18-hole, 110-acre golf course with a number of artificial lakes would be incorporated throughout the entire site with direct access from all five areas. Minaret Road would be extended to Meridian Boulevard, and a 60-foot wide skyway easement would be provided in the southwest corner of the site. The easement (described as a greenbelt) would provide access to the ski hill and could include an extension of Chairlift #15. The developer has indicated that buildings would be earth tone colors and would incorporate the use of natural materials. The height of buildings other than the proposed hotels would be limited to 35 feet, and the majority of parking would be provided under structures in order to minimize impervious surfaces and visual impacts. The developer also indicated that forested areas within the golf course and throughout the entire site would be retained to the maximum extent feasible, and if vegetation is disturbed it would be replaced with native plant materials.[2]

The most significant and potentially affected viewsheds would be from the Mammoth Mountain ski slope above Chairlift #15, the western portions of Lake Mary Road, and from along the various roadways adjacent to the project site. Impacts on these viewsheds would result from the conversion of forested land to areas developed with hotel, residential, and golf course uses. Additional visual impacts would occur with a proposed ski lift connecting the site to the base of Mammoth Mountain Ski Area, near Chairlift #15. The degree of these impacts would be largely dependent on how much vegetation is removed and how large the open areas of the site will be. Though the developer has indicated that grading of the site will be kept to a minimum, current site plans for the project do not indicate where natural vegetation would be retained. In addition to how much forested area is removed, the number of trees retained along the visually prominent edges of the site, specifically Minaret Road and Meridian Boulevard, will influence the degree of visual impact and the perceived change in the natural character of the surroundings. Existing views from residential development along Joaquin Road of the forested edges of the site could potentially be affected if a vegetative buffer is not maintained between the existing and proposed development. Potential visual impacts along the northern boundary of the site would primarily be limited to the developed edge of the project that would front Main Street. Views from residential uses west of the site would be altered, though the impact would not be significant if trees are maintained along this section of Meridian Boulevard, and if the proposed chairlift is screened from the residential areas located southwest of the project site. It should be noted that the ski lift is not a part of the present application and no design work has been done for this facility. Thus, impacts are too speculative to consider in this EIR.

Due to the conceptual level of current site plans it is not feasible to assess more specific visual impacts and conformity with the Town's Design Review Ordinance and Design Review Manual. But it is assumed that based on the above analysis, development of the proposed project could potentially result in significant adverse impacts on visual quality.

Mitigation Measures

The mitigation measures listed below are intended to minimize the impacts of the proposed project. However, the removal of substantial numbers of existing trees with the development of the project as proposed will result in *significant unavoidable impacts.*

4.10-1(a) *To the maximum extent feasible, the proposed Project shall retain forested areas of the site, and shall remain subordinate to the natural character of the site and the surrounding landscape.*

4.10-1(b) *Prior to final approval of project development plans the applicant shall submit a tree preservation and replacement plan prepared by a professional forester or arborist. Trees shall be replaced on a one-to-one basis with as many trees retained on-site as possible. Where trees have to be relocated off-site, the locations shall be determined through consultation with the Planning Director. The preservation and replacement plan, including the type, size, number, and location of replacement trees shall be subject to the approval of the Town of Mammoth Lakes Planning Director.*

4.10-1(c) *Contour grading shall be used to blend manufactured slopes into the natural terrain. Grading shall be minimized to preserve existing landform and vegetation to the greatest extent possible.*

4.10-1(d) *In order to reduce visual impacts, a forested buffer averaging no less than 100 feet shall be retained along Meridian Boulevard, Minaret Road, and along the western and eastern edges of the project site as required in project approval or by the Planning Director.*

4.10-1(e) *Designs for open areas of the site, most specifically the golf course, shall integrate existing trees to give the appearance of continual forest coverage from off-site vantage points.*

4.10-1(f) *To the maximum extent feasible, native trees and landscaping shall be concentrated around all structures, streets, and parking lots located on the project site.*

4.10-1(g) *The architectural style for all development shall blend with the site's natural setting. Rooflines shall reflect the slope of the site, and natural "earth tone" colors and materials such as stone and wood shall be emphasized. Project*

development plans (Use Permits & Building Permits) shall be subject to design review by the Town of Mammoth Lakes Planning Commission.

4.10-1(h) *Buildings fronting Main Street shall respond to the scale, massing, and visual context established by existing development along Main Street.*

4.10-1(i) *All multi-family housing structures shall be physically separated and buffered from non-residential structures except resort condominium units where they are a part of the hotel complex. Setbacks between residential and non-residential structures shall be subject to the approval of the Town of Mammoth Lakes Planning Commission.*

4.10-1(j) *Employee housing shall have the same architectural, site design, and landscaping quality as all other development in the master plan.*

Impact

4.10-2 **The proposed ski lift to Chairlift #15 is not a part of the present application. No design work has been completed. Potential impacts, therefore, would be too speculative to be meaningful.**

Mitigation Measure

4.10-2 *Not applicable.*

CUMULATIVE IMPACTS

The cumulative impacts of development in the Town of Mammoth Lakes on visual quality cannot be assessed without a review of site-specific development plans. However, it can be assumed that planned and future development in the area will alter the visual character of the Town, particularly where forested areas are replaced with structures, roads, and parking lots. In some cases new development may obstruct or degrade scenic views from highways, residential areas, and public gathering spaces.

AESTHETICS/VISUAL QUALITY ENDNOTES

1. Henry P. Acuff, The Lodestar Company, written correspondence, June 20, 1990.

2. Ibid.

4.11 PUBLIC SERVICES/FISCAL IMPACTS

4.11 PUBLIC SERVICES/FISCAL

PUBLIC SERVICES

Snow Removal

SETTING

Snow removal is provided by CALTRANS for State Highway 203 (Minaret Road and Main Street) from the junction of State Highway 395 to the Mammoth Mountain Inn. The Town of Mammoth Lakes Public Works Department provides snow removal service for all other publicly maintained roads. Roads and paved surfaces on private property are the responsibility of the landowner.[1] The Town considers current snow removal activities adequate to meet existing needs.

IMPACTS AND MITIGATION MEASURES

Methodology

Impacts of the proposed Project were evaluated based on available reports describing snow removal requirements for the Town of Mammoth Lakes.

Impact

4.11-1 **Development of the Project will result in increased amounts of snow removal due to new access roads to and from the project. There is presently enough land area within the project site to accommodate necessary snow storage for public streets and private developments. This is a *less-than-significant impact.***

Mitigation Measure

Implementation of Mitigation Measures 4.11-1(a) through 4.11-1(i) will further reduce effects of increased snow removal.

4.11-1(a) *All project road alignments and project phases shall be designed to provide the necessary snow storage areas as determined by the Town Department of Public Works. Snow storage areas shall equal at least 70 percent of the surfaces to be cleared.*

4.11-1(b) *All buildings, walkways and pedestrian open spaces shall be located a minimum of 20 feet from the roadway edge to limit the amount of snow storage/blowing interference.*

4.11-1(c) *Alternate methods of snow removal, such as radiant heat decking, shall be implemented in the plaza area to ensure that access is provided to all businesses at all times.*

4.11-1(d) *Parking garage entry points shall avoid north-facing orientation. Design solutions shall be implemented to prevent blowing and drifting snow from accumulating in the garage entry area.*

4.11-1(e) *Sloping roofs shall be designed so as not to shed snow onto adjacent properties, parking lots, walkways or other passage ways.*

4.11-1(f) *The Town and CALTRANS shall retain the right to cover any sidewalks with snow located adjacent to streets for snow removal purposes.*

4.11-1(g) *No snow removal activities, except that which is performed by the Town or by CALTRANS, shall be allowed to deposit snow within the public rights-of-way.*

4.11-1(h) *To avoid ice build-up, all structures shall be oriented to minimize shading of streets and pedestrian areas.*

4.11-1(i) *Clearing of private roads shall be the responsibility of the developer or homeowners associations.*

SCHOOLS

SETTING

Public school services for Mammoth Lakes are provided by the Mammoth Unified School District. The two District facilities are the Mammoth Elementary School (K-6), located on Meridian Boulevard, and Mammoth High School (7-12), located at the intersection of Sierra Park Road and Meridian Boulevard. Mammoth Elementary has a current enrollment of about 500 students with a capacity of 513 students, while Mammoth High has a present enrollment of about 300 students with a capacity of 366 students.[2]

IMPACTS AND MITIGATION MEASURES

Methodology

The Mammoth Unified School District (MUSD) was contacted for the cost associated with each new student in the District. The projected number of new students associated with the proposed

Project was calculated using a ratio of the number of students to the total population. The total cost associated with the new students was evaluated against potential revenue collected through school impact fees.

Impact

4.11-2 **The proposed Project is anticipated to produce approximately 190 students. The project-generated student population would result in an overcrowded situation for both MUSD facilities. The Project will specifically create the need for a new elementary school facility. Each new student is expected to cost the district $4,760 in operating costs and $11,000 in capital costs.[3] This is an *unavoidable, significant impact.***

In February, 1991, the MUSD approved collection of school impact fees provided under AB 2926. The fees are $1.10 per square foot of residential and $0.26 per square foot of commercial development. However, even with the collection of impact fees, the cost associated with the new students will be greater then the revenue collected. As presented in MUSD impact 4.11-6 of the Fiscal section, operation and capital costs total about $3.0 million.

