

3.1.11 Traffic

This section is based on a traffic impact study prepared by Associated Transportation Engineers (ATE) (1998) for the Project on Soledad Canyon Road. A complete copy of ATE's traffic report, prepared in accordance with County guidelines, is presented in Appendix D of this document.

3.1.11.1 Affected Environment

Existing Conditions

Street Network

The Project consists of a sand and gravel extraction and processing facility and a ready-mixed concrete batch plant on Soledad Canyon Road. The site is located 2.9 miles east of the Antelope Valley Freeway on Soledad Canyon Road. The Project site is accessible from the Antelope Valley Freeway interchanges at Soledad Canyon Road and Agua Dulce Canyon Road. The nearest intersection to the Project site is the intersection of Soledad Canyon Road and Agua Dulce Canyon Road, located to the east of the proposed access. The sections below briefly describe the access roads to the Project site.

Soledad Canyon Road

Soledad Canyon Road forms the southern boundary of the site and will provide site access. Soledad Canyon Road is a two-lane, east/west-oriented road that is classified as a Major Highway in the County Master Plan. This classification includes urban highways that are of countywide significance and are, or projected to be, the most heavily traveled routes. Also classified as Major Highways are key (interurban) connectors, nonurban access ways, and recreational roads. Soledad Canyon Road is a nonurban access road that serves the area mining and recreational facilities and therefore fits the nonurban access way and recreational road description of the County's Major Highway designation. It is not heavily traveled (2,600 ADT in the vicinity of the Project site), and it serves as a local access to several RV parks in the area and provides local access to other mining projects in the area.

The ultimate roadway configuration distance is 84 feet, with a total right-of-way of approximately 100 feet. No signalized intersections are along Soledad Canyon Road in this area. All existing intersections are stop-sign controlled including the Antelope Valley Freeway interchanges. Additionally, no large developments are presently within a 2-mile radius of the Project location. Currently, an undeveloped road accesses the Project site and has a Y-intersection at Soledad Canyon Road.

Traffic counts have established that the a.m. and p.m. peak hours on Soledad Canyon Road were from 6:00 to 7:00 a.m. and 4:00 to 5:00 p.m., respectively. Accordingly, the turning movements were taken at the following six study intersections:

1. Agua Dulce Canyon Road and Soledad Canyon Road,
2. Agua Dulce Canyon Road and southbound (SB) Antelope Valley Freeway on/offramps,
3. Agua Dulce Canyon Road and northbound (NB) Antelope Valley Freeway on/offramps,
4. Soledad Canyon Road and SB Antelope Valley Freeway on/offramps,
5. Soledad Canyon Road and NB Antelope Valley Freeway on/offramps, and
6. Soledad Canyon Road and Project access road.

The a.m. peak period forms the critical period for analysis.

Agua Dulce Canyon Road

This is a north/south-oriented, two-lane road with one lane in each direction. This road has a full interchange with the Antelope Valley Freeway, which runs east/west at the intersection. Agua Dulce Canyon Road forms a T-intersection with Soledad Canyon Road, and this intersection is the closest intersection to the Project access. Project-generated traffic will be precluded from using this access road, with the exception of local deliveries (i.e., between the Project site and Acton).

Antelope Valley Freeway (State Route 14)

This state route is a southwest/northeast-oriented freeway connecting the Antelope Valley with I-5. The Antelope Valley Freeway is accessible from Soledad Canyon Road and Agua Dulce Canyon Road from the Project site (Figure 3.1.11-1). Near Soledad Canyon Road, the freeway has three lanes in either direction.

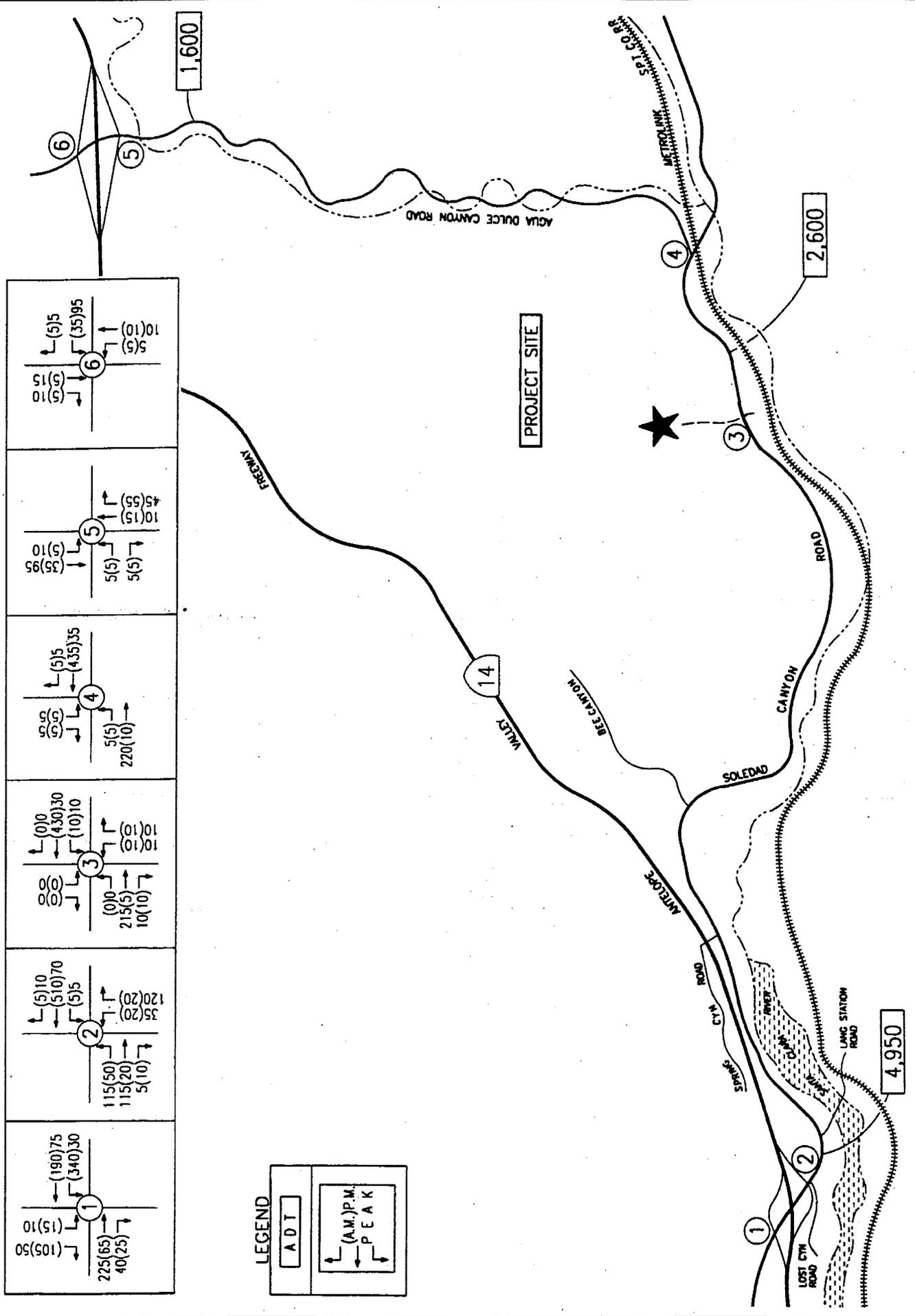
Interstate 5

This route is a major north/south freeway passing through the western end of the Santa Clarita Valley. It provides an important transportation route to Los Angeles and the surrounding urban areas. The potential marketing area for TMC includes the Santa Clarita Valley and the greater Los Angeles area and thus the Project would use this freeway to some extent.