Mitigation Measure

Mitigation Measures 4.11-2(a) and 4.11-2(b) are recommended to lessen project impacts on the District. However, even the incorporation of these mitigations would not reduce project impacts to a less-than-significant level since the impact fees alone are insufficient for funding the construction costs of a new elementary school. School impacts are therefore considered to be an *unavoidable, significant impact.*

4.11-2(a) *The project proponent shall pay school impact fees under the provisions of AB 2926 or provide equivalent alternative mitigation as determined by the School District.*

4.11-2(b) *The project proponent may volunteer to designate a portion of the project site to the District for the purpose of constructing a new elementary school facility or* to participate in a proportionate share of a school site at another location.

POLICE PROTECTION

SETTING

Police protection services are provided by the Mammoth Lakes Police Department. The Department staff is currently made up of 15 sworn officers and 6 non-sworn personnel. The sworn officers consist of one chief, one lieutenant, three sergeants, one detective, and nine patrol officers. The non-sworn personnel are made up of one clerk dispatcher, one community service representative, one secretary, a part-time clerk, and two staff persons in charge of the Animal

Control Division. Police facilities include six patrol cars and a police station located near the intersection of Old Mammoth Road and Chateau Road. Non-emergency response time averages 8 to 10 minutes, while emergency response time is typically less than 2 minutes.[4]

IMPACTS AND MITIGATION MEASURES

Methodology

The Mammoth Lakes Police Department was consulted to determine the impact of the Project on police services in the area.

Impact

4.11-3 **The population increase resulting from project construction would require a 24-hour patrol of the project area. Since the Police Department is currently operating at full capacity, this would require three new patrol officers (one per eight-hour shift) and a new patrol car. The project would require one additional Animal Control employee.[5] This is a *significant impact.***

Because of the residential nature of the project and the increased population associated with it, a constant 24-hour patrol is required.

Mitigation Measure

Implementation of Mitigation Measures 4.11-3 will reduce project impacts on police protection to a less-than-significant level.

4.11-3 *The project proponent shall contribute sufficient funds to the Town of Mammoth Lakes for the cost of purchasing one patrol car.*

FIRE PROTECTION

SETTING

Fire protection services to the Town are provided by the Mammoth Lakes Fire Protection District. Properties surrounding the Town are within the Inyo National Forest and are therefore protected by the U.S. Forest Service. The Fire District will assist in fighting structural fires in the forest if requested by the Forest Service. The District operates from two fire stations: one located at the intersection of Main and Pinecrest Streets, and the other on Old Mammoth Road at the Snowcreek subdivision entrance. The District facilities consist of four engine companies, two truck companies, one heavy-duty rescue truck, and one ambulance. Fire District personnel consists of 65 volunteer fire fighters and six paramedics.[6]

IMPACTS AND MITIGATION MEASURES

Methodology

Impacts of the proposed project were evaluated based on consultation with the Mammoth Lakes Fire Protection District.

Impact

4.11-4 **The Fire Protection District has indicated that the proposed project would require one additional Fire Inspector to the District. This is a *less-than-significant impact.***

The Mammoth Lakes Fire Protection District has established a set of guidelines designed to facilitate fire protection to a proposed project. These guidelines are discussed below.

Mitigation Measure

Implementation of Mitigation Measures 4.11-4(a) through 4.11-4(n) will further reduce project impacts on the Mammoth Lakes Fire Protection District.

4.11-4(a) *The project proponent shall pay a one-time mitigation fee for construction of the project, based upon building height, and another one-time mitigation fee on project operations. Both fees are to be determined by the Fire Protection District and collected by the Town.*

4.11-4(b) *Access to all structures shall comply with Mammoth Lakes Fire Protection District Ordinance #85-02.*

4.11-4(c) *Access roads shall be of an approved hard all-weather surface and shall have a minimum clear unobstructed width of 20 feet. All access roads shall have a minimum vertical clearance of 15 feet. Access roads shall have a grade of not more than 10 percent.*

4.11-4(d) *To provide for aerial ladder access to building rooftops, a minimum 20-foot wide access road shall be provided for each structure located not more than 25 feet from the structure, but no closer than 1 foot for every 3 feet of building height. This access road shall have a grade of not more than three percent and shall be clearly posted "No Parking - Fire Lane." All high-rise structures (defined by the District as any structure exceeding 3 stories or 35 feet in height for nonresidential structures, and 55 feet for residential structures) should be required to have approved Fire Department access roads to at least 2 sides of the structure. One of these access roads should be on the side of the building with the longest continual roof line.*

4.11-4(e) *Fire Department access roads that are 150 feet or more in length shall be provided with approved fire apparatus turn-arounds. The required width and height clearances for Fire Department access roads shall be maintained.*

4.11-4(f) *If a smoke tower or stairway is used as a required exit for a structure, that exit shall have an unobstructed passage of not less than 6 feet in width to Fire Department access, and then not less than 3 feet in width from that point to the public way.*

4.11-4(g) *An approved water supply system capable of supplying required fire flow for fire protection purposes be provided to all premises upon which buildings or portions of buildings are constructed. The establishment of gallons-per-minute requirements for fire flow shall be based on the "Guide for Determination of Required Fire Flow" published by the Insurance Service Office.*

4.11-4(h) *Fire hydrants shall be located and installed per Fire Department standards and approved by the Fire Chief. On-site fire hydrants shall be provided when any portion of the building protected is in excess of 150 feet from a water supply on a public street, or as required by the Fire Chief.*

4.11-4(i) *Fire hydrants and access roads shall be installed and made serviceable prior to and during time of construction. All hydrants shall be properly identified per Fire Department standards.*

4.11-4(j) *An approved automatic fire extinguishing system is required for all covered parking areas and other structures having: a foundation footprint of 5,000 square feet or more; a height of more than 35 feet (50 feet for residential condominiums or apartment buildings); or a height of more than 3 stories. Fire extinguishing systems shall also be installed for all other occupancies designated for this system in the Uniform Fire and Uniform Building Code, or structures identified as special hazard occupancies as outlined in the appropriate National Fire Protection Association pamphlet.*

4.11-4(k) *Fire standpipe systems shall be installed in conformance with National Fire Protection Association Standards and the Uniform Fire Code.*

4.11-4(l) *Incorporation of other fire protection methods as necessary in underground parking garages and high-rise structures, based upon building construction, size, and adjoining occupancy types, shall be determined by the Fire Chief upon formal plan submission.*

4.11-4(m) *All vehicular bridges and pedestrian bridges shall comply with fire apparatus access road requirements in regards to minimum width and height clearances.*

4.11-4(n) *Liquid petroleum gas storage and system installation shall comply with Mammoth Lakes Fire Protection District Ordinance #85-02, which establishes and regulates the storage of liquid petroleum gases.*

FISCAL

INTRODUCTION

The purpose of this fiscal impact analysis is to determine the net effect of the proposed Project on the fiscal condition of the Town of Mammoth Lakes (Town) and local public agencies. The analysis will project the direct, current, public costs and revenues associated with the Lodestar Master Plan project.

The proposed Project would have a net fiscal impact on various jurisdictions that provide services to this project. The jurisdictions include the Town of Mammoth Lakes, the County of Mono, the Mammoth Unified School District (MUSD), the Mammoth County Water District (MCWD), Mammoth Lakes Fire Protection District, and the Southern Mono Hospital District. Capital and operating revenues and costs are estimated, and a cost/revenue balance is calculated. Dollar amounts are calculated in current (1990) dollars. All projections of Project revenues and costs are calculated at build-out.

SETTING

As shown in Figure 4.11-1 and Table 4.11-1, the proposed Project consists of six parcels totalling 210 acres. The current total taxable assessed valuation of the Project site is approximately $8.6 million. All six parcels are located in the Tax Area Code (TAC) 10-6, which has a property tax rate of 1.08671 percent. This rate includes the Proposition 13 1-percent property tax rate and an additional .08671 percent for school, water, and hospital bonds. Based on the total taxable assessed value, the site generated $93,700 (See Table 4.11-2). In 1990, the Town of Mammoth Lakes General Fund received $5,400 or 5.72 percent of the total property tax revenue. Other jurisdictions also receive property tax revenues: Mono County (37.45 percent), MUSD (19.46