Existing Roadway Volumes and Intersection Capacities

The study area is defined to include Soledad Canyon Road, Agua Dulce Road, their intersection, and each road's intersection with the Antelope Valley Freeway. This section presents the existing traffic volumes for the area roadways, the levels of service (LOS) of the study area intersections, future volume methodology, and related projects (cumulative projects). This sets the baseline for the traffic scenarios examined in the impacts section, which are as follows:

- ▶ Scenario 1 - Existing (1997),
- ▶ Scenario 2 - Year 1999 (Scenario 1 + Growth @ 1.5-percent/year),
- ▶ Scenario 3 - Year 1999 + TMC Phase 1 (Scenario 2 + TMC Phase 1),
- ▶ Scenario 4 - Year 1999 + TMC Phase 1 + Related Projects (Scenario 3 + Related Projects),
- ▶ Scenario 5 - Year 2009 (Scenario 1 + Growth @ 1.5 percent/year),



SITE ACCESS AND EXISTING TRAFFIC VOLUMES
Figure 3.1.11-1

Not to Scale
 Source: Associated Transportation Engineers

- ▶ Scenario 6 - Year 2009 + TMC Phase 2 (Scenario 5 + TMC Phase 2), and
- ▶ Scenario 7 - 2009 + TMC Phase 2 + Related Projects (Scenario 6 + Related Projects).

Roadway Operations

Figure 3.1.11-1 illustrates the existing traffic volumes for the study-area roadways and intersections. These volumes were collected in July 1997. LOS A through F are used to rate roadway operations, with LOS A indicating very good operation and LOS F indicating poor operation. More complete descriptions of the LOS grades are provided in Table 3.1.11-1. It is important to note that the traffic volumes used in the LOS calculations for this traffic study include truck volumes that have been converted to passenger car equivalents (PCEs) pursuant to County guidelines. Adjustments were made by multiplying each truck present in the traffic system by a factor of 2.0 (each truck equals two passenger vehicles) prior to completing the LOS forecasts.

The volume-to-capacity (V/C) ratio methodology contained in the Los Angeles County Traffic Impact Analysis Guidelines was used to determine the LOS for both Soledad Canyon and Agua Dulce Canyon Roads (DPW 1997). Table 3.1.11-2 shows the County LOS criteria for two-lane roadways.

Existing LOSs for the study-area roadway segments are summarized in Table 3.1.11-3. Detailed LOS calculation worksheets are contained in Appendix D. As shown, both Soledad Canyon Road and Agua Dulce Canyon Road currently operate at LOS A during the a.m. and p.m. peak hour periods.

Intersection Operations

The LOS A through F grading system discussed previously for roadway operations is also used to rate intersection operations. Pursuant to Los Angeles County Traffic Study Guidelines (DPW 1997), the intersection capacity utilization (ICU) method of intersection analysis, which uses the V/C ratios, was used to determine LOS for the study-area intersections.

Existing LOSs for the study-area intersections are listed in Table 3.1.11-4. Detailed LOS calculation worksheets are contained in Appendix D. All of the intersections operate at LOS A during the a.m. and p.m. peak hour periods.

Projected Future Conditions

Future traffic volumes are based on future ambient growth as well as proposed development projects in the immediate area of the Project. For ambient growth, a 1.5 percent/year growth factor was applied per County direction to the existing volumes to account for development located outside of the Project study area. The 1.5 percent/year factor was used to forecast Year 1999 volumes, as full production during Phase 1 may begin in Year 1999. It was assumed that Phase 2 full production would begin in 2009. The 1.5 percent annual growth factor was also applied for this scenario.

Table 3.1.11-1

LEVEL OF SERVICE DEFINITIONS

LOS	ICU-V/C ¹	Definition
A	<0.60	Low volumes; primarily freeflow operations. Density is low and vehicles can freely maneuver within traffic stream. Drivers can maintain their desired speeds with little or no delay.
B	0.61-0.70	Stable flow with potential for some restriction of operating speeds due to traffic conditions. Maneuvering is only slightly restricted. Stopped delays are not bothersome, and drivers are not subject to appreciable tension.
C	0.71-0.80	Stable operations; however, the ability to maneuver is more restricted by the increase in traffic volumes. Relatively satisfactory operating speeds prevail, but adverse signal coordination or longer queues cause delays.
D	0.81-0.90	Approaching unstable traffic flow where small increases in volume could cause substantial delays. Most drivers are restricted in their ability to maneuver and their selection of travel speeds. Comfort and convenience are low but tolerable.
E	0.91-1.00	Operations characterized by significant approach delays and average travel speeds of one-half to one-third of free-flow speed. Flow is unstable and potential for stoppages of brief duration. High signal density, extensive queuing, or signal progression/timing are the typical causes of delays.
F	> 1.00	Forced-flow operations with high approach delays at critical signalized intersections. Speeds are reduced substantially, and stoppages may occur for short or long periods of time because of downstream congestion.
¹ ICU - intersection capacity utilization V/C - volume to capacity ratio		

Table 3.1.11-2

LOS ANGELES COUNTY TWO-LANE ROADWAY LOS CRITERIA

Directional Split	Total Capacity (pcph) ¹	Peak Hour Volume				
		LOS A (V/C < 0.60)	LOS B (V/C 0.61-0.70)	LOS C (V/C 0.71-0.80)	LOS D (V/C 0.81-0.90)	LOS E (V/C 0.91-1.00)
50 / 50	2,800	< 1,680	< 1,960	< 2,240	< 2,520	< 2,800
60 / 40	2,650	< 1,590	< 1,855	< 2,120	< 2,385	< 2,650
70 / 30	2,500	< 1,500	< 1,750	< 2,000	< 2,250	< 2,500
80 / 20	2,300	< 1,380	< 1,610	< 1,840	< 2,070	< 2,300
90 / 10	2,100	< 1,260	< 1,470	< 1,680	< 1,890	< 2,100
100 / 0	2,000	< 1,200	< 1,400	< 1,600	< 1,800	< 2,000

¹ pcph - passenger cars per hour

Table 3.1.11-3

EXISTING ROADWAY OPERATIONS

Roadway	A.M. Peak Hour	P.M. Peak Hour
	V/C / LOS	V/C / LOS
Soledad Cyn Rd		
Project - Bee Cyn	0.23 / A	0.12 / A
Bee Cyn - Rt 14	0.28 / A	0.13 / A
Agua Dulce Cyn Rd		
South of Rt 14	0.04 / A	0.06 / A