Assessor's Parcel Number Location Map

Figure 4.11-1

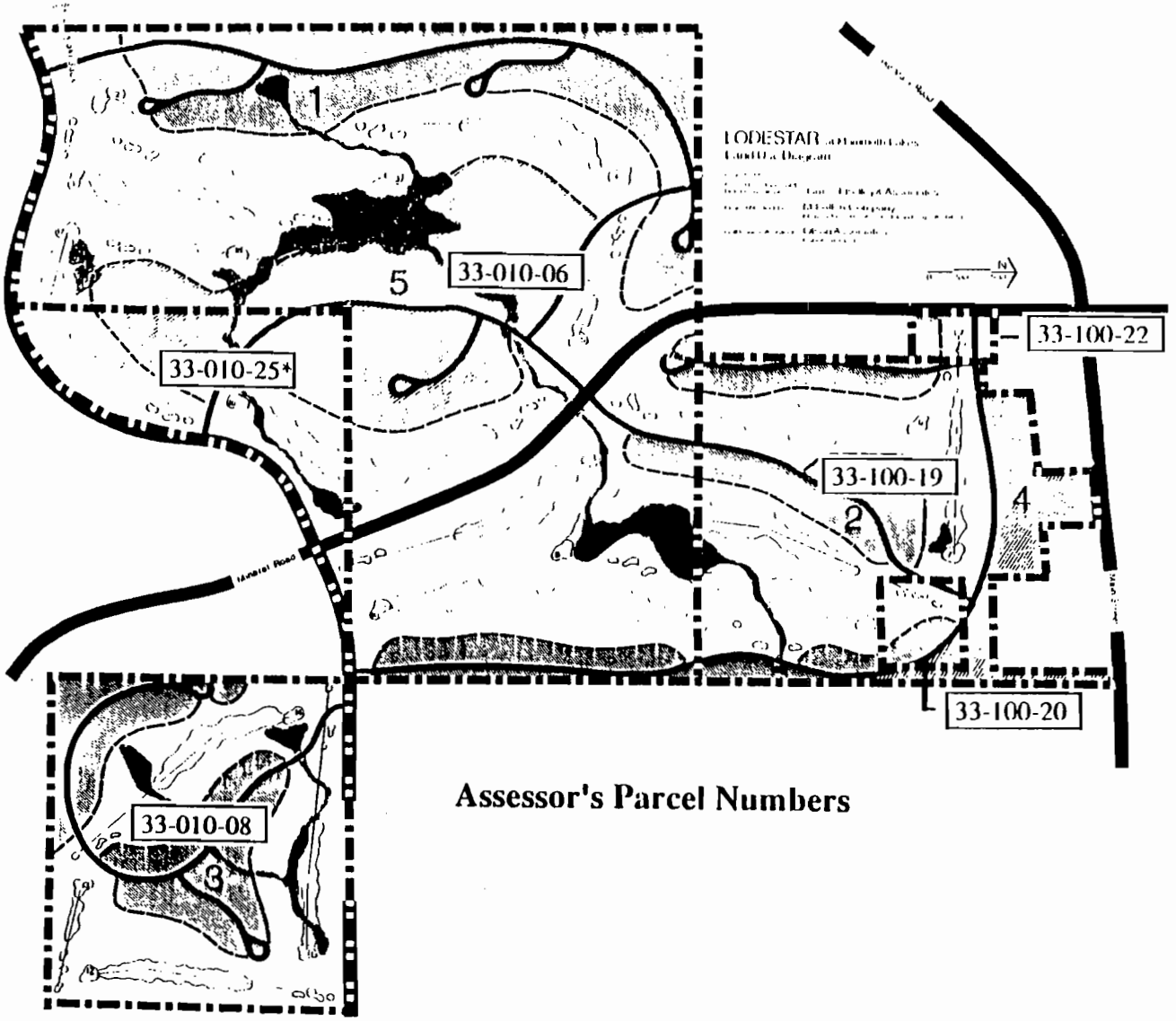

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TABLE 4.11-1

LODESTAR PARCELS, ACREAGE AND ASSESSMENT DATA TOWN OF MAMMOTH LAKES

Assessor's Parcel No.	Acreage	TAC	Tax Assessed Value
33-100-19	41	10-6	$ 717,328
33-100-20	1	10-6	74,046
33-100-22	1	10-6	89,368
33-010-06	122	10-6	3,620,410
33-010-08	35	10-6	3,473,241
33-010-25*	10	10-6	646,500
TOTAL	**210**		**$8,620,893**

* Represents 40 percent of total parcel.

Source: County of Mono Assessor's Office.

TABLE 4.11-2

PROPERTY TAX ALLOCATION BY JURISDICTION

Taxable Assessed Valuation	$8,620,893
Property Tax Rate	1.08671%

Agency	Tax Apportionment	Tax Revenue
Mono County	37.45%	$35,085
Mammoth Lakes	5.72%	5,359
M.U.S.D.	19.46%	18,231
Library	2.02%	1,892
E.S.U.S.D.	10.24%	9,593
Supt. School	2.01%	1,883
Fire Protection Dist.	5.86%	5,490
So. Mono Hospital Dist.	4.57%	4,281
Mono Co. Water Dist.	12.67%	11,870
TOTAL	**100.00%**	**$93,684**

Source: Town of Mammoth Lakes Final Budget, Fiscal Year 1989-1990.

percent), MCWD (12.67 percent), Mammoth Lakes Fire Protection District (5.86 percent) and the Southern Mono Hospital District (4.57 percent).

IMPACTS AND MITIGATION MEASURES

Methodology

The following analysis assumes full buildout of all phases of the proposed Project. Jurisdictions providing public services to the proposed Project will incur cost, but they will also receive initial and annual revenues. Some of the revenues and costs are based on the proposed Project's population increase or on a per capita basis. Upon completion, the proposed Project's residential and commercial development has the potential of adding approximately 1,140 people to the Town's resident population.

The residential component of the proposed Project would provide approximately 215 year-round housing units or about 500 permanent residents. This is calculated based on current occupancy rates and household sizes (see Table 4.4-5 of Section 4.4 Jobs/Housing Relationship). About 230 of the residents would be Lodestar employees and their families, and they would reside in the 100 employee housing units. The remaining 270 residents could occupy the 115 private year-round units.

The commercial development, which includes two hotels, commercial village, and an 18-hole golf course would generate about 619 new jobs. This translates into 1,086 residents (619 jobs x 2.3 household size). Approximately 870 people (80 percent) would reside in Mammoth Lakes, with the remaining 20 percent commuting from communities such as Crowley/Hilton, June Lake, Bridgeport, Lee Vining, and Bishop[7]. For a more detailed discussion of employment and housing projections, see Section 4.4 Jobs/Housing Relationship.

TOWN OF MAMMOTH LAKES

Impact

4.11-5 **The proposed Project would result in a net revenue for the Town of Mammoth Lakes. This is a *beneficial impact.***

The Town provides public services such as general government, planning and zoning, police protection, recreation, and public works, all of which would be impacted by the proposed Project.

One-Time Revenues

One-time revenues are revenues generated from the construction of the proposed Project. These include building permits, planning and zoning review, and water and sewer hook-up fees. The

purpose of these fees is to cover the cost of providing (the plan check and infrastructure connection services). The total one-time revenues from the proposed Project are over $6.82 million -- Mammoth Lakes' General Fund alone would receive about $2.56 million and MCWD about $4.25 million. Table 4.11-3 presents the one-time revenues for the Town of Mammoth Lakes and the MCWD.

Building Permits

Residential building permit fees are based on the valuation of the structure. Additional fees, such as seismic, master plan, public works, state program surcharge, solid waste, and fire mitigation fees are also added into the building permit fee[8]. Residential building fees amount to about $2.50 million and commercial building fees about $60,600 for a total of over $2.56 million.

TABLE 4.11-3

ONE-TIME REVENUES FROM THE LODESTAR RESORT
(1990 Dollars)

Revenue Source		Revenues
MAMMOTH LAKES GENERAL FUND:		$ 2,561,300
Residential Building Permit	2,500,700	
Commercial Building Permit	60,600	
MCWD:		4,254,500
Sewer Hook-up	2,052,800	
Water Hook-up	201,700	
TOTAL REVENUES		**$ 6,815,800**

Annual Revenues

Property Tax Revenues

The property tax rate for the proposed Project is 1.08671 percent of the total assessed value of the property. Currently, the Town receives 5.72 percent of the property tax. As presented in Table 4.11-4, the Project site is projected to have a total assessed valuation of $129.17 million upon completion. This is based on a projected assessment of $120.17 million for the improvements (residential, commercial, and golf course) and $8.62 million for the land. Based

on the current property tax rate, total property tax from the proposed Project is projected to be approximately $1.40 million. The property tax revenue from the proposed Project to the Mammoth Lakes' General Fund is approximately $80,300 (see Table 4.11-5).

Transient Occupancy Tax

A strong tourist industry and a large inventory of visitor housing units provides the Town with a large transient occupancy tax revenue. According to the 1989-1990 Mammoth Lakes General Fund, transient occupancy tax represented almost half of the revenues. With 500 hotel rooms, 200 resort[9] condominiums, and approximately 650[10] private condominiums available for rent in the proposed Project, a transient occupancy tax rate of 9 percent would generate approximately $2.78 million annually to the Town's General Fund.

Franchise Tax

The Town of Mammoth Lakes is serviced by three privately operated utility companies: Southern California Edison, Mammoth Disposal, and King Videocable Company. Based on a 1989 per capita utility charge, revenues would amount to $38,100. Below are the per capita factors used to determine the franchise tax[11]:

- Southern California Edison: $21.24
- Mammoth Disposal: $3.85
- King Videocable Company: $8.36

Sales Tax

Sale tax revenues are calculated based on annual taxable sales per square foot of commercial establishment. The annual taxable sales factors are listed below:

- Restaurants: $250 per square foot per year
- Resort Retail: $150 per square foot per year

TABLE 4.11-4

PROJECTED TAX REVENUES FROM THE LODESTAR PROJECT

Component	Units	Square Footage[1]	Building Value/Sq.Ft.[2]	Projected Assessed Value	Projected Tax Revenue
Single Family	40	2,400	$ 69.00	$ 6,624,000	$ 72,000
Condominium	735	1,100	$ 81.20	65,489,000	711,700
Apartment	100	900	$ 59.70	5,400,000	58,700
Hotel Condo	200	1,100	$ 81.20	17,864,000	194,100
Hotel Room	500	520	$ 63.10	16,406,000	178,300
Restaurant		20,000	$ 69.80	1,396,000	15,200
Resort Retail		60,000	$ 62.90	3,774,000	41,000
Golf Course-18-holes			$200,000/hole	3,600,000	39,100
Total Improvements				$120,553,000	$1,310,100
Total Land[4]				11,375,100	123,600
TOTAL				**$131,928,100**	**$1,433,700**

[1]Square footage estimates provided by developer.
[2]Building Valuation Data, November-December, 1989 Building Standard.
[3]Golf course cost provide by the County Assessors Office.
[4]Two percent inflation adjustment allowed by Prop. 13. Assumed for a 15-year period.