Table 3.1.11-4

EXISTING INTERSECTION OPERATIONS

Intersection	A.M. Peak Hour	P.M. Peak Hour
	ICU / LOS	ICU / LOS
Soledad Cyn Rd/Antelope Vly SB Ramps	0.42 / A	0.23 / A
Soledad Cyn Rd/Antelope Vly NB Ramps	0.49 / A	0.31 / A
Soledad Cyn Rd/Project Access	0.41 / A	0.28 / A
Soledad Cyn Rd/Agua Dulce Cyn Rd	0.41 / A	0.28 / A
Agua Dulce Cyn Rd/Antelope Vly NB Ramps	0.18 / A	0.21 / A
Agua Dulce Cyn Rd/Antelope Vly SB Ramps	0.14 / A	0.19 / A

Several related projects are located in the vicinity of the Project. Table 3.1.11-5 summarizes the traffic associated with the related projects. Trip generation calculations and a map showing the related project locations are contained in Appendix D. Fifty percent of the related Project traffic was assumed for the TMC Phase 1 cumulative analysis, and 100 percent of the related Project traffic was assumed for the TMC Phase 2 cumulative analysis.

Table 3.1.11-5

RELATED PROJECTS

Project	Use	Size	Trip Generation		
			ADT	A.M. Peak	P.M. Peak
CalMat	Mining	1,183 acres	350	24	8
LA Co #90501	Single-Family Res.	616 units	5,883	456	622
LA Co #87459	Single-Family Res.	437 units	4,173	323	441
LA Co #93147	Mobile Homes	650 units	3,127	260	364
LA Co #90115	Single-Family Res.	499 units	4,765	369	504
Curtis Sand & Gravel	Mining	168 acres	64	8	7
CA Rasmussen	Mining	205 acres	89	0	9
LA Co #86258	Single-Family Res.	70 units	669	52	71
LA Co #91057	Single-Family Res.	30 units	287	22	30
LA Co #91084	Single-Family Res.	14 units	134	10	14
LA Co #97002	Mining	NA	164	5	4
NA = size not available. Trip generation based on initial study information.					

Future traffic volume forecasts are presented in Table 3.1.11-6. Figures A through F in Appendix D show the traffic volume forecasts for the various traffic scenarios analyzed.

Table 3.1.11-6

FUTURE TRAFFIC VOLUMES BY SCENARIO

Traffic Volume Scenario	Soledad Canyon Road Near Lang Station Road	Project Entrance	Agua Dulce Road
Existing (1997)	4,950	2,600	1,600
Year 1999	5,100	2,700	1,600
Year 1999 + TMC Phase 1	5,801	3,401	1,647
Year 1999 + TMC Phase 1 + Related Projects	13,933	5,327	2,597
Year 2009	5,900	3,100	1,900
Year 2009 + TMC Phase 2	7,090	4,290	1,982
Year 2009 + TMC Phase 2 + Related Projects	15,705	5,399	7,344

3.1.11.2 Environmental Effects

Significance Criteria

The significance of Project-generated impacts was identified using the impact threshold criteria established by the County and listed in the Los Angeles County Traffic Impact Analysis Guidelines (DPW 1997). Table 3.1.11-7 lists the roadway impact criteria used to assess potential Project impacts on Soledad Canyon Road and Agua Dulce Canyon Road, while Table 3.1.11-8 shows the impact criteria used to assess potential Project impacts on the study-area intersections.

Project Generated Traffic Volumes

Trip Generation

The Project is to be developed in two phases. Phase 1 would be from 1999 to 2009, while Phase 2 would be from 2009 to 2019. Because trip rates are not available for mining operations, Project-generated traffic was estimated based on the operational characteristics of Phases 1 and 2.

Table 3.1.11-7

LOS ANGELES COUNTY IMPACT CRITERIA - ROADWAYS

Directional Split	Total Capacity (pcph)	Increase in PCPH by Project (percent)		
		LOS C	LOS D	LOS E
50 / 50	2,800	4	2	1
60 / 40	2,650	4	2	1
70 / 30	2,500	4	2	1
80 / 20	2,300	4	2	1
90 / 10	2,100	4	2	1
100 / 0	2,000	4	2	1

Project impacts based on pre-project LOS.
Source: DPW 1997

Table 3.1.11-8

LOS ANGELES COUNTY IMPACT CRITERIA - INTERSECTIONS

LOS	V/C	Project V/C Increase (percent)
C	0.71 - 0.80	4 or more
D	0.81 - 0.90	2 or more
E/F	0.91 or more	1 or more

Project impacts based on pre-project LOS.
Source: DPW 1997

Table 3.1.11-9 summarizes the Phase 1 and 2 trip generation estimates developed for the Project, and detailed calculation worksheets are presented in Appendix D. Project trip generation estimates were developed based on the number of trucks required to transport the quantity of materials mined and processed, and other materials required for the Project. Employee trips were estimated assuming four trips per day per employee. Peak hour inbound and outbound trips were estimated based on operations at similar mining facilities.

Table 3.1.11-9

PROJECT TRIP GENERATION

Phase	ADT	A.M. Peak Hour			P.M. Peak Hour		
		In	Out	Total	In	Out	Total
Phase 1							
Trucks	694	18	28	46	11	13	24
Employees	<u>60</u>	<u>8</u>	<u>1</u>	<u>9</u>	<u>1</u>	<u>7</u>	<u>8</u>
Totals	754	26	29	55	12	20	32
Phase 2							
Trucks	1,164	33	47	80	19	22	41
Employees	<u>120</u>	<u>16</u>	<u>2</u>	<u>18</u>	<u>2</u>	<u>14</u>	<u>16</u>
Totals	1,284	49	49	98	21	36	57
Notes: Phase 1 - One-way truck trips comprised of 75 ready-mixed concrete trucks, 7 cement/fly ash trucks, and 265 aggregate trucks; 15 employees. Phase 2 - One-way truck trips comprised of 75 ready-mixed concrete trucks, 7 cement/fly ash trucks, and 500 aggregate trucks; 30 employees.							

As listed in Table 3.1.11-9, Phase 1 would generate a relatively minor amount of traffic at the site; 754 ADT, 54 a.m. peak hour and 32 p.m. peak hour trips. Phase 2 would generate 1,284 ADT, 98 a.m. peak hour, and 57 p.m. peak hour trips.

Trip Distribution and Assignment

Primary access between the site and the Antelope Valley Freeway is provided by the Soledad Canyon Road interchange. It is anticipated that 95 percent of Project traffic would travel to the Antelope Valley Freeway via Soledad Canyon Road and 5 percent would use Agua Dulce Canyon Road. The major destinations for the materials shipped from the proposed Soledad site are Santa Clarita Valley, Inglewood, Los Angeles, Hollywood, Sun Valley, and other areas nearby. Thus, most of the daily production will be shipped southbound on the Antelope Valley Freeway toward the Los Angeles area.

Once distributed, Project-generated traffic was assigned to the study-area roadways and intersections. Figures 3.1.11-2 and 3.1.11-3 illustrate the assignment of Phase 1 and 2 Project-generated traffic to the street system serving the site.

Traffic Impact Analysis

Roadway Impacts

Antelope Valley Freeway (State Route 14)

Potential impacts on the Antelope Valley Freeway were assessed based on the criteria established in the CMP guidelines.

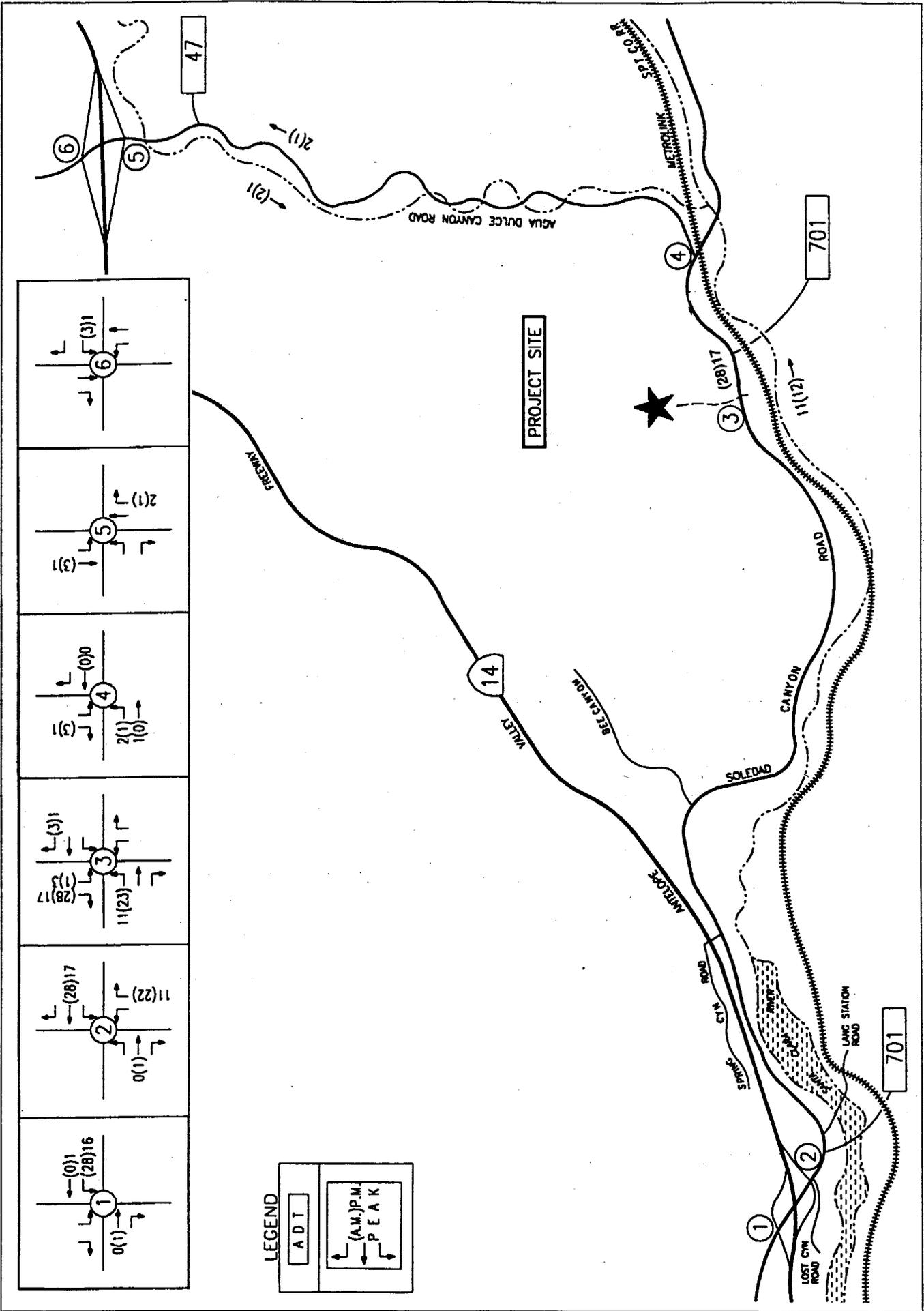
The CMP guidelines indicate that freeway analyses should be completed where a project would add 150 or more trips, in either direction, during the a.m. or p.m. weekday peak hours. Phase 1 of the TMC Project would add 50 a.m. peak hour trips and 27 p.m. peak hour trips (total of both directions) to the Antelope Valley Freeway south of Soledad Canyon Road. Phase 2 would add 97 a.m. peak hour trips and 48 p.m. peak hour trips (total of both directions) to the Antelope Valley Freeway south of Soledad Canyon Road. The Project's peak hour traffic additions to the Antelope Valley Freeway south of Soledad Canyon Road are well below the 150 peak trip criterion, indicating that the TMC Project would not significantly impact the freeway.

Soledad Canyon Road and Agua Dulce Canyon Road

Peak hour roadway LOSs for the traffic study scenarios are summarized in Tables 3.1.11-10 and 3.1.11-11. Figures showing the forecasted traffic volumes, along with LOS calculation worksheets, are presented in Appendix D. Both Soledad Canyon Road and Agua Dulce Canyon Road are forecasted to operate at LOS A during the a.m. and p.m. peak hour periods with year 1999, 1999 + TMC Phase 1, and 1999 + Phase 1 + Related Project traffic. Phase 1 will not significantly impact the study-area roadway segments based on the County impact criteria.

Both Soledad Canyon Road and Agua Dulce Canyon Road are forecasted to operate at LOS A during the a.m. and p.m. peak hour periods with year 2009 and 2009 + TMC Phase 2 traffic. Soledad Canyon Road between Bee Canyon Road and the Antelope Valley Freeway is forecasted to operate at LOS B during the a.m. peak hour period with 2009 + Phase 2 + Related Project traffic volumes. Phase 2 will not significantly impact the study-area roadway segments based on County impact criteria.