TABLE 4.11-5

LODESTAR PROPERTY TAX ALLOCATION BY JURISDICTION

Taxable Assessed Valuation:	$ 131,928,100
Property Tax Rate	1.08671%

Jurisdictions	Tax Apportionment (Percent)	Tax Revenue
Mono County	37.45	$ 536,900
Mammoth Lakes	5.72	82,000
M.U.S.D.	19.46	279,000
Library	2.02	29,000
E.S.U.S.D.	10.24	146,800
Supt. School	2.01	28,800
Fire Protection Dist.	5.86	84,000
So. Mono Hospital Dist.	4.57	65,500
Mammoth Co. Water Dist.	12.67	181,700
TOTAL	**100.00%**	**$1,433,700**

The Town of Mammoth Lakes' General Fund receives one percent (1 percent) of the total taxable sales. Based on the size of the proposed commercial development (20,000 square feet of restaurants and 60,000 square feet of retail), sales tax revenues would generate approximately $140,000 to the Mammoth Lakes' General Fund. It cannot be determined whether the sales revenue is totally from new customers or customers attracted away from another store in town.

Business Tax

Business tax revenues are imposed on all business establishments by the Town. Based on the number and type of businesses proposed by the proposed Project, revenues would total approximately $9,400.[12]

Other Revenues

Other revenues, which include licenses and permits, intergovernmental agencies, charges in services, police fines, and interest on investments were estimated based on a per capita basis, relying on the actual revenue levels in the Town of Mammoth Lakes 1989-1990 budget. Total 1989-1990 revenues from this source accounted for 23 percent of the Town's total revenue budget in 1989. As summarized in Table 4.11-6, other revenues from the proposed Project would, at the time of completion, generate approximately $279,600.

Costs

Generally, as population grows, local government is expected to provide more services such as general government, planning and zoning, public works, recreation, and police protection. Based on per capita expenditures from the 1989-1990 Mammoth Lakes Budget, the future expenditure is projected at $976,400. This is summarized in Table 4.11-7.

Cost/Revenue Balance

The annual revenue to the Town generated from the proposed Project at buildout is projected at $3.32 million, and the total annual cost is projected at about $976,400; thus, as shown in Table 4.11-7, a positive fiscal impact amounting to $2.35 million is projected for the Town.

TABLE 4.11-6
OTHER REVENUES FROM THE LODESTAR RESORT TO THE TOWN OF MAMMOTH LAKES

Revenues Sources	Per Capita Multipliers	Projected Revenues
License and Permits	$ 24.21	$ 27,600
Intergovernmental	56.03	63,900
Charges for Services	76.46	87,200
Police Fines	9.62	11,000
Interest on Investments	49.04	55,900
Misc. Revenues	29.81	34,000
TOTAL REVENUES		**$ 279,600**

TABLE 4.11-7

NET FISCAL IMPACT OF THE LODESTAR PROJECT ON THE TOWN OF MAMMOTH LAKES' GENERAL FUND

Revenue/Cost	Net Impacts
Revenue	
Property Tax	$ 82,000
Transient Occupancy Tax	2,775,300
Sales Tax	140,000
Franchise Tax	38,100
Business Tax	9,400
Other Revenues	279,600
TOTAL REVENUES:	**$ 3,324,400**
Costs	
General Government	$ 388,200
Planning Zoning	64,400
Public Works	138,300
Recreation	66,300
Police Services	288,800
Expenditure Contingency	30,400
TOTAL COSTS:	**$ 976,400**
NET REVENUES/(COSTS)	**$ 2,348,000**

Mitigation Measure

4.11-5 *None required.*

MAMMOTH UNIFIED SCHOOL DISTRICT

Impact

4.11-6 **The proposed Project would add 190 more students to the Mammoth Unified School District and would result in a net cost for the District. This is an *unavoidable, significant impact.***

Currently, there are 865 students attending school grades K-12 in the Mammoth Unified School District (MUSD). Assuming the current student/population ratio, the proposed Project would add 190 students to the MUSD.

School Impact Fees

In February 1990, MUSD approved the collection of school impact fees allow the District to collect a one-time fee of $1.10 per square foot of residential development and $.26 per square foot of non-residential development[13]. Potentially, the Project could contribute as much as $1.64 million to the District.

Annual MUSD Revenues

These revenues include property tax and Average Daily Attendance (ADA) revenues. As depicted in Table 4.11-5, property tax revenues are projected to be $279,000. ADA revenues, which are monies from the State to be spent on each student, is calculated at a rate of $3,400 per ADA; thus, the 190 students from the proposed Project could generate as much as $646,000.[14] Total annual revenues to the District would equal $925,000.

Cost Per Student

Each student is expected to cost the District $4,760 in operating costs and $11,000 in capital costs. Therefore, 190 students would cost approximately $904,000 in operating costs and $2.09 million in capital costs, totalling almost $3.0 million.

Mitigation Measures

4.11-6 *Implement Mitigation Measures 4.11-2(a) and 4.11-2(b).*

MAMMOTH COUNTY WATER DISTRICT

Impact

4.11-7 **The proposed Project is anticipated to generate a net revenue to the Mammoth County Water District. This is a *beneficial impact.***

Sewer and Water Hook-up Fees

One-time revenues generated by sewer and water hook-up fees amount to $2.05 million and $2.20 million respectively, for a total of $4.25 million. See Table 4.11-3.

Cost/Revenue Balance

Property tax allocation is the source of annual revenues for the MCWD. At the time of completion, property tax revenues will total $181,700. The increase in cost of providing water service as a result of the proposed Project is picked up by the sewer and water hook-up fees and any new on-site facilities are the responsibility of the developer.[15] Therefore, the proposed Project would be a net benefit to MCWD in the amount of the property tax.

Mitigation Measure

4.11-7 *None required.*

FIRE PROTECTION DISTRICT

Impact

4.11-8 **The proposed Project would result in a net cost for the Mammoth Lakes Fire Protection District. This is a *less-than-significant impact.***

Fire Mitigation Fees

A fire mitigation fee is included in the building permit fee as a one-time revenue. Based on square footage of building space, fire mitigation fees for the total project amount to $616,800.

Cost/Revenue Balance

Property tax amounts to $84,000 for the Fire Protection District. However, Fire Chief John Sweeny feels that the proposed Project will require the District to add one fire inspector to its

force and purchase additional equipment.[16] The total cost to the District is an estimated $130,000 per year. Therefore, on an annual basis, the impact would be a net deficit of $46,000.

Mitigation Measure

4.11-8 *Implement Mitigation Measure 4.11-4(a).*

SOUTHERN MONO HOSPITAL DISTRICT

Impact

4.11-9 **The proposed Project would contribute towards the Southern Mono Hospital District's annual revenues through payment of property taxes. This is a *beneficial impact.***

Cost/Revenue Balance

No impact fees are imposed by the Mono County Hospital District. In the 1989-1990 fiscal year, the District's revenue accounted for 4.57 percent of Mammoth Lakes' one percent property tax allocation. Therefore, assuming the distribution remains the same, the proposed Project's property tax will contribute $65,500 toward the District's revenues. Currently, the District has enough beds to meet the demands of the Project, and therefore, no additional costs to the District would be incurred.[17]

Mitigation Measures

4.11-9 *None required.*

MONO COUNTY

Impact

4.11-10 **The proposed Project would result in an undetermined net cost to Mono County. This is a *significant impact.***

Cost/Revenue Balance

During the 1989-90 Fiscal year, $12.51 million was required to finance the County's general fund budget.[18] Based on the county-wide population of 9,900 people, the per capita expenditure is

approximately $1,260. Therefore, an increase of 1,350 people to the County would result in an increased expenditure of approximately $1.70 million. Given that the Project's property tax revenue would contribute $536,900, there remains a deficit of approximately $1.16 million.

Mitigation Measure

4.11-10 *None feasible.*

CUMULATIVE IMPACTS

The cumulative development of future projects would increase the population, housing, and employment in the Town. For example, the direct impacts associated with housing development alone could potentially increase the Town's housing stock by as much as 2,700 units or 37 percent. The cumulative impact would increase further demand for police and fire protection and other public services.

ENDNOTES

1. Town of Mammoth Lakes, California, *North Village EIR*, 1989.

2. Richard McAteer, Superintendent, Mammoth Unified School District, telephone communication, June 1, 1990.

3. Richard McAteer, Superintendent of Schools, Mammoth Unified School District, telephone conversation, June 1, 1990.

4. Michael Donnelly, Police Lieutenant, Mammoth Lakes Police Department, telephone communication, May 31, 1990.

5. Ibid.

6. Jon Sweeny, Fire Chief, Mammoth Lakes Fire Protection District, telephone communication, June 29, 1990.

7. *The Town of Mammoth Lakes General Plan*, 1987.

8. Permit fee and additional fees based on worksheet provided by Mammoth Lakes Building Department.

9. Assumes hotel room occupancy rate of 72 percent at $105/room and 70 percent at $125/room. Based on a market study prepared by KPMG Peat Marwick. Henry Acuff, The Lodestar Company, June 8, 1990.

10. Assumes private condominiums occupancy of 120 days of the year. Steve Black, Mammoth Reservation Bureau, telephone conversation, June 1, 1990. Also assumes current permanent occupancy rates of 11 percent to determine the number of available transient units (735 units*11%=654).