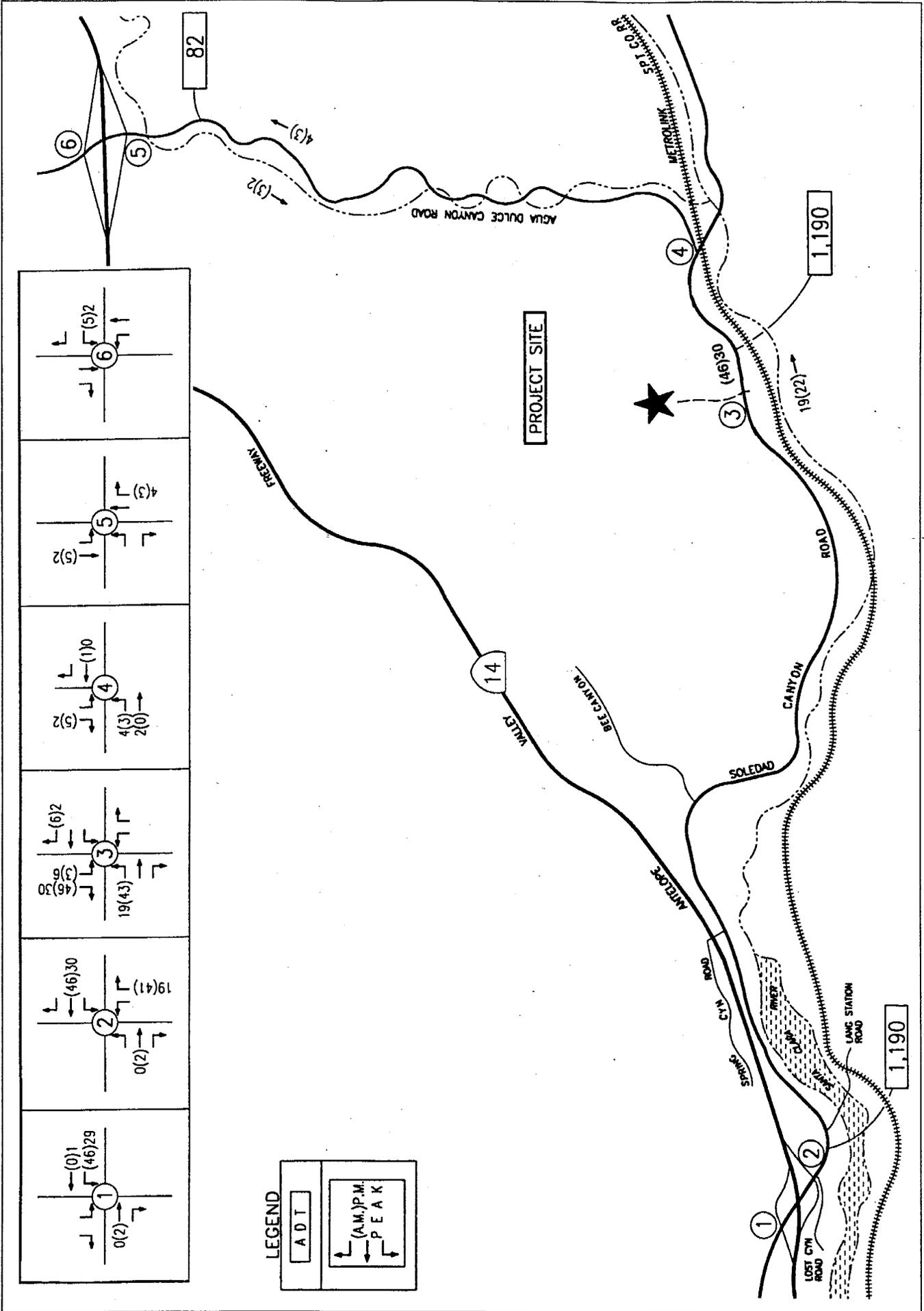
The County Department of Public Works, Traffic and Lighting Division (TLD), evaluated this segment of Soledad Canyon Road using a more conservative methodology and concluded that the roadway operates at LOS D under existing a.m. peak hour conditions. Project traffic, when combined with traffic from cumulative projects, exceeds the significant impact threshold according to the County's criteria.



PHASE 1 TRAFFIC ASSIGNMENT
Figure 3.1.11-2

Not to Scale
Source: Associated Transportation Engineers





PHASE 2 TRAFFIC ASSIGNMENT
Figure 3.1.11-3

Not to Scale
 Source: Associated Transportation Engineers

Table 3.1.11-10
A.M. PEAK HOUR ROADWAY OPERATIONS

Roadway	V/C Ratio / LOS						
	1	2	3	4	5	6	7
Soledad Cyn Rd Project to Bee Cyn	0.23 / A	0.24 / A	0.27 / A	0.29 / A	0.28 / A	0.35 / A	0.35 / A
Soledad Cyn Rd Bee Cyn to Rt 14	0.28 / A	0.29 / A	0.33 / A	0.58 / A	0.33 / A	0.41 / A	0.67 / B
Agua Dulce Cyn Rd South of Rt 14	0.04 / A	0.04 / A	0.05 / A	0.07 / A	0.05 / A	0.06 / A	0.22 / A

Table 3.1.11-11
P.M. PEAK HOUR ROADWAY OPERATIONS

Roadway	V/C Ratio / LOS						
	1	2	3	4	5	6	7
Soledad Cyn Rd Project to Bee Cyn	0.12 / A	0.13 / A	0.14 / A	0.15 / A	0.14 / A	0.18 / A	0.21 / A
Soledad Cyn Rd Bee Cyn to Rt 14	0.13 / A	0.14 / A	0.16 / A	0.51 / A	0.16 / A	0.20 / A	0.54 / A
Agua Dulce Cyn Rd South of Rt 14	0.06 / A	0.06 / A	0.06 / A	0.08 / A	0.07 / A	0.08 / A	0.27 / A

Traffic Scenarios
 Scenario 1 Existing (1997)
 Scenario 2 Year 1999 (Scenario 1 + Growth @ 1.5%/year)
 Scenario 3 Year 1999 + TMC Phase 1 (Scenario 2 + TMC Phase 1)
 Scenario 4 Year 1999 + TMC Phase 1 + Related Projects (Scenario 3 + Related Projects)
 Scenario 5 Year 2009 (Scenario 1 + Growth @ 1.5%/year)
 Scenario 6 Year 2009 + TMC Phase 2 (Scenario 5 + TMC Phase 2)
 Scenario 7 2009 + TMC Phase 2 + Related Projects (Scenario 6 + Related Projects)

TLD considered the feasibility of various mitigation options prior to stipulating the necessary mitigation measures (contained in TLD's February 2, 1999 letter to County Regional Planning in Appendix H of this EIR). TLD's proposed mitigation, which requires the widening and restriping of the Soledad Canyon Road east approach to the Antelope Valley Freeway, is included in Section 3.1.11.3, Mitigation Measures (see Mitigation Measure T1). With implementation of this mitigation, the roadway impact is reduced to less than significant.

Intersection Impacts

Peak hour intersection LOSs for the traffic study scenarios are summarized in Tables 3.1.11-12 and 3.1.11-13. Figures showing the forecasted traffic volumes, along with LOS calculation worksheets, are presented in Appendix D. All of the study-area intersections are forecasted to operate at LOS A during the a.m. and p.m. peak hour periods with year 1999 and 1999 + TMC Phase 1 traffic. Phase 1 will not significantly impact the study-area intersections based on the County impact criteria.

With 1999 + TMC Phase 1 + Related Project traffic the Soledad Canyon Road/Antelope Valley Freeway NB Ramps intersection is forecast to operate at LOS E (ICU 0.91) during the a.m. peak hour period. The intersection's LOS E operation is due to traffic generated by cumulative developments in the area, primarily the Bee Canyon Project (LA Co #93147 - 650 Mobile Homes), which would generate 3,127 ADT, 260 a.m. peak hour and 364 p.m. peak hour trips - the majority of which would use the Soledad Canyon Road/Antelope Valley Freeway Interchange.

Tables 3.1.11-12 and 3.1.11-13 also show that all of the study-area intersections are forecast to operate at LOS A or LOS B during the a.m. and p.m. peak hour periods with 2009 and 2009 + TMC Phase 2 traffic. Thus, without the cumulative projects, the TMC Project will not significantly impact the study-area intersections during Phase 2 operations.

With 2009 + TMC Phase 2 + Related Project traffic the Soledad Canyon Road/Antelope Valley Freeway NB Ramps intersection is forecast to operate at LOS F (ICU 1.04) during the a.m. peak hour period and LOS D (ICU 0.84) during the p.m. peak hour period. As with the 1999 analysis, the intersection's LOS is due to traffic generated by cumulative developments in the area, primarily the Bee Canyon Project and the Shadow Pines Project, which would generate a combined total of 7,892 ADT, 629 a.m. peak hour and 868 p.m. peak hour trips - the majority of which would use the Soledad Canyon Road/Antelope Valley Freeway Interchange.

Signal Warrants

An analysis was conducted to determine if signal warrants are satisfied at the study-area intersections, all of which are currently unsignalized. Caltrans signal warrant criteria were applied to the peak hour traffic forecasts developed for each traffic scenario. Table 3.1.11-14 summarizes the results of the signal warrant analysis. As shown, the Soledad Canyon Road/Antelope Valley Freeway NB Ramps interchange (NB & SB ramps) meet the peak hour

Table 3.1.11-12
A.M. PEAK HOUR INTERSECTION OPERATIONS

Intersection	V/C Ratio / LOS						
	1	2	3	4	5	6	7
Soledad Cyn Rd/Antelope Vly SB Ramps	0.42 / A	0.43 / A	0.47 / A	0.66 / B	0.49 / A	0.54 / A	0.75 / C
Soledad Cyn Rd/Antelope Vly NB Ramps	0.49 / A	0.51 / A	0.57 / A	0.91 / E	0.57 / A	0.67 / B	1.04 / F
Soledad Cyn Rd/Project Access	0.41 / A	0.42 / A	0.48 / A	0.51 / A	0.47 / A	0.58 / A	0.64 / B
Soledad Cyn Rd/Agua Dulce Cyn Rd	0.41 / A	0.42 / A	0.42 / A	0.45 / A	0.47 / A	0.48 / A	0.58 / A
Agua Dulce Cyn Rd/Antelope Vly NB Ramps	0.18 / A	0.18 / A	0.19 / A	0.23 / A	0.20 / A	0.21 / A	0.46 / A
Agua Dulce Cyn Rd/Antelope Vly SB Ramps	0.14 / A	0.14 / A	0.15 / A	0.16 / A	0.15 / A	0.16 / A	0.30 / A
Traffic Scenarios							
Scenario 1	Existing (1997)						
Scenario 2	Year 1999 (Scenario 1 + Growth @ 1.5%/year)						
Scenario 3	Year 1999 + TMC Phase 1 (Scenario 2 + TMC Phase 1)						
Scenario 4	Year 1999 + TMC Phase 1 + Related Projects (Scenario 3 + Related Projects)						
Scenario 5	Year 2009 (Scenario 1 + Growth @ 1.5%/year)						
Scenario 6	Year 2009 + TMC Phase 2 (Scenario 5 + TMC Phase 2)						
Scenario 7	2009 + TMC Phase 2 + Related Projects (Scenario 6 + Related Projects)						

Table 3.1.11-13
P.M. PEAK HOUR INTERSECTION OPERATIONS

Intersection	V/C Ratio / LOS						
	1	2	3	4	5	6	7
Soledad Cyn Rd/Antelope Vly SB Ramps	0.23 / A	0.23 / A	0.25 / A	0.43 / A	0.25 / A	0.29 / A	0.48 / A
Soledad Cyn Rd/Antelope Vly NB Ramps	0.31 / A	0.32 / A	0.35 / A	0.74 / C	0.35 / A	0.41 / A	0.82 / D
Soledad Cyn Rd/Project Access	0.28 / A	0.29 / A	0.32 / A	0.36 / A	0.32 / A	0.38 / A	0.45 / B
Soledad Cyn Rd/Agua Dulce Cyn Rd	0.28 / A	0.29 / A	0.29 / A	0.33 / A	0.32 / A	0.32 / A	0.46 / A
Agua Dulce Cyn Rd/Antelope Vly NB Ramps	0.21 / A	0.22 / A	0.22 / A	0.24 / A	0.24 / A	0.24 / A	0.56 / B
Agua Dulce Cyn Rd/Antelope Vly SB Ramps	0.19 / A	0.19 / A	0.19 / A	0.21 / A	0.21 / A	0.21 / A	0.35 / A
Traffic Scenarios							
Scenario 1	Existing (1997)						
Scenario 2	Year 1999 (Scenario 1 + Growth @ 1.5%/year)						
Scenario 3	Year 1999 + TMC Phase 1 (Scenario 2 + TMC Phase 1)						
Scenario 4	Year 1999 + TMC Phase 1 + Related Projects (Scenario 3 + Related Projects)						
Scenario 5	Year 2009 (Scenario 1 + Growth @ 1.5%/year)						
Scenario 6	Year 2009 + TMC Phase 2 (Scenario 5 + TMC Phase 2)						
Scenario 7	2009 + TMC Phase 2 + Related Projects (Scenario 6 + Related Projects)						

Table 3.1.11-14
PEAK HOUR TRAFFIC SIGNAL WARRANT SUMMARY

Intersection	Traffic Scenario						
	1	2	3	4	5	6	7
Soledad Cyn Rd/Antelope Vly SB Ramps	NO / NO	NO / NO	NO / NO	YES / YES	NO / NO	NO / NO	YES / YES
Soledad Cyn Rd/Antelope Vly NB Ramps	NO / NO	NO / NO	NO / NO	YES / YES	NO / NO	NO / NO	YES / YES
Soledad Cyn Rd/Project Access	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO
Soledad Cyn Rd/Agua Dulce Cyn Rd	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO
Agua Dulce Cyn Rd/Antelope Vly NB Ramps	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO
Agua Dulce Cyn Rd/Antelope Vly SB Ramps	0.19 / A	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO
AM/PM warrant satisfied.							
Traffic Scenarios							
Scenario 1	Existing (1997)						
Scenario 2	Year 1999 (Scenario 1 + Growth @ 1.5%/year)						
Scenario 3	Year 1999 + TMC Phase 1 (Scenario 2 + TMC Phase 1)						
Scenario 4	Year 1999 + TMC Phase 1 + Related Projects (Scenario 3 + Related Projects)						
Scenario 5	Year 2009 (Scenario 1 + Growth @ 1.5%/year)						
Scenario 6	Year 2009 + TMC Phase 2 (Scenario 5 + TMC Phase 2)						
Scenario 7	2009 + TMC Phase 2 + Related Projects (Scenario 6 + Related Projects)						

signal warrant under both 1999 + TMC Phase 1 + Related Project and 2009 + TMC Phase 2 + Related Project conditions. Since this analysis is based upon forecast volumes and utilizes the peak hour warrant, the need for the traffic signals will have to be evaluated by County Public Works and Caltrans as the traffic volumes increase in the future.