11. Tracy Fuller, Finance Director, Town of Mammoth Lakes, facsimile transmission, June 7, 1990.

12. Tracy Fuller, op. cit.

13. Richard McAteer, Superintendent of Schools, Mammoth Unified School District, telephone communication, June 1, 1990.

14. Ibid.

15. James Kuykendall, General Manager, Mammoth County Water District, telephone communication, July 20, 1990.

16. John Sweeny, Fire Chief, Fire Protection District, telephone communication, July 17, 1990.

17. Sally DePerrot, Administrator, Mono County Hospital District, telephone communication, July 17, 1990.

18. Lauretta Cochran, County Auditor, Mono County, telephone communication, July 17, 1990.

5. CEQA CONSIDERATIONS

5.1 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

CEQA Section 21100 of the Public Resources Code states that the relationship between the local short-term uses of the environment and the maintenance and enhancement of long-term productivity must be discussed in an EIR. This discussion should include the cumulative and long-term effects of the proposed project which adversely affect the environment. Special attention should be given to impacts which narrow the range of beneficial uses of the environment.

The proposed development would convert a 210 acre wooded parcel from natural open space to a predominantly "urban" character. This parcel is centrally located within the Town and it's development would continue a long-term trend toward urbanization of the Town's incorporated area. The proposed development is consistent with the Town General Plan, thus it does not represent a deviation from long term planning policy.

The project will increase traffic, air pollution, energy consumption, water consumption, and demand for other utilities and public services. The project would also contribute to the cumulative loss of wildlife habitat in the Mammoth Lakes area.

Advantages of the proposed project include provision of additional recreational, housing, and commercial facilities to the community. Development of the project will also increase sales tax revenues to the Town and provide substantial one-time fee revenue.

Measurable degredation of long-term environmental productivity is not anticipated. As noted above, the project is consistent with Town general planning policy and does not expand the urban area of Mammoth Lakes. Habitat loss, aesthetic changes, and traffic increases appear to be the major potential impacts. A careful biological survey of the site indicates that it is not biologically unique nor does it provide habitat for any rare or endangered species. Potential traffic impacts can be offset through development of trip reduction measures specific to each phase of project development. Aesthetic impacts can be avoided by retaining native forest buffer spaces between prominent views to the site and site development features (large buildings, cleared areas, etc.).

5.2 SIGNIFICANT IRREVERSIBLE EFFECTS

CEQA (Guidelines Section 15126(f)) requires disclosure of irreversible effects which would result from a decision to implement the proposed Project. The intent of this discussion is to clarify how implementation of the project would commit ongoing allocation of future resources or induce a policy direction which would later be difficult to reverse. An example of such a commitment would be construction of a highway into a previously inaccessible area, rendering it available for use or development. Impacts associated with a proposed development may be considered to be significant and irreversible for the following reasons:

- Uses of non-renewable resources during the initial and continued phases of the project may be irreversible, since a large commitment of such resources makes removal or non-use thereafter unlikely;

- Primary impacts and, particularly, secondary impacts (such as highway improvement that provides access to a previously inaccessible area) generally commit future generations to similar uses.

- Irreversible damage can result from environmental accidents associated with the project.

CEQA also states that irretrievable commitments of resources are to be evaluated to ensure that such current consumption is justified.

The development of the Project implies an irreversible commitment of resources. Building materials, energy (electrical, petroleum, etc.) spent during construction, and energy spent during the operational phase of the Project are essentially an irreversible commitment of resources. Upon completion of the Project, natural resources would be used by the occupants of homes, including fuels used by Project-generated traffic. The proposed Project would increase residential densities on the site and would preclude other uses of the site for the lifetime of the Project.

Increased human activity accompanying development of the proposed Project could further induce wildlife to decrease or discontinue use of wildlife habitats onsite. Effects on these wildlife habitats are considered the most sensitive to long-term impacts on the Project site's natural ecosystem productivity.

These impacts are considered to be ***significant and irreversible***.

5.3 CUMULATIVE IMPACTS

The CEQA Guidelines (Section 15130) require a discussion of potential cumulative impacts that could result from a proposed project in conjunction with other projects in the vicinity. Cumulative impacts occur when two or more individual effects together create a considerable environmental impact or compound or increase other environmental impacts. Where the effects of cumulative impacts can be identified with reasonable certainty, they are discussed in each relevant issue section. In general, the potential for significant adverse cumulative impacts is influenced by the fact that the proposed Lodestar Development Project will increase population, housing demand, and labor supply consistent with market demand.

A list of projects considered in the cumulative analysis is provided in Table 5.3-1, Related Projects.

The specific projects considered in the cumulative analysis vary depending on the environmental issue area. For some impacts, such as visual quality and aesthetics, and archaeological resources, the cumulative projects considered in the impact section are generally those in the near vicinity of the Project. For other impacts, the Town-wide and regional impacts served as the principal basis of analysis. Those impacts include traffic and circulation, public services, and air quality.

TABLE 5.3-1
RELATED PROJECTS IN THE PROJECT AREA

Name/Location	Land Use	Size	Status
North Village			
	Hotel	1,950 units	Proposed
	Bed and Breakfast	50 rooms	
	Resort Condominium	400 units	
	Retail/Restaurants	257,000 sq.ft.	
Snowcreek			
	Single-family	100 du	Under Construction
	Condominiums/Houses	1,200 du/rooms	
	Resort Hotel	1,500 du/rooms	
	Commercial	150,000 square feet	
Juniper Ridge			
	Condominiums	120 du.	Approved
	Resort Hotel	250 rooms	
	Commercial	35,000 square feet	
	Single Family	44 du.	
Deer Creek	Resort Hotel	195 rooms	Potential
Bluffs	Single Family	60 du.	Approved
Gateway	Single Family	100 du.	Under Construction
Shady Rest	Mixed Housing	100-200 du.	Approved
MMSA (Mammoth Mountain Ski Expansion)		5,000 SAOT[1]	Approved
Sherwin Bowl Ski Area		8,000 SAOT	Approved

1 Skiers at one time.

6. GROWTH-INDUCING IMPACTS OF THE PROPOSED PROJECT

6. GROWTH-INDUCING IMPACTS OF THE PROPOSED PROJECT

Section 15126(g) of the CEQA Guidelines requires a discussion of the ways in which the proposed project could foster economic or population growth, either directly or indirectly, in the surrounding environment. Growth-inducing impacts include projects which would remove obstacles to population growth and projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively.

Typically, the growth-inducing potential of a project either induces growth or creates the capacity to accommodate growth above and beyond that which is permitted by planning policies or contained in independent growth projections. However, the creation of growth-inducing potential does not automatically cause growth, whether it be a portion of project growth or an actual increase over projected growth levels. Growth at the local level is fundamentally controlled by the land use polices of local municipalities or counties, which are determined by the local politics of growth in each jurisdiction. Growth-inducing potential or pressure created by economic and social conditions interacts with a locality's growth management policy in the transformation of growth potential into actual growth.

Commercial and residential growth in the project area is governed by the Town of Mammoth Lakes General Plan. Currently the Project site and study area are designated by the General Plan as undeveloped and Public space, and the zoning throughout the study area is "R" (Resort). The proposed Project is consistent with these designations.

The Lodestar Resort and Country Club is planned as a year-round destination resort. As such, its implicit purpose is to induce travel of tourists to the Mammoth Lakes area. Increased tourism would create pressures for improvement and expansion of a wide range of other types of public and private facilities in the area. For example, increased tourism could result in indirect impacts such as visitor trips to the Devil's Postpile National Monument.

The Lodestar Development Plan creates new employment opportunities in the community and, therefore, could indirectly induce growth in the City's population. The Project could also result in an increase in the local demand for affordable housing. It would also have the short-term effect of increasing local employment during the construction period for the Project.

7. SIGNIFICANT UNAVOIDABLE ENVIRONMENTAL IMPACTS OF THE PROPOSED PROJECT

7. *SIGNIFICANT UNAVOIDABLE IMPACTS OF THE PROPOSED PROJECT*

Pursuant to CEQA Guidelines Section 15126(b), this Chapter identifies environmental impacts that could not be eliminated or reduced to a less-than-significant level through implementation of recommended mitigation measures included as part of the proposed Project or other mitigation measures that could be implemented. The final determination of significant impacts will be made by the Town of Mammoth Lakes Planning Commission as part of their certification action.

All of the environmental impacts associated with development of the proposed Project are discussed in detail in the environmental issue sections of Chapter 4. Environmental Impact Analysis. Table 3-1, Summary of Environmental Impacts and Mitigation Measures, provides a summary listing of all identified impacts, level of significance of impacts prior to mitigation, recommended mitigation measures for each impact, and level of significance of impacts after implementation of the recommended mitigation measures.

The following discussion presents significant unavoidable impacts of the proposed Project that were identified through the environmental impact analyses.

Biotic Resources

4.3-1
4.3-2

Archaeological Resources

4.10-1

Public Services/Fiscal

4.11-2
4.11-6

8. ALTERNATIVES

8. ALTERNATIVES

INTRODUCTION

Section 15125(d) of the CEQA Guidelines requires that an EIR describe a reasonable range of alternatives to the proposed Project or to the location of the project which could feasibly attain the objectives of the Project. The comparative merits of these alternatives must be described and evaluated (A matrix summary of this is presented at the end of the discussion as Table 8-1). Section 15143 of the CEQA Guidelines further requires that the No Project alternative and its impacts be evaluated. The environmentally superior configuration or location must be identified. If the alternative with the least environmental impacts is the No Project alternative, one of the remaining alternatives is to be designated as the environmentally superior alternative. The following three alternatives to the proposed Project are considered:

- **No Project**: The proposed Project would not be constructed. The Project site would remain in an undeveloped condition.

- **Alternate Site**: The proposed Project, consisting of the same project description, would be relocated to a site east of the proposed Project within the Town of Mammoth Lakes east of Old Mammoth Road and south of Meridian Boulevard.

- **Reduced Project Size**: The land use intensity of the proposed Project would be reduced by 45 percent. The Project would consist of equivalent hotel, commercial, and employee housing units with a reduced number of "private market" housing units on a smaller parcel of the Project site area.

To aid in comparing impacts between the alternatives, the section is organized by topic rather than by alternative. In other words, the biotic resources impacts of each alternative can be found grouped under that heading.

Town of Mammoth Lakes General Plan Goals

The Mammoth Lakes General Plan provides a series of goals to which a project may be compared. Applicable General Plan goals include:

- Provide for community development that is consistent with the community's general health, safety and welfare.

- Preserve and maintain the unique natural setting and mountain resort character of Mammoth Lakes while accommodating changing community needs and conditions.
- Preserve and maintain the natural environment and wildlife of the area.
- Provide opportunities for economic growth and diversification.
- Provide a wide range of housing, employment and community facilities for the Town.
- Provide a land use plan and policies that provide suitable types and intensities of land use.
- Establish conservation and development policies for the wise management of the Town's resources.
- Establish transportation policies that will promote the development of a comprehensive transportation system for the community.
- Establish policies for the development of public services and facilities in accordance with the community's needs and the Town's resources to provide for those needs.

Environmental Constraints

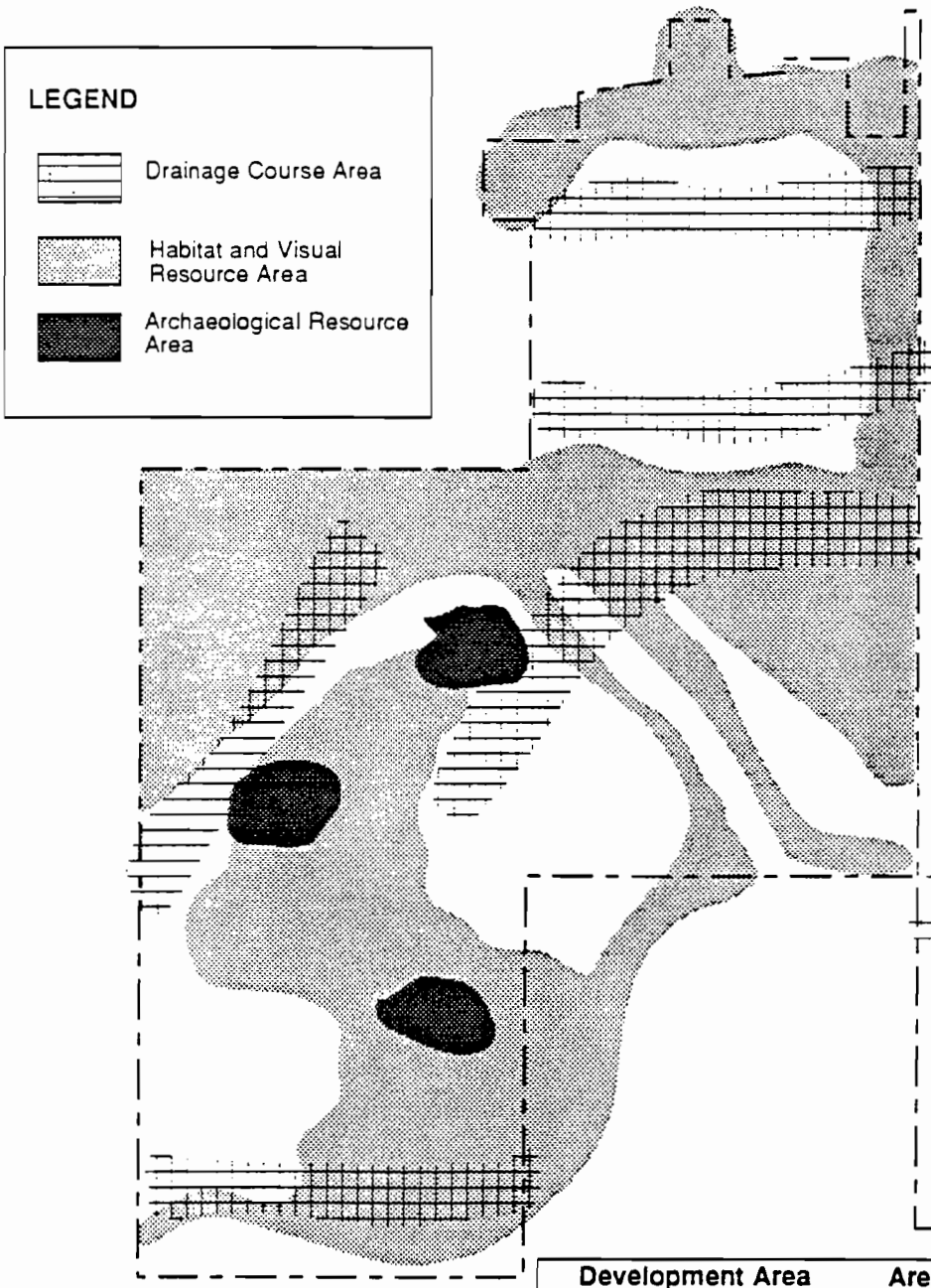
One of the main reasons for considering alternatives to a proposed Project is that of mitigating impacts which cannot be fully mitigated within the context of the project itself (i.e., through minor changes in the project description or by attaching "conditions of approval" to the project). In this regard, it is important to identify unique features and important constraints associated with the project site and attempt to avoid impacts to those features and constraints. An example of such a feature might be an historic resource or archaeological site which should be preserved in place and protected as a part of the project, rather than documented and removed, or simply destroyed.

In this regard, a "Site Development Constraints" map has been prepared for the Lodestar project site (see Figure 8-1). This map concentrates on features associated with the site, including particularly dense forested areas (important as habitat and visual resources), drainage courses (important hydrologically and as habitat resources), and documented archaeological sites (important cultural resources).

In preparing such a map, no consideration is given to the proposed Project as such. The features mapped are intended to be relatively vague, except where specifically noted, and involve some subjective judgement (i.e., how dense a stand of trees must be to be considered significant).

Site Development Constraints

Figure 8-1



Development Area		Area	Units	Gross Density
Area 1	Resort Hotel	7 Acres	350	50 du/ac
	Resort Comm.	2 Acres	23,000 sf	-------
	Residential	2.6 Acres	90	35 du/ac
Area 2	Residential	4 Acres	60	15 du/ac
Area 3	Resort Hotel	3 Acres	200	67 du/ac
	Resort Comm.	2 Acres	23,000 sf	--------
Area 4	Residential	2.1 Acres	40	19 du/ac
Area 5	Residential	10.5 Acres	100	10 du/ac
	Golf Course	40 Acres	550 du	Resort Hotel
	Roads	6 Acres	290 du	Residential
	Open Space	130.8 Acres	46,000 sf	Commercial
	Site Area Total	210 Acres		

SOURCE: EIP Associates

90031

No Scale

ALTERNATIVE 1: NO PROJECT

The No Project Alternative would mean that the proposed 210-acre master planned destination resort which includes single-family homes, multi-family condominiums, apartments for employee housing, lodges, full-service hotels, a commercial village, and an 18-hole golf course would not be developed and the Project site would remain in its undeveloped state.

ALTERNATIVE 2: ALTERNATE SITE

This Alternative would relocate the project to a site east of the proposed Project within the Town of Mammoth Lakes east of Old Mammoth Road and south of Meridian Boulevard. Currently the site is vacant, undeveloped land. This Alternative assumes that the number of dwelling units and overall design of the Master Plan would remain the same as proposed at the alternative location (See Figure 8-2).

The alternative site was selected after consultation with Town staff. It is characterized by a similar size, central location within the Town, and good access. It is further from the ski area and implementation of a ski lift/ski back access would not be possible. The site topography is similar (gently rolling), but it is not heavily forested.