Mitigation to reduce the levels of cumulative impact will require that both SB and NB ramps be restriped to include turn and through lanes and that signalization be provided when actual traffic conditions warrant the signals (see Mitigation Measure T1). These improvements will be required with or without the TMC Project if the other related projects are developed as currently proposed.

Pursuant to Los Angeles County Traffic Impact Analysis Guidelines (DPW 1997), the Project's contribution was determined for the recommended mitigation measures. The formula for determining the Project's contribution is as follows:

$$\text{Project Percentage Share} = \frac{\text{Project Traffic}}{\text{Project + Other Related Projects Traffic}}$$

TMC's pro-rata shares of the traffic signal installation costs will be 100 percent of the cost for the Project access road/Soledad Canyon Road intersection, 6.5 percent of the cost for the intersection at SR-14 SB ramp/Soledad Canyon Road, and 9.1 percent of the cost at SR-14 NB ramp/Soledad Canyon Road, in accordance with County Guidelines. This share was determined based on the average of the a.m. and p.m. peak hour traffic volumes entering these interchanges. County Public Works will require a bond for these improvements.

Soledad Canyon Road Traffic Index and Pavement Impacts

The Traffic Index (TI) for each of two segments of Soledad Canyon Road - Route 14 to Bee Canyon and Bee Canyon to the TMC Project Site - was calculated using the methods listed in Caltrans Design Manual. The TI is projected at 11.0 for Year 2000 and the existing structural section is sufficient for that loading. If the truck volume is as forecasted, the existing structural section will be sufficient until 2008. The truck volumes are forecasted to increase when TMC Phase 2 production begins and a TI of 11.5 was calculated for Phase 2. The Applicant will contribute its fair share of cost to resurface the specific section(s) of pavement on Soledad Canyon Road. Paving shall be accomplished prior to the start of Phase 2 or at a later date as substantiated with a revised traffic index analysis which will include consideration of trucks generated by other projects. Since the analysis is based upon projected volumes and vehicle mix, review of the roadway surface and truck volumes will be necessary to determine the actual time and specifications for the pavement overlay (see Mitigation Measure T3).

Project Access Road

The Project access road is to be located along a stretch of road with limited visibility in either direction. Existing speeds along Soledad Canyon Road are typically on the order of 50 mph

near the Project site. Based on an average speed of 50 mph, the required minimum sight distance is 500 feet for automobiles.

The majority of traffic generated by the Project will be heavy trucks. Because of their increased braking and maneuvering distances, these trucks require longer sight distances than cars, but this extra distance is typically afforded by the increased height of the operator from the road. Thus, separate stopping distances for trucks and passenger vehicles are not included in the highway design standard. Based on placement of the access road, this 500 feet of visibility will be attained and will not present a significant impact.

A potential area of concern is from the turning movements of trucks as they enter and leave the facility. These heavily loaded trucks accelerate much more slowly than a passenger vehicle and may tend to get in the way of cars travelling along Soledad Canyon Road, creating a safety hazard. This presents a potentially significant impact. Mitigation is provided (see Mitigation Measure T2) that will create a four-way intersection at the site immediately across from the C.A. Rasmussen mining facility, and reduce the level of impact to less than significant.

General Truck Safety Considerations

A potential area of concern is the operational safety of the Project's truck fleet including the day-to-day interface with local traffic that may include school buses and passenger vehicles. The general safety of truck operations will be dictated by TMC's established company-wide safety program. This program specifically addresses maintenance and inspection and includes a driver training element and monthly safety meetings. All TMC company drivers go through this training program and are rewarded for accident-free driving. Contract drivers or drivers from other companies conducting business with TMC at the site are issued a written copy of the policy.

In addition, TMC participates in the California Highway Patrol (CHP) Biennial Inspection of Terminals (BIT) program which is a separate terminal inspection and compliance program. This program provides an additional point of evaluation of the mechanical condition of trucks operating on state, county and city roads. As a terminal operator, TMC also will be a participant in the CHP PULL program. This program provides TMC with a notice of any DMV violation recorded by a company licensed driver. The implementation of driver training programs, truck maintenance programs, and CHP programs at Soledad Canyon will favorably affect truck operating safety and impacts related to safety will be less than significant. In general, heavy trucks have less accidents per vehicle mile than passenger cars in part due to the increased mechanical inspection and more rigorous driver training.

Another aspect of operating safety has to do with the interface of Project truck traffic with school bus traffic. The existing level of school bus traffic on Soledad Canyon is very low. Over the past few years, from zero to two school buses per day during the school year have travelled the stretch of Soledad Canyon Road between the Project site and SR-14. At these low levels of school bus traffic, the potential for problematic conflicts with Project truck traffic would be minimal.

The number of school buses on Soledad Canyon Road between Bee Canyon and SR-14 in the future may be increased if the Bee Canyon Mobile Home Park is approved. That project could generate approximately 40 trips per day of school bus traffic (20 roundtrips per day). Bee Canyon will provide bus stop/pickup locations in turnouts from the roadway or onsite. Planned intersection controls at the project entrance will minimize any Soledad Canyon ingress/egress safety considerations for school buses. With implementation of these features of the Bee Canyon project, potential conflicts with project truck traffic would be minimal and less than significant.

3.1.11.3 Mitigation Measures

T1. The TMC Project does not generate significant Project-specific impacts. However, mitigation measures are required for the Soledad Canyon Road/Antelope Valley Freeway NB and SB ramps intersections, and the east approach of Soledad Canyon Road to the Bee Canyon Mobile Home Park’s most easterly access road that were determined to have significant cumulative impacts. The roadway improvements and traffic signal controls required to achieve an acceptable LOS are presented in Table 3.1.11-15. These improvements will be required with or without the Project if the other related projects are developed as currently proposed. It is recommended that the intersection traffic volumes be monitored by County Public Works and Caltrans to determine if and when the mitigations are required.