ALTERNATIVE 3: REDUCED PROJECT SIZE

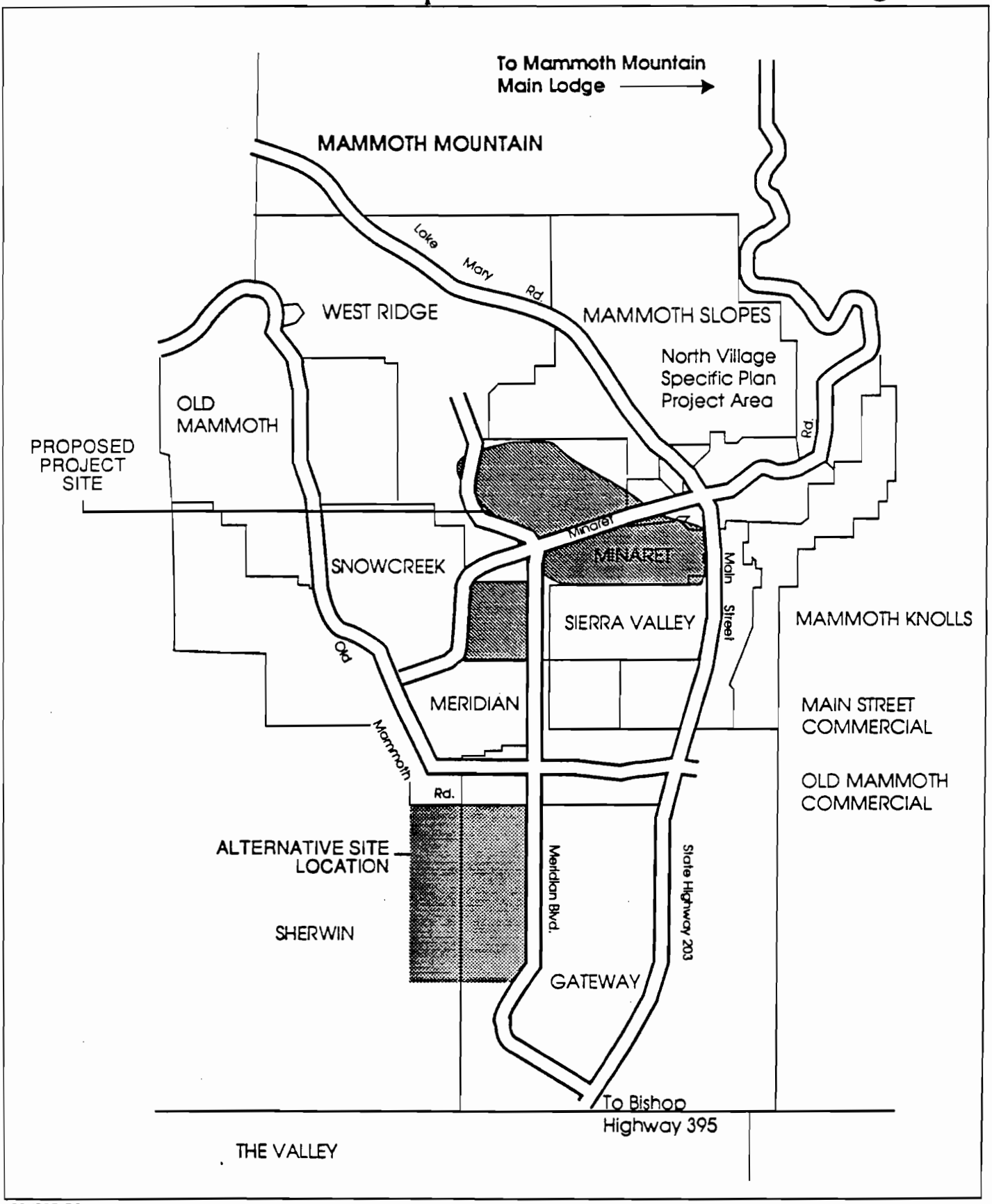
The Reduced Project Size Alternative is usually presented in response to environmental constraints associated with the site. In this case, it involves retention of the hotel, commercial, and employee housing components of the proposed Project, but with a reduced number of "private market" housing units (see Figure 8-3). Note that the planning areas have been renumbered in this alternative.

Development Area 1 would encompass approximately 11.6 acres and would include a hotel, resort commercial, and employee housing uses. Development Area 2, around 4 acres, would accommodate approximately 60 housing units. Area 3, about 5 acres situated at the intersection of Meridian Boulevard and Minaret Road, could be the site of the second hotel use, with ancillary commercial and residential uses. This centrally located site might naturally serve as the focus of the golf course operation. Development Area 4, just over 2 acres, would be developed with 30 to 40 units of townhouses or condominiums. South of Meridian, Area 5 would be best restricted to residential and golf course uses. Approximately 100 dwelling units could be accommodated on this 10.5-acre site.

Maximum retention of existing forest would preclude development of the proposed golf course in its present form. However, roughly 1/2 of the proposed 4,400-yard course could be accommodated within less-forested areas of the site and adjacent to the development areas of the reduced intensity alternative. The course could be limited to 9 holes, an 18-hole executive length course, or additional (less heavily forested) acreage could be developed south of the Project site.

Alternative Site Location Map

Figure 8-2



SOURCE: EIP Associates

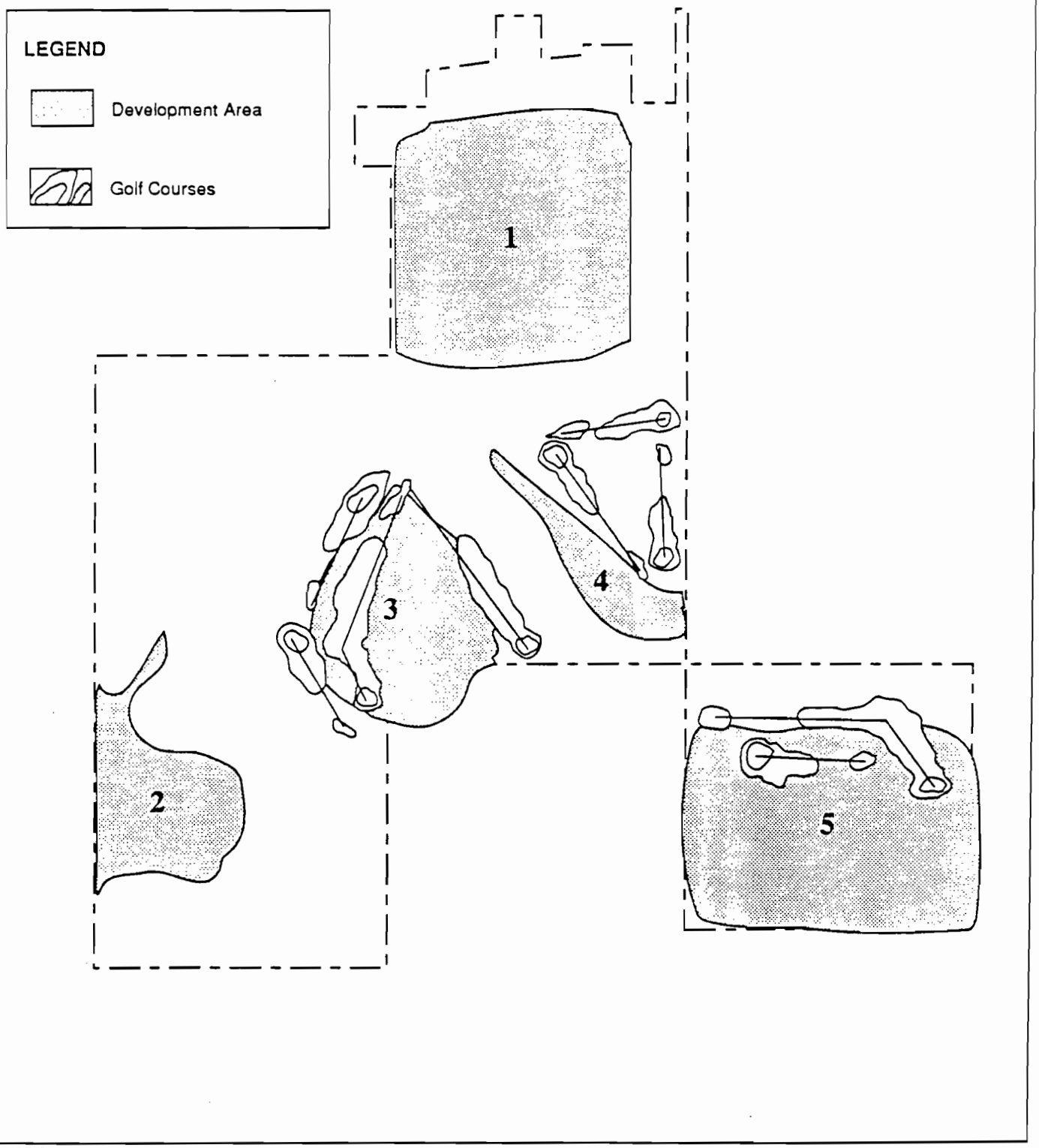
90031

No Scale

eip

Reduced Intensity Alternative Development Areas

Figure 8-3



SOURCE: EIP Associates

90031

No Scale

eip

TABLE 8-1
ALTERNATIVES MATRIX SUMMARY
Comparison of Alternatives with the Proposed Project

Environmental Issue Area	No Project	Alternative Site	Reduced Project
Geology, Soils and Seismicity	-	+	-
Hydrology & Water Quality	-	+	-
Biotic Resources	-	+	-
Jobs/Housing	-	=	-
Utilities	-	=	=
Traffic	-	+	-
Air Quality	-	=	-
Noise	-	=	-
Archaeological Resources	-	Cannot Be Determined	-
Aesthetics/Visual Quality	-	+	-
Public Services/Fiscal	_	=	=

\+ The impacts from this alternative would be greater than the proposed project.
\- The impacts from this alternative would be less than the proposed project.
= The impacts from this alternative would be equal to the proposed project.

The project would consist of 16.5 acres residential (38.5 acres less than the proposed Project), 11.6 acres of resort (13.4 acres less than the proposed Project), and 55 acres of a 9-hole golf course (55 acres less than the proposed Project). The remaining area of 117 acres would be left as open space (compared to the 5 acres remaining under the proposed Project).

Geology, Soils, and Seismicity

No Project

Under this alternative, no grading of the site would occur. Thus, none of the grading or foundation impacts described in the Geology, Soils, and Seismicity section would occur under this alternative. Surface faulting and ground shaking would continue to be produced from local and regional faults, but the effects at the undeveloped site would be no different than present conditions. This alternative would have less impact than the proposed Project.

Alternative Site

This alternative could result in a greater area of building excavation due to the presence of a knoll and the greater topographical variety of the site. Occupants would be exposed to similar earthquake hazards as at the proposed Project site. Geologic impacts resulting from this alternative would be slightly greater than the proposed Project.

Reduced Size

This alternative would result in only 79 acres (37.6 percent) of the Project site being disturbed for Project construction activities (buildings) or open space (roads, golf course). This is contrasted to development of 205 acres of the site under the proposed Project. The decrease in project size would result in an associated decrease in the population of the site and a decrease in the number of occupants exposed to earthquake hazards. Geological impacts resulting from this alternative would be slightly less than for the proposed Project.