Table 3.1.11-15

MITIGATED INTERSECTION AND ROADWAY OPERATIONS

Intersection	Recommended Improvement	ICU / LOS
Soledad Cyn Rd/Antelope Vly SB Ramps	1. Restripe EB approach to include 1 through and 1 right lane. 2. Restripe WB approach to include 2 left and 1 through lane. 3. Signalize	Scenario 4 a.m. = 0.49 / A p.m. = 0.48 / A Scenario 7 a.m. = 0.55 / A p.m. = 0.55 / A

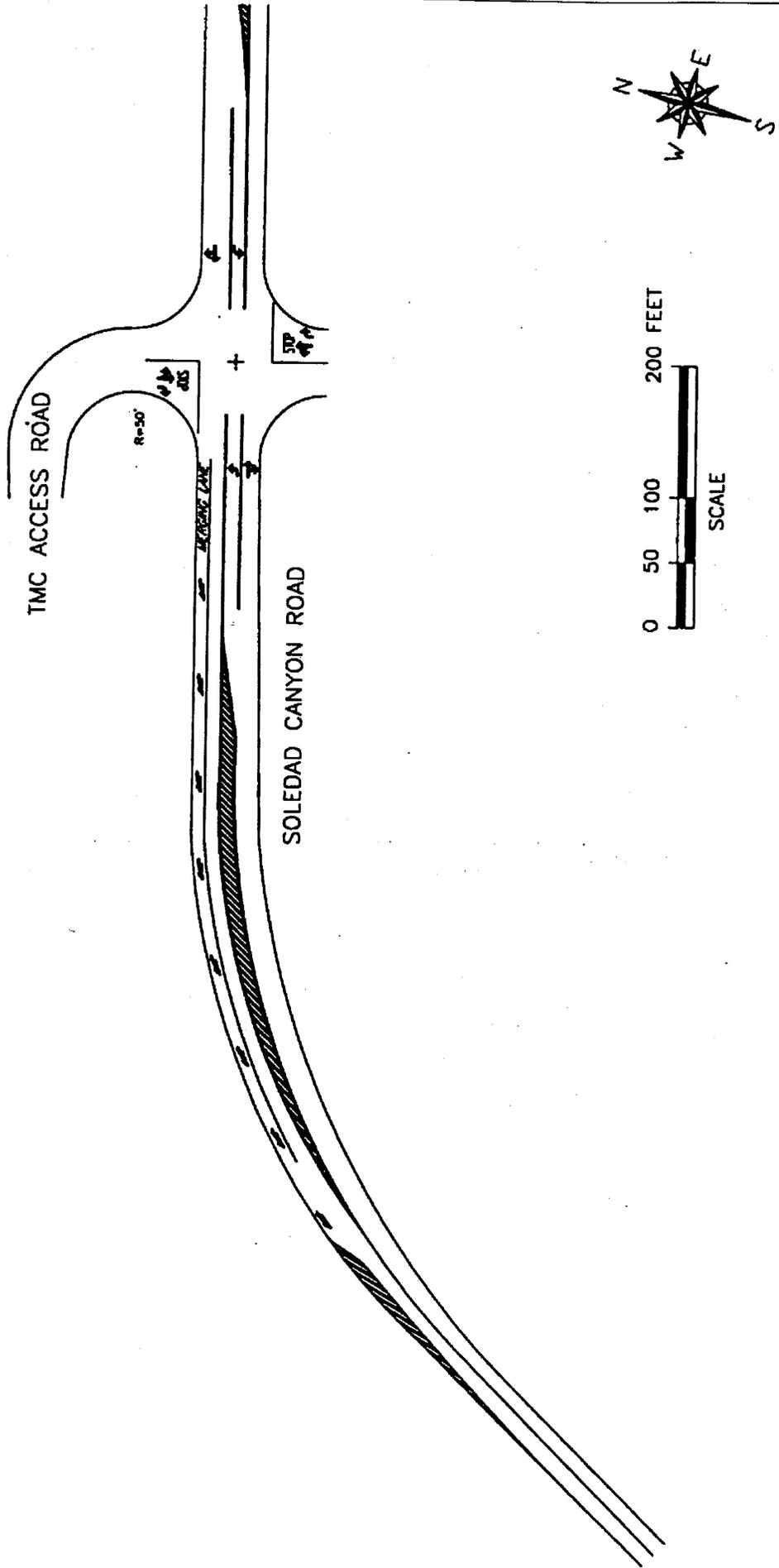
Table 3.1.11-15

MITIGATED INTERSECTION AND ROADWAY OPERATIONS (Continued)

Intersection	Recommended Improvement	ICU / LOS
Soledad Cyn Rd/Antelope Vly NB Ramps and Soledad Canyon Road	<ol style="list-style-type: none"> 1. Restripe EB approach to include 1 left and 1 through-right lane. 2. Restripe WB approach to include 1 through-left and 1 through-right lane. 3. Widen and modify east approach of Soledad Canyon Road. Provide 2 through lanes and 1 exclusive right-turn lane. 4. Signalize 	<p style="text-align: center;">Scenario 4 a.m. = 0.58 / A p.m. = 0.61 / B</p> <p style="text-align: center;">Scenario 7 a.m. = 0.66 / B p.m. = 0.67 / B</p>

Pursuant to Los Angeles County Traffic Impact Analysis Guidelines (DPW 1997), the Project's pro-rata percent share of the improvements is 9.1 percent to widen and modify the east approach of Soledad Canyon Road to provide two through lanes and one exclusive right-turn lane (add one westbound through lane). TMC's pro-rata shares of the traffic signal installation costs will be 6.5 percent of the cost for the intersection at SR-14 SB ramp/Soledad Canyon Road, and 9.1 percent of the cost at SR-14 NB ramp/Soledad Canyon Road. This share was determined based on the average of the a.m. and p.m. peak hour traffic volumes entering the interchange.

T2. Access to the site is proposed to be relocated from its existing location on Soledad Canyon Road to a point opposite of the existing access road for the C.A. Rasmussen mining operations. This would create a conventional four-way intersection on Soledad Canyon Road. The Project will provide one shared left-turn/through lane and one exclusive right-turn lane on the north approach and aligned with the existing access road for the C.A. Rasmussen facility. A left-turn lane and one shared through/right-turn lane on both the east and west approaches on Soledad Canyon Road will be provided. The westbound merging lane will be designed with adequate sight distance to the satisfaction of the County Department of Traffic and Lighting. All striping improvements will also be approved by the Department. Project proposed access improvements are shown on Figure 3.1.11-4. Some trees and shrubs to the east and west of the access road will be cleared, as necessary, to afford an unimpeded view of oncoming traffic.



PROPOSED PROJECT ACCESS IMPROVEMENTS
Figure 3.1.11-4

If and when actual traffic conditions would warrant a traffic signal, TMC's pro-rata shares of the traffic signal installation costs for the Project access road/Soledad Canyon Road intersection will be 100 percent.

- T3. The Applicant will contribute its fair share of costs to resurface the specific section(s) of pavement on Soledad Canyon Road. Paving shall be accomplished prior to the start of Phase 2 or at a later date as substantiated by a revised traffic index analysis which includes trucks generated by other projects.

3.1.11.4 Unavoidable Significant Adverse Effects

The measures proposed above are feasible and will reduce the identified impacts to less than significant. No potential unavoidable significant adverse impacts will remain after mitigation.