Hydrology and Water Quality

No Project

This alternative would not result in any change to the direction of surface flow, the quantity of surface flow, or quality of surface flow. Sheet flow of 42 cfs would continue off the site towards Murphy Gulch. Therefore, the No Project Alternative would have less impact than the proposed Project.

Alternative Site

This alternative slopes to the northeast at a grade of less than 2 percent. The majority of the site contributes to flow in Murphy Gulch, while a small portion flows directly into Mammoth Creek. This alternative would result in a comparable amount of impervious area, that is a 210-acre land development with 67 acres of impervious surfaces such as buildings, roadways, and parking areas. Development at this location would also result in comparable surface flows of 82 cfs contributing to flow in Murphy Gulch. The increase in surface water would require similar mitigation measures as required under the proposed Project. However, due to the lack of development between the alternative site and Highway 203 and below the highway, the project proponent would be required to contribute to drainage structures to channel any increase in flow beneath the highway. Impacts are slightly greater under this alternative.

Depth to groundwater in this location would need to be determined from geotechnical investigations. From the regional geology, groundwater would be expected to be at depths greater than 30 feet. Water quality impacts and mitigation measures would be similar to the proposed Project. Measures controlling irrigation and fertilization would be required as described under the proposed Project.

Reduced Size

Development of the Reduced Intensity Alternative would considerably reduce the impacts on the site's hydrology. Under this alternative, only 93 acres (compared to the 205 acres under the proposed Project) would be required for project construction. Approximately 28 acres (compared to the 67 acres of the proposed Project) of the site would be covered with impermeable surfaces such as buildings, parking areas, and walkways. A total of 58 cfs of surface runoff would be generated from the project site (compared to the 82 cfs of the proposed Project). The quality of runoff would be anticipated to improve as compared to the quality under the proposed Project due to the smaller area of paved surfaces under this alternative. Therefore, this alternative would result in less hydrological and water quality impacts than those of the proposed Project.

Biotic Resources

No Project

This alternative would not result in any change to the present use of the Project site. Forest habitat would remain in its existing condition. There would be no cumulative loss of open space. This alternative would have less impact on biotic resources than the proposed Project.

Alternative Site

This alternative would result in a similar disruption to existing habitat. However, at this site, development might result in a greater disruption and loss of native plant communities than on the proposed Project site due to the presence of threatened and endangered or candidate species. Therefore, the impacts from this alternative would be greater than the proposed Project.

Reduced Size

The Reduced Intensity Alternative is designed to retain prime habitat areas on site to the fullest extent feasible. To this end, undeveloped open space increases from 5 acres (proposed Project) to over 130 acres. Existing watercourses would be retained to a greater extent. Forested corridors through the site would be retained. Impacts on native vegetation and wildlife would be reduced. Therefore, this alternative would have substantially fewer impacts than the proposed Project.

Jobs/Housing Relationship

No Project

This alternative will not increase the population of the Town and will not result in any impacts in the areas of population, employment, or housing needs.

Alternative Site

This alternative would result in similar population and employment generation as the proposed Project. Therefore, the impacts to jobs/housing associated with the alternative site are the same as for the proposed Project.

Reduced Size

The Reduced Intensity Alternative would provide slightly less employment as the proposed Project due to a smaller commercial component. Employee housing would be reduced slightly, but a full complement of employee housing could be accommodated within the context of this alternative. Overall, housing would be reduced from 875 units to 290 units.

Utilities

No Project

This alternative would not result in any increase in population and the associated need for water, wastewater collection, gas or electricity provision or solid waste disposal sites. Therefore, this alternative would have less impact than the proposed Project.

Alternative Site

Development at the alternative site would cause similar increases in the amount of electricity, natural gas and water resources required by the Project. Therefore, this alternative would result in similar impacts as the proposed Project.

Reduced Size

Implementation of the Reduced Intensity Alternative would result in a decrease in utility use by the Project for all types of utilities and public services. Decreasing the size of the golf course would lessen the demand for irrigation water. This may make use of recycled water economically unattractive unless the system for delivery of reclaimed water to the site is shared with other nearby developments. This alternative would have less impact on utilities than the proposed Project.

Traffic

No Project

No additional traffic in the surrounding area would be generated if the proposed Project did not occur. Key intersections may operate at higher volumes and flows due to cumulative projects, but at levels lower than cumulative plus project levels.

Alternative Site

The number of daily trips generated under the Alternative Site would be equal to or greater than that generated under the proposed Project. The volume of traffic would be greater on roads adjacent to the Alternative Site. However, unless the alternative site also has the potential for a ski lift, it will probably generate more traffic. Therefore, this alternative would have greater impacts than the proposed Project.

Reduced Size

This alternative would result in less short-term traffic impacts resulting from the decrease in construction traffic required to construct a smaller project over a shorter construction period. Reduction of the number of residential units would create a corresponding decrease in the number of trips added to the local street network. Thus, this alternative would result in a decrease in traffic generation and circulation in adjacent streets and would result in less traffic impacts than the proposed Project.

Air Quality

No Project

This alternative would not result in any immediate change in traffic flow in the short-term, and no impacts would occur to air quality. Therefore, this alternative would have less impact than the proposed Project.

Alternative Site

This alternative would have air quality impacts similar to the proposed Project.

Reduced Size

A reduction in trip ends associated with this alternative would produce a similar reduction in vehicle emissions and air quality degradation. Air quality impacts associated with site grading would also be reduced because substantially less of the site would be graded. Therefore, this alternative would result in less impact on air quality than the proposed Project.

Noise

No Project

There would be no short-term increases in noise levels resulting from construction activities. The long-term noise levels would not change significantly due to the absence of the proposed development and the presence of other projects that would produce increases in noise levels. Therefore, the short-term effects of this alternative would have less impact than the proposed Project.

Alternative Site

Noise impacts related to traffic and Project construction activities would remain essentially the same with development occurring at the alternative site. Therefore, this alternative would have impacts similar to the proposed Project.

Reduced Size

Due to the reduction in dwelling units and resultant reduction in traffic volumes, noise levels would also be reduced by this alternative. Noise associated with hotel and commercial operations would not change substantially. Thus, the noise impacts from this alternative would be less than the proposed Project.

Archaeological Resources

No Project

This alternative would not result in any disruption of the surface of the Project site and would in no way endanger cultural resources or significant sites within the Project area. Therefore, there would be less impact than under the proposed Project.

Alternative Site

Without an Archaeological reconnaissance at the Alternative Site, it is difficult to determine the impacts at this time.

Reduced Size

The reduced intensity alternative is designed to avoid known archaeological sites to the fullest extent feasible. Two sites in the southeast area of the property would be disturbed. Isolates would need to be documented and recovered. Archaeological impacts under this alternative could potentially be reduced.

Aesthetics/Visual Quality

No Project

Under the No Project Alternative, there would be no alteration to the aesthetic or visual quality of the site. Undeveloped areas of the project site would remain forested, and there would be no

significant impacts on existing views from adjacent roadways and developed areas. Light and glare impacts from interior and exterior sources would not be increased under this alternative.

Alternative Site

The alternative project site is located south of Meridian Road and east of Old Mammoth Road on a northeast-facing slope. The visually prominent hillside site is not heavily forested and can be seen approaching Town from Highways 395 and 203. As with the proposed Project, development of the alternative site would result in the conversion of approximately 75 acres of natural open space to built uses. Due to the alternative site's lack of forested cover and its high visibility from adjacent roadways and numerous off-site locations, visual impacts would be considered significant and impacts from light and glare effects would be more difficult to mitigate. When compared to the proposed Project, the ability to buffer project structures and roadways from common viewpoints would be extremely limited. If screening vegetation was included in the site design, it would not easily blend with the surrounding natural environment. Based on these factors, development of the project at the alternative site would result in significant impacts of a greater degree than if development occurred at the proposed Project site.

Reduced Size

Under the Reduced Intensity Alternative, built portions of the project would be reduced by approximately 45 percent. As a result approximately 42 additional acres of natural open space would be preserved under this alternative. Without an evaluation of specific site plans for a reduced scale alternative, the significance of visual impacts cannot be fully assessed. However, if similar efforts were taken to buffer developed areas from adjacent roadways and residential areas, it can be assumed that visual impacts and impacts from light and glare would be reduced substantially from those under the proposed Project.

Public Services/Fiscal

No Project

This alternative would not result in any increase in population within the Project site or any increase in the associated public services of snow removal, fire protection, police protection and schools. The fiscal impacts associated with the Project would not occur.

Alternative Site

Impacts associated with public services/fiscal impacts such as police, fire and schools would not change substantially under this alternative. Therefore, this alternative would have impacts similar to the proposed Project.

Reduced Size

The incremental decrease in demand on public services would be minimal and the mitigation measures in Section 4.11 would still apply. Therefore, this alternative would have impacts similar to the proposed Project.

Environmentally Superior Alternative

Section 15143 of the CEQA Guidelines requires that an environmentally superior alternative be designated. The No Project alternative would be the environmentally superior alternative, but it would fail to meet all project objectives. Of the remaining alternatives, the Reduced Project alternative would be the environmentally superior alternative.

9. ORGANIZATIONS AND PERSONS CONTACTE

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ENDNOTES

1. California Department of Finance, Demographic Research Unit, Report E-5, 1990.

2. *Town of Mammoth Lakes General Plan*, 1987.

3. California Department of Finance, op. cit.

4. Inyo Mono Advocates for Community Action, *Affordable Housing Needs Assessment*, prepared by the Laurin Associates, 1990

5. Affordable housing is defined as very low- and low-income housing.

6. *Town of Mammoth Lakes General Plan*, 1987.

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9. California Employment Development Department, Labor Market Information Division, 400-C Report, 1990